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A mental health survey and the promotion of psychological well-being in university students under COVID-19

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Abstract

A mixed-method approach was employed in this study. Student surveys ($N = 1,648$) and focus group interviews ($N = 111$ and 23 groups), teacher focus group interviews ($N = 26$ and 5 groups), and key services providers' stocktaking surveys ($N = 11$ and 11 units) were conducted between January 2021 and June 2021 to collect qualitative and quantitative data. This study assessed the need satisfaction and mental health status of PolyU students in Hong Kong. It revealed the risk and protective factors of mental health in different contexts. It also highlighted the difficulties encountered by students and teachers as well as their perceptions of the effectiveness of supporting services provided by PolyU. By triangulating the findings based on different perspectives and different types of data, this study revealed that mental health problems were prevalent among students. More efforts are required to prevent negative mental health and reduce the prevalence of mental health problems. Moreover, it also revealed a gap between the services provided and students' perceptions. To better understand the impact and causality of the associated factors on students' mental health status, longitudinal studies should be conducted to track the changes in mental health and well-being of PolyU students.

Keywords: COVID-19, university, students, well-being, mental health, Hong Kong

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1. Introduction

- 1.1. The COVID-19 pandemic has caused disruptions in learning and impairment of the mental health of university students worldwide. However, there is a severe lack of empirical studies on university students' needs and mental health during the COVID-19 pandemic in Hong Kong. Thus, it is important to understand the needs of students at the Hong Kong Polytechnic University (PolyU) and their mental health status (including negative mental health and positive well-being).
- 1.2. With financial support from the University Grants Committee (UGC), we conducted a study on the needs and psychological well-being of university students at PolyU in 2021. We collected survey data from 1,648 students. We also conducted 23 student focus group interviews (111 students) and five teacher focus group interviews (26 teachers).
- 1.3. There is a scarcity of theories on the specific risk and protective factors of mental health during the COVID-19 pandemic that are based on the developmental perspective in Hong Kong. To fill the research gap, this study developed a conceptual model based on the ecological systems theory to investigate risk and protective factors at different levels (e.g., intrapersonal and external ecological factors) related to the needs and mental health of adolescents.
- 1.4. During the pandemic, numerous units and offices at PolyU provided various support services to students. However, whether these services have been effective is unknown. Hence, there is a need to understand the perceptions and evaluate the effectiveness of services from the perspectives of different stakeholders (e.g., students, teachers, and service providers). Such findings

could provide directions for refinement of current services and development of related services in the future.

2. Objectives of the study

This study has the following five main objectives:

1. to understand the psychological well-being of PolyU students and to investigate the prevalence of student mental health problems during the pandemic;
2. to explore the predictive effects of perceived COVID-19 stress and factors (personal, environmental, sociodemographic, and supporting services) in different systems on students' mental health based on the ecological and developmental perspectives;
3. to understand the needs, difficulties, and experiences of students and teachers at different stages of the pandemic;
4. to understand different stakeholders' perceptions and evaluations of supporting services provided by the university; and
5. to make evidence-based recommendations for policies and practices that promote related services during the pandemic.

3. Methods of study

- 3.1 A mixed-method approach was employed in this study. Student surveys ($N = 1,648$) and focus group interviews ($N = 111$ and 23 groups), teacher focus group interviews ($N = 26$ and 5 groups), and key services providers' stocktaking surveys ($N = 11$ and 11 units) were conducted between January 2021 and June 2021 to collect qualitative and quantitative data.
- 3.2 By integrating and triangulating the findings obtained from different research approaches, methods, and stakeholders,

we portrayed a comprehensive picture of students' mental health, needs, difficulties, protective and risk factors, and perceptions of services. Based on the findings, we also proposed suggestions for service refinement and provision.

Student surveys and focus group interviews

- 3.3. The survey was conducted through an online questionnaire that included 22 scales. Among these, 17 scales focused on students' mental health (e.g., positive and negative well-being, perceived threats of COVID-19, and intrapersonal and external ecological factors). Five scales explored students' needs and evaluation of supporting services at PolyU, including needs, needs satisfaction, difficulties and challenges, knowledge and evaluation of services, and service gaps. We also collected sociodemographic information, including age, gender, year of study, local or non-local, living status, personal and family financial status, presence of confirmed case(s) of COVID-19 in the family, and place of residence.
- 3.4. The student focus group interviews were conducted via Zoom, with an average of five participants in each group. The student participants were invited to share the difficulties and challenges they encountered during the pandemic, perceptions of the supporting services provided by PolyU, and feelings towards the pandemic.

Teacher focus group interviews

- 3.5. The teacher focus group interviews were conducted via Zoom and consisted of two major parts. In the first part, teachers shared observations of students' learning and development during the pandemic and opinions regarding the supporting services provided to students by PolyU. In the second part, participants

shared their difficulties and challenges in teaching, research, and life, perceptions of the university's support for teachers, and feelings towards the pandemic.

Key service providers' stocktaking surveys

- 3.6. We sent questionnaires to eight units and offices regarding the support and services they provided to students during the pandemic. The questions covered the types of services offered, their perceptions of the support and services, perceived users' evaluations, suggestions for improving the support and services, additional services recommended, and knowledge regarding support and services provided by other units and offices.

4. Key findings

In the following sections, we highlight the findings of the surveys and focus group interviews.

Mental health status and high prevalence of mental health problems

- 4.1 Compared with the research findings reported before the outbreak of COVID-19, the present study revealed a deterioration in the mental health status of students during the pandemic. The overall prevalence of depression (55.3%), anxiety (61%), stress (35.2%), post-traumatic stress disorder (22.3%), major depressive disorder (48.4%), and internet addiction (51.9%) reflected the prevalence of mental health problems among students. Furthermore, approximately 12% of the students reported having suicidal thoughts. These findings are similar to those reported in related studies in the field.

- 4.2 Students showed only moderate levels of life satisfaction and flourishing, which indicated room for improvement in their positive well-being.

Relationships among the mental health of students, COVID-19 stress, and related psychosocial factors

Correlations among COVID-19 stress, negative mental health, and positive well-being

- 4.3 Perceived COVID-19 stress was moderately correlated with all negative mental health measures but suicidal behaviour. However, the correlation between COVID-19 stress and psychological well-being was weak. The findings indicated that students with a higher level of COVID-19 stress were more likely to show mental health problems, but the influence of perceived COVID-19 stress on psychological well-being was relatively low.

Correlations among sociodemographic factors, negative mental health, and positive well-being

- 4.4 We found weak correlations between COVID-19 stress and most sociodemographic factors. However, encountering personal or family financial difficulties was positively correlated with negative mental health measures and negatively correlated with psychological well-being measures. Unemployment of family members or students was positively correlated with depression, anxiety, stress, post-traumatic stress disorder, major depressive disorder, and suicidal behaviour, although the effect sizes were small. Additionally, a negative correlation was observed between the year of study and negative mental health measures, suggesting that junior students showed more mental health problems.

Risk and protective factors at different ecological levels

- 4.5 With regard to intrapersonal factors, resilience and emotional competence were strong positive predictors of psychosocial well-being. Furthermore, beliefs related to adversity showed a weak predictive effect on mental health. Thus, resilience and emotional competence were considered protective factors of students' mental health.
- 4.6 With regard to external ecological factors at the peer, family, school, and community levels, positive family functioning served as a strong positive predictor of psychological well-being, while negative family functioning positively predicted negative student mental health. Peer support had a significant positive prediction on positive well-being and a significant negative prediction on mental health problems, indicating the protective effect of peer support on students' mental health. Community cohesion weakly predicted negative mental health and psychological well-being.
- 4.7 With regard to university services, needs satisfaction was a strong predictor of psychological well-being, while perceived difficulties predicted negative mental health. However, the perceived usefulness and evaluation of the services were weak predictors of negative mental health and psychological well-being.
- 4.8 With regard to factors related to COVID-19, self-efficacy was a strong positive predictor of psychological well-being, while worries about the socio-economic consequences of COVID-19 positively predicted negative mental health. Moreover, checking behaviour was a weak predictor of negative mental health and psychological well-being.
- 4.9 To sum up, risk factors for mental health status included negative family functioning, worries about the socio-economic consequences of COVID-19,

and perceived difficulties. Protective mental health factors included resilience, emotional competence, positive family functioning, peer support, self-efficacy regarding COVID-19, and needs satisfaction.

Need satisfaction and difficulties in different aspects of students' lives

- 4.10. Both academic and social needs and difficulties were highlighted by the students in the surveys and interviews. They generally agreed that their needs in the physical and psychological health domains were satisfied.
- 4.11. Based on the student survey, more than half of the students reported unsatisfied needs in the following aspects: having a sense of connection or belonging to the university (53.5%), making new friends at the university (53.3%), and receiving comprehensive and consistent guidelines from the university (50.9%).
- 4.12. The student survey also revealed the following difficulties:
- 63% of students indicated they did not have a normal university life.
 - 47% of students worried about their academic performance. The difficulties they encountered included struggling to complete an internship or go on exchange (56.7%), having low learning motivation (48.7%), being easily distracted during online lectures (44.9%), and lacking effective online learning strategies (41.8%).
 - Approximately half of the students found it difficult to meet friends face-to-face (55.4%) and make new friends (47.2%).
 - Approximately 40% of students indicated that they had experienced physical symptoms of prolonged use of computers (36.1%) and lack of exercise (44.6%). Fewer students indicated emotional problems (26.7%).

- More than half of the students worried about their future careers (52.6%), and a few students found it difficult to get a part-time job (38.9%).

4.13. The findings of the focus group interviews echoed the survey results: students mentioned that difficulties in academic learning, lack of a normal university life, and lack of social life were perceived to be the major challenges during the pandemic, although some students also encountered physical health problems, negative emotions, and financial difficulties. In terms of coping strategies, the findings revealed that recreational activities and peer support were common ways for students to deal with emotional problems.

Need satisfaction and difficulties in different aspects of teachers' lives

- 4.14. The observations of teachers further supported the findings from the student survey and student focus group interviews by highlighting the impacts of challenges in learning, psychological health, and social life among students. However, teachers also expressed that it was difficult for them to identify students' physical and mental health status in an online environment unless the students contacted them proactively.
- 4.15. Teachers faced difficulties in both teaching and research during the pandemic. With regard to teaching, they noticed a low level of engagement among students and a few who were over-relying on the video-recording of the lecture and skipping the lessons. Other major difficulties included adjusting assessment arrangements for the online teaching and learning mode, revamping the curriculum to fulfil the online learning requirements, and upgrading IT abilities within a short period of time.

4.16. With regard to research, teachers mentioned projects that required lab experiments and recruitment of research participants were severely affected, but the influence was dependent on the research areas and topics.

Perceptions and evaluation of supporting services provided by PolyU

Supporting services for students

4.17. Students were generally satisfied with the support services provided by the university, with a satisfaction rate of over 60% for most items. However, there were service gaps in career development (59.5%) and financial support (54.6%). To improve support services, students suggested the university to 1) provide more electronic resources for learning, 2) organise more career talks, 3) provide more workshops on releasing stress, and 4) offer more financial support, particularly for students to obtain online learning facilities.

4.18. The students were highly appreciative of their teachers' efforts to assist their learning and other life aspects during the pandemic. To better support their learning, students suggested the university to 1) provide more channels for students to obtain information and communicate with teachers, 2) increase the flexibility of lectures and assessments, and 3) strengthen the IT skills of teachers.

4.19. Most students and teachers in the focus group interviews showed only a basic understanding of the support services available to students. They also struggled to locate information about these services on the university website. Moreover, students indicated that they had been bombarded with many emails during the pandemic and mentioned that text-heavy email was not an effective way to promote the support services.

Students suggested that teachers could help to promote the services, as they had more opportunities to interact with students. However, in the interviews, teachers expressed that they did not receive emails regarding the support services for students, therefore they had rather limited knowledge of the services.

Institutional support for teachers

4.20. Teachers agreed that the university was becoming more responsive than it had been in the early stages of the pandemic, especially regarding provision of technical support and equipment for teaching. They highlighted the importance of technical support for both hardware and IT skills as well as of financial support for the purchase of equipment for hybrid teaching.

4.21. Regarding policies, teachers suggested increasing flexibility in lesson design and assessment as well as providing support related to setting examination guidelines and online examination arrangements.

Self-evaluation of key service providers

4.22. Overall, the key service providers had rather positive perceptions of the services they provided, and they perceived their services as sufficient, timely, unique, effective, and beneficial to students. However, only six of the eleven units conducted user evaluations of the services they provided. The evaluation findings showed student demand for extra services related to health, financial support, and learning, which echoed the results of the student survey and focus group interviews.

4.23. To accomplish service refinement and introduction of new services, extra human resources and financial support were deemed most necessary.

5. Recommendations on policy and service

Based on the findings from both surveys and focus group interviews, we propose the following recommendations for reflection on and enhancement of services at the department and faculty level, non-academic unit level, and university level.

Enhancing mental health and physical wellness of students

- 5.1. With regard to the high prevalence rates of mental health problems, measures that help to prevent those problems and programmes that strengthen the protective factors of student well-being must be implemented through joint efforts of different units and at different levels.

Promoting mental health

- 5.2. Providing different types of educational resources and programmes (e.g., mental health handbooks, videos, and mobile applications about mental health) to promote students' and teachers' knowledge of mental health at both the department and faculty level and at non-academic unit levels could help reduce risks for mental health disorders. The importance of seeking professional help and services from relevant units and professionals must be highlighted.
- 5.3. The role of academic advisors is critical, as they interact consistently with students and have a better understanding of their needs. They can take an active role in referring students with emotional problems to professionals or related units at the department and faculty level. Special arrangements for learning should be provided to students who are struggling with mental health problems.
- 5.4. Early identification programmes should be organised to identify students with potential mental health problems at the non-academic unit level, particularly

those experiencing suicidal ideation, and to provide prompt assistance and services in such cases.

Strengthening protective factors through training programmes

- 5.5. Positive youth development (PYD) training programmes could be added to the currently available student development programmes and organised by different units to develop students' resilience, emotional competence, interpersonal skills, coping skills, self-efficacy, and positive beliefs in adversity.
- 5.6. Life education or risk education programmes could be added to promote the meaning of life and positive well-being of students.
- 5.7. Programmes that strengthen peer and family relationships could be organised to promote students' protective factors at the environmental level and develop their social competencies (e.g., conflict management and negotiation skills). Moreover, programmes on family education could be added to advocate for the importance of family, encourage students to reflect on their relationships with parents, and enhance positive family communication.
- 5.8. Peer-led programmes, such as peer mentoring and peer counselling programmes, should be considered, as they could enhance peer support and develop networks among students as well as provide students with knowledge on mental health and counselling services.
- 5.9. Media education programmes could be provided to reduce Internet addiction and encourage healthy use of social media (e.g., selection of media content and time management).
- 5.10. Sharing positive messages and the accomplishments of students, teachers, staff, and alumni with community members of the university could help to build connections, unity, and a sense of

belonging to the university as well as increase rapport and resilience among community members.

Increasing services on physical wellness

- 5.11. A larger number of physical health activities to promote student wellness could be made available, as could interactive activities that help students maintain physical health and develop capacity and interest in sports as well as foster positive youth development.
- 5.12. The number of available workshops and activities that reduce stress and improve sleep quality could also be increased. Moreover, art and music therapy and meditation could be facilitated to help students release stress during the pandemic.

Supporting learning and enhancing services in different domains

In response to the needs and difficulties that students encountered during the pandemic, support of students' academic needs could include enhancing online learning functionality and upgrading online teaching and learning abilities.

Creating a better learning experience

- 5.13. Providing clear guidelines on assignments and assessments and maintaining effective communication with students would help reduce the stress levels and uncertainties that they experience. Teachers and faculty could update students regularly, particularly when there are changes in guidelines.
- 5.14. Increase flexibility in lecture design for teachers.
- 5.15. Conduct evaluations to understand the experiences of teachers and students:
 - At the department and faculty level, collect students' feedback to understand their experiences in online learning at different time points in the semester.

- At the university level, collect teachers' comments to understand their difficulties in teaching and in providing support to students.

Building online teaching and learning ability

- 5.16. In the online environment, the IT ability of both students and teachers is critical to smooth teaching and learning experiences. Programmes promoting IT ability among students and teachers and programmes strengthening online teaching strategies of teachers should be organised at the department and unit levels. The university could provide support (e.g., financial support and flexible learning time) to encourage staff to learn new technology.
- 5.17. Organising activities for students to share learning skills and strategies, such as ways to maintain concentration in the online learning environment.
- 5.18. Providing extra resources and equipment to both students and teachers under the hybrid mode (e.g., buying Wi-Fi cards). In the future, upgrades of equipment and facilities in classrooms will be required.

We propose the following recommendations for students' social needs, financial support, and needs related to career development:

Reinventing university life and social life through technology

- 5.19. As normal university lives and social lives are important to the development of university students' interpersonal networks and their sense of belonging to PolyU, closer connections could be built through the use of technology tools.
 - Teachers, departments, and faculties should utilise social media tools and mobile applications to maintain connections with students and organise social activities for students in different study years.

- Student organisations could conduct more online or offline student activities to connect students with similar interests and backgrounds.
- Activities at which students could meet other PolyU community members could be organised.

Extending financial support to students under financial strain

5.20. Although financial assistance schemes were provided to students during the pandemic, additional types of financial support could be provided and promoted.

- As students have limited knowledge of the financial aid provided to them by the university, further promotion of financial aid schemes is suggested. Moreover, resources and tips on managing personal finances during turbulent times could be offered to students.
- The financial aid application process must be simplified, and flexible arrangements must be adopted for students with emergency needs; special arrangements, depending upon case, should be provided from the department and faculty levels.
- The university could add different types of financial aid (e.g., vouchers) to the current scheme to support students in online learning.
- The university could extend scholarships for international students who have encountered difficulties due to the pandemic and require extra time to complete their courses. As the situation may require some time to get better, funding must also be maintained for a period after the pandemic.

Providing more support for students' career development

5.21. Concerns regarding career development were highlighted by students, both in

the surveys and in the focus group interviews.

- For departments and faculties, more support and information related to career planning and employment in the industry must be given to students.
- For non-academic units and offices, more career talks and matching programmes could be organised in coordination with the respective departments or faculties. Moreover, information on the labour market must also be provided.
- At the university level, more pre-job training opportunities could be created on campus by facilitating collaboration among departments and units in order to build students' job-related skills. It is suggested that more flexible arrangements could be made for internships and practicum.

Refining communication and promotion strategies of the supporting services

Although there are numerous existing communication channels, the university must enhance connections with both internal and external stakeholders.

Centralising information with a one-stop website

5.22. Creation of an information hub, which is a one-stop information portal managed by a special task force, is suggested. Although the university has provided a thematic website on COVID-19, students still encountered difficulties accessing the services they needed; occasionally, the information was located on separate websites of other units or offices. To facilitate the effectiveness of information search during the pandemic, the information hub must be prominently placed on the university website so that students can find it easily. The information hub

should function as an index, with all available information categorised into sections (e.g., updates, information, and advice related to university events) and easy access to all services available for students, teachers, and staff, including redirect links and contacts for inquiries.

- 5.23. Facilitating the provision of search tools, such as chatbot and hashtags, could help in filtering inquiries and providing first-tier support to users without the limitation of office hours. For urgent cases, the university staff could respond promptly. For common inquiries, users could obtain instant replies and a redirection to the website. Moreover, the university could track the search record to understand the concerns of stakeholders and follow up if necessary.
- 5.24. A mobile application could be used to disseminate campus news and notices. The university could review and update application functions to ensure that they provide students with information and access to services and enhance their campus life experiences, keeping students connected and engaged.
- 5.25. To increase accessibility, provision of a guidebook on the services and contact information of the units and offices could be considered.

Deploying multi-channel communications

- 5.26. It is important to communicate with students via social media and provide consistent and accurate information to them. Social media and instant messaging applications are widely used as sources of information by students, so teachers, departments, and faculties could consider using social media to disseminate important information and instant messaging to communicate with students. Beyond providing rapid responses and clarifications to students' inquiries, instant messaging also enables more direct communication of

real human emotions and expressions, which makes students feel being cared for during a crisis.

- 5.27. Strengthening internal communication and coordination among units and offices is crucial to providing clear and correct information to students, particularly regarding decisions and policy changes made by the management. Given the fast-evolving COVID-19 situation, regular, clear, and transparent updates will increase the trust of stakeholders. Departments, faculties, units, and offices should also update their websites regularly to ensure that information is accurate and links are accessible.

Promoting supporting services in multiple ways

- 5.28. With regard to the limited awareness of supporting services, the university must assess and review the effectiveness of promotions (e.g., open rate, hit rate, search metrics) after the launch of each promotional campaign.
- 5.29. To reduce the number of promotional emails, those pertaining to services could be coordinated by a special unit. Also, alternative means of promotion should be used; since students tend to use social media to communicate and search for information, it could also be used to promote services. As more students are using mobile applications to receive information from the university and manage studies, push notifications could be used to promote services among specific clusters of students (e.g., the introduction of special services to first-year students and career development programmes for final year students).
- 5.30. Involving teachers or departments in the promotion of services could be considered, as they usually have a better understanding of their students and can help refer the services to those who are

interested or in need. Since students tend to have a higher level of trust in their teachers, teachers' referrals may encourage them to obtain the services and participate in the activities.

Strengthening evidence-based practice

5.31. Systematic evaluation at different stages of service implementation must be conducted to assess the effectiveness of services and directions for future development.

- Needs assessment should be conducted at the planning stage of the services to evaluate the demand, mode, and delivery of services and to make modifications based on the findings.
- Users' opinions and feedback should be collected for services refinement and planning of new services.
- Sharing experiences related to organisation of services and evaluation findings could promote knowledge transfer, cooperation, and collaboration among units and offices, which would enhance mutual support and synergy.

Activating the whole campus community

5.32. Engaging faculties, staff, teachers, and students in the review of policies, practices, and the physical environment of the campus would help refine services at all levels. Facilitating dialogue between students, teachers, and staff allows for a deeper understanding of the difficulties faced by different stakeholders, which improves satisfaction, decision-making, and a sense of belonging.

6. Overall conclusion

6.1 This study assessed the need satisfaction and mental health status of PolyU students. It revealed the risk and

protective factors of mental health in different contexts. It also highlighted the difficulties encountered by students and teachers as well as their perceptions of the effectiveness of supporting services provided by PolyU.

- 6.2 By triangulating the findings based on different perspectives and different types of data, this study revealed that mental health problems were prevalent among students. More efforts are required to prevent negative mental health and reduce the prevalence of mental health problems. Moreover, it also revealed a gap between the services provided and students' perceptions.
- 6.3 To better understand the impact and causality of the associated factors on students' mental health status, longitudinal studies should be conducted to track the changes in mental health and well-being of PolyU students.
- 6.4 A summary of the major findings and recommendations is provided in Figure 1.

Background of the study

The COVID-19 pandemic has swept across the globe, and it remains an ongoing disaster at the present time. During various stages of the pandemic, governments worldwide have imposed restrictions on social contact and implemented infection prevention strategies to curb the spread of the virus. Nevertheless, this pandemic, which is characterised by high contagiousness and unpredictable consequences, has heavily impacted physical health of people around the world. According to Johns Hopkins University (1), there have been around 6.3 million worldwide deaths since December 2019 (<https://coronavirus.jhu.edu/map.html>). Meanwhile, the associated uncertainties regarding public safety, fear of being infected, and preventive measures, such as social distancing and quarantine, have also resulted in secondary impacts on our mental health and well-being.

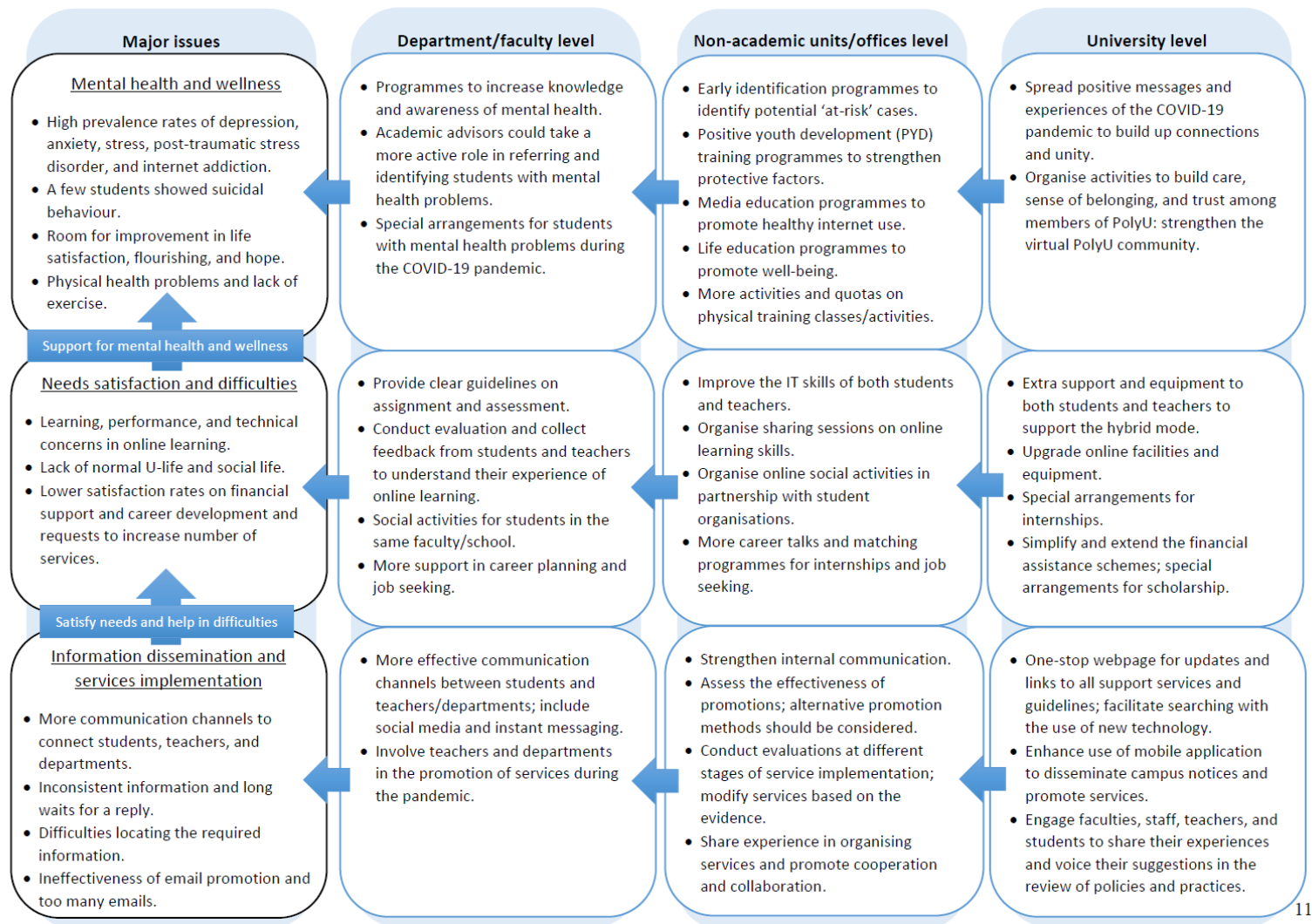


Figure 1. Summary of major issues and recommendations.

In the past 30 months, studies have been conducted to examine the impact of COVID-19 on the physical and psychological health of people of all ages living around the world (2-5). While the physical health dangers of COVID-19 infection and the related socio-economic impacts are well documented (6-8), the impact of the pandemic on mental health is also alarming (9). For example, media misinformation or over-exposure to information about the pandemic has increased feelings of uncertainty, which has led to mental disturbances in the population (2, 10, 11), psychological distress (e.g., fear of contact with possibly contaminated objects or surfaces and fear of the socio-economic consequences of the pandemic), and problematic behaviours such as compulsive information checking, reluctant prevention (e.g., washing hands too often), and socially disruptive behaviours (e.g., panic buying of cleaning or disinfectant supplies; 4). Additionally, social distancing measures and quarantines have disrupted everyday routines (e.g., being separated from family and friends) and led to negative feelings and mental health issues, such as loneliness, anxiety, depression, insomnia, alcohol and drug use, and even self-harm or suicide (12).

For example, a study involving 1,210 respondents from 194 cities in Mainland China found that over half of the respondents had experienced moderate to severe psychological impacts of from COVID-19; approximately 29% reported moderate to severe anxiety symptoms, and 17% reported moderate to severe depressive symptoms (5). Similar results were found in another study of 52,730 respondents in Greater China (encompassing Mainland China, Hong Kong, Macau, and Taiwan), which revealed that 35% of the respondents had experienced psychological distress (13). Further, Mazza et al. (14) conducted a study in Italy that identified an increase in high and very high levels of distress in Italians. In Hong Kong, Choi et al. (15) conducted a survey on depression and anxiety during the COVID-19 pandemic and found a deterioration in respondents' mental health status since the onset of the pandemic. Another study conducted by Zhao et al. (16) revealed a drastic increase in stress levels and the

prevalence of anxiety and depression among participants in Hong Kong. Their findings suggest that the citizens of Hong Kong underwent a mental health emergency, even without the added stress of lockdown measures.

Mental health and well-being among university students during the COVID-19 pandemic

Before moving further, it is important to define the concepts of mental health and well-being. Mental health is commonly defined in terms of psychological symptoms associated with mental disorders defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) published by the American Psychiatric Association (17) or by the International Classification of Diseases (ICD-10) published by the WHO. For example, common symptoms of depression include sadness, loss of appetite, loss of efficiency, sleep problems, and lack of motivation. Using validated assessment tools (e.g., psychiatric interviews and other validated assessment tools), clinicians and researchers can assess the mental health status of clients or research participants.

However, the definition of mental health in terms of symptoms is criticised as one that overemphasises negative aspects. Consequently, researchers have proposed the concept of well-being or positive well-being, which can be regarded as composed of hedonic and eudaimonic well-being (18). While hedonic well-being refers to the presence of positive experiences, such as happiness and life satisfaction, and the absence of dysfunctions and negative affect, eudaimonic well-being refers to the presence of life meaning and purpose, self-actualisation, and the extent to which a person is fully functioning (19). In this study, we focused on both symptoms of mental health problems (e.g., depression, anxiety, and Internet addiction symptoms) and the two dimensions of positive well-being - hedonic well-being indexed by life satisfaction and eudaimonic well-being indexed by flourishing.

While recent research has consistently revealed the negative impacts of the pandemic on the mental health of adults and illustrated negative associations between psychosocial stressors (e.g., health threats) and indicators of mental health and psychological well-being, there is an urgent need to explore the impact of COVID-19 on university students' mental health and well-being. From the perspective of human development, college students are an especially vulnerable group that has a high risk of developing psychological disorders due to a wide range of stressors, such as high academic demand and complicated social relationships (20-26). Due to a developmental mismatch between the sub-cortical regions associated with emotional experience, late adolescents and emerging adults undergo a period of neuro-developmental risks and are prone to risk-taking behaviour and poor emotional functioning (27-29). Studies conducted prior to the COVID-19 outbreak revealed a worrying picture of mental health problems among university students. For example, Regehr et al. (30) conducted a meta-analysis involving university students worldwide and concluded that over half of those students had moderate levels of mental health problems, including depression, anxiety, and stress. As school routines generally provide a critical sense of stability and coherence to students (31), as well as offer coping resources to those suffering from mental health issues (32), the COVID-19 pandemic and associated changes (e.g., online learning and social distancing measures) have placed extra pressure on students' mental health and well-being.

Due to the need to maintain social distancing during the pandemic, teaching and learning activities were quickly moved online without the allowance of sufficient time for training and preparation. Obviously, online learning is not new to most college students, and it may confer positive impacts, such as a flexible timetable and an increase in the time spent with family (33, 34), thus allowing more time for individuals to pursue their personal hobbies and develop new skills (35). However, online education may still greatly disrupt students' learning in different ways. Practically speaking, students may not have a

quiet physical environment at home that is suitable for online learning (36). Moreover, it is possible that they may not have the equipment needed to support learning in a virtual environment (e.g., computers, Wi-Fi network with sufficient bandwidth, a quality camera and microphone, etc.). A lack of IT skills may also cause difficulties. For example, without the required IT knowledge, students may not be able to access learning materials from the internet, attend lectures hosted on specific platforms (e.g., Zoom, Teams, Blackboard, etc.), or submit their assignments and effectively participate in assessment. Son et al. (37) investigated students' difficulties and concerns regarding online learning without physical interaction with teachers and peers during the pandemic. They found that 38% of the students were struggling with the sudden changes in curriculum, the quality of online classes, technical issues related to online applications, and challenges associated with remaining focused and attentive. Moreover, 23% of the students were concerned about their progress in class projects because of the lack of physical interactions with peers and instructors, 14% were uncertain regarding their grades in the online environment, and 31% perceived their classwork to be more difficult due to the lack of in-person support from instructors and teaching assistants.

Second, in addition to pandemic-related changes and challenges in learning processes, students may have encountered difficulties in accessing university resources and obtaining emotional support from teachers and peers. University students rely heavily on peer connection for managing academic uncertainty and sharing information. Peer interaction also facilitates students' resilience when adjusting to changes and challenges in university life. However, the social distancing measures and suspension of face-to-face teaching significantly impeded peer interaction. Without that interaction and teachers' direct monitoring, some students did not attend online lectures or displayed other discipline problems, particularly students with poor time management skills and low self-regulation.

Additionally, although family support is usually considered crucial to the mental health of students, increased time spent at home may have led to more conflicts among family members due to varying needs and preferences. Furthermore, the economic downturn that resulted from the pandemic and the related restriction policies placed extra pressure on students (and their families) who were already economically disadvantaged. Finally, the uncertainties associated with COVID-19 and related policies created further unpredictability in students' study and career plans (e.g., internships, exchange programs, and studying abroad).

The multi-faceted pressures arising from learning, interpersonal relationships, and family relationships, together with the substantial changes in daily life, may have placed college students at a greater risk of developing mental health problems. As the pandemic has affected most parts of the world, studies on the mental health of university students have been conducted worldwide (see Table 1.1). For example, a recent meta-analysis involving 84 studies of the prevalence of depressive symptoms among college students in mainland China during the COVID-19 pandemic found that 26% of students displayed depressive symptoms and 1.69% displayed severe depressive symptoms. Moreover, female students, those living with siblings, those living overseas or in COVID-19 hotspots, those in postgraduate study, and those who knew someone (a friend, classmate, or relative) infected with the virus showed higher levels of depression (38).

In the European Union (EU), Essadek and Rabeyron (3) examined the mental health status of French students. The results revealed that over 40% of students suffered from depression, almost 40% suffered from anxiety, and over 40% suffered from distress. Furthermore, approximately half of the students had difficulties remaining focused, and 15% had thoughts of self-harm. Further, compared to male students, female students showed higher levels of depression, anxiety, and stress. Similarly, Wathelet et al. (39) reported that some students experienced various forms of mental disturbance during the pandemic, including severe distress (22.4%), depression

(16.1%), anxiety (27.5%), and suicidal thoughts (11.4%). Other studies indicated that approximately 60% of students reported an increase in stress and anxiety in France (40), Spain (41), and Poland (42). In North America, Wang, Hegde et al. (43) revealed that many participants displayed an increase in stress or anxiety levels during the pandemic. Through phone interviews, Firang (44) studied the impact of COVID-19 on international students in Canada and found that most experienced emotional distress and frustration during the lockdown.

Many studies on the mental health status of university students have also been conducted in other Asian countries or regions, including Japan (45), South Korea (46), Malaysia (47), Indonesia, Thailand, and Taiwan (48). Although the prevalence of mental health issues may vary in different places, all studies have indicated that the mental health of college students has been adversely affected by the pandemic to a large extent, and the number of students suffering from negative emotions and mental health problems has increased significantly during this time. Unfortunately, only very few studies have investigated the mental health status of university students in Hong Kong (see Table 1.1). Moreover, the few existing studies commonly included mental health issues (e.g., depression and anxiety) as negative indicators of mental health but overlooked positive well-being measures, such as life satisfaction, as an indicator of subjective well-being. In addition, only limited work has been done to reveal factors that may affect the mental health and well-being of university students in Hong Kong during the pandemic.

Factors affecting mental health and well-being during the COVID-19 pandemic

Previous studies on traumatic stress and mental health have revealed that psychological reactions to risky and stressful situations differ considerably between individuals and depend on both personal (e.g., age, experience, and resilience) and social factors (e.g., family situations and social relationships).

Table 1.1. Summary of literature on the mental health of/included university students during the COVID-19 pandemic as of 30 September 2021

	Author (Year)	Country/Place	Sample size	Study design	Mental health factors
	<i>Asia</i>				
1.	Ahmed et al. (70)	Mainland China	1,074	Cross-sectional	Anxiety, Depression
2.	Cao (71)	Mainland China	2,733	Cross-sectional	Depression, life stressors
3.	Cao et al. (72)	Mainland China	7,143	Cross-sectional	Anxiety
4.	Chang et al. (73)	Mainland China	3,881	Cross-sectional	Anxiety, Depression
5.	Chen and Zhu (74)	Mainland China	3,353	Cross-sectional	Depression
6.	Chen, Chen, et al. (75)	Mainland China	286	Cross-sectional	Depression
7.	Chen, Liang, et al. (76)	Mainland China	323,489	Cross-sectional	Depression, eating habits, fatigue, motivation, self-efficacy
8.	Chen, Qi, et al. (77)	Mainland China	697	Cross-sectional	Depression
9.	Chen, Wen, et al. (78)	Mainland China	795	Cross-sectional	Depression
10.	Chi et al. (79)	Mainland China	2,038	Cross-sectional	Anxiety, depression
11.	Deng et al. (80)	Mainland China	1,607	Cross-sectional	Anxiety, depression
12.	Dong (81)	Mainland China	4,085	Cross-sectional	Anxiety, depression
13.	Dong et al. (82)	Mainland China	162	Cross-sectional	Depression
14.	Fan and Yu (83)	Mainland China	932	Cross-sectional	Sleep disturbances
15.	Fan and Yu (84)	Mainland China	406	Longitudinal	Anxiety
16.	Feng (85)	Mainland China	7,157	Cross-sectional	Depression
17.	Feng et al. (86)	Mainland China	1,346	Cross-sectional	Depression
18.	Han et al. (87)	Mainland China	405	Cross-sectional	Anxiety, depression
19.	Ji et al. (88)	Mainland China	1,013	Cross-sectional	Depression
20.	Jiang (10)	Mainland China	472	Cross-sectional	Depression, Anxiety, Stress
21.	Jiang et al. (89)	Mainland China	399	Cross-sectional	Depression
22.	Lei et al. (90)	Mainland China	231	Cross-sectional	Depression
23.	Li and He (91)	Mainland China	1,144	Cross-sectional	Depression
24.	Li, Cao, et al. (92)	Mainland China	426	Cross-sectional	Depression, anxiety
25.	Li, Li, & Fan (11)	Mainland China	555	Cross-sectional	Social support, emotional intelligence, self-emotion appraisal
26.	Li, Lv, et al. (93)	Mainland China	7,747	Cross-sectional	Depression
27.	Li, Zhang, et al. (94)	Mainland China	6,027	Cross-sectional	Anxiety, emotional intelligence, fatigue, fear, psychological disorders, relationship status, self-emotion appraisal, social support, stress
28.	Lian et al. (95)	Mainland China	1,437	Cross-sectional	Anxiety, depression
29.	Liang, Cui, & Zhang (96)	Mainland China	852	Cross-sectional	Depression
30.	Liang, Zheng, & Yu (97)	Mainland China	793	Cross-sectional	Depression
31.	Lin, Guo, et al. (98)	Mainland China	625	Cross-sectional	Depression
32.	Lin, Lin, & Jiang (99)	Mainland China	320	Cross-sectional	Depression
33.	Lin and Xu (100)	Mainland China	1,297	Cross-sectional	Depression
34.	N. Liu (101)	Mainland China	191	Cross-sectional	Depression
35.	Y. Liu (102)	Mainland China	90	Cross-sectional	Depression

	Author (Year)	Country/Place	Sample size	Study design	Mental health factors
36.	Liu, Liu, & Zhong (103)	Mainland China	509	Cross-sectional	Depression
37.	Liu, Yuan, & Luo (104)	Mainland China	611	Cross-sectional	Depression
38.	Liu, Zhu, et al. (105)	Mainland China	217	Cross-sectional	Anxiety
39.	Ma, Wang, et al. (106)	Mainland China	516	Cross-sectional	Depression
40.	Ma, Zhao, et al. (107)	Mainland China	746,217	Cross-sectional	Depression
41.	Mao et al. (108)	Mainland China	240	Cross-sectional	Depression
42.	Ni et al. (109)	Mainland China	157	Cross-sectional	Depression
43.	Pan et al. (110)	Mainland China	3,975	Cross-sectional	Depression
44.	Qian (111)	Mainland China	535	Cross-sectional	Depression
45.	Ren, Chen, & Cui (112)	Mainland China	294	Cross-sectional	Depression
46.	Ren, Li, & Zhang (113)	Mainland China	244	Cross-sectional	Depression
47.	Ren, Wang, et al. (114)	Mainland China	4,560	Cross-sectional	Depression
48.	Si et al. (115)	Mainland China	3,606	Cross-sectional	Depression
49.	Sun, Goldberg, et al. (116)	Mainland China	1,912	Cross-sectional	Depression
50.	Tang et al. (117)	Mainland China	2,485	Cross-sectional	Depression
51.	Wan and Shao (118)	Mainland China	2,358	Cross-sectional	Depression
52.	Wang, Chen, Liu, et al. (119)	Mainland China	3,092	Cross-sectional	Anxiety, sleep
53.	Wang, Chen, Zhao, et al. (120)	Mainland China	3,179	Cross-sectional	Anxiety, depression
54.	Wang and He (121)	Mainland China	1,775	Cross-sectional	Depression
55.	Wang and Li (122)	Mainland China	3,178	Cross-sectional	Depression
56.	Wang, Pan, et al. (5)	Mainland China	1,210	Cross-sectional	Depression, anxiety, stress
57.	Wang, Wu, & Yu (123)	Mainland China	2,168	Cross-sectional	Depression
58.	Wang, Xie, & Liu (124)	Mainland China	109	Cross-sectional	Depression
59.	Wang, Yang, et al. (24)	Mainland China	44,447	Cross-sectional	Anxiety, depression
60.	Wei (125)	Mainland China	6,289	Cross-sectional	Depression
61.	Wu, Tao, & Han (126)	Mainland China	807	Cross-sectional	Depression
62.	Wu, Tao, et al. (127)	Mainland China	11,787	Cross-sectional	Anxiety, depression
63.	Xiang et al. (128)	Mainland China	1,396	Cross-sectional	Depression
64.	Xiao, Shu, et al. (129)	Mainland China	933	Cross-sectional	Anxiety
65.	Xiao, Wang, et al. (130)	Mainland China	3,966	Cross-sectional	Anxiety, depression
66.	Xie et al. (131)	Mainland China	2,705	Cross-sectional	Depression
67.	Xin et al. (132)	Mainland China	24,378	Cross-sectional	Depression
68.	Xing et al. (133)	Mainland China	595	Cross-sectional	Depression
69.	Xiong et al. (134)	Mainland China	563	Cross-sectional	Depression
70.	Xu and Li (135)	Mainland China	6,891	Cross-sectional	Anxiety, depression
71.	Yan et al. (136)	Mainland China	634	Cross-sectional	Depression
72.	Yang et al. (137)	Mainland China	1,667	Cross-sectional	Anxiety, depression
73.	Yao et al. (138)	Mainland China	84	Cross-sectional	Depression

(Table 1.1 continued on next page)

	Author (Year)	Country/Place	Sample size	Study design	Mental health factors
74.	Yi, Peng, et al. (139)	Mainland China	393	Cross-sectional	Anxiety, depression
75.	Yi, Sun, & Xie (140)	Mainland China	1,234	Cross-sectional	Depression
76.	Yu et al. (141)	Mainland China	427	Cross-sectional	Depression
77.	Yu et al. (142)	Mainland China	1,681	Cross-sectional	Depression
78.	Yue et al. (143)	Mainland China	737	Cross-sectional	Depression, anxiety
79.	Zhan et al. (144)	Mainland China	266	Cross-sectional	Depression
80.	Zhang, Gao, et al. (145)	Mainland China	6,226	Cross-sectional	Depression
81.	Zhang, Jia, et al. (146)	Mainland China	1,486	Cross-sectional	Depression
82.	Zhang, Jing, et al. (147)	Mainland China	2,270	Cross-sectional	Depression
83.	Zhang, Liu, et al. (148)	Mainland China	7,833	Cross-sectional	Depression
84.	Zhang, Meng, et al. (149)	Mainland China	932	Cross-sectional	Depression
85.	Zhang, Sui, et al. (150)	Mainland China	1,409	Cross-sectional	Depression
86.	Zhang, Xu, et al. (151)	Mainland China	66	Longitudinal	Anxiety, depression, sleep
87.	Zhang, Zeng, et al. (152)	Mainland China	312	Cross-sectional	Depression
88.	Zhou et al. (153)	Mainland China	11,133	Cross-sectional	Depression
89.	Zhao and Hu (154)	Mainland China	456	Cross-sectional	Depression
90.	Zhao, Zhang, et al. (155)	Mainland China	364	Cross-sectional	Depression
91.	Sun, Lin, & Chu (55)	Mainland China and Hong Kong	255	Cross-sectional	Depression
92.	Du et al. (156)	Mainland China, Ireland, Malaysia, Taiwan, South Korea, Netherlands, and the US	2,254	Cross-sectional	Anxiety, sleep disturbances
93.	Feng et al. (157)	Chinese students (Mainland China, Hong Kong, and overseas)	219	Cross-sectional	Anxiety, collective trauma, fear, concerns of COVID-19
94.	Zhao, Kong, & Nam (158)	Chinese students (South Korea, China)	420	Cross-sectional	Depression
95.	Zhao, Kong, & Nam (159)	Chinese students (South Korea, China)	171	Cross-sectional	Depression
96.	Chan and Sun (56)	Hong Kong	655	Cross-sectional	Depression, anxiety, stress, irrational beliefs
97.	Lai et al. (160)	Hong Kong students in the UK & US	124	Cross-sectional	Anxiety, depression, insomnia, academic stress, health
98.	Faisal et al. (161)	Bangladesh	874	Cross-sectional	Anxiety, depression
99.	Islam et al. (162)	Bangladesh	476	Cross-sectional	Anxiety, depression
100.	Dhar et al. (163)	Bangladesh	15,543	Cross-sectional	Anxiety
101.	Kazmi et al. (164)	India	1,000	Cross-sectional	Anxiety, depression, stress
102.	Pavithra and Dheepak (165)	India	396	Cross-sectional	Sleep disturbances
103.	Verma (166)	India	131	Cross-sectional	Anxiety
104.	Saraswathi et al. (167)	India	217	Longitudinal	Depression, anxiety, stress
105.	Thahir et al. (168)	Indonesia	1,044	Cross-sectional	Depression
106.	Moghanibashi-Mansourieh (169)	Iran	10,754	Cross-sectional	Anxiety
107.	Nakhostin-Ansari et al. (170)	Iran	323	Cross-sectional	Depression, anxiety, sleep
108.	Arima et al. (171)	Japan	571	Cross-sectional	Distress, self-esteem, self-efficacy
109.	Nomura et al. (172)	Japan	2,712	Cross-sectional	Depression, suicidal ideation

	Author (Year)	Country/Place	Sample size	Study design	Mental health factors
110.	Ueda et al. (173)	Japan	1,000	Cross-sectional	Depression, anxiety
111.	Kamaludin et al. (174)	Malaysia	983	Cross-sectional	Anxiety
112.	Sundarassen et al. (47)	Malaysia	983	Cross-sectional	Anxiety
113.	Sigdel et al. (175)	Nepal	349	Cross-sectional	Anxiety, depression
114.	Salman et al. (176)	Pakistan	1,134	Cross-sectional	Anxiety, depression
115.	Zhao, Kong, Aung, et al. (177)	Korea, China, Japan	821	Cross-sectional	Depression
116.	Pramukti (48)	Indonesia, Taiwan, & Thailand	1,985	Cross-sectional	Anxiety, suicidal thoughts
117.	Wang, Tee, et al. (178)	Mainland China, Iran, Malaysia, Pakistan, Philippines, Thailand, and Vietnam	4,479	Cross-sectional	Depression, anxiety, stress
118.	Jiang, Yan-Li, et al. (179)	Malaysia, Indonesia, Thailand, and Mainland China	1,195	Cross-sectional	Depression, anxiety, stress
	<i>Middle East</i>				
119.	Fawaz and Samaha (180)	Lebanon	520	Cross-sectional	Depression, anxiety
120.	Khoshaim et al. (181)	Saudi Arabia	400	Cross-sectional	Anxiety
121.	Naser et al. (182)	Jordan	1,165	Cross-sectional	Depression, anxiety
122.	Saddik et al. (183)	United Arab Emirates	1,485	Cross-sectional	Anxiety
123.	Zolotov et al. (184)	Israeli	472	Cross-sectional	Fear, depression
	<i>North and South America</i>				
124.	Scotta et al. (185)	Argentina	584	Cross-sectional	Sleep disturbances
125.	Hamza et al. (186)	Canada	773	Cross-sectional	Social isolation, pre-existing mental health concerns
126.	Prowse et al. (187)	Canada	366	Cross-sectional	Stress, coping strategies
127.	Schwartz et al. (188)	Canada	2,310	Cross-sectional	Social supports
128.	Benham et al. (189)	The US	795	Longitudinal	Sleep disturbances
129.	Copeland et al. (190)	The US	675	Cross-sectional	Stress, behaviour, daily wellness
130.	Perz et al. (191)	The US	237	Cross-sectional	Anxiety
131.	Son et al. (37)	The US	195	Cross-sectional	General stress, anxiety, academic stress
132.	Wang, Hegde, et al. (43)	The US	2,031	Cross-sectional	Depression, anxiety, suicidal thoughts, coping strategies
133.	Lopez-Castro et al. (192)	The US	909	Cross-sectional	Depression, anxiety, stress
134.	Cong et al. (193)	North America, Europe & Asia	252	Cross-sectional	Anxiety, depression, somatization.
	<i>Europe</i>				
135.	Seetan et al. (194)	Austria	553	Cross-sectional	Social relationships, fitness, financial problems, sleep, eating habits
136.	Gritsenko et al. (195)	Belarus & Russia	939	Cross-sectional	Depression
137.	Bourion-Bédès et al. (196)	France	3,936	Cross-sectional	Anxiety
138.	Essadek and Rabeyron (3)	France	8,004	Cross-sectional	Focus, self-harm/suicidal thoughts, depression, anxiety, distress
139.	Husky et al. (40)	France	291	Cross-sectional	Stress, anxiety
140.	Wathelet et al. (39)	France	69,054	Cross-sectional	Suicidal thoughts, distress, stress, depression, anxiety, social integration
141.	Kaparounaki et al. (197)	Greece	100	Cross-sectional	Depression, anxiety, suicide, sleep, quality of life
142.	Patsali et al. (198)	Greece	1,535	Cross-sectional	Depression, anxiety, distress

(Table 1.1 continued on next page)

	Author (Year)	Country/Place	Sample size	Study design	Mental health factors
143.	Mazza et al. (14)	Italy	2,766	Cross-sectional	Anxiety, depression, stress
144.	Meda et al. (199)	Italy	358	Cross-sectional	Regression, depression
145.	Zaccoletti et al. (34)	Italy & Portugal	567	Cross-sectional	Academic motivation
146.	Rogowska, Kusnierz, et al. (42)	Poland	914	Cross-sectional	Anxiety
147.	Rogowska, Pavlova, et al. (200)	Poland	923	Cross-sectional	Depression, sleep
148.	Gavurova et al. (201)	Slovakia	1,523	Cross-sectional	Depression
149.	Díaz-Jiménez et al. (41)	Spain	365	Cross-sectional	Anxiety
150.	Morales-Rodriguez (202)	Spain	180	Cross-sectional	Stress, technostress, resilience, self-esteem
151.	Odriozola-González et al. (203)	Spain	3,550	Cross-sectional	Depression, anxiety, stress
152.	Ozamiz-Etxebarria et al. (204)	Spain	44	Cross-sectional	Anxiety
153.	Sañudo et al. (205)	Spain	20	Cross-sectional	Sleep disturbances
154.	Dratva et al. (206)	Switzerland	2223	Cross-sectional	Anxiety
155.	Elmer et al. (207)	Switzerland	196	Cross-sectional	Stress, anxiety, loneliness, depression, social networks, lack of interaction, emotional support, physical isolation, stressors
156.	Arslan et al. (208)	Turkey	392	Cross-sectional	Emotional, social and psychological well-being, life meaning
157.	Karasar and Canli (209)	Turkey	518	Cross-sectional	Depression
158.	Savage et al. (54)	The UK	214	Cross-sectional	Stress, physical fitness
159.	Capone et al. (210)	Italy	1,124	Cross-sectional	Flourishing, sense of control, self-efficacy
160.	Kohls et al. (211)	Germany	3,382	Cross-sectional	Depression, social support, loneliness, self-efficacy
161.	Lukács (212)	Hungary	421	Cross-sectional	Physical fitness, family and peer relationships, financial status, life satisfaction
162.	Holzer et al. (213)	Austria and Finland	7,724	Cross-sectional	Needs satisfaction, self-regulated learning, well-being
163.	Villani et al. (214)	Italy	501	Cross-sectional	Depression, anxiety
	<i>Australia</i>				
164.	Dodd et al. (215)	Australia	787	Cross-sectional	Learning experience, social status, well-being
165.	Geirdal et al. (216)	Norway, the UK, the US, and Australia	3,810	Cross-sectional	Loneliness, emotional distress, psychological well-being, general health, social media use, worry, quality of life
	<i>Africa</i>				
166.	Ghazawy et al. (217)	Egypt	1,335	Cross-sectional	Depression, anxiety
167.	Aylie et al. (218)	Ethiopia	314	Cross-sectional	Depression, anxiety, sleep
168.	Agberotimi et al. (219)	Nigeria	502	Cross-sectional	Depression, anxiety
169.	Visser and Law-van Wyk (51)	South Africa	5,074	Cross-sectional	Depression, anxiety

In addition to these ecological factors, others were also found to be correlated with mental health status during the COVID-19 pandemic, including knowledge about the pandemic (10) and threat imminence (11). Based on these findings, there is an increasing number of studies that examine the potential risk and protective factors of the mental health and well-being of individuals during the COVID-19 pandemic. For example, Guo et al. (49) performed a meta-analysis of 11 studies to assess the coping strategies and prevalence of depression among college students during the lockdown. A few studies have revealed that effective coping strategies can reduce mental disturbances caused by COVID-19 (50, 51). Moreover, Chan et al. (52) found that both individual and family resilience during the pandemic were associated with the positive mental health of adults in the United States (US) and Hong Kong. Saricali et al. (53) studied the relationship between fear of the pandemic, mindfulness, humour, and hopelessness, and they found that the effect of fear of COVID-19 on hopelessness was partially mediated by mindfulness and humour. Savage et al. (54) revealed a perceived impairment in mental health among university students in the United Kingdom (UK), but the association between physical movement behaviour (e.g., physical exercise) and mental health was not found to be strong.

Comparatively speaking, studies on the mental health status and associated risks and protective factors of university students during the COVID-19 pandemic in Hong Kong are scarce. One relevant study conducted by Sun et al. (55) examined perceived peer support and depressive symptoms among local college students. The results revealed a negative correlation between peer support and depressive symptoms. Moreover, the correlation was mediated by both negative and positive indicators of emotional well-being. Another study by Chan and Sun (56) indicated positive associations between irrational beliefs and emotional disturbances, including depression, anxiety, and stress. Obviously, additional studies are needed to systematically examine which factors may serve

as protective or risk factors associated with the mental health and well-being of university students in Hong Kong during the COVID-19 pandemic.

Major research gaps and the objectives of this study

As mentioned above, the first research gap is the lack of work that examines both mental health issues (e.g., depression and anxiety) and positive well-being (e.g., life satisfaction and thriving) among university students in Hong Kong during the pandemic. The WHO (57) described mental health as ‘a state of well-being in which the individual realises his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community’ that is ‘determined by multiple and interacting social, psychological and biological factors’ (57). Good mental health is characterised by strong well-being with effective functioning and community contribution, which is a combination of hedonic well-being (or subjective well-being such as life satisfaction, happiness, etc.) and eudaimonic well-being (or psychological well-being such as optimal individual functioning, social contribution, etc.) (18,58). As the absence of illness is not equivalent to the presence of wellness (59) and because strength-based or positive youth development approaches maintain that mitigating or preventing mental health problems can be achieved through the promotion of positive well-being (60), a holistic and balanced investigation of the developmental outcomes of university students during the COVID-19 pandemic must include both negative indicators (ill-being or mental health problems) and positive outcomes (positive subjective and psychological well-being). This is in line with Shek’s (61) twelve reflections on COVID-19, in which the importance of examining both negative well-being (e.g., psychological symptoms) and positive well-being (e.g., subjective well-being) was deemed critical to understanding the impact of COVID-19 on the development of youth.

The second research gap is that no studies have been conducted to systematically reveal risk and protective factors at different levels that may affect university students' mental health and well-being during the pandemic. The WHO's conceptualisation of mental health also indicates that one's mental health status is influenced by different factors, including socio-demographic factors (e.g., gender and age), personal factors (e.g., individual assets), and social factors (e.g., social network, family, school, and society). This echoes the ecological perspectives of human development, which hold that individual development is the outcome of dynamic interactions between an individual and the changing environment in which the individual is embedded (62-64). As such, the mental health of youth (indicated by both negative and positive measures) can be viewed as the developmental outcome of young people's interactions with the various systems around them (65). Nevertheless, no research has thus far employed this theoretical framework to investigate university students' mental health and well-being during the COVID-19 pandemic.

Third, although there are a few studies that examine the online learning experiences (66-68) and family lives (69) of local college students, none have focused on the multifaceted needs and difficulties of university students, such as learning and social life, whether their needs are addressed by university services, and how the satisfaction of their needs may be associated with their mental health and well-being.

To address these gaps, this study attempts to understand the mental health status and its correlates as well as the needs and needs satisfaction of university students at The Polytechnic University of Hong Kong (PolyU) during the COVID-19 pandemic. As far as mental health status is concerned, we investigated both the prevalence of mental health problems and the levels of positive well-being of PolyU students. We also identified and examined both protective factors (particularly resilience, emotional competence, spirituality, optimism, and positive coping during the pandemic) and risk factors (such as economic disadvantage, poor

living environment, family discord, negative coping, and poor lifestyle during the pandemic) that may exert significant influences on students' mental health status.

Regarding students' needs during the COVID-19 pandemic, we conducted a needs assessment study to understand the challenges and the stressors faced by students in multiple domains, including academic, physical, psychological, social, familial, spiritual, and financial needs. Moreover, we assessed students' perceptions of the availability, adequacy, and quality of institutional support services during the pandemic. In addition to student perceptions, we also examined the perspectives of teachers and service providers regarding student needs and related services provided by the university. The assessment study helped to evaluate existing services related to the promotion of student well-being, identify gaps in service provision, and inform directions for future improvements of support services.

Conceptual framework and research questions

Most research that has examined the impact of COVID-19 on students' mental health has focused on mental health problems and related correlates at only one level (e.g., individual quality). To depict a more complete picture, the present study employed a conceptual model based on scientific literature to investigate the mental health status of university students (both mental health problems and positive well-being), as well as to examine how factors pertaining to different ecological systems (e.g., intrapersonal and interpersonal levels) may be associated with that mental health (63, 220, 221).

Both the ecological systems perspective and contemporary developmental theory suggest that individual development is the outcome of dynamic interactions that people experience with the specific characteristics of the changing environment in which they are embedded (62,64). These approaches highlight the multiple levels of organisation involved in everyday life and the

relationship between an individual and their context. As such, the mental health of the youth is influenced by factors associated with the varied systems that surround them (65). This is not limited to socio-demographic factors, such as gender and age, but also includes other personal and environmental factors, such as school and social networks, parents, community, society, culture, and natural environments (222).

Previous studies that adopted the ecological perspective have demonstrated significant predictive effects of both intrapersonal factors (or individual attributes, such as emotional skills and resilience) and external ecological factors (or environmental factors, such as parental factors and peer group) on mental health problems and positive well-being among young people (223-227). These findings suggest the importance of understanding individual differences in developmental outcomes (e.g., mental health problems and positive well-being) and the role of the interactions between an individual and their environment. In the case of COVID-19, it is necessary to understand how the perceived threat of COVID-19 and different ecological factors interact with each other (e.g., intrapersonal, interpersonal, community, societal, and cultural factors), as well as their impacts on the developmental outcomes (e.g., mental health issues and well-being) of university students. Shek (221) highlighted the importance of adopting an ecological framework for understanding youth developmental outcomes and predictors (e.g., risk and protective factors) of outcomes under COVID-19.

To this end, we develop the conceptual framework (see Figure 2.1) of this study with reference to the development theory and ecological perspectives and based on prior literature related to the mental health problems and positive well-being of adolescents and early adults (63, 220, 221, 228). We regard mental health problems and positive well-being of university students as developmental outcomes that are influenced by stress factors related to COVID-19 and the dynamic interactions between individual students and the pandemic environment. In addition to socio-demographic factors, both

intrapersonal factors (i.e., personal resources such as personal beliefs and competence in facing risk adversity and coping strategies) and external ecological factors (i.e., environmental resources, such as support from peers and the family) may act as risk or protective factors for the mental health issues and positive well-being of university students.

Stress and developmental outcomes during the COVID-19 pandemic

The negative impact of COVID-19 stress on mental health status has been documented in numerous studies in terms of a dramatic increase in mental health problems (e.g., depression, anxiety, and stress) and a decrease in positive well-being (e.g., life satisfaction) in both the general population and in university students. The two aspects of developmental outcomes (i.e., mental health problems and positive well-being) were found to be related to each other. For example, Pretorius (229) analysed the relationships between hopelessness, depression, and resilience among health care students during the COVID-19 pandemic. The results of the study revealed a significant indirect effect of hopelessness on depression and that resilience served as a mediator in the hopelessness-depression relationship. Another study also revealed a positive relationship between anxiety and hopelessness in nursing students during the pandemic (230).

Regarding pandemic-related stress that may result in the above-mentioned deterioration, researchers have explored different indicators, such as perceived danger of contamination, worry or frequent checking behaviour, self-efficacy, and perceived control towards COVID-19. For example, Parlapani et al. (231) revealed that the fear of COVID-19 and increased awareness of contamination were positively associated with excessive employment of safety and checking behaviours, which further increased depression and anxiety symptoms. Other studies found that the fear of COVID-19 intensified various negative psychological and behavioural resp-

onses, such as hopelessness (53), internet addiction (232), and even suicidal thoughts or behaviour (233). Meanwhile, Godinić et al. (234) found a negative relationship between worries about economic uncertainty and psychological well-being. The fear of COVID-19 was significantly associated with a decline in positive well-being, including in life satisfaction (235, 236) and flourishing (237).

In contrast, self-efficacy regarding COVID-19 was negatively correlated with anxiety during the pandemic (238, 239). Another related concept is perceived control. A sense of control during the pandemic positively predicted flourishing (237). Research also demonstrated that perceived control moderated the relationship between the perceived severity of COVID-19 and mental health problems (240). Specifically, among students perceiving high control, the perceived severity of COVID-19 was less likely to increase mental health problems.

In our study, the developmental outcomes of university students during the pandemic included, in the mental health problem domain, measures of depression, anxiety, stress, suicidal behaviour, internet addiction, and hopelessness, while life satisfaction and flourishing were included under positive well-being (see Figure 2.1). Furthermore, measures of stress related to COVID-19 included perceived threats, self-efficacy, and influence of the 'social event' (the social unrest in 2019 exerted negative influences on the well-being of the people of Hong Kong, and it is critical to consider social situations to fully understand the impacts of COVID-19).

Intrapersonal factors

Existing research on mental health and positive youth development (PYD) provides clues regarding how individual attributes may be related to mental health. For example, individual resilience negatively predicted depression, anxiety, stress, and obsessive-compulsive symptoms (241). PYD qualities such as emotional competence and resilience were found to be protective factors of adolescent development in terms of reducing

negative and enhancing positive developmental outcomes (220, 226, 242, 243). As such, some emphasise the importance of understanding how PYD attributes are related to the developmental outcomes of COVID-19 (221, 228).

Recent research revealed that emotional intelligence in college students was negatively related to stress during the COVID-19 pandemic (244). Resilience was also found to reduce the fear and anxiety associated with COVID-19 (245-247). In other studies, resilience served as a mediator of the influence of stressful experiences on anxiety, stress, and depressive symptoms (248), as well as of the link between burnout and stress (249). These findings suggest that individual emotional competence and resilience may function as a protector against mental health problems, such as depression, anxiety, and stress, during the COVID-19 pandemic.

Moreover, previous research highlighted the importance of active coping to reducing psychological distress (250). For example, Chou et al. (251) revealed that restraint coping strategies were negatively associated with internet addiction among college students, while denial and mental disengagement were positively associated with internet addiction. Recent findings related to the COVID-19 pandemic supported the previous observations that there is a negative relationship between pro-social or cognitive coping and mental health problems among college students as well as a positive relationship between negative coping strategies and the prevalence of common mental disorders (252).

Another intrapersonal factor that influences adolescent developmental outcomes is the belief about adversity. Previous studies have suggested that conceptualisations and interpretations of adversity were affected by different factors, like culture. For example, Shek (253) suggested that positive Chinese cultural beliefs toward adversity can influence how adolescents adjust to hardship. Those with higher levels of self-efficacy in adversity showed better mental health status and less problematic behaviour, but negative beliefs regarding adversity (lower levels of self-efficacy and perceived control of the future) were related

more to problematic behaviour among adolescents in Hong Kong, particularly for those who were from economically disadvantaged families (253). Similarly, Morgan Consoli and Llamas (254) found that the resilience of Mexican American college students was also affected by traditional Mexican values related to perseverance and gender roles. Based on the above elaborations, we included an examination of the personal resources of university students (such as resilience, emotional competence, belief about adversity, and coping skills) in this study.

External ecological factors

According to the ecological perspective of human development, the interaction between individuals and various systems (e.g., their surroundings, such as peers, family, and school as well as their community, society, and culture) affect their developmental processes and outcomes (255). In scientific literature, a few studies have already assessed how peer, family, and community support are related to mental health status during the COVID-19 pandemic.

With regard to peer support, past studies have revealed that peer interaction allowed young people to communicate problems and difficulties they encountered in their lives; moreover, it promoted their emotional well-being, thus reducing the prevalence of psychological disorders. For example, a systematic review conducted by Chinman et al. (256) found that the benefits to mental health status provided by peer support were similar to those provided by mental health professionals. It is possible that although peer support is not a professional service, it could be a pathway to improving mental health during the pandemic, particularly when social isolation may occur due to social distancing measures. Indeed, recent research showed that students who received less peer support during the pandemic were more likely to express depressed feelings and that social isolation was linked with deteriorated mental health, including high levels of depression, anxiety, and psychological distress

(257). Another study also revealed that stronger peer support predicted lower levels of loneliness and negative behaviour (55).

Nevertheless, since meeting face-to-face with peers became difficult due to social distancing measures, family support was suggested as an alternative means through which students could relieve stress. For example, greater family cohesion was associated with better mental health among youths during the pandemic (258). However, a few studies found an increase in stress and anxiety after students' confinement to their homes (40). These diverse results suggest that there may be other familial factors that need to be considered. For example, instead of or in addition to family support, students may have encountered increased conflict with family members when they were spending more time at home. As such, it is necessary to further examine how family functioning—including mutuality, communication, and conflict among family members—may be related to the mental health of university students during the COVID-19 pandemic.

At the school level, previous studies have highlighted the value of institutional support in enhancing students' academic achievements and psychological well-being, particularly when students face risks (259-261). Support and services from universities constitute important external resources that students can utilise to better cope with difficulties and challenges and to help maintain good mental health. However, COVID-19 is an unprecedented situation and has posed extra difficulties for universities in terms of providing such services, as face-to-face services have often been suspended or even entirely cancelled. In addition to moving teaching and learning online, Zhai and Du (262) recommended that universities should also continue virtualising and providing online support related to mental health (e.g., tele-mental health counselling services) and learning (e.g., online meetings with students) to mitigate the negative influences of the pandemic. Recent studies reported that online counselling is an effective means of reducing psychological distress, such as anxiety and depression (263),

and of reinforcing the mental health of university students (264-266).

Nevertheless, universities should also provide alternative plans for students who encounter difficulties completing internships and research projects or fulfilling graduation requirements (262). Schlesselman et al. (267) indicated that universities need to confront issues affecting the well-being and academic health of students and avoid sending signals that could exacerbate students' anxiety. The authors also suggested a list of activities and services that universities can provide to support students during the pandemic: virtual group exercises for health and wellness, recipe sharing for socialisation, and virtual advising for academic learning. To sum up, although institutional support is expected to be helpful for college students during the COVID-19 pandemic, there is a lack of related research regarding the kind of services and programs that are demanded by students and how students perceive or evaluate the available institutional support. Thus far, there has been no systematic study on the relationship between service provision and students' mental health.

With regard to the external factors at the community level, previous studies have identified significant associations between community resources and individual outcomes, such as loneliness (268), quality of life (269), and responses to stressful life events (270). With regard to the impact of COVID-19, community cohesion was found to be a protective mechanism against anxiety and stress during the first lockdown in the UK (271). Miao et al. (272) also identified a negative relationship between perceived social cohesion and mental distress during the COVID-19 pandemic in China. Finally, social uncertainty and political situations were found to affect mental health at the time of the pandemic. For example, Shek (273) outlined the negative impacts of social unrest in 2019 on the quality of life and well-being of people in Hong Kong. Other findings also indicated a higher level of psychological morbidity after social instability (274,275). As such, it is important to take the social situation into account when investigating

the impacts of COVID-19 on students' mental health and well-being.

Research questions

Based on the above discussion and elaborations, a conceptual framework of this study is presented in Figure 2.1. The following are the main research questions addressed by this study:

- Research question 1: What is the mental health status (indicated by mental health issues and positive well-being) as the developmental outcome of university students during the COVID-19 pandemic?
- Research question 2: What are the relationships among perceived COVID-19 stress, intrapersonal factors, external ecological factors, and developmental outcome measures (mental health issues and positive well-being)?
- Research question 3: What are the needs and stressors of university students with respect to different domains during the COVID-19 pandemic?
- Research question 4: How do PolyU students perceive the services provided by the university during the pandemic?
- Research question 5: What are the relationships between need satisfaction, difficulties encountered in different life domains, evaluation of services, and the mental health status of students?
- Research question 6: What are the experiences of students and teachers at different stages of the pandemic?
- Research question 7: What are the self-evaluations of the units providing services to students during the COVID-19 pandemic?
- Research question 8: Based on the quantitative and qualitative findings collected from different stakeholders, what recommendations can be made regarding care and supportive services for students during the pandemic?

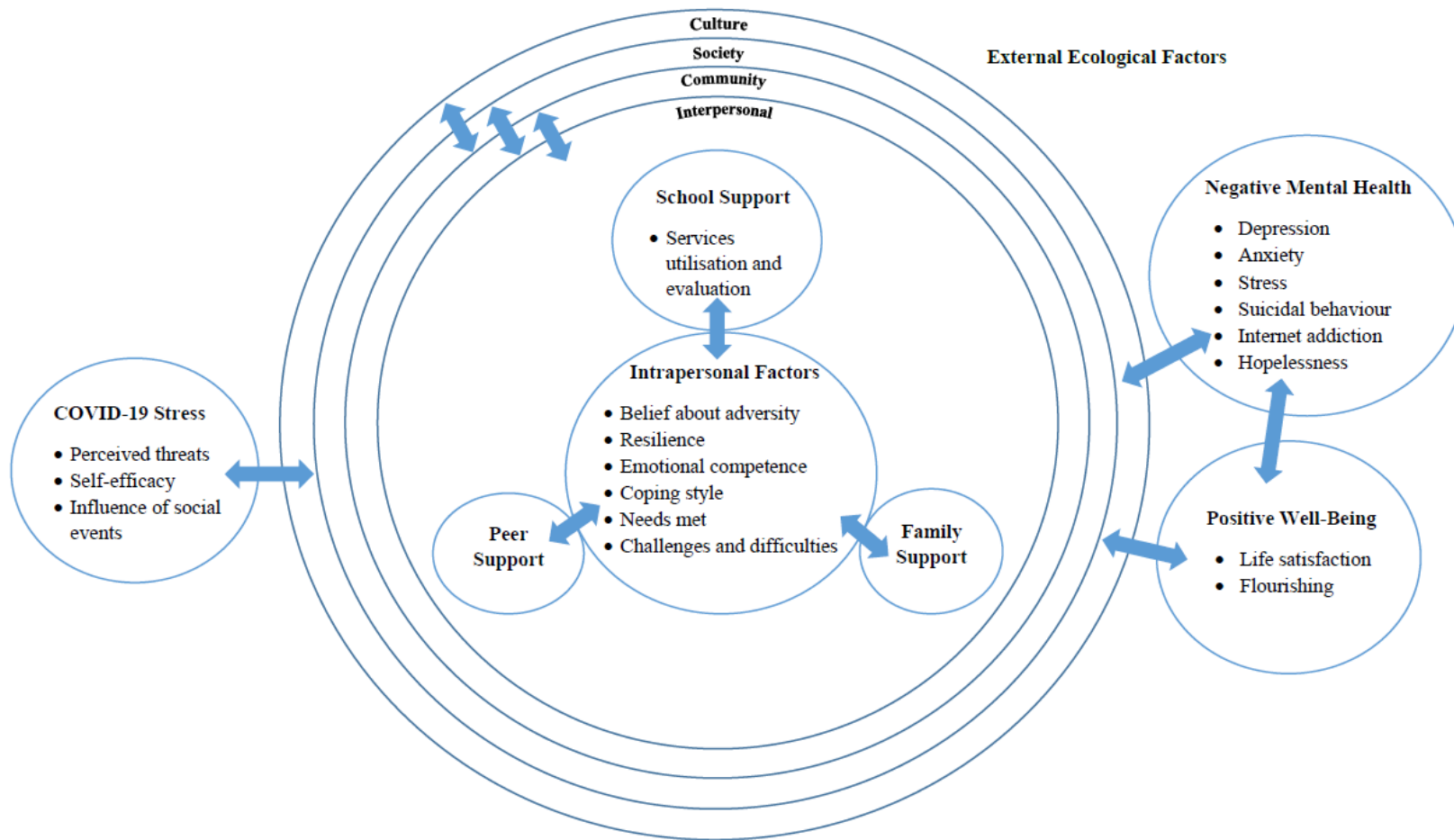


Figure 2.1. The Conceptual Framework of the Study.

Overview of research design

This study employed a mixed-method approach to obtain a comprehensive picture of PolyU students' mental health status and its predictors as well as their needs and any difficulties encountered during the COVID-19 pandemic. A mixed-method approach enables us to acquire a holistic understanding of student adjustment to the pandemic based on data collected through multiple research designs (quantitative and qualitative strategies) and approaches (survey and focus group interviews) and from different stakeholders (students, teachers, and service providers) (276,277). A summary of the strategies used in this study is presented in Table 3.1.

Quantitative studies

Quantitative studies included the student online survey and the online questionnaire for key services providers. We utilised online surveys

because the paper-and-pencil mode was not feasible under the COVID-19 social distancing measures and campus lockdown. The student online survey was conducted between January and March 2021 (i.e., after the fourth wave of the pandemic in Hong Kong) and included investigation of students' mental health problems and positive well-being as well as a needs assessment. We then examined the prevalence rates and related psychosocial correlates of students' mental health and well-being as well as explored protective factors and risk factors for mental health problems and positive well-being. The needs assessment collected students' perceptions of needs satisfaction, difficulties, and the services provided by the university. In addition, we examined the relationship between students' mental health status and needs assessment. In addition to the student online survey, we also employed an online questionnaire to examine the service providers' perceptions of the effectiveness of their student services during the pandemic.

Table 3.1 Summary of research design

Research design and method	Participants		
	Students	Teachers	University offices/units
Quantitative (Survey)	Online survey to assess students' needs, mental health status, and psychosocial correlates during the pandemic and perceptions and satisfaction regarding the services provided by the university (n = 1,648 valid cases).		Online questionnaire for key services providers (eight units) to take stock of the services provided to students during the pandemic and their self-perceptions of service provision.
Qualitative (Focus group interview)	Focus group interview (23 groups; 111 students from 8 faculties/schools) to explore students' personal experiences related to various aspects of the pandemic and their perceptions and satisfaction with the services provided by the university.	Focus group interview (5 groups; 26 teachers from 8 faculties/schools) to a) explore teachers' observations of the needs and difficulties faced by students and their views on the services provided to students and b) understand teachers' experiences related to teaching and their perceptions of institutional support.	
Total number of participants	1,759 students from 8 faculties/schools ¹	26 teachers from 8 faculties/schools ¹	11 respondents from 11 service units ²

Note.

¹ Faculty of Engineering; Faculty of Construction and Environment; Faculty of Health and Social Sciences; Faculty of Applied Science and Textiles; Faculty of Humanities; Faculty of Business; School of Design; and School of Hotel and Tourism Management.

² Eleven service units included 5 sections from the Student Affairs Office (SAO): Counselling and Wellness Section (CWS), Careers and Placement Section (CPS), Administration Team (Admin), Student Resources (SR), and Student Development Unit (SDU), and other 6 units included Academic Registry (AR), University Library (Library), Educational Development Centre (EDC), Global Engagement Office (GEO), University Health Service (UHS), and Graduate School (GS).

Qualitative studies

While the quantitative design provides an overview of the situation, the qualitative approach explores stakeholders' subjective experiences and perceptions in more detail (278). We used student focus group interviews to examine their needs, difficulties, and perceived institutional support during the COVID-19 pandemic. As they play a critical role in teaching and learning, we also conducted focus group interviews with teachers, and their first-hand exper-

iences and observations of the changes in teaching are an additional perspective that clarifies our understanding of the changes and challenges students encountered during the pandemic. By linking students' views and teachers' observations, we can comprehensively understand how teaching and learning changed during the pandemic. Moreover, understanding the needs, difficulties, and institutional support surrounding teaching and learning also helps us understand the impacts of the COVID-19 pandemic on students.

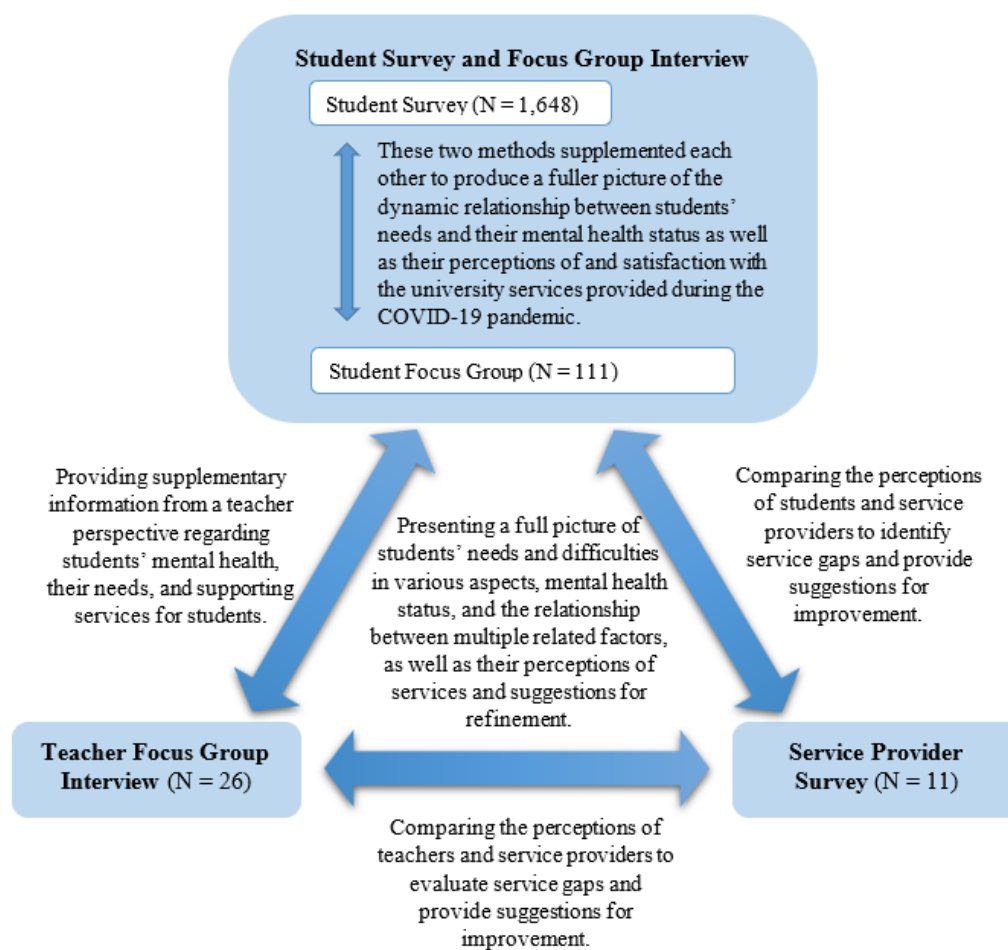


Figure 3.1. An integrated model involving different research methods and various stakeholders.

Figure 3.1 outlines the mixed-methods research design of this study. By collecting data from students, teachers, and service providers through use of both quantitative and qualitative methods, we are able to craft a more

comprehensive understanding of the impacts of the COVID-19 pandemic, of the related risk and protective factors of students' mental health, needs, and difficulties, and of the effectiveness of service provision at PolyU that

incorporates multiple perspectives. Data collected from the student online survey and focus group interviews described the situation, revealed their needs and potential mental health problems, and suggested possible explanations from the students' perspectives. In addition, data collected from the teachers helped us further understand learning and teaching, students' needs and mental health status during the pandemic, and the teachers' perspectives on related issues. Moreover, the service provider survey helped us understand the types and perceived effectiveness of services at PolyU. Integrating the findings collected from different stakeholders via different means enabled us to evaluate the service gaps between students' expectations and reality on the one hand and between the perceptions of different stakeholders and reality on the other.

In the original proposal, we aimed to collect data from 1,000 students for the quantitative survey and 100 students for the focus group interviews. Eventually, we collected data from a) 1,648 students for the survey, b) 111 students for the focus group, c) 26 teachers for the focus group, and d) 11 staff from 11 units or offices for the service provider survey.

Ethical statement

We received ethical approval from the Institutional Review Board (or its Delegate) at PolyU (HSESC Reference Number: 20201230003) before the commencement of the study. Participant recruitment, data collection, and data analyses were conducted following the stipulations of the approving authority. The research objectives and participants' rights were clearly explained on the cover of the questionnaire and before the focus group interviews. Written consent was obtained from participants before the commencement of surveys and interviews. Upon completing the survey and interview, a token for a supermarket voucher worth 100 HKD was given to each student participant. In addition, we gave a souvenir to each teacher who voluntarily participated in the group interview.

Student survey

In the academic year 2020–21, an online survey was conducted to examine students' mental health status, positive well-being, and the related psychosocial correlates (i.e., risk factors and protective factors). We also explored the difficulties that the students faced and their perceptions of the extent to which their daily life needs were satisfied. Moreover, we evaluated the support provided by the University. To this end, we used existing or newly developed measurement tools based on previous studies.

Methods

Data were collected between 4 January 2021 and 31 March 2021 through an online survey. The participants of this study were undergraduate students at PolyU. We originally planned to recruit approximately 1,000 PolyU students (approximately 8% of the total student population of PolyU) based on the quota sampling strategy, with faculty and study year as the two stratifying factors. To prevent the spreading of COVID-19, the campus was partially closed. This encouraged students to stay at home and attended the lectures online. Under this circumstance, the data were collected through the online survey platform *Qualtrics XM*.

Using an online survey has several advantages. First, online data collection is an easy method to collect large quantities of data within a short period and obtain information from difficult-to-reach and underrepresented populations. Second, online participation enables students to complete the survey in their preferred setting (i.e., time, place, and device). Participants are also more likely to disclose information that they would otherwise not be comfortable revealing (279,280). Also, under the social restrictions at the time of the study, an online survey made the distribution of the questionnaire easier, faster, and more accessible.

To approach the target students, we recruited 49 student assistants who helped distribute the survey link and invite qualified candidates

(i.e., undergraduate students across different study years in eight different PolyU faculties/schools) to participate in the online survey. Before responding to the online questionnaires, participants were asked to carefully read an information sheet that outlined the research purpose and the principles of voluntary participation, confidentiality and free withdrawal. Those who agreed to participate in the survey were directed to the survey page after providing their consent by clicking the option ‘Yes, I consent to participate in the captioned research.’ The participants who completed the questionnaire received a supermarket voucher of 100 HKD as an incentive.

Figure 4.1 outlines the sample selection and data collection processes in this study. After excluding unqualified cases (i.e., without consent or not current full-time undergraduate students of PolyU), a total of 2,017 qualified students completed the questionnaire. Following common practice to ensure data quality in the online survey (281,282), we included two instructional attention-check questions where the respondents were requested to select the instructed option (e.g., ‘This is an attention check, please choose “exactly true”’). A total of 369 cases that did not pass the two attention-check questions were excluded from the final analysis, thereby resulting in a final working sample of 1,648 students.

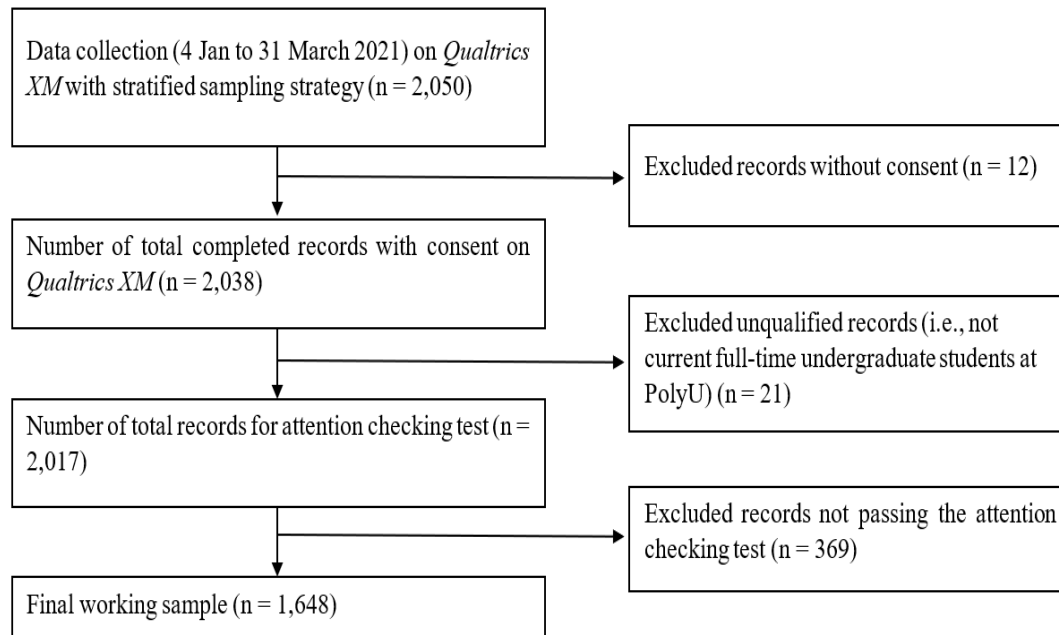


Figure 4.1. Sample selection and data collection processes.

Participants

The mean age of the students in the final sample ($N = 1,648$) was 20.09 years ($SD = 1.38$). Among these students, 696 (42.2%) were male, 854 (51.8%) were female, and the remaining 98 (5.9%) participants did not indicate their gender in the questionnaire. The number of participants by faculty, gender, and year of studies is presented in Table 4.1.

The remaining demographic characteristics of the participants are summarised in Table 4.2. The majority of the students ($n = 1,613$; 97.9%) were local students and 35 (2.1%) of them were international students, mainly from mainland China and Malaysia. Almost all students (99.0%) indicated that they were staying in Hong Kong during the last month, at the time they completed the survey. A total of 88.6% of the participants lived with their families

during the pandemic, 9.4% lived with roommates, and 2.0% lived alone. Regarding the financial situation, most of the participants' families were not recipients of the Comprehensive Social Security Assistance (CSSA) Scheme (96.8%). A total of 351 participants (21.3%) indicated that their family was experiencing financial difficulties and 482 (29.2%) indicated that they had personal financial difficulties at the time they completed the survey. Moreover, 280 participants (17.0%) reported that their family members became unemployed during the COVID-19 pandemic. Twenty-four participants (1.5%) reported that they or their family member(s) were confirmed cases of COVID-19.

Instruments

A total of 22 scales were used in the online survey (Table 4.3; Appendix 4A). These scales covered different areas, including mental health problems (e.g., depression and anxiety), positive well-being (e.g., life satisfaction), perceived threat of COVID-19, intrapersonal and external environmental factors serving as protective or risk factors of students' mental health and well-being during the COVID-19 pandemic, the satisfaction of their daily needs during the COVID-19 pandemic, difficulties faced by students, their knowledge and perception of the services provided by the university, as well as the perceived effectiveness and evaluation of said services.

Table 4.1. Number of participants by faculty, gender, and year of studies in the final sample (n = 1,648)

Faculty	Gender	Year of study					Subtotal	Total
		1	2	3	4	5		
FENG	Male	41	62	66	31	2	202	336 (20.4%)
	Female	18	36	28	23	1	106	
	NI	5	6	5	12	0	28	
FCE	Male	17	31	35	25	4	112	187 (11.3%)
	Female	25	23	8	10	0	66	
	NI	3	3	1	2	0	9	
FHSS	Male	25	36	57	17	4	139	428 (26.0%)
	Female	61	79	104	22	2	268	
	NI	2	6	8	4	1	21	
FAST	Male	11	18	22	30	1	82	199 (12.1%)
	Female	15	13	38	36	0	102	
	NI	1	2	4	8	0	15	
FH	Male	4	8	1	0	0	13	69 (4.2%)
	Female	18	14	6	16	0	54	
	NI	1	1	0	0	0	2	
FB	Male	17	29	33	12	0	91	264 (16.0%)
	Female	19	37	71	35	0	162	
	NI	2	3	4	2	0	11	
SD	Male	4	3	6	4	0	17	73 (4.4%)
	Female	14	9	18	6	0	47	
	NI	1	3	4	1	0	9	
SHTM	Male	9	8	11	12	0	40	92 (5.6%)
	Female	12	10	14	13	0	49	
	NI	1	2	0	0	0	3	
Subtotal	Male	128	195	231	131	11	696	
	Female	182	221	287	161	3	854	
	NI	16	26	26	29	1	98	
Total		326 (19.8%)	442 (26.8%)	544 (33.0%)	321 (19.5%)	15 (0.9%)		1,648 (100%)

Note: FENG=Faculty of Engineering; FCE=Faculty of Construction and Environment; FHSS=Faculty of Health and Social Sciences; FAST=Faculty of Applied Science and Textiles; FH=Faculty of Humanities; FB=Faculty of Business; SD=School of Design; SHTM=School of Hotel and Tourism Management; NI stands for "prefer not to indicate" in gender.

Table 4.2. Demographics characteristics of participants in the final sample (n = 1,648)

	Yes	No	Not sure
Received CSSA	20 (1.2%)	1595 (96.8%)	33 (2%)
Experienced financial difficulty (family)	351 (21.3%)	1100 (66.7%)	197 (12%)
Experienced financial difficulty (personal)	482 (29.2%)	1101 (66.8%)	65 (3.9%)
Student or their family members unemployed during the pandemic	280 (17.0%)	1288 (78.2%)	80 (4.9%)
Student or their family members had been a confirmed case of COVID-19	24 (1.5%)	1584 (98.5%)	40 (2.4%)
	Live with family	Live with roommates	Live alone
Living status	1460 (88.6%)	155 (9.4%)	33 (2.0%)
	Hong Kong	Mainland China	Others
Place of residence during the pandemic	1631 (99.0%)	12 (0.7%)	5 (0.3%)
	Local	International	
Place of origin (Local/International student)	1613 (97.9%)	35 (2.1%)	

Note: CSSA = Comprehensive Social Security Assistance.

Table 4.3. Reliability, mean, and standard deviation of the assessment tools in the student survey

Areas	Scales	Number of items	Cronbach's α	Mean inter-item correlation	Scale point	Mean	SD
Mental health problems	1. Depression Anxiety Stress Scale (DASS-21)	21	.95	.49	4	.84	.59
	2. Trauma Screening Questionnaire (TSQ)	10	.75	.23	2	.36	.26
	3. Center for Epidemiologic Studies Depression Scale Revised (CESD-R)	20	.96	.52	5	.94	.76
	4. Young's 10-item Internet Addiction Test (IAT-10)	10	.75	.36	2	.07	.18
	5. Suicidal Behaviour Scale (SBS)	3	.75	.23	2	.38	.26
	6. Chinese Hopelessness Scale (C-HOPE)	5	.83	.49	6	3.41	.85
Positive well-being	7. The Satisfaction with Life Scale (SWLS)	5	.87	.58	6	3.38	.94
	8. The Flourishing Scale (FS)	8	.91	.57	7	4.50	1.01
Perceived COVID-19 stress	9. COVID-19 Stress Scale	15	.90	.39	5	1.54	.70
	10. Worries about Social Events (Developed by the team)	10	.90	.46	5	2.56	.56
	11. Self-efficacy related to COVID-19	10	.88	.43	4	2.35	.85
Intrapersonal factors	12. The Chinese Cultural Beliefs about Adversity (CBA)	9	.73	.24	6	3.89	.65
	13. Resilience and Emotional Competence	6	.86	.51	6	4.00	.78
	14. Chinese Coping Scale (CCS)	14	.72	.16	4	1.36	.37
External Ecological factors	15. Chinese Family Assessment Instrument (C-FAI)	9	.77	.23	5	3.31	.58
	16. Multidimensional Scale of Perceived Social Support (MSPSS, Peer Support)	4	.83	.54	5	3.70	.69
	17. Collective Efficacy Scale (CES)	3	.78	.54	5	3.26	.67
Needs and difficulties of students under COVID-19	18. Needs Satisfaction under COVID-19	15	.87	.34	6	3.78	.73
	19. Difficulties and Challenges under COVID-19	24	.91	.30	5	3.10	.60
Services/ support provided by the University	20. Knowledge and Perceived Effectiveness of PolyU Services	10	.85	.30	2	5.93	3.07
	21. Evaluation of PolyU Services	10	.96	.69	6	3.90	1.05
	22. Service Gaps	12	.94	.55	6	3.76	.81
		6	.85	.49	6	3.84	.81

Table 4.4. Responses to the items in DASS-21

Items	Not at all (0)		Sometimes (1)		Frequently (2)		Most of the time (3)		Negative direction (2)+(3)		M	SD
	n	%	n	%	n	%	n	%	n	%		
<i>Depression</i>												
1. I couldn't seem to experience any positive feelings at all	688	41.7	684	41.5	247	15.0	29	1.8	276	16.8	.77	.76
2. I found it difficult to work up the initiative to do things	432	26.2	725	44.0	409	24.8	82	5.0	491	29.8	1.09	.84
3. I felt that I had nothing to look forward to	643	39.0	616	37.4	299	18.1	90	5.5	389	23.6	.90	.88
4. I felt down-hearted and blue	546	33.1	758	46.0	285	17.3	59	3.6	344	20.9	.91	.80
5. I was unable to become enthusiastic about anything	714	43.3	638	38.7	258	15.7	38	2.3	296	18.0	.77	.79
6. I felt I wasn't worth much as a person	856	51.9	482	29.2	249	15.1	61	3.7	310	18.8	.71	.86
7. I felt that life was meaningless	743	45.1	612	37.1	232	14.1	61	3.7	293	17.8	.76	.83
<i>Anxiety</i>												
8. I was aware of the dryness of my mouth	450	27.3	654	39.7	466	28.3	78	4.7	544	33.0	1.10	.86
9. I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)	976	59.2	467	28.3	182	11.0	23	1.4	205	12.4	.55	.74
10. I experienced trembling (e.g., in the hands)	807	49.0	534	32.4	245	14.9	62	3.8	307	18.7	.73	.85
11. I was worried about situations in which I might panic and make a fool of myself	505	30.6	751	45.6	338	20.5	54	3.3	392	23.8	.96	.80
12. I felt I was close to panic	815	49.5	545	33.1	244	14.8	44	2.7	288	17.5	.71	.82
13. I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)	843	51.2	585	35.5	182	11.0	38	2.3	220	13.3	.65	.77
14. I felt scared without good reason	828	50.2	548	33.3	228	13.8	44	2.7	272	16.5	.69	.81
15. I was aware of the dryness of my mouth	450	27.3	654	39.7	466	28.3	78	4.7	544	33.0	1.10	.86
16. I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)	976	59.2	467	28.3	182	11.0	23	1.4	205	12.4	.55	.74
17. I experienced trembling (e.g., in the hands)	807	49.0	534	32.4	245	14.9	62	3.8	307	18.7	.73	.85
18. I was worried about situations in which I might panic and make a fool of myself	505	30.6	751	45.6	338	20.5	54	3.3	392	23.8	.96	.80
19. I felt I was close to panic	815	49.5	545	33.1	244	14.8	44	2.7	288	17.5	.71	.82
20. I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)	843	51.2	585	35.5	182	11.0	38	2.3	220	13.3	.65	.77
21. I felt scared without good reason	828	50.2	548	33.3	228	13.8	44	2.7	272	16.5	.69	.81
<i>Stress</i>												
22. I found it hard to wind down	466	28.3	855	51.9	285	17.3	42	2.5	327	19.8	.94	.75
23. I tend to over-react to situations	612	37.1	679	41.2	296	18.0	61	3.7	357	21.7	.88	.83
24. I felt that I was using a lot of nervous energy	574	34.8	667	40.5	345	20.9	62	3.8	407	24.7	.94	.84
25. I found myself getting agitated	663	40.2	648	39.3	271	16.4	66	4.0	337	20.4	.84	.84
26. I found it difficult to relax	547	33.2	689	41.8	328	19.9	84	5.1	412	25.0	.97	.86
27. I was intolerant of anything that kept me from getting on with what I was doing	648	39.3	715	43.4	247	15.0	38	2.3	285	17.3	.80	.77
28. I felt that I was rather touchy	586	35.6	702	42.6	299	18.1	61	3.7	360	21.8	.90	.82

Socio-demographic information was also collected concerning the students' background (age, gender, personal financial status, etc.), family financial status during the pandemic, and whether or not they or their family member(s) were confirmed cases of COVID-19. Reliability analyses revealed that most of the scales and subscales had acceptable internal consistency (i.e., Cronbach's α values > 0.72) in the present study (Table 4.3). A full set of the questionnaires is listed in Appendix 4A.

Mental health problems

They were evaluated using six scales that are presented here:

Depression Anxiety Stress Scale (DASS-21)

DASS-21 is a 21-item self-report scale that measures three types of emotional distress, including depression (seven items, e.g., 'I wasn't able to experience any positive feelings at all'), anxiety (seven items, e.g., 'I was aware of the dryness in my mouth'), and stress (seven items, e.g., 'I found it hard to wind down') (283). The respondents indicated the frequency of experiencing each state over the past week on a four-point Likert scale (0 = Not at all; 3 = Most of the time). DASS-21 has been validated and used in studies with university students in Hong Kong with good psychometric properties (26, 284). According to Lovibond and Lovibond (283), the severity of depression, anxiety, and stress is classified into five categories based on the cut-off values for depression (Normal = 0–9; Mild = 10–13; Moderate = 14–20; Severe = 21–27; Extremely severe = 28 or above), anxiety (Normal = 0–7; Mild = 8–9; Moderate = 10–14; Severe = 15–19; Extremely severe = 20 or above) and stress (Normal = 0–14; Mild = 15–18; Moderate = 19–25; Severe = 26–33; Extremely severe = 34 or above) in the original 42-item DASS. Since DASS-21 was utilised in the present project,

the scores on the three subscales were multiplied by two to examine the prevalence rates of depression, anxiety, and stress.

Trauma Screening Questionnaire (TSQ)

COVID-19 has rapidly become a global health emergency, resulting in not only physical health symptoms but also psychological distress, as people are exposed to unexpected deaths or threats of death. In the current project, post-traumatic stress disorder (PTSD) in students during the pandemic was measured with TSQ, which was adapted from the PTSD Symptom Scale – Self-Report Version (PSS-SR) (285, 286). TSQ consists of 10 items, including 5 items corresponding to re-experiencing (e.g., 'Acting or feeling as though the COVID-19 were happening again and again') and 5 items for arousal (e.g., 'Feeling upset by reminders of COVID-19'). The respondents reported whether each symptom had occurred at least twice in the past week by using a binary response ('Yes' or 'No'). Those who reported 'Yes' on six or more items were considered as experiencing PTSD (287).

Centre for Epidemiologic Studies Depression Scale Revised (CESD-R)

CESD-R is a 20-item self-report scale measuring the symptoms of major depressive disorder listed in the DSM-V criteria (288, 289). These symptoms include dysphoria (e.g., 'I could not shake off the blues'), anhedonia (e.g., 'Nothing made me happy'), appetite (e.g., 'My appetite was poor'), sleep (e.g., 'My sleep was restless'), concentration (e.g., 'I had trouble keeping my mind on what I was doing'), worthlessness (e.g., 'I felt like a bad person'), fatigue (e.g., 'I could not get going'), agitation (e.g., 'I felt like I was moving too slowly'), and suicidal ideation (e.g., 'I wished I were dead'). The respondents were asked to indicate whether they had felt or experienced each symptom in the past week on a five-point Likert scale ('0 = Not at all or less than 1 day in the last week; 1 = 1–2 days in the last week, 2 = 3–4 days in the last week, 3 = 5–7

days in the last week; 4 = nearly every day for the last two weeks'). The CESD-R has been applied in different cultures including Chinese and demonstrated good psychometric properties (290-292). Following the instruction stated on the official website of the scale (<http://cesd-r.com>), we gave the top two responses ('5-7 days in the last week' and 'nearly every day for the last two weeks') the same value '3' in calculating the total score of CESD-R so that the cut-off value of the original CESD (i.e., '16') can be applied for CESD-R in calculating the prevalence rate of major depressive disorder.

Young's 10-item Internet Addiction Test (IAT-10)

The Chinese version of Young's IAT-10 was developed based on the English version (293, 294). It is a self-report scale that includes 10 addictive symptoms related to Internet use and has demonstrated adequate reliability in previous research (295). Participants were asked to indicate whether they experienced 10 related symptoms (e.g., 'Do you feel preoccupied with the Internet or online services and think about it while offline?') in the past year using a binary reporting scale ('Yes' or 'No'). Four or more 'Yes' responses classified the respondent as having an Internet addiction problem (296).

Suicidal Behaviour Scale (SBS)

This scale was used to measure suicidal behaviour. Students responded on a binary scale ('Yes' or 'No') regarding three major aspects of suicidal behaviours during the past year (297), including suicidal thoughts (whether they had seriously considered committing suicide), suicidal plans (whether they had any plans of committing suicide) and suicide attempts (whether they had attempted suicide).

Hopelessness

A five-item scale based on the Beck Hopelessness Scale (298) was used in the study. This scale

measures three major aspects of hopelessness: negative feelings about the future, loss of motivation and loss of hope for the future (299). Respondents were asked to indicate their level of agreement on each item using a six-point Likert scale (1 = Strongly disagree; 6 = Strongly agree).

Positive well-being

This dimension is indicated by life satisfaction and flourishing. Here, the respective scales are presented.

Satisfaction with Life Scale (SWLS)

It is a five-item scale that measures life satisfaction as an indicator of hedonic well-being (300). The respondents were required to indicate the degree of agreement to the five items (e.g., 'My life is close to my ideal state in many aspects') using a six-point Likert scale (1 = Strongly disagree; 6 = Strongly agree). This scale has been used in studies with university students in Hong Kong and has adequate internal consistency (301).

Flourishing Scale (FS)

It is an eight-item scale designed by Diener et al. (302) to assess eudaimonic well-being as self-perceived success in important areas such as relationships, self-esteem, purpose and optimism. The respondents were required to rate each statement (e.g., 'I lead a purposeful and meaningful life') on a seven-point Likert scale (1 = Strongly disagree; 7 = Strongly agree). The average score across the items was computed, with a higher score indicating a higher level of self-perceived success. The scale has been validated with good psychometric characteristics in the Chinese context (303).

Perceived threat of COVID

This dimension was assessed using the following three scales.

COVID-19 Stress Scale

This is a self-report scale developed by Taylor et al. (4) to measure the perceived threat of COVID-19. The original scale includes six subscales, with six items in each subscale. In the current study, we included two items from the subscale of COVID-19 danger (e.g., 'I am worried about catching the virus') and three items from the subscale of COVID-19 contamination (e.g., 'I had trouble sleeping because I worried about the virus'); these five items formed the new construct entitled 'danger and contamination'. Owing to differences between Hong Kong and other cultures, five items from the subscale of socio-economic consequences related to COVID-19 were revised and adapted to the local context (e.g., 'I am worried about the supermarket or drug stores running out of cleaning or disinfectant supplies'). Moreover, five items from the subscale of COVID-19 compulsive checking and reassurance seeking (e.g., 'Checking social media posts related to COVID-19') were used to measure the checking behaviour of the respondents during the pandemic. A five-point scale (0 = Not at all; 4 = Always) was used for all items.

Worries about social events

Social unrest in Hong Kong over the past few years has negatively impacted people's mental health (304). Hence, worries about social events and the threat of COVID-19 may jointly influence students' mental health and well-being. A total of 10 items constructed by the research team were applied to assess students' experiences related to social events, with seven items assessing their worries related to the social events (e.g., 'I am worried about social events' and 'I feel stressful about social events') and the remaining three items assessing their behaviours related to the social events (e.g., 'I checked social media posts concerning social events'). A five-point scale (0 = Not at all; 4 = Always) was adopted for all items.

Self-Efficacy related to COVID-19

The original General Self-Efficacy scale (GSE) is a 10-item self-report scale measuring a general sense of perceived self-efficacy in coping with stressful life events (305). Yet, to specifically measure the perceived self-efficacy related to COVID-19, we modified the GSE scale by changing the word 'difficulty' to 'COVID-19-related challenges' (e.g., 'It's easy for me to adhere to the COVID-19 preventive measure'). A four-point Likert scale (1 = Not at all true; 4 = Exactly true) was employed.

Intrapersonal factors

Factors in this aspect were measured to understand how they impact students' mental health and well-being during the COVID-19 pandemic. Four personal factors were measured: beliefs regarding adversity, resilience, emotional competence, and locus of coping (i.e., coping strategy).

Beliefs regarding adversity

The Chinese Cultural Beliefs about Adversity (CBA) scale designed by Shek et al (306) was used in this study. The scale consists of nine traditional Chinese sayings reflecting different beliefs regarding adversity, seven of which represented positive cultural beliefs (e.g., 'Hardship increases stature') and the remaining two negative cultural beliefs (e.g., 'Whether a life is good or bad depends on fate'). To avoid misunderstanding the items, in addition to the English version of the sayings, the original Chinese version was also provided as a reference. Respondents were required to indicate the degree of agreement on each item by using a six-point Likert scale (1 = Strongly disagree; 6 = Strongly agree). The responses to the two negative beliefs were reverse-coded when computing the average score. This scale has been previously used in research in Hong Kong (307).

Resilience and emotional competence

These variables were measured with the respective subscales in the Chinese Positive Youth Development Scale (CPYD), which was developed by Shek et al (308) based on the 15 PYD constructs identified by Catalano et al. (309). The resilience subscale applied in the present project included three items (e.g., ‘I would not give up easily even in face of difficulties’). The emotional competence subscale applied in this project also included three items (e.g., ‘I know how to vent my emotions appropriately in times of distress’). The respondents were required to indicate their level of agreement with the six items on a six-point Likert scale (1 = Strongly disagree; 6 = Strongly agree).

Chinese Coping Scale (CCS)

This scale was used to measure the locus of coping. CCS was developed by Shek and Mak (310) based on Hwang’s (311) conceptualisation of coping strategies. The original scale included 16 items assessing individuals’ coping responses to life stress in various areas, such as marital, family-related, interpersonal and occupation areas. Since the marital status of most university students is generally single, the present study excluded two items (i.e., ‘Seek help from spouse’ and ‘Seek help from in-laws’). Among the remaining 14 items, seven were related to internal coping (e.g., ‘Face the problem and devise the solution’) and the remaining seven were about external coping (e.g., ‘Seek help from friends’). The students reported how often they had used each coping response in the past year on a four-point Likert scale (0 = Never; 3 = Always). This scale has been used in Hong Kong and validated with good psychometric properties (312).

External ecological factors

This aspect included family functioning, peer support, and community atmosphere, which were measured by the following scales, respectively.

Chinese Family Assessment Instrument (C-FAI)

This scale was developed by Shek (313) and was utilised in the present project to measure family functioning. C-FAI consists of five subscales: communication, mutuality, conflict, parental concern, and parental control. The first three subscales are related to the concept of ‘family interaction’ and the last two are related to ‘parenting’. The present study used the three subscales related to ‘family interaction’, with each subscale containing three items (e.g., ‘Parents often talk to their children’ for the communication subscale; ‘Family members love each other’ for the mutuality subscale; ‘There is no mutual concern among family members’ for the conflict subscale). The students indicated the level of agreement with each statement on a five-point Likert scale (1 = Very unlikely; 5 = Very likely). This scale has been validated in different studies in Hong Kong (314, 315).

Peer Support

This factor was measured by the peer support subscale in the Multidimensional Scale of Perceived Social Support (MSPSS) and was used in this project to measure peer support. The 12-item MSPSS was designed by Zimet et al. (316) to assess the perceived support from three sources: family, friends, and significant others. The current study used the four items of peer support (e.g., ‘My friends really try to help me’), and the respondents indicated the extent to which they agreed with each statement on a five-point Likert scale (1 = Strongly disagree; 5 = Strongly agree).

Community Cohesion

This dimension was measured by three items selected from the Collective Efficacy Scale (CES), which was designed by Sampson et al. (317) to assess the social cohesion of a community under various circumstances (318, 319). CES consists of two subsections that measure informal social control and social

cohesion. In the current study, we selected three items related to social cohesion (e.g., ‘People around here are willing to help their neighbours’). The respondents indicated the degree of agreement for each statement on a five-point Likert scale (1 = Strongly disagree; 5 = Strongly agree).

Students’ needs and difficulties during the pandemic

This aspect included the measure of need satisfaction and difficulties during the COVID-19 pandemic.

Need satisfaction during COVID-19

Two pilot focus group interviews with 22 students were conducted before the development of the online questionnaire to collect ideas and information regarding the needs and difficulties of students during the pandemic. A total of 15 needs in different dimensions were identified from the focus group interviews, such as physical (e.g., ‘Prevent COVID-19 infection’), psychological (e.g., ‘Maintain good emotional health’), social (e.g., ‘Make new friends at the university’), familial (e.g., ‘Maintain harmony in the family’), and academic dimensions (e.g., ‘Have a good learning environment’). The respondents were asked to indicate how well these needs were met in the past year on a six-point Likert scale (1 = Not met at all; 6 = Fully met).

Difficulties and challenges during COVID-19

Twenty-four difficulties and challenges in different domains were identified from the pilot focus group interviews and previous research on COVID-19, including physical (e.g., ‘Physical symptoms, such as dry eyes and back pain, because of using the computer for long hours’), psychological (e.g., ‘Emotional symptoms, such as negative emotions and loneliness’), social (e.g., ‘Hard to make new friends’), familial (e.g., ‘I have conflicts with family members’), financial (e.g., ‘Hard to do or

get a part-time job’), academic (e.g., ‘Low learning motivation’), online learning (e.g., ‘The online learning platforms or systems do not work well on my devices’), university life (e.g., ‘I do not have a normal university life’) and career development (e.g., ‘I worry about my future career’) issues. The respondents indicated how often they encountered the listed difficulties and challenges in the past year on a five-point Likert scale (1 = Never; 5 = Always).

Evaluation of support services

Services and support that PolyU provided for students during the pandemic were assessed using three scales: students’ knowledge about, satisfaction with, and evaluation of the services.

Knowledge and perceived effectiveness of university services

The respondents were asked to indicate on a binary reporting scale (‘Yes’ or ‘No’) their awareness of the services provided by the 10 key service providers at PolyU during the pandemic: Vice President Campus Development and Facilities (VPCDF), Counselling and Wellness Section (CWS), Office of General University Requirement (OGUR), Student Affairs Office (SAO), University Health Service (UHS), Academic Registry (AR), Library, Home Faculty/Department, Student Union (SU) and Special Funding under COVID-19. Thereafter, respondents were asked to further indicate the perceived effectiveness of these different services (e.g., ‘Do you think the service is useful for you?’) on a six-point Likert scale (1 = Not at all; 6 = Completely yes).

Evaluation of university services

A total of 12 items were used to assess the respondents’ satisfaction with the services provided by the university. The items covered satisfaction with the support/service regarding different aspects, such as service providers (e.g., ‘In general, teachers and staff are competent to provide support/guidelines/services to students’), subject registration (e.g., ‘I am satisfied with the

support/guidelines/services related to subject registration'), campus guidelines (e.g., 'I am satisfied with the support/guidelines/services related to using campus facilities, such as restaurants, classrooms, and library resources), online teaching and learning (e.g., 'I am satisfied with the support/guidelines/services related to online teaching and learning, such as online platforms, class schedule, assessment, etc. '), counselling and psychological health (e.g., 'I am satisfied with the support/guidelines/services related to counselling and psychological health'), financial support (e.g., 'I am satisfied with the support/guidelines/services related to financial issue'), and career development (e.g., 'I am satisfied with the support/guidelines/services related to career development, such as internship, exchange, etc. '). Additionally, the items covered adequacy of (e.g., 'PolyU has provided sufficient support/guidelines/services for students during the COVID-19 pandemic') and accessibility to the services (e.g., 'It is easy to use the support/guidelines/services provided by PolyU'). The respondents indicated their agreement with each statement on a six-point Likert scale (1 = Strongly disagree; 6 = Strongly agree).

Service gaps

Six aspects of service gaps were measured based on the extent to which the services provided by the university met the respondents' expectations. The aspects were guidelines for subject registration, presentation of campus facilities, support related to online teaching and learning, counselling or psychological support, financial support and career development. A six-point Likert scale (1 = Not at all; 6 = Completely yes) was used.

Socio-demographic information

Several socio-demographic variables were measured in this project, including respondents' age and gender, year of studies, faculty and major, mode of study, and whether they were local or international students (place of origin). Moreover, the students were also asked to provide information on their living status and place of

residence during the pandemic, their own financial status and that of their family (i.e., whether their family was a recipient of CSSA that is financial assistance provided by the Hong Kong Government, and whether their family members were unemployed during the pandemic). We also asked whether the respondent or their family members were confirmed cases of COVID-19.

Data analytical plan

We used different statistical analyses to address the research questions outlined. First, descriptive statistical analyses were performed to understand the profiles of the participants' mental health problems, positive well-being, perceived COVID-19 threats, and related personal and environmental correlates (Tables 4.4–4.21). Meanwhile, we specifically examined the prevalence of mental health problems among students by employing the recommended cut-off scores for DASS-21, TSQ, CESD-R and IAT-10 (Tables 4.5–4.8). Next, we examined the participants' needs and difficulties and how well their needs were met to identify the stressors of students under the pandemic (Tables 4.22 and 4.23). Then, we examined the evaluation of the university services and the related service gaps (Tables 4.24–4.28).

Correlational analyses were performed to examine the associations between perceived COVID-19 stress, personal and environmental correlates or sociodemographic factors with mental health problems and positive well-being (Tables 4.29–4.30). Additionally, we examined the correlations between the satisfaction of needs, perceived difficulties or the evaluation of the services and students' mental health problems and positive well-being (Table 4.31). Last, structural equation modelling (SEM) was performed using AMOS 26.0 to further test the predictive effect of the related risk and protective factors (personal and environmental correlates) on students' mental health problems and positive well-being (Table 4.32 and Figures 4.2–4.5).

Table 4.5. Severity distribution of depression, anxiety, and stress based on DASS-21

Subscales	Normal	Mild	Moderate	Severe	Extremely Severe	Distribution ^e
Depression ^a	736 (44.7%)	252 (15.3%)	377 (22.9%)	171 (10.4%)	112 (6.8%)	With Symptoms ^d : 912 (55.3%) Moderate to above: 660 (40.1%) Severe to above: 283 (17.2%)
Anxiety ^b	643 (39.0%)	169 (10.3%)	378 (22.9%)	175 (10.6%)	283 (17.2%)	With Symptoms ^d : 1005 (61.0%) Moderate to above: 836 (50.7%) Severe to above: 458 (27.8%)
Stress ^c	1068 (64.8%)	214 (13.0%)	184 (11.2%)	151 (9.2%)	31 (1.9%)	With Symptoms ^d : 580 (35.2%) Moderate to above: 366 (22.3%) Severe to above: 182 (11.1%)

Note. ^a Depression: Normal = 0-9, Mild = 10-13, Moderate = 14-20, Severe = 21-27, Extremely severe = 28 or above. ^b Anxiety: Normal = 0-7, Mild = 8-9, Moderate = 10-14, Severe = 15-19, Extremely severe = 20 or above. ^c Stress: Normal = 0-14, Mild = 15-18, Moderate = 19-25, Severe = 26-33, Extremely severe = 34 or above. ^d A score of 10 or above for depression, a score of 8 or above for anxiety, or a score of 15 or above for stress will be defined "with symptoms" in the subscales. ^e The scores on the three subscales were multiplied by 2 in the classification and calculation of the prevalence as DASS-21 was used.

Table 4.6. Experiences of post-trauma stress disorder (PTSD) syndromes of students in the past week by TSQ

Items	Yes		No	
	n	%	N	%
1. Upsetting thoughts or memories about COVID-19 that have come into your mind against your will	744	45.1	904	54.9
2. Upsetting dreams about the COVID-19 pandemic	396	24.0	1252	76.0
3. Acting or feeling as though the COVID-19 pandemic was happening again and again	829	50.3	819	49.7
4. Feeling upset by reminders of COVID-19	763	46.3	885	53.7
5. Bodily reactions (such as fast heartbeat, stomach-churning, sweatiness, dizziness) when reminded of COVID-19	353	21.4	1295	78.6
6. Difficulty falling or staying asleep	511	31.0	1137	69.0
7. Irritability or outbursts of anger	399	24.2	1249	75.8
8. Difficulty concentrating	725	44.0	923	56.0
9. Heightened awareness of potential dangers to yourself and others	718	43.6	930	56.4
10. Being jumpy or being startled at something unexpected	550	33.4	1098	66.6
	Met criteria		Not met	
Overall post-trauma stress disorder syndromes of students (met 6 or more criteria)	367 (22.3%)		1281 (77.7%)	

Table 4.7. Experience of symptoms of Major Depressive Disorder by CESD-R

Items	Not at all or less than 1 day (0)		1-2 days (1)		3-4 days (2)		5-7 days (3)		Nearly every day for 2 weeks (4)		Nearly half time in a week (2)+(3)+(4)		M	SD
	n	%	n	%	n	%	n	%	n	%	n	%		
<i>Sadness/Dysphoria</i>														
1. I could not shake off the blues	698	42.4	486	29.5	294	17.8	150	9.1	20	1.2	464	28.1	.97	1.04
2. I felt depressed	568	34.5	621	37.7	300	18.2	136	8.3	23	1.4	459	27.9	1.04	.10
3. I felt sad	530	32.3	631	38.3	309	18.8	147	8.9	31	1.9	487	29.6	1.04	.99
<i>Loss of Interest/Anhedonia</i>														
4. Nothing made me happy	756	45.9	461	28.0	278	16.9	128	7.8	25	1.5	431	26.2	.91	1.03
5. I lost interest in my usual activities	676	41.0	495	30.0	294	17.8	149	9.0	34	2.1	477	28.9	1.01	1.07
<i>Appetite</i>														
6. My appetite was poor	748	45.4	524	31.8	280	17.0	75	4.6	21	1.3	376	22.9	.85	.95
7. I lost a lot of weight without trying to	1111	67.4	254	15.4	170	10.3	98	5.9	15	0.9	283	17.1	.58	.96
<i>Sleep</i>														
8. My sleep was restless	647	39.3	497	30.2	335	20.3	141	8.6	28	1.7	504	30.6	1.03	1.04
9. I slept much more than usual	512	31.1	500	30.3	342	20.8	215	13.0	79	4.8	636	38.6	1.30	1.18
10. I had a lot of trouble getting to sleep	767	46.5	435	26.4	293	17.8	110	6.7	43	2.6	446	27.1	.92	1.07
<i>Concentration</i>														
11. I had trouble keeping my mind on what I was doing	632	38.3	580	35.2	311	18.9	109	6.6	16	1.0	436	26.5	.97	.96
12. I could not focus on the important things	598	36.3	549	33.3	318	19.3	142	8.6	41	2.5	501	30.4	1.08	1.06
<i>Guilt/Worthlessness</i>														
13. I felt like a bad person	828	50.2	399	24.2	256	15.5	131	7.9	34	2.1	421	25.5	.87	1.07
14. I did not like myself	799	48.5	427	25.9	243	14.7	136	8.3	43	2.6	422	25.6	.91	1.09
<i>Fatigue/Tired</i>														
15. I could not get going	686	41.6	519	31.5	277	16.8	142	8.6	24	1.5	443	26.9	.97	1.03
16. I was tired all the time	475	28.8	520	31.6	397	24.1	176	10.7	80	4.9	653	39.7	1.31	1.14
<i>Agitation/Movement</i>														
17. I felt like I was moving too slowly	633	38.4	482	29.2	306	18.6	178	10.8	49	3.0	533	32.4	1.11	1.12
18. I felt fidgety	760	46.1	455	27.6	291	17.7	121	7.3	21	1.3	433	26.3	.90	1.02
<i>Suicidal ideation</i>														
19. I wished I were dead	1122	68.1	271	16.4	159	9.6	74	4.5	22	1.3	255	15.4	.55	.93
20. I wanted to hurt myself	1211	73.5	219	13.3	146	8.9	59	3.6	13	0.8	218	13.3	.45	.86
	With symptoms (scored 16 or above)									Without symptoms (scored below 16)				
Overall major depressive disorder of students (total score) *	798 (48.4%)									850 (51.6%)				
Note. *The total score was calculated by coding the last option "nearly every day for 2 weeks" into "3", the same as the option "5-6 days in a week."														

Table 4.8. Experiences of the Internet addiction symptoms of students by IAT-10

Items	Yes		No	
	n	%	n	%
1. Do you feel preoccupied with the Internet or online services and think about it while off-line?	761	46.2	887	53.8
2. Do you feel a need to spend more and more time online to achieve satisfaction?	795	48.2	853	51.8
3. Have you repeatedly made unsuccessful efforts to control, cut back, or stop Internet use?	675	41.0	973	59.0
4. Do you feel restless, moody, depressed, or irritable when attempting to cut down or stop Internet use?	622	37.7	1026	62.3
5. Do you stay online longer than originally intended?	953	57.8	695	42.2
6. Have you jeopardised or risked the loss of a significant relationship, job, education, or career opportunity because of the Internet?	413	25.1	1235	74.9
7. Have you lied to family members, teachers, social workers, or others to conceal the extent of involvement with the Internet?	416	25.2	1232	74.8
8. Do you use the Internet as a way of escaping from problems or of relieving a dysphoric mood (e.g., feelings of helplessness, guilt, anxiety, depression)?	761	46.2	887	53.8
9. Do you keep returning even after spending too much money on online fees?	361	21.9	1287	78.1
10. Do you feel depressed, irritable, moody, or anxious when you are offline?	475	28.8	1173	71.2
	Addicted		Not addicted	
Overall Internet Addicted (met 4 or more criteria)	856 (51.9%)		792 (48.1%)	

Table 4.9. Suicidal behaviour of students

Items	Yes		No	
	n	%	n	%
1. Suicidal thoughts	203	12.3	1445	87.7
2. Suicidal plans	68	4.1	1580	95.9
3. Suicidal attempts	72	4.4	1576	95.6

Table 4.10. Hopelessness of students

Items	Strongly disagree (1)		Disagree (2)		Slightly disagree (3)		Positive responses (1)+(2)+(3)		Slightly agree (4)		Agree (5)		Strongly agree (6)		Negative responses (4)+(5)+(6)		M	SD
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%		
	1. I do not anticipate succeeding to get what I want	48	2.9	252	15.3	578	35.1	878	53.3	545	33.1	191	11.6	34	2.1	770		
2. I can foresee that my future is miserable	77	4.7	290	17.6	439	26.6	806	48.9	576	35.0	223	13.5	43	2.6	842	51.1	3.43	1.14
3. I would give up because I can't make things better for myself	89	5.4	341	20.7	598	36.3	1028	62.4	472	28.6	131	7.9	17	1.0	620	37.6	3.16	1.05
4. To me, the future seems gloomy	83	5.0	300	18.2	434	26.3	817	49.6	575	34.9	209	12.7	47	2.9	831	50.4	3.41	1.15
5. Things never happen as I want them to	61	3.7	212	12.9	412	25.0	685	41.6	620	37.6	278	16.9	65	3.9	963	58.4	3.63	1.14

Table 4.11. Life satisfaction of students

Items	Strongly disagree (1)		Disagree (2)		Slightly disagree (3)		Negative responses (1)+(2)+(3)		Slightly agree (4)		Agree (5)		Strongly agree (6)		Positive responses (4)+(5)+(6)		M	SD
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%		
1. My life is close to my ideal state in many aspects	75	4.6	318	19.3	487	29.6	880	53.4	540	32.8	205	12.4	23	1.4	768	46.6	3.33	1.10
2. The conditions of my life are excellent	63	3.8	263	16.0	429	26.0	755	45.8	569	34.5	292	17.7	32	1.9	893	54.2	3.52	1.13
3. I am satisfied with life	52	3.2	253	15.4	414	25.1	719	43.6	554	33.6	329	20.0	46	2.8	929	56.4	3.60	1.14
4. So far, I have gotten the important things I want in life	63	3.8	289	17.5	465	28.2	817	49.6	523	31.7	262	15.9	46	2.8	831	50.4	3.47	1.15
5. If I can live again, there is almost nothing I want to change	213	12.9	429	26.0	430	26.1	1072	65.0	369	22.4	170	10.3	37	2.2	576	35.0	2.98	1.27

Table 4.12. Flourishing of students

Items	Strongly disagree (1)		Disagree (2)		Slightly disagree (3)		Negative responses (1)+(2)+(3)		Neutral (4)		Slightly agree (5)		Agree (6)		Strongly agree (7)		Positive responses (5)+(6)+(7)		M	SD
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%		
1. I lead a purposeful and meaningful life.	34	2.1	153	9.3	289	17.5	476	28.9	507	30.8	400	24.3	225	13.7	40	2.4	665	40.4	4.17	1.31
2. My social relationships are supportive and rewarding.	16	1.0	101	6.1	210	12.7	327	19.8	404	24.5	510	30.9	354	21.5	53	3.2	917	55.6	4.56	1.27
3. I am engaged and interested in my daily activities.	21	1.3	106	6.4	272	16.5	399	24.2	429	26.0	482	29.2	291	17.7	47	2.9	820	49.8	4.40	1.28
4. I actively contribute to the happiness and well-being of others.	27	1.6	107	6.5	226	13.7	360	21.8	384	23.3	521	31.6	328	19.9	55	3.3	904	54.9	4.50	1.31
5. I am competent and capable in the activities that are important to me.	26	1.6	88	5.3	195	11.8	309	18.8	403	24.5	562	34.1	335	20.3	39	2.4	936	56.8	4.55	1.24
6. I am a good person and live a good life.	20	1.2	84	5.1	173	10.5	277	16.8	403	24.5	522	31.7	376	22.8	70	4.2	968	58.7	4.66	1.26
7. I am optimistic about my future.	45	2.7	120	7.3	274	16.6	439	26.6	377	22.9	485	29.4	299	18.1	48	2.9	832	50.5	4.35	1.37
8. People respect me.	18	1.1	42	2.5	140	8.5	200	12.1	400	24.3	513	31.1	466	28.3	69	4.2	1048	63.6	4.83	1.19

Table 4.13. Perceived stress related to COVID-19

Items	Not at all (0)		Rarely (1)		Not frequent (0)+(1)		Sometimes (2)		Often (3)		Always (4)		Frequent (3)+(4)		M	SD
	n	%	n	%	n	%	n	%	n	%	n	%	n	%		
<i>Danger and contamination</i>																
1. I am worried about catching the virus	133	8.1	468	28.4	601	36.5	665	40.4	266	16.1	116	7.0	382	23.2	1.86	1.01
2. I am worried that basic hygiene (e.g., handwashing) is not enough to keep me safe from the virus	228	13.8	490	29.7	718	43.5	564	34.2	251	15.2	115	7.0	366	22.2	1.72	1.10
3. I am worried that people around me will infect me with the virus	234	14.2	436	26.5	670	40.7	578	35.1	269	16.3	131	7.9	400	24.3	1.77	1.12
4. I am worried that if I touched something in a public space (e.g., handrail, door handle), I would catch the virus	214	13.0	425	25.8	639	38.8	560	34.0	283	17.2	166	10.1	449	27.2	1.86	1.15
5. I am worried that if someone coughed or sneezed near me, I would catch the virus	163	9.9	299	18.1	462	28.0	570	34.6	353	21.4	263	16.0	616	37.4	2.15	1.19
<i>Socio-economic Consequence</i>																
6. I am worried about supermarkets running out of food or water	602	36.5	570	34.6	1172	71.1	352	21.4	108	6.6	16	1.0	124	7.5	1.01	.96
7. I am worried about supermarkets or drug stores running out of cleaning or disinfectant supplies	511	31.0	528	32.0	1039	63.0	438	26.6	150	9.1	21	1.3	171	10.4	1.18	1.01
8. I am worried that online shops running out of supplies	650	39.4	515	31.3	1165	70.7	343	20.8	122	7.4	18	1.1	140	8.5	.99	1.00
9. I am worried that online shops' delivery will be delayed	569	34.5	491	29.8	1060	64.3	407	24.7	152	9.2	29	1.8	181	11.0	1.14	1.05
10. I am worried that the economy will collapse because of COVID-19	304	18.4	450	27.3	754	45.7	571	34.6	247	15.0	76	4.6	323	19.6	1.60	1.09
<i>Checking Behaviour</i>																
11. Social media posts concerning COVID-19	114	6.9	318	19.3	432	26.2	606	36.8	452	27.4	158	9.6	610	37.0	2.13	1.05
12. Seeking reassurance from friends or family about COVID-19	292	17.7	473	28.7	765	46.4	553	33.6	253	15.4	77	4.7	330	20.0	1.61	1.09
13. Checking your own body for signs of infection (e.g., taking your temperature)	262	15.9	457	27.7	719	43.6	587	35.6	232	14.1	110	6.7	342	20.8	1.68	1.10
14. Asking health professionals (e.g., doctors or pharmacists) for advice about COVID-19	686	41.6	487	29.6	1173	71.2	348	21.1	97	5.9	30	1.8	127	7.7	.97	1.01
15. Searched the Internet for treatments for COVID-19	429	26.0	480	29.1	909	55.1	482	29.2	182	11.0	75	4.6	257	15.6	1.39	1.12

Table 4.14. Perceived stress related to the social unrest

Items	Not at all (0)		Rarely (1)		Not frequent (0)+(1)		Sometimes (2)		Often (3)		Always (4)		Frequent (3)+(4)		M	SD
	n	%	n	%	n	%	n	%	n	%	n	%	n	%		
	<i>Worries</i>															
1. I am worried about the social event	158	9.6	350	21.2	508	30.8	595	36.1	390	23.7	155	9.4	545	33.1	2.02	1.10
2. I feel stressed about the social event	170	10.3	328	19.9	498	30.2	581	35.3	432	26.2	137	8.3	569	34.5	2.02	1.10
3. I am worried that the Hong Kong Government won't be able to protect my loved one	141	8.6	238	14.4	379	23	418	25.4	387	23.5	464	28.2	851	51.6	2.48	1.27
4. I am disturbed by the violence involved in the social event	360	21.8	388	23.5	748	45.3	483	29.3	281	17.1	136	8.3	417	25.3	1.66	1.22
5. I am worried that our lives would be adversely affected by the social event	251	15.2	338	20.5	589	35.7	528	32.0	337	20.4	194	11.8	531	32.2	1.93	1.22
6. I am worried that freedom in Hong Kong would diminish	106	6.4	154	9.3	260	15.7	321	19.5	371	22.5	696	42.2	1067	64.7	2.85	1.24
7. I am disappointed by the action taken by the Hong Kong Government to handle the social event	100	6.1	177	10.7	277	16.8	314	19.1	323	19.6	734	44.5	1057	64.1	2.86	1.26
<i>Behaviour related to the social unrest</i>																
8. Checked social media posts concerning the social event	104	6.3	203	12.3	307	18.6	472	28.6	474	28.8	395	24.0	869	52.7	2.52	1.16
9. Discussed with friends on the social event	98	5.9	252	15.3	350	21.2	573	34.8	428	26.0	297	18.0	725	44.0	2.35	1.12
10. Searched the Internet for news about the social event	93	5.6	226	13.7	319	19.3	537	32.6	473	28.7	319	19.4	792	48.1	2.42	1.12

Table 4.15. Perceived self-efficacy of students related to COVID-19

Items	Not at all (1)		Barely true (2)		Negative responses (1)+(2)		Moderately true (3)		Exactly True (4)		Positive responses (3)+(4)		M	SD
	n	%	n	%	n	%	n	%	n	%	n	%		
	1. I can always solve the difficult problems facing me related to COVID-19													
2. I am confident in my ability to achieve my educational goals during the COVID-19 outbreak														
3. It's easy for me to adhere to the COVID-19 preventive measures														
4. I am sure I can handle efficiently the unexpected events of COVID-19														
5. I can manage the emergency situations that resulted from COVID-19														
6. I can solve most of the problems caused by social distance if I make the necessary effort to overcome them														
7. My abilities help me cope with home quarantine														
8. When I encounter problems related to home quarantine requirements, I am able to find many alternative solutions														
9. When there are crises arising from COVID-19, I can usually think of suitable and alternative solutions														
10. I can usually overcome problems related to distance education during the spread of the COVID-19														

Results

Table 4.4 outlines the students' experiences of depression, anxiety, and stress in the past week as measured by DASS-21. In the case of depression, approximately 30% of the students reported that they 'found it difficult to work up the initiative to do things' frequently or most of the time in the past week. Over one-fifth of the students felt they had nothing to look forward to (23.6%) and were

down-hearted and blue (20.9%) frequently or most of the time. As of anxiety, 33% of the students were aware of mouth dryness, and 23.8% worried about situations in which they might panic or make a fool of themselves frequently or most of the time. In the stress dimension, 25.0% of the students found it difficult to relax, 24.7% of the students felt they were using a lot of nervous energy, 21.8% felt that they were rather touchy and 21.7% tended to overreact to situations frequently or most of the time.

Table 4.16. Chinese beliefs regarding adversity

Items	Strongly disagree (1)		Disagree (2)		Slightly disagree (3)		Negative responses (1)+(2)+(3)		Slightly agree (4)		Agree (5)		Strongly agree (6)		Positive responses (4)+(5)+(6)		M	SD
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%		
1. Hardship increases stature (吃得苦中苦，方為人人)	26	1.6	93	5.6	303	18.4	422	25.6	606	36.8	485	29.4	135	8.2	1226	74.4	4.11	1.08
2. When there is a will, there is a way (有志者事竟成)	44	2.7	141	8.6	340	20.6	525	31.9	551	33.4	467	28.3	105	6.4	1123	68.1	3.95	1.15
3. If you work hard enough, you can turn an iron rod into a needle (只要有恆心，鐵柱磨成針)	63	3.8	129	7.8	293	17.8	485	29.4	592	35.9	452	27.4	119	7.2	1163	70.6	3.97	1.18
4. Diligence is an important factor to overcome poverty (要戰勝貧窮，勤奮是一個重要的因素)	43	2.6	95	5.8	284	17.2	422	25.6	590	35.8	499	30.3	137	8.3	1226	74.4	4.10	1.12
5. Man is the master of his own fate (人定勝天)	68	4.1	164	10.0	373	22.6	605	36.7	629	38.2	346	21.0	68	4.1	1043	63.3	3.74	1.14
6. Happy is he who is contented (知足常樂)	25	1.5	79	4.8	212	12.9	316	19.2	492	29.9	551	33.4	289	17.5	1332	80.8	4.42	1.15
7. Man is not born to greatness; he achieves it by his own effort (將相本無種，男兒當自強)	41	2.5	97	5.9	339	20.6	477	28.9	673	40.8	408	24.8	90	5.5	1171	71.1	3.96	1.06
8. Whether a life is good or bad depends on fate (好醜命生成)*	67	4.1	226	13.7	431	26.2	724	43.9	545	33.1	303	18.4	76	4.6	924	56.1	3.62	1.18
9. Poverty stifles ambition (人窮志短)*	69	4.2	259	15.7	414	25.1	742	45.0	528	32.0	294	17.8	84	5.1	906	55.0	3.59	1.21

Table 4.17. Resilience and emotional competence of students

Items	Strongly disagree (1)		Disagree (2)		Slightly disagree (3)		Negative responses (1)+(2)+(3)		Slightly agree (4)		Agree (5)		Strongly agree (6)		Positive responses (4)+(5)+(6)		M	SD
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%		
<i>Resilience</i>																		
1. I would not give up easily even in face of difficulties	13	0.8	101	6.1	356	21.6	470	28.6	714	43.3	396	24.0	68	4.1	1178	71.4	3.96	.97
2. Even though the future is not very optimistic, I would still hang on	11	0.7	74	4.5	277	16.8	362	21.9	723	43.9	502	30.5	61	3.7	1286	78.1	4.10	.92
3. I believe there are always solutions to problems in life	21	1.3	109	6.6	329	20.0	459	27.9	623	37.8	475	28.8	91	5.5	1189	72.1	4.03	1.04
<i>Emotional competence</i>																		
4. I know how to ventilate my emotions appropriately in times of distress	33	2.0	126	7.6	358	21.7	517	31.4	669	40.6	408	24.8	54	3.3	1131	68.6	3.88	1.03
5. During conflicts, I can still cope with my emotions	39	2.4	140	8.5	334	20.3	513	31.1	658	39.9	423	25.7	54	3.3	1135	68.9	3.88	1.06
6. I can put myself in others' shoes to understand their worldviews and feelings	26	1.6	89	5.4	276	16.7	391	23.7	606	36.8	533	32.3	118	7.2	1257	76.3	4.14	1.06

Table 4.5 presents the prevalence rates of depression, anxiety, and stress among students based on the cut-off values recommended by Lovibond and Lovibond (283). In our study, 55.3% (95% CI [52.7, 57.8]), 61.0% (95% CI [58.7, 63.2]), and 35.2% (95% CI [32.6, 37.5]) of the students showed mild and above levels of depression, anxiety and stress, respectively. The findings reflected that depression, anxiety, and stress were prevalent in the current sample during the pandemic.

As for the PTSD syndrome (Table 4.6) evaluated with TSQ, the results revealed that approximately 20%–50% of the students displayed PTSD-related symptoms. For example, 50.3% of the students experienced symptoms of acting or feeling as though COVID-19 was

happening again and again, 46.3% felt upset by reminders of COVID-19, 45.1% had upsetting thoughts or memories of COVID-19 that had come into their minds against their will, 44.0% found it difficult to concentrate and 43.6% had a heightened awareness of potential dangers to themselves and others at least twice in the past week. In addition, 33.4% of the students reported that they were jumpy or were startled at something unexpected, 24.2% reported that they were irritable or had outbursts of anger, 24.0% had upsetting dreams regarding COVID-19 and 21.4% had bodily reactions. Based on Brewin et al. (287), where a score of 6 or higher in TSQ meets the screening criteria for PTSD, 22.3% (95% CI [20.5, 24.5]) of the students in the present study met the criteria of having PTSD.

Table 4.18. Coping strategies used by students

Items	Never (0)		Rarely (1)		Not frequently used (0)+(1)		Often (2)		Always (3)		Frequently used (2)+(3)		M	SD
	n	%	n	%	n	%	n	%	n	%	n	%		
<i>Internal coping strategies</i>														
1. Face the problem and devise the solution	23	1.4	357	21.7	380	23.1	1045	63.4	223	13.5	1268	76.9	1.89	.63
2. Forbear and remain calm	33	2.0	423	25.7	456	27.7	969	58.8	223	13.5	1192	72.3	1.84	.67
3. Maintain optimism and self-confidence	47	2.9	562	34.1	609	37.0	862	52.3	177	10.7	1039	63.0	1.71	.69
4. Adopt an attitude of “to see a thing through” (i.e., to be resigned to what is inevitable). (自己看開一點)	176	10.7	399	24.2	575	34.9	820	49.8	253	15.4	1073	65.2	1.70	.86
5. Adopt an attitude of “a sailboat going through the current will automatically pass the arches of a bridge” (相信「船到橋頭自然直」)	154	9.3	493	29.9	647	39.2	756	45.9	245	14.9	1001	60.8	1.66	.84
6. Adopt an attitude of “coping with the shifting events by sticking to one’s unchangeable ways” (「以不變應萬變」)	229	13.9	738	44.8	967	58.7	563	34.2	118	7.2	681	41.4	1.35	.81
7. Employ means to make one feel more comfortable. (Drown the worries by drinking) (用方法開解自己, 如娛樂、飲酒)	194	11.8	556	33.7	750	45.5	660	40.0	238	14.4	898	54.4	1.57	.88
<i>External coping strategies</i>														
8. Seek help from friends	90	5.5	461	28.0	551	33.5	769	46.7	328	19.9	1097	66.6	1.81	.81
9. Seek help from supervisors/teachers	364	22.1	735	44.6	1099	66.7	464	28.2	85	5.2	549	33.4	1.16	.83
10. Seek help from relatives (excluding parents)	602	36.5	614	37.3	1216	73.8	362	22.0	70	4.2	432	26.2	.94	.87
11. Seek help from parents	320	19.4	667	40.5	987	59.9	509	30.9	152	9.2	661	40.1	1.30	.86
12. Seek help from professional helpers (e.g., counsellors, etc.)	662	40.2	635	38.5	1297	78.7	295	17.9	56	3.4	351	21.3	.85	.83
13. Seek help from fortune tellers (向相士/算命先生求助)	1164	70.6	339	20.6	1503	91.2	127	7.7	18	1.1	145	8.8	.39	.68
14. Appeal to a supernatural power (祈求神明幫助)	622	37.7	604	36.7	1226	74.4	341	20.7	81	4.9	422	25.6	.93	.88

Table 4.19. Perceived family function among students

Items	Very unlike (1)		Somewhat unlike (2)		Negative responses (1)+(2)		Neutral (3)		Somewhat like (4)		Very like (5)		Positive responses (4)+(5)		M	SD
	n	%	n	%	n	%	n	%	n	%	n	%	n	%		
<i>Family communication</i>																
1. Family members are cohesive	46	2.8	183	11.1	229	13.9	575	34.9	631	38.3	213	12.9	844	51.2	3.47	.95
2. Parents understand children's mind	98	5.9	294	17.8	392	23.7	589	35.7	554	33.6	113	6.9	667	40.5	3.18	1.00
3. Parents often talk to their children	65	3.9	234	14.2	299	18.1	585	35.5	578	35.1	186	11.3	764	46.4	3.36	.99
<i>Family mutuality</i>																
4. Family members love each other	41	2.5	181	11.0	222	13.5	525	31.9	605	36.7	296	18.0	901	54.7	3.57	.99
5. Family members get along well	31	1.9	171	10.4	202	12.3	500	30.3	722	43.8	224	13.6	946	57.4	3.57	.92
6. We have good family relationships	34	2.1	178	10.8	212	12.9	500	30.3	701	42.5	235	14.3	936	56.8	3.56	.93
<i>Family conflict</i>																
7. There is no mutual concern among family members	66	4.0	338	20.5	404	24.5	674	40.9	443	26.9	127	7.7	570	34.6	3.14	.96
8. There is much friction among family members	101	6.1	423	25.7	524	31.8	571	34.6	457	27.7	96	5.8	553	33.5	3.01	1.01
9. There is a lack of harmony among family members	196	11.9	503	30.5	699	42.4	549	33.3	319	19.4	81	4.9	400	24.3	2.75	1.05

Table 4.20. Perceived peer support among students

Items	Strongly disagree (1)		Disagree (2)		Negative responses (1)+(2)		Neutral (3)		Agree (4)		Strongly agree (5)		Positive responses (4)+(5)		M	SD
	n	%	n	%	n	%	n	%	n	%	n	%	n	%		
1. My friends really try to help me	10	0.6	91	5.5	101	6.1	455	27.6	890	54.0	202	12.3	1092	66.3	3.72	.77
2. I can count on my friends when things go wrong	17	1.0	130	7.9	147	8.9	442	26.8	893	54.2	166	10.1	1059	64.3	3.64	.81
3. I have friends with whom I can share my joys and sorrows	29	1.8	127	7.7	156	9.5	384	23.3	846	51.3	262	15.9	1108	67.2	3.72	.88
4. I can talk about my problems with my friends	37	2.2	135	8.2	172	10.4	327	19.8	872	52.9	277	16.8	1149	69.7	3.74	.91

Table 4.21. Perceived community support among students

Items	Strongly disagree (1)		Disagree (2)		Negative responses (1)+(2)		Neutral (3)		Agree (4)		Strongly agree (5)		Positive responses (4)+(5)		M	SD
	n	%	n	%	n	%	n	%	n	%	n	%	n	%		
1. People around here are willing to help their neighbours	41	2.5	228	13.8	269	16.3	776	47.1	546	33.1	57	3.5	603	36.6	3.21	.81
2. Most people in this community are friendly	23	1.4	156	9.5	179	10.9	687	41.7	724	43.9	58	3.5	782	47.5	3.39	.76
3. People in this area do things to help the community	60	3.6	220	13.3	280	16.9	772	46.8	540	32.8	56	3.4	596	36.2	3.19	.84

The 20-item CESD-R was used to measure the symptoms of major depressive disorder in the past week (Table 4.7). Generally speaking, 38.6% of the students reported that they slept much more than usual in the past week for 3–4 days or more, 39.7% of the students felt they were tired all the time for 3–4 days or more, and 32.4% of them felt like they were moving too slowly for 3–4 days or more. Additionally, 15.4% of the students reported wishing they were dead and 13.3% reported wanting to hurt themselves for more than 3–4 days. The results also revealed that 48.4% (95% CI [45.9, 51.1]) of the students scored 16 or higher, which suggested that they displayed symptoms of depressive disorder that are of clinical significance. This result echoes the findings obtained with DASS-21.

Concerning Internet addiction (Table 4.8), more than 20% of the students displayed the listed symptoms. For example, 57.8% of the students reported remaining online longer than originally intended. Approximately half of the students (48.2%) felt the need to spend an increasing amount of time online to achieve satisfaction, 46.2% of the students felt preoccupied with the Internet or online services, thought about it while offline, and 46.2% used the Internet as a means of escaping problems or relieving a dysphoric mood. The students reported having other symptoms, such as ‘I felt restless, moody, depressed, or irritable when attempting to cut down or stop Internet use’ (37.7%), ‘I lied to family members, teachers, social workers, or others to conceal the extent of my involvement with the Internet’ (25.2%), ‘I jeopardised or risked the loss of a significant relationship, job, educational or career opportunity because of the Internet’ (25.1%), and ‘I kept returning even after spending too much money on online fees’ (21.9%). Overall, 51.9% (95% CI [49.6%, 54.2%]) of the students reported four or more symptoms, indicating that they had Internet addiction problems (295).

Table 4.9 outlines the results concerning suicidal behaviours among the study sample. Notably, 12.3% of the students reported having had suicidal thoughts. However, most of the

students did not have suicidal plans (95.9%) or suicide attempts (95.6%) in the past year.

Regarding hopelessness (Table 4.10), approximately 37%–59% of the students reported hopeless feelings in different aspects. For example, 58.4% of the students agreed that ‘Things never happen as I want them to’. Approximately half of them agreed that ‘I can foresee that my future is miserable’ (51.1%), ‘future seems gloomy’ (50.4%), and ‘I do not anticipate succeeding to get what I want’ (46.7%). Additionally, more than a third of the students agreed that ‘I would give up because I can’t make things better for myself’ (37.6%).

Profiles of positive well-being

Life satisfaction and flourishing were used in assessing students’ positive well-being of students. As for life satisfaction (Table 4.11), the students did not report high levels of satisfaction with their lives, such that in all the statements approximately half of the students gave negative responses. For example, 65.0% of the students disagreed that there was almost nothing they want to change if they were to live again, while 53.4% disagreed that their life is close to their ideal state in numerous aspects. With regard to flourishing (Table 4.12), the results were similar to those of life satisfaction. Approximately 40%–64% of the students reported positive perceptions of their success in important areas, and more than 20% indicated negative perceptions in four items. For example, 28.9% of the students disagreed that they ‘lead a purposeful and meaningful life’, approximately one-fourth of the students disagreed that they were ‘optimistic about their future’ (26.6%) and ‘engaged and interested in their daily activities’ (24.2%); while 21.8% of the students disagreed that they ‘actively contribute to the happiness and well-being of others’.

Perceived stress and self-efficacy related to COVID-19

To measure the students’ perceived stress of COVID-19, the aspects of perceived danger and contamination, socio-economic consequences,

and checking behaviour were evaluated (Table 4.13). Since COVID-19 is a disease caused by a new coronavirus and is spread through various channels, many students expressed their concerns and worries about catching the virus in the public space or when in contact with others. For example, 37.4% of the students often or always worried that they would catch the virus if someone coughed or sneezed near them while 27.2% worried this would happen if they touched something in a public space. Approximately one-fourth of the students often or always worried that people around them would infect them with the virus (24.3%) and worried about catching the virus (23.2%).

In comparison, students were relatively less concerned regarding the influence of the COVID-19 virus on the socio-economic aspect. Less than one-fifth (19.6%) of the students often or always worried that the economy would collapse because of COVID-19. As for checking behaviours, 37% of the students reported often or always checking posts related to COVID-19 on social media. Approximately one-fifth of the students often or always checked their bodies for signs of infection (20.8%) and sought reassurance from friends or family regarding COVID-19 (20.0%). However, it is notable that only 7.7% of the students reported having often or always asked health professionals for advice about COVID-19.

Two subscales (worries and checking behaviour) were used to measure students' perceived stress due to a social event (Table 4.14). Concerning the worries, approximately 65% of the students often or always worried that freedom in Hong Kong would diminish (64.7%) and were disappointed by the actions taken by the Hong Kong government to handle social events (64.1%). In addition, 51.6% of the students worried that 'the Hong Kong Government won't be able to protect my loved ones'. Over 30% of the students felt stressed about social events (34.5%) and worried that their lives would be adversely affected by them (32.2%). As for checking behaviours, approximately half of the students frequently checked posts on social media concerning social events (52.7%) and searched

the internet for news regarding social events (48.1%).

As depicted in Table 4.15, the perceived self-efficacy related to COVID-19 was not high, such that 35%–50% of the students gave negative responses to the 10 statements related to self-efficacy during the COVID-19 pandemic. For example, approximately half of the students reported not believing ('not at all' or 'barely true') that they could 'efficiently handle the unexpected events of COVID-19' (49.8%), 'manage the emergencies that resulted from COVID-19' (48.8%), 'always solve the difficult problems related to COVID-19' (47.6%), and 'usually think of suitable and alternative solutions when there are crises arising from COVID-19' (45.8%).

Regarding learning, 45.5% of the students were not confident in their ability to achieve their educational goals during the COVID-19 outbreak and 44.5% did not believe that they could usually overcome problems related to distance education during the COVID-19 pandemic. Furthermore, 40.9% of the students indicated that it was not easy for them to adhere to the COVID-19 preventive measures and 39.5% were unable to find too many alternative solutions when they encountered problems related to home quarantine requirements. Moreover, 35.4% of the students believed that they did not have the sufficient ability to cope with home quarantine.

Perceptions of intrapersonal factors

Intrapersonal factors were measured using three scales that included beliefs regarding adversity, resilience and emotional competence, as well as coping strategies. As depicted in Table 4.16, a high proportion of the respondents had positive ratings on their beliefs regarding adversity. Most of the students agreed ('slightly agree/agree/strongly agree') with the statements that 'happy is he who is contented' (80.8%), 'diligence is an important factor to overcome poverty' (74.4%), and 'hardship increases stature' (74.4%). However, more than half of the students agreed with the two negative beliefs, with 56.1% agreeing with 'whether a life is good

or bad depends on fate' and 55.0% agreeing with 'poverty stifles ambition'.

As for resilience and emotional competence (Table 4.17), the students' responses were positive in general. For example, 78.1% of the students agreed they would still hang on even though the future is not very optimistic, 72.1% believed that there are always solutions to problems in life, and 71.4% would not give up easily even in the face of difficulties. Regarding emotional competence, 76.3% reported that 'I can put myself in others' shoes to understand their worldviews and feelings'. However, 31.4% of the students shared that they did not know how to vent their emotions appropriately in times of distress, and 31.1% appeared to be unable to cope with their emotions during conflicts.

Two types of strategies to cope with life stress were examined: internal and external (Table 4.18). Comparatively, students reported using more internal than external coping strategies. As for internal coping strategies, more than two-thirds of the students reported often or always facing the problem and devising a solution (76.9%), and forbearing and remaining calm (72.3%). However, 54.4% of the students reported often or always employing tactics like drinking alcohol to feel more comfortable and drown their worries. With regard to external coping strategies, 66.6% of the students often or always sought help from friends, while fewer indicated seeking help from parents (40.1%), supervisors, or teachers (33.4%), relatives (26.2%), and professionals such as counsellors (21.3%) to cope with life stress.

Perceptions of external ecological factors

Family functioning, peer support, and community support were the measured environmental factors. In family functioning, the aspects of communication, mutuality, and conflict were assessed (Table 4.19). As for family communication, approximately half of the students reported ('somewhat likely/very much likely') that their family members were cohesive (51.2%) and that their parents often talked to

children (46.4%). However, 23.7% of the students did not think that their parents understood their children's minds. More than half of the students provided positive responses on the three items measuring family mutuality, with 57.4% of the students agreeing that their family members got along well, 54.7% agreeing that their family members loved each other, and 56.8% agreeing that they had good family relationships. However, in the case of family conflict, approximately 35% of the students agreed that there was no mutual concern among family members (34.6%) and there was much friction among family members (33.5%).

Peer support was important to students during the pandemic, for which they generally provided positive ratings on this aspect (Table 4.20). More specifically, 69.7% of the students agreed that they could talk about their problems with their friends, 67.2% agreed that they had friends with whom they could share their joys and sorrows, and 66.3% of them agreed that they had friends who tried to help them. Finally, 64.3% of students agreed that they could count on their friends when things go wrong.

With regard to community support (Table 4.21), 36%–48% of the students had positive responses to the three relevant items. Specifically, 47.5% of the students agreed that most people in their community were friendly, 36.6% agreed that people around were willing to help them, and 36.2% agreed that people in the area did things to help the community.

Satisfaction of the needs and difficulties during the COVID-19 pandemic

With regard to how well students' needs in different areas were satisfied during the COVID-19 pandemic (see Table 4.22), the participants' responses in most items were generally positive ('slightly met/moderately met/fully met'). However, more than one-fifth of the students indicated that their needs were not satisfied to a certain extent ('not met at all/moderately not met/slightly not met') in all items, such as making

new friends at the university (53.3%), having a sense of connection or belonging to the university (53.5%), obtaining comprehensive and consistent guidelines from the university (50.9%), going out with friends (40.5%), engaging in physical fitness (38.8%), having self-discipline (38.8%), feeling safe and relaxed in the community (37.4%), maintaining a close connection with friends (33.9%), having effective online learning strategies (33.7%), maintaining a sound financial condition (32.9%), and having good emotional health (31.9%). Also, more than one-fifth of the students reported that their needs in terms of having a good learning environment (28.0%), maintaining harmony in the family (27.0%), having technology literacy (24.8%), and preventing infection from COVID-19 (20.9%) were not fully met.

With regard to the difficulties and challenges that students encountered during the COVID-19 pandemic (Table 4.23), the results revealed that students reported moderate levels of difficulties in different aspects. Overall, the students experienced difficulties related to academic, social, financial, and career development issues. For example, 63% of the students often or always encountered difficulties in having a normal university life, 56.7% often or always found difficulties in doing an internship or going on an exchange programme, 48.7% had low learning motivation, and 44.9% were easily distracted during online lessons. In addition, 47.0% of the students were worried about their academic performance. Concerning the social and interpersonal aspects, 55.4% of the students found it difficult to meet friends face to face, and 47.2% of them reported that it was difficult to make new friends during the pandemic. With regard to financial conditions and career development, 52.6% of the students worried about their future careers and 38.9% of them perceived difficulties in doing or even obtaining a part-time job.

Regarding the physical aspect, 44.6% of the students reported difficulties in exercising and 36.1% had physical symptoms due to the

extensive use of computers. A few students also encountered psychological challenges, such that 38.5% of them were tired of staying at home, 32.9% were tired of following the prevention measures, and 26.7% reported having negative emotional symptoms. Comparatively, fewer students (less than 20%) reported that they had technical problems in online learning.

Knowledge, usage and evaluation of the services provided by the university

With regard to the knowledge of the services provided by the University (Table 4.24), more than 20% of the students were unaware of the services, except for the library services. In particular, 71.1% of the students reported not knowing about the special funding during the COVID-19 pandemic. Approximately half of the students did not know about the services provided by the Counselling and Wellness Section of the Student Affairs Office (56.3%), their Home Faculty/Department (47.6%), Vice President Campus Development and Facilities (45.9%), Office of General University Requirements (41.8%), and University Health Service (41.3%).

As for the use of the services provided by the University (Table 4.25), the largest percentage of students had used services provided by the University Library (79.4%), followed by the Student Union (61.7%), Academic Registry (60.0%), Student Affairs Office (50.6%), their Home Faculty/Department (49.4%), University Health Service (48.5%), Vice President Campus Development and Facilities (48.4%), OGUR (45.8%), Office of Counselling and Wellness (29.4%), as well as the special funding under the COVID-19 pandemic (23.3%).

The students that had used the services generally evaluated the effectiveness of the services as moderately positive (Table 4.26). For example, 81.2% of the students agreed ('slightly/moderately/completely') that the service provided by the library was effective. More than two-thirds of the students agreed that the service provided by Academic Registry (75.5%),

University Health Service (72.0%), and Home Faculty/Department (73.5%) were effective. In comparison, more than 40% of the students perceived some services as not being too effective, including the special funding under the COVID-19 pandemic (49.7%), counselling services (48.7%), and the daily update on the COVID-19 situation (41.3%).

With regard to the overall evaluation of university services (table 4.27), the percentage of students who provided positive responses to various aspects ranged between 57.5% and 76.0%, with 65.7% of the students being overall satisfied with the support/guidelines/services provided by PolyU. These results indicated that considerable proportions (24.0%–42.5%) of the students had negative responses to the services in different aspects, such as the support/guidelines/services related to career development (42.5%) and use of campus facilities (36.8%), financial issues (36.7%), online teaching and learning (34.4%), counselling and psychological health (32.9%), and subject registration (32.6%). Moreover, more than one-third of the students disagreed that the University provided sufficient support/guidelines/services for students during the COVID-19 pandemic (39.9%) and that the support/guidelines/services were helpful (38.0%) and easy to use (37.9%). In addition, 32.2% of the students disagreed that teachers and staff were sufficiently competent to provide support/guidelines/services to students, and 24% of them disagreed that teachers and staff were willing to offer help to students in need.

With regard to the service gaps between students' expectations and the services provided (Table 4.28), students' responses tended to be generally positive for the six items. For example, 78.1% of the students indicated that the service concerning the guidelines for subject registration had met their expectations. Nevertheless, more than 35% of the students indicated that services related to financial support (45.4%), career development (40.5%), and counselling or psychological support (35.5%) had not met their expectations, indicating moderate levels of service gaps.

Correlations between factors related to COVID-19, mental health problems, positive well-being, intrapersonal and external ecological factors, and sociodemographic correlates

Table 4.29 presents the correlations among COVID-19-related factors, mental health problems, positive well-being, personal factors, and environmental factors.

Mental health problems and positive well-being

First, negative mental health symptoms positively correlated with each other to a moderate or strong extent (Table 4.29). For example, the DASS-21 total score and the three individual subscales' scores strongly correlated with CESD-R ($r > 0.73$, $p < 0.001$) and moderately correlated with other mental health symptoms ($r = 0.30$ – 0.43 , $p < 0.001$). Also, the two positive well-being measures, life satisfaction and flourishing, positively correlated with each other ($r = 0.60$, $p < 0.001$). Small to moderate negative correlations were found between mental health symptoms and positive well-being measures. For example, the DASS-21 total score and the subscales' scores negatively correlated with life satisfaction and flourishing, with the coefficients ranging between -0.36 and -0.16 ($p < 0.001$).

COVID-19 factors correlated with mental health problems and positive well-being

As shown in Table 4.29, perceived threats of COVID-19 and social event influence positively correlated with most mental health problems ($r = 0.15$ – 0.45 , $p < 0.001$) except for suicidal behaviour. Besides, perceived threats of COVID-19 and social event influence negatively correlated with two positive well-being measures (r ranged between -0.05 and -0.10 , $p < 0.05$). In contrast, self-efficacy related to COVID-19 negatively correlated with mental health problems (r ranged between -0.07 and -0.23 , $p < 0.01$) but positively correlated with positive well-being ($r = 0.34$ and 0.43 , $p < 0.001$).

Table 4.22. Needs satisfaction in different areas

Items	Not met at all (1)		Moderately not met (2)		Slightly not met (3)		Negative responses (1)+(2)+(3)		Slightly met (4)		Moderately met (5)		Fully met (6)		Positive responses (4)+(5)+(6)		M	SD
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%		
1. Prevent infection of COVID-19	16	1.0	81	4.9	247	15.0	344	20.9	514	31.2	601	36.5	189	11.5	1304	79.1	4.32	1.08
2. Keep physical fitness	85	5.2	198	12.0	356	21.6	639	38.8	570	34.6	375	22.8	64	3.9	1009	61.2	3.69	1.20
3. Keep good emotional health	38	2.3	155	9.4	332	20.1	525	31.9	618	37.5	435	26.4	70	4.2	1123	68.1	3.89	1.10
4. Maintain a sound financial condition	41	2.5	159	9.6	343	20.8	543	32.9	601	36.5	424	25.7	80	4.9	1105	67.1	3.88	1.12
5. Have a good learning environment (e.g., space, device, WIFI connection, etc.)	40	2.4	120	7.3	301	18.3	461	28.0	550	33.4	484	29.4	153	9.3	1187	72.1	4.08	1.16
6. Have effective online learning strategies	59	3.6	154	9.3	342	20.8	555	33.7	600	36.4	410	24.9	83	5.0	1093	66.3	3.85	1.15
7. Have self-discipline	59	3.6	196	11.9	385	23.4	640	38.8	579	35.1	363	22.0	66	4.0	1008	61.2	3.72	1.16
8. Have technology literacy	29	1.8	108	6.6	271	16.4	408	24.8	642	39.0	498	30.2	100	6.1	1240	75.2	4.08	1.06
9. Make new friends at the University	235	14.3	299	18.1	344	20.9	878	53.3	449	27.2	257	15.6	64	3.9	770	46.7	3.23	1.39
10. Go out with friends	81	4.9	245	14.9	342	20.8	668	40.5	553	33.6	341	20.7	86	5.2	980	59.5	3.66	1.24
11. Maintain close connection with friends	54	3.3	182	11.0	323	19.6	559	33.9	547	33.2	465	28.2	77	4.7	1089	66.1	3.86	1.18
12. Maintain harmony in the family	42	2.5	112	6.8	291	17.7	445	27.0	571	34.6	501	30.4	131	7.9	1203	72.9	4.07	1.14
13. Feel safe and relaxed in the community	64	3.9	170	10.3	382	23.2	616	37.4	582	35.3	372	22.6	78	4.7	1032	62.6	3.77	1.16
14. Have a sense of connection or belonging to the University	139	8.4	297	18.0	446	27.1	882	53.5	529	32.1	200	12.1	37	2.2	766	46.5	3.28	1.20
15. Get comprehensive and consistent guideline (e.g., campus facilities, resources) from the University	117	7.1	281	17.1	441	26.8	839	50.9	510	30.9	256	15.5	43	2.6	809	49.1	3.39	1.21

Intrapersonal factors correlated with mental health problems and positive well-being

We found negative correlations between mental health problems and intrapersonal factors (Table 4.29). Specifically, the belief regarding adversity moderately correlated with scores of DASS-21, CESD-R, and hopelessness (r ranged between -0.34 and -0.25, $p < 0.001$), while its correlations to PTSD, suicidal behaviour, and Internet addiction were at low levels (r ranged between -0.14 and -0.12, $p < 0.001$). Emotional competence

had moderate negative correlations with most of the mental health problems, including DASS-21, PTSD, CESD-R, suicidal behaviour, and hopelessness (r ranged between -0.39 and -0.20, $p < 0.001$). Internal coping strategies negatively correlated with most of the mental health problems, with small effect sizes (r ranged between -0.16 and -0.08, $p < 0.01$), except for PTSD and Internet addiction. On the contrary, external coping strategies positively correlated with most of the mental health symptoms (r

ranged between 0.07 and 0.25, $p < 0.01$), except for PTSD, Internet addiction, and hopelessness.

On the other hand, positive correlations were found between positive well-being indicators and personal factors (table 4.29). While all the intrapersonal factors (e.g., beliefs regarding adversity, emotional competence, and coping strategies) were moderately correlated with life satisfaction (r ranged between 0.23 and 0.37, $p < 0.01$), there were strong positive correlations between flourishing and beliefs of adversity, resilience, emotional competence, and internal coping strategies (r ranged between 0.45 and 0.65, $p < 0.001$).

Environmental factors correlated with mental health problems and positive well-being

As for the environmental factors (table 4.29), family functioning, peer support, and community support negatively correlated with mental health symptoms at small to moderate levels (r ranged between -0.06 and -0.31, $p < 0.05$) and positively correlated with positive well-being measurements with greater effect sizes ($r = 0.15-0.48$, $p < 0.001$). Specifically, the three environmental factors relatively correlated strongly with flourishing (family functioning: $r = 0.40$, $p < 0.001$; peer support: $r = 0.48$, $p < 0.001$; community support: $r = 0.37$, $p < 0.001$).

Table 4.23. Difficulties and challenges in different life domains

Items	Never (1)		Rarely (2)		Not frequent (1)+(2)		Sometimes (3)		Often (4)		Always (5)		Frequent (4)+(5)		M	SD
	n	%	n	%	n	%	n	%	n	%	n	%	n	%		
1. Physical symptoms (e.g., dry eyes and backpain) because of using the computer for long hours	111	6.7	322	19.5	433	26.2	620	37.6	453	27.5	142	8.6	595	36.1	3.12	1.04
2. Difficult to exercise	93	5.6	244	14.8	337	20.4	575	34.9	559	33.9	177	10.7	736	44.6	3.29	1.03
3. Emotional symptoms (e.g., negative emotions, loneliness)	114	6.9	410	24.9	524	31.8	685	41.6	359	21.8	80	4.9	439	26.7	2.93	.97
4. Tired of staying at home	128	7.8	333	20.2	461	28.0	551	33.4	449	27.2	187	11.3	636	38.5	3.14	1.10
5. Afraid of going out	206	12.5	441	26.8	647	39.3	560	34.0	331	20.1	110	6.7	441	26.8	2.82	1.10
6. COVID-19 fatigue (tired of following prevention measures)	136	8.3	338	20.5	474	28.8	632	38.3	415	25.2	127	7.7	542	32.9	3.04	1.05
7. Hard to do or get a part-time work	150	9.1	329	20.0	479	29.1	528	32.0	419	25.4	222	13.5	641	38.9	3.14	1.16
8. Lack of technology literacy (e.g., editing presentation videos)	221	13.4	578	35.1	799	48.5	553	33.6	228	13.8	68	4.1	296	17.9	2.60	1.02
9. The online learning platforms or systems do not work well on my devices (e.g., not responding)	184	11.2	549	33.3	733	44.5	636	38.6	236	14.3	43	2.6	279	16.9	2.64	.95
10. Encounter connection problems during online lecture or assessment (examinations)	190	11.5	532	32.3	722	43.8	628	38.1	250	15.2	48	2.9	298	18.1	2.66	.97
11. Easily distracted during online lectures	71	4.3	257	15.6	328	19.9	580	35.2	523	31.7	217	13.2	740	44.9	3.34	1.03
12. Low learning motivation	63	3.8	214	13.0	277	16.8	568	34.5	559	33.9	244	14.8	803	48.7	3.43	1.02
13. Lack of effective online learning strategy	80	4.9	275	16.7	355	21.6	604	36.7	494	30.0	195	11.8	689	41.8	3.27	1.03
14. Hard to find time and a place to meet groupmates when doing a group project	127	7.7	352	21.4	479	29.1	576	35.0	425	25.8	168	10.2	593	36.0	3.09	1.09
15. Online communication issues with groupmates (e.g., lack of reactivity)	118	7.2	318	19.3	436	26.5	656	39.8	426	25.8	130	7.9	556	33.7	3.08	1.02
16. Free-rider issue in the group project	240	14.6	459	27.9	699	42.5	548	33.3	298	18.1	103	6.3	401	24.4	2.74	1.11
17. Worry about academic performance	65	3.9	210	12.7	275	16.6	599	36.3	509	30.9	265	16.1	774	47.0	3.42	1.03
18. Have conflicts with family members	196	11.9	577	35.0	773	46.9	558	33.9	237	14.4	80	4.9	317	19.3	2.65	1.02
19. Competition on learning resources (e.g., computer, table) and space in the family	378	22.9	452	27.4	830	50.3	476	28.9	275	16.7	67	4.1	342	20.8	2.52	1.13
20. Hard to make new friends	63	3.8	253	15.4	316	19.2	553	33.6	480	29.1	299	18.1	779	47.2	3.42	1.07
21. Hard to meet friends face to face	47	2.9	200	12.1	247	15.0	488	29.6	575	34.9	338	20.5	913	55.4	3.58	1.03
22. Do not have a normal university life	49	3.0	152	9.2	201	12.2	409	24.8	515	31.3	523	31.7	1038	63.0	3.80	1.08
23. Hard to do an internship or go on exchange	87	5.3	180	10.9	267	16.2	447	27.1	450	27.3	484	29.4	934	56.7	3.65	1.16
24. Worry about the future career (e.g., hard to find jobs)	70	4.2	214	13.0	284	17.2	497	30.2	439	26.6	428	26.0	867	52.6	3.57	1.13

Table 4.24. Knowledge of services provided by different units or offices at PolyU

Items	Yes		No	
	n	%	n	%
1. Vice President Campus Development and Facilities (VPCDF, send Daily Update on the COVID-19)	892	54.1	756	45.9
2. CWS (Counselling and Wellness Section, formerly known as OCW–Office of Counselling and Wellness)	720	43.7	928	56.3
3. OGUR (Office of General University Requirements)	959	58.2	689	41.8
4. SAO (Student Affairs Office)	1082	65.7	566	34.3
5. UHS (University Health Service)	967	58.7	681	41.3
6. AR (Academic Registry)	1134	68.8	514	31.2
7. Library	1375	83.4	273	16.6
8. Home Faculty (Department)	863	52.4	785	47.6
9. Student Union (SU)	1298	78.8	350	21.2
10. Special funding under the COVID-19 pandemic	477	28.9	1171	71.1

Table 4.25. Use of services provided by different units or offices at PolyU

Items	Yes		No	
	n	%	n	%
1. Vice President Campus Development and Facilities (VPCDF, send Daily Update on the COVID-19)	797	48.4	851	51.6
2. CWS (Counselling and Wellness Section, formerly known as OCW–Office of Counselling and Wellness)	485	29.4	1163	70.6
3. OGUR (Office of General University Requirements)	754	45.8	894	54.2
4. SAO (Student Affairs Office)	834	50.6	814	49.4
5. UHS (University Health Service)	799	48.5	849	51.5
6. AR (Academic Registry)	988	60.0	660	40.0
7. Library	1309	79.4	339	20.6
8. Home Faculty (Department)	814	49.4	834	50.6
9. Student Union (SU)	1017	61.7	631	38.3
10. Special funding under the COVID-19 pandemic	384	23.3	1264	76.7

Socio-demographic correlates, mental health problems, positive well-being, and intrapersonal and environmental factors

With regard to socio-demographic correlates (Table 4.30), age, gender (1 = male, 2 = female), year of studies, place of origin (1 = local, 2 = international), and living status (1 = living with family, 2 = living with roommates, 3 = living alone) tended to be significantly correlated with certain mental health problems. For example, age had a slight negative correlation with anxiety and stress in DASS-21, PTSD, CESD-R, suicidal behaviour, and Internet addiction (r ranged between -0.08 and -0.05 , $p < 0.05$), indicating that younger students reported slightly higher levels of mental health symptoms. Similarly, the year of studies negatively correlated with anxiety in DASS-21, PTSD, CESD-R, suicidal behaviour, and Internet addiction (r ranged between -0.08 and -0.05 , $p < 0.05$). The year of study was positively correlated with flourishing ($r = 0.05$, $p < 0.05$). The results suggest that junior year

students tended to report more mental health symptoms and lower positive well-being, which echoed the findings of age. Conversely, positive correlations ($r = 0.09$ – 0.25 , $p < 0.001$) were found between mental health problems and family financial difficulties (0 = no, 1 = yes) and personal financial difficulties (0 = no, 1 = yes), while significant negative correlations were found between both family and personal financial difficulties and positive well-being measures (r ranged between -0.16 and -0.11 , $p < 0.001$). Family or student unemployment (0 = no, 1 = yes) was positively correlated with most of the mental health problems ($r = 0.09$ – 0.20 , $p < 0.001$) except for Internet addiction and hopelessness, and it was not significantly correlated with the two positive well-being measures. The experience of having COVID-19 (i.e., having been a confirmed case of COVID-19) and the place of residence only weakly correlated to a few of the indicators of negative mental health or positive well-being.

Table 4.26. Perceived effectiveness of services provided by the university (rated by students who had used the service)

Items	Not at All (1)		Moderately Not (2)		Slightly Not (3)		Negative response (1)+(2)+(3)		Slightly Yes (4)		Moderately Yes (5)		Completely Yes (6)		Positive responses (4)+(5)+(6)		M	SD
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%		
1. Vice President Campus Development and Facilities (VPCDF, send Daily Update on the COVID-19) (n = 797)	89	11.2	109	13.7	131	16.4	329	41.3	308	38.6	124	15.6	36	4.5	468	58.7	3.47	1.33
2. CWS (Counselling and Wellness Section, formerly known as OCW–Office of Counselling and Wellness) (n=485)	79	16.3	70	14.4	87	17.9	236	48.7	157	32.4	70	14.4	22	4.5	249	51.3	3.28	1.43
3. OGUR (Office of General University Requirements) (n = 754)	75	9.9	78	10.3	98	13.0	251	33.3	295	39.1	161	21.4	47	6.2	503	66.7	3.70	1.35
4. SAO (Student Affairs Office) (n = 834)	72	8.6	84	10.1	121	14.5	277	33.2	325	39.0	187	22.4	45	5.4	557	66.8	3.73	1.30
5. UHS (University Health Service) (n = 799)	61	7.6	75	9.4	88	11.0	224	28.0	251	31.4	241	30.2	83	10.4	575	72.0	3.98	1.38
6. AR (Academic Registry) (n = 988)	53	5.4	83	8.4	106	10.7	242	24.5	392	39.7	260	26.3	94	9.5	746	75.5	4.02	1.25
7. Library (n =1309)	50	3.8	84	6.4	112	8.6	246	18.8	437	33.4	391	29.9	235	18.0	1063	81.2	4.33	1.26
8. Home Faculty (Department) (n = 814)	55	6.8	71	8.7	90	11.1	216	26.5	335	41.2	190	23.3	73	9.0	598	73.5	3.93	1.29
9. Student Union (SU) (n = 1017)	94	9.2	110	10.8	112	11.0	316	31.1	411	40.4	228	22.4	62	6.1	701	68.9	3.74	1.33
10. Special funding under the COVID-19 pandemic (n = 384)	56	14.6	63	16.4	72	18.8	191	49.7	111	28.9	61	15.9	21	5.5	193	50.3	3.32	1.44

Table 4.27. Evaluation of PolyU services

Items	Not met at all (1)		Moderately not met (2)		Slightly not met (3)		Negative response (1)+(2)+(3)		Slightly met (4)		Moderately met (5)		Fully met (6)		Positive responses (4)+(5)+(6)		M	SD
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%		
	1. PolyU provide sufficient support/guidelines/services for students during the COVID-19 pandemic	40	2.4	204	12.4	413	25.1	657	39.9	699	42.4	258	15.7	34	2.1	991		
2. It is easy to use the support/guidelines/services provided by PolyU	32	1.9	173	10.5	419	25.4	624	37.9	674	40.9	312	18.9	38	2.3	1024	62.1	3.71	1.02
3. The support/guidelines/services provided at PolyU are helpful	52	3.2	158	9.6	416	25.2	626	38.0	696	42.2	292	17.7	34	2.1	1022	62.0	3.68	1.04
4. In general, teachers, and staff are competent to provide support/guidelines/services for students	40	2.4	140	8.5	350	21.2	530	32.2	685	41.6	392	23.8	41	2.5	1118	67.8	3.83	1.04
5. In general, teachers, and staff are willing to offer help to students in need	32	1.9	89	5.4	275	16.7	396	24.0	659	40.0	510	30.9	83	5.0	1252	76.0	4.08	1.03
6. I am satisfied with the support/ guidelines/services related to subject registration	37	2.2	158	9.6	342	20.8	537	32.6	653	39.6	404	24.5	54	3.3	1111	67.4	3.84	1.07
7. I am satisfied with the support/ guidelines/services related to using campus facilities (e.g., restaurants, classrooms, library resources)	59	3.6	158	9.6	389	23.6	606	36.8	659	40.0	333	20.2	50	3.0	1042	63.2	3.73	1.09
8. I am satisfied with the support/ guidelines/services related to online teaching and learning (e.g., online platforms, class schedule, assessment, etc.)	60	3.6	162	9.8	345	20.9	567	34.4	681	41.3	355	21.5	45	2.7	1081	65.6	3.75	1.09
9. I am satisfied with the support/ guidelines/services related to counselling and psychological health	39	2.4	151	9.2	353	21.4	543	32.9	724	43.9	344	20.9	37	2.2	1105	67.1	3.79	1.02
10. I am satisfied with the support/ guidelines/services related to financial issue	49	3.0	161	9.8	395	24.0	605	36.7	663	40.2	338	20.5	42	2.5	1043	63.3	3.73	1.06
11. I am satisfied with the support/ guidelines/services related to career development (e.g., internship, exchange, etc.)	62	3.8	208	12.6	431	26.2	701	42.5	610	37.0	299	18.1	38	2.3	947	57.5	3.60	1.10
12. Overall speaking, I am satisfied with the support/guidelines/services provided at PolyU	36	2.2	134	8.1	396	24.0	566	34.3	684	41.5	360	21.8	38	2.3	1082	65.7	3.80	1.02

Table 4.28. Service gaps between students' expectation and services provided

Items	Not at all (1)		Moderately not (2)		Slightly not (3)		Negative response (1)+(2)+(3)		Slightly yes (4)		Moderately yes (5)		Completely yes (6)		Positive response (4)+(5)+(6)		M	SD
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%		
	1. Guidelines for subject registration	22	1.3	57	3.5	282	17.1	361	21.9	647	39.3	521	31.6	119	7.2	1287		
2. Introduction of campus facilities and resources	35	2.1	102	6.2	318	19.3	455	27.6	685	41.6	451	27.4	57	3.5	1193	72.4	3.96	1.02
3. Support related to online teaching and learning	23	1.4	93	5.6	332	20.1	448	27.2	689	41.8	458	27.8	53	3.2	1200	72.8	3.99	.98
4. Counselling or psychological support	51	3.1	136	8.3	398	24.2	585	35.5	663	40.2	344	20.9	56	3.4	1063	64.5	3.78	1.07
5. Financial support	129	7.8	201	12.2	418	25.4	748	45.4	577	35.0	278	16.9	45	2.7	900	54.6	3.49	1.21
6. Career development	78	4.7	173	10.5	416	25.2	667	40.5	633	38.4	306	18.6	42	2.5	981	59.5	3.63	1.12

Table 4.29. Correlations between COVID-19 related factors, mental health problems, positive well-being, and personal and environmental factors

	1	2	3	4	4a	4b	4c	5	6	7	8	9	10	11	12	13a	13b	14a	14b	15	16
COVID-19 related factors																					
<i>1. Threats of COVID-19</i>																					
2. Stress related to the social unrest	.40																				
3. Self-efficacy related to COVID-19	-.05	.16																			
<i>Negative mental health</i>																					
4. DASS	.35	.16	-.13																		
4a. Depression	.30	.15	-.15	.93																	
4b. Anxiety	.34	.15	-.10	.93	.79																
4c. Stress	.36	.16	-.13	.96	.85	.86															
5. PTSD	.45	.23	-.23	.40	.36	.36	.40														
6. CESD-R	.35	.19	-.14	.80	.76	.73	.76	.43													
7. Suicidal Behaviour	.04	-.03	-.07	.30	.29	.26	.28	.16	.33												
8. Internet Addiction	.35	.25	-.11	.35	.33	.29	.35	.53	.39	.21											
9. Hopelessness	.19	.16	-.17	.41	.43	.36	.36	.23	.38	.10	.24										
<i>Positive well-being</i>																					
10. Life satisfaction	-.06	-.10	.34	-.24	-.30	-.16	-.23	-.23	-.26	-.15	-.21	-.22									
11. Flourishing	-.05	-.05	.43	-.32	-.36	-.25	-.29	-.20	-.36	-.19	-.20	-.29	.60								
<i>Intrapersonal factors</i>																					
12. Beliefs regarding adversity	.01	.02	.23	-.28	-.29	-.25	-.26	-.14	-.34	-.14	-.12	-.27	.30	.53							
<i>Resilience & emotional competence</i>																					
13a. Resilience	-.03	.04	.36	-.24	-.26	-.21	-.22	-.19	-.30	-.13	-.15	-.25	.37	.65	.54						
13b. Emotional competence	-.06	.10	.37	-.31	-.30	-.27	-.31	-.20	-.39	-.21	-.18	-.24	.33	.62	.51						
<i>Coping strategies</i>																					
14a. Internal coping	.14	.14	.24	-.10	-.11	-.08	-.10	-.02	-.16	-.16	-.03	-.11	.25	.45	.38	.46	.46				
14b. External coping	.13	-.07	-.03	.20	.13	.25	.20	.00	.12	.07	-.01	.01	.23	.18	.12	.16	.07				
<i>Environmental factors</i>																					
15. Family function	.01	.02	.23	-.21	-.24	-.15	-.19	-.11	-.22	-.12	-.08	-.23	.36	.40	.31	.30	.30	.25	.16		
16. Peer support	.03	.20	.23	-.24	-.23	-.23	-.22	-.06	-.31	-.13	-.07	-.14	.15	.48	.42	.41	.46	.37	.07	.27	
17. Community support	-.05	.05	.21	-.15	-.15	-.13	-.15	-.15	-.23	-.15	-.13	-.09	.24	.37	.30	.33	.36	.24	.11	.26	.38

Note. Absolute values < 0.05 are in-significant; absolute values < 0.07 are significant at 0.05, absolute values of 0.07 and 0.08 are significant at 0.01, absolute values ≥ 0.09 are significant at 0.001.

Table 4.30. Correlations between socio-demographic correlates and COVID-19 related factors, mental health problems, positive well-being, personal and environmental factors

	Sociodemographic correlates ^a										
	1	2	3	4	5	6	7	8	9	10	11
<i>COVID-19 related factors</i>											
1. Threats of COVID-19	-.05	.01	-.05	-.02	.00	-.02	.08	.06	.06	.03	.01
2. Stress related to the social unrest	-.00	-.04	.09	-.08	-.15	-.02	-.02	.04	.00	-.02	-.02
3. Self-efficacy related to COVID-19	.07	.04	.10	.02	-.02	-.03	-.12	-.01	-.03	.02	.04
<i>Negative mental health</i>											
4. DASS-21	-.05	-.08	-.04	-.07	.08	-.01	.23	.23	.19	.02	-.02
4a. Depression	-.03	-.07	-.01	-.07	.04	.00	.22	.22	.17	.02	-.01
4b. Anxiety	-.08	-.08	-.06	-.06	.10	-.03	.20	.21	.18	.03	-.02
4c. Stress	-.05	-.08	-.03	-.06	.08	-.01	.23	.23	.20	.02	-.01
5. PTSD	-.07	-.02	-.05	-.04	-.02	-.05	.11	.13	.09	.04	.00
6. CESD-R	-.08	-.12	-.08	-.08	.08	-.01	.25	.24	.19	.03	.01
7. Suicidal Behaviour	-.05	-.01	-.08	-.02	.09	.05	.17	.14	.12	.09	.00
8. Internet Addiction	-.07	.01	-.05	.04	-.03	-.03	.10	.09	.04	.05	.05
9. Hopelessness	-.01	-.02	.05	-.10	-.02	.03	.12	.14	.04	.01	-.04
<i>Positive well-being</i>											
10. Life satisfaction	-.05	.05	-.04	.07	.05	-.02	-.14	-.16	-.03	.05	.04
11. Flourishing	.03	.07	.05	.11	-.05	-.05	-.13	-.11	-.03	.04	.05
<i>Intrapersonal factors</i>											
12. Beliefs regarding adversity	.03	.11	-.01	.14	-.07	.03	-.08	-.11	-.03	.00	.06
<i>13. Resilience & emotional competence</i>											
13a. Resilience	.05	.04	.01	.13	-.03	.01	.01	.01	.02	-.01	.08
13b. Emotional competence	.06	.05	.06	.11	-.09	-.05	-.13	-.11	-.11	.02	.06
<i>14. Coping strategies</i>											
14a. Internal coping	-.01	.01	-.04	.09	-.05	-.02	-.01	.00	.02	.00	.07
14b. External coping	-.01	.02	-.07	.04	.11	.01	.07	.06	.11	.06	.00
<i>Environmental factors</i>											
15. Family function	-.04	.06	.00	.13	-.01	-.07	-.18	-.18	-.08	-.01	.07
16. Peer support	.05	.11	.08	.07	-.13	-.03	-.10	-.04	-.06	.00	.07
17. Community support	.07	.09	.11	.04	-.02	-.02	-.13	-.08	-.07	-.04	-.03

Note. ^aSociodemographic items: 1 = Age; 2 = Gender (1 = male, 2 = female); 3 = Year of study; 4 = Place of origin (1 = local, 2 = international); 5 = Living status (1 = living with family, 2 = living with roommates, 3 = living alone); 6 = Received CSSA (0 = no, 1 = yes); 7 = With family financial difficulty (0 = no, 1 = yes); 8 = With personal financial difficulty (0 = no, 1 = yes); 9 = Family/student unemployed (0 = no, 1 = yes); 10 = Student/their family had been a confirmed case of COVID-19 (0 = no, 1 = yes); 11 = Place of residence during the pandemic (1 = Hong Kong, 2 = mainland China, 3 = others). Absolute values < 0.05 are in-significant; absolute values < 0.07 are significant at 0.05, absolute values of 0.07 and 0.08 are significant at 0.01, absolute values ≥ 0.09 are significant at 0.001.

Table 4.31. Correlations between service-related factors and COVID-19 related factors, mental health problems, positive well-being, personal and environmental factors, and sociodemographic correlates

Factors	Service-related factors					
	1	2	3	4	5	6
<i>Intercorrelation of service-related factors</i>						
1. Needs satisfaction						
2. Perceived difficulties	-.15					
3. Knowledge of the services	.19	.11				
4. Perceived effectiveness of the services	.17	.06	.22			
5. Evaluation and satisfaction	.41	-.01	.34	.35		
6. Service gaps #	-.43	.05	-.26	-.30	-.74	
<i>COVID-19 related factors</i>						
7. Threats of COVID-19	-.08	.45	.04	.01	.01	.02
8. Stress related to the social unrest	.00	.40	.09	.12	-.02	.01
9. Self-efficacy related to COVID-19	.36	-.04	.15	.23	.35	-.32
<i>Negative mental health</i>						
10. DASS	-.19	.46	-.13	-.11	-.12	.05
a. Depression	-.22	.44	-.10	-.12	-.14	.08
b. Anxiety	-.13	.41	-.14	-.09	-.08	.01
c. Stress	-.18	.46	-.13	-.11	-.10	.04
11. PTSD	-.24	.35	-.02	-.13	-.12	.13
12. CESD-R	-.26	.40	-.24	-.11	-.19	.11
13. Suicidal Behaviour	-.12	.08	-.04	-.03	-.09	-.03
14. Internet Addiction	-.19	.34	.04	-.12	-.11	.10
15. Hopelessness	-.18	.27	-.06	-.09	-.10	.10
<i>Positive well-being</i>						
16. Life satisfaction	.43	-.21	-.01	.09	.24	-.29
17. Flourishing	.55	-.07	.20	.21	.36	-.34
<i>Intrapersonal factors</i>						
18. Beliefs regarding adversity	.37	-.03	.23	.22	.36	-.28
<i>19. Resilience & emotional competence</i>						
19a. Resilience	.46	.01	.23	.26	.36	-.31
19b. Emotional competence	.45	-.02	.30	.25	.38	-.30
<i>20. Coping strategies</i>						
20a. Internal coping	.33	.13	.16	.12	.27	-.22
20b. External coping	.24	.08	-.06	-.08	.05	-.16
<i>Environmental factors</i>						
21. Family support	.36	-.06	.13	.16	.21	-.20
22. Peer support	.36	.05	.28	.20	.34	-.24
23. Community support	.33	-.02	.18	.15	.31	-.28
<i>Sociodemographic correlates</i>						
24. Age	-.05	-.01	.06	.01	.01	.00
25. Gender	.05	-.01	.15	.10	.11	-.09
26. Year of study	-.02	.01	.09	.00	-.01	.01
27. Place of origin (Local/International)	.09	.04	.11	.04	.07	-.08
28. Living status	-.01	-.03	-.11	.00	-.05	-.02
29. CSSA	-.02	-.04	.01	-.03	-.02	.00
30. Financial difficulty (family)	-.15	.15	-.14	-.03	-.10	.14
31. Financial difficulty (personal)	-.12	.15	-.11	-.04	-.07	.11
32. Family/student unemployed	-.05	.14	-.08	.02	-.06	.08
33. COVID-19 test positive	.04	.02	.03	-.05	.01	-.01
34. Place of residence	.08	.01	.05	.05	.04	-.04

Note. # In the original scale, a higher score indicated a small service gap, for easy reference, items were recoded for calculating the correlations between service gaps and other factors. Absolute values < 0.05 are in-significant; absolute values < 0.07 are significant at 0.05, absolute values of 0.07 and 0.08 are significant at 0.01, absolute values \geq 0.09 are significant at 0.001.

Table 4.32. Summary of significant predictors in structural equation models

Factors	Standardized coefficient (β)	
	Mental Health Problems	Positive Well-being
<i>Perceived stress of COVID-19</i>		
1. Danger and contamination	-.16	ns
2. Socioeconomic consequence	.44	-.16
3. Checking behaviour	.22	.17
4. Self-efficacy related to COVID-19	-.15	.52
<i>Intrapersonal factors</i>		
5. Beliefs regarding adversity	-.12	.13
6. Resilience	ns	.47
7. Emotional competence	-.44	.17
<i>Environmental factors</i>		
8. Positive family functioning	ns	.32
9. Negative family functioning	.26	ns
10. Peer support	-.32	.31
11. Community cohesion	-.13	.17
<i>Service-related factors</i>		
12. Need satisfaction	-.18	.53
13. Perceived difficulties	.55	ns
14. Usefulness of services	-.17	.10
15. Evaluation of services	ns	.14

Note. Non-significant findings are presented as “ns”, other findings are significant at $p < 0.001$.

Correlations between service-related factors, COVID-19 related factors, mental health problems, positive well-being, intrapersonal and external ecological factors, and sociodemographic correlates

Needs satisfaction, perceived difficulties, evaluation of services, and service gaps

As indicated in Table 4.31, needs satisfaction positively correlated with knowledge of the services ($r = 0.19, p < 0.001$), perceived effectiveness of the services ($r = 0.17, p < 0.001$), and evaluation and satisfaction of the services ($r = 0.41, p < 0.001$). However, it negatively correlated with perceived difficulties ($r = -0.15, p < 0.001$) and service gaps ($r = -0.43, p < 0.001$). Perceived difficulties slightly correlated with knowledge of the services ($r = 0.11, p < 0.001$) and perceived effectiveness of the services

($r = 0.06, p < 0.05$). Moreover, knowledge of the services, perceived effectiveness of the services, and evaluation and satisfaction of the services positively correlated with each other (r ranged between 0.22 and 0.35, $p < 0.01$). Furthermore, a strong negative correlation ($r = -0.74, p < 0.001$) was found between the evaluation of or satisfaction with the services and the service gaps.

Service-related factors correlated with mental health problems and positive well-being

As indicated in Table 4.31, needs satisfaction, knowledge of the services, perceived effectiveness of the services, and satisfaction with the services, in general, were negatively correlated with mental health problems but positively correlated with positive well-being. In contrast, perceived difficulties and service gaps, in general,

were positively correlated with mental health problems but negatively correlated with positive well-being. In particular, needs satisfaction showed relatively stronger correlations with life satisfaction ($r = 0.43, p < 0.001$) and flourishing ($r = 0.55, p < 0.001$). Service gaps also moderately correlated with life satisfaction ($r = -0.29, p < 0.001$) and flourishing ($r = -0.34, p < 0.001$).

Service-related factors and intrapersonal and environmental factors

As far as intrapersonal factors (e.g., beliefs regarding adversity, resilience, and coping) and environmental resources (e.g., family, peer, and community support) are concerned, they generally showed moderate levels of positive correlations with the four positive service-related factors (i.e., needs satisfaction, knowledge of the service, perceived effectiveness of the services, and satisfaction with the services) but were negatively correlated with service gaps (Table 4.31).

Socio-demographic correlates and service-related factors

Among the six service-related factors, knowledge of the services significantly correlated with most of the socio-demographic correlates (Table 4.31), with students who were older, female, in later years of studies, international students, students not living alone, those not having family or personal financial difficulties, those not having unemployed family members, or living in main-land China in the last month reporting higher levels of knowledge of the available services. Among different socio-demographic correlates, gender, family, and personal financial difficulties significantly correlated with most service-related factors. Specifically, female students generally reported better needs satisfaction, more knowledge of services, more positive evaluation of the services, and fewer service gaps. Additionally, more family and personal financial difficulties were associated with poorer needs satisfaction, less knowledge of the services, and more negative evaluation of the services, but more perceived difficulties and

service gaps. Similar patterns of correlations were found between unemployment and service-related factors. Interestingly, international students reported higher levels of needs satisfaction, knowledge of services, and evaluations of services as well as fewer service gaps than local students (Table 4.31).

Protective and risk factors of mental health problems and positive well-being

Analyses based on structural equation modelling (SEM) were performed to explore the predictive effects of COVID-19-related factors, intrapersonal and environmental factors, and service-related factors on mental health problems, as well as positive well-being among PolyU students during the COVID-19 pandemic. Figures 4.2–4.5 show the results of SEM analyses and Table 4.32 summarises the significant effects.

Figure 4.2 presents the predictive effects of factors related to COVID-19, including perceived danger and contamination, socioeconomic consequences, checking behaviour, and self-efficacy related to COVID-19. The model fitted the data adequately, with the Tucker-Lewis index (TLI) and comparative fit index (CFI) above 0.91 and root mean square error of approximation (RMSEA) below 0.08. Further, perceived danger and contamination negatively predicted mental health problems ($\beta = -0.16, p < 0.001$), but did not have a significant effect on positive well-being ($\beta = -0.08, p > 0.05$). Higher levels of perceived socio-economic consequences of COVID-19 predicted higher levels of mental health problems ($\beta = 0.44, p < 0.001$) and lower levels of positive well-being ($\beta = -0.16, p < 0.001$). Interestingly, more checking behaviours predicted higher levels of negative mental health ($\beta = 0.22, p < 0.001$), as well as higher levels of positive well-being ($\beta = 0.17, p < 0.001$). While self-efficacy related to COVID-19 served as a significant negative predictor of mental health problems ($\beta = -0.15, p < 0.001$), it was a positive predictor of positive well-being ($\beta = 0.52, p < 0.001$). Based on the path coefficients, while socio-economic consequences had a relatively strong positive effect on mental health problems, self-efficacy with

regard to COVID-19 was a stronger positive predictor of positive well-being.

Figure 4.3 illustrates the predictive effects of intrapersonal factors, including beliefs of adversity, resilience, and emotional competence. In the initial model, the factor loadings of the two reverse-coded items in the beliefs of adversity (M2r and M5r) were low (values of -0.13 and -0.08, respectively). Therefore, they were eliminated to improve the model fit, yielding the final model that is presented in figure 4.3 that adequately fitted the data (TLI = 0.94; CFI = 0.95; RMSEA = 0.052). In the final model, beliefs of adversity showed a negative effect on mental health problems ($\beta = -0.12, p < 0.001$) and a positive effect on positive well-being ($\beta = 0.13, p < 0.001$), with relatively

small path coefficients. Resilience was not significantly associated with negative mental health ($\beta = 0.07, p > 0.05$), but it was a strong positive predictor of positive well-being ($\beta = 0.47, p < 0.001$). Emotional competence was positively related to positive well-being ($\beta = 0.17, p < 0.001$) while showing an even stronger negative association with negative mental health ($\beta = -0.44, p < 0.001$).

The findings depicted in Figure 4.4 reveal the predictive effects of external ecological factors, including positive family functioning (communication and mutuality), negative family functioning (conflict), peer support, and community cohesion. The model also fitted the data adequately, with TLI and CFI values > 0.90 and RMSEA < 0.06 .

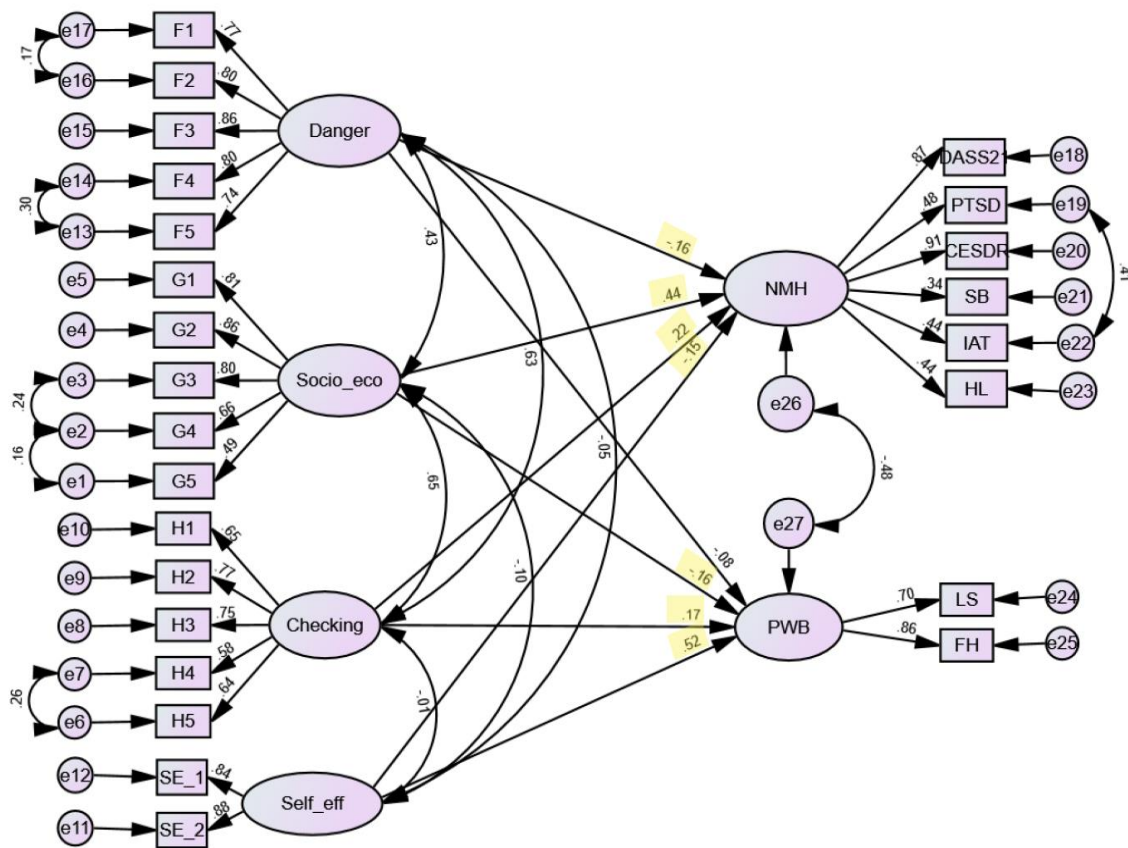


Figure 4.2. Predictive effects of perceived COVID-19 threats. Standardized estimates were shown in the figure. Danger = Danger & contamination, Socio_eco=Socio-economic consequence, Checking = Checking behaviour, Self_eff = Self-efficacy related to COVID-19, NMH = Negative mental health, PWB = Positive well-being. Chi-square = 1787.549 Chi-square/df: 7.038, TLI = 0.911, CFI = 0.924, RMSEA = 0.061. Significant correlations were highlighted in yellow.

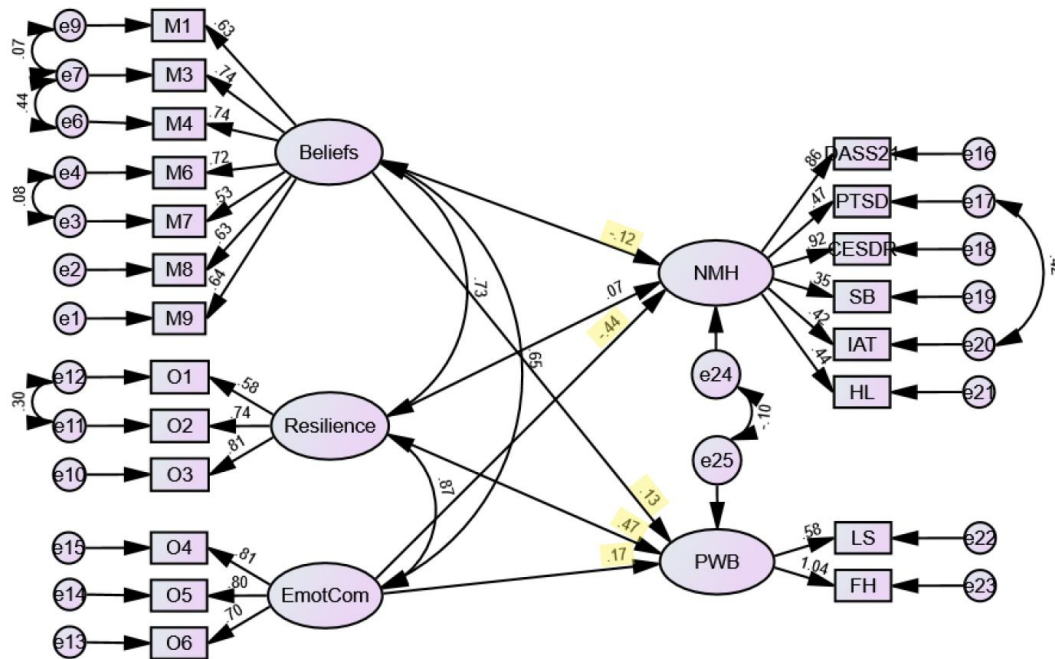


Figure 4.3. Predictive effects of intrapersonal factors. Standardized estimates were shown in the figure. Beliefs = Beliefs regarding adversity, EmotCom = Emotional competence, NMH = Negative mental health, PWB = Positive well-being. Chi-square = 944.815, Chi-square/df = 5.430, TLI = 0.940, CFI = 0.950, RMSEA = 0.052. Significant correlations were highlighted in yellow.

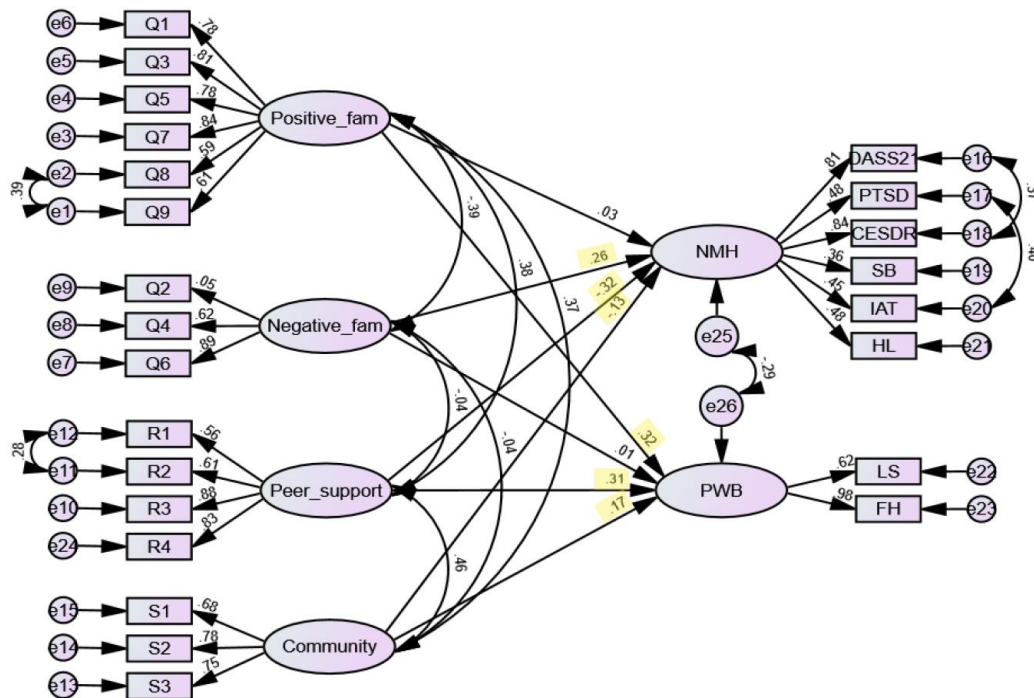


Figure 4.4. Predictive effects of external ecological factors. Standardized estimates were shown in the figure. Positive_fam = Positive family functioning, Negative_fam = Negative family functioning, Peer_support = Perceived peer support, Community = Perceived community cohesion, NMH = Negative mental health, PWB = Positive well-being. Chi-square = 1646.642, Chi-square/df = 7.067, TLI = 0.900, CFI=0.915, RMSEA = 0.061. Significant correlations were highlighted in yellow.

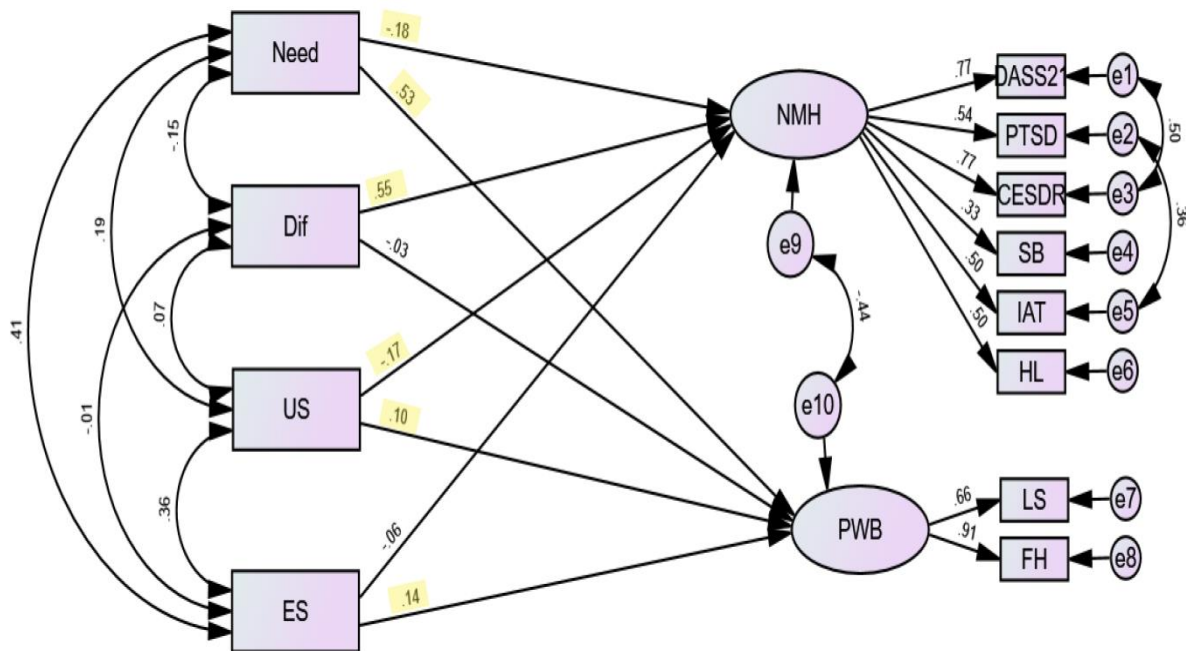


Figure 4.5. Predictive effects of satisfaction of needs, difficulties, usefulness, and evaluation of supporting services. Standardized estimates were shown in the figure. Need = Satisfaction of needs, Dif = Difficulties encountered in different life domains, US = Perceived usefulness of services, ES = Evaluation of services, NMH = Negative mental health, PWB = Positive well-being. Chi-square = 328.479, Chi-square/df: 8.012, TLI = 0.910, CFI=0.952, RMSEA = 0.065. Significant correlations were highlighted in yellow.

The results revealed that peer support and community cohesion positively predicted positive well-being ($\beta = 0.31$ and 0.17 , $p < 0.001$) and negatively predicted mental health problems ($\beta = -0.32$ and -0.13 , $p < 0.001$). While positive family functioning only positively predicted positive well-being ($\beta = 0.32$, $p < 0.001$), negative family functioning only positively predicted mental health problems ($\beta = 0.26$, $p < 0.001$).

SEM was also conducted to identify the predictive effects of needs satisfaction, difficulties encountered during COVID-19, perceived usefulness of services, and evaluation of services provided by the university (figure 4.5). While needs satisfaction negatively predicted mental health problems ($\beta = -0.18$, $p < 0.001$) and positively predicted positive well-being ($\beta = 0.53$, $p < 0.001$), the encountered difficulties only positively predicted mental health problems ($\beta = 0.55$, $p < 0.001$). Both the perceived usefulness and the evaluation of services provided by the university were positive predictors of positive well-being ($\beta = 0.10$ and 0.14 , $p < 0.001$) while only the perceived

usefulness showed a significant negative effect on mental health problems ($\beta = -0.17$, $p < 0.001$).

To sum up (Table 4.32), among the factors related to COVID-19, socio-economic consequences were found to be a risk factor for students' mental health, while the effects of the other two factors (danger and contamination, checking behaviour) were not strong. However, self-efficacy related to COVID-19 was a strong predictor of positive well-being. Thus, it was considered a salient protective factor. Among intrapersonal factors, resilience was a strong positive predictor of positive well-being, while emotional competence was a negative predictor of negative mental health. Therefore, resilience and emotional competence can be regarded as strong protective intrapersonal factors for the healthy functioning of university students. With regard to external resources, positive family functioning and peer support can be regarded as strong protective factors of students' mental health and well-being.

Meanwhile, the satisfaction of daily needs during the pandemic showed a strong positive

effect in predicting students' positive well-being, while difficulties encountered during the pandemic positively predicted mental health problems. The findings indicate that students with higher levels of needs satisfaction displayed better positive well-being, and if students encountered more challenges and difficulties during the pandemic, their mental health could deteriorate. Finally, the usefulness and effectiveness of services provided by the university may help buffer the negative impacts of COVID-19, as indicated by their associations with students' mental health problems and positive well-being.

Student focus group interviews

Focus group interviews explore the participants' subjective experiences, feelings and underlying thoughts (320). They provide further insights into findings obtained from quantitative research methods, such as surveys. We conducted student focus group interviews to understand the students' experiences during the COVID-19 pandemic, concerning their general feelings during the first 15 months of the pandemic, as well as their perceptions and suggestions regarding the existing support services provided by PolyU.

Methods

To ensure adequate representativeness, we recruited students from all the faculties of PolyU. Table 5.1.1 presents the number of students who participated in the interviews according to faculty/school. An invitation email was sent to students who completed the survey or were referred by their teachers. The participants were asked to complete a consent form and two scales evaluating their general feelings (life satisfaction and anxiety) over the past 15 months before the initiation of the interview (Appendix 5.1A).

In total, 111 students were recruited, including 101 local and 10 international students. Twenty-three focus group interviews were conducted between late March and mid-May

2021. The number of students in each group ranged between two and nine, with an average of five. The interviews were conducted by two research associates via Zoom and were observed by two research assistant professors. All interviews were recorded upon participants' consent. The duration of each interview ranged between 60 and 90 minutes. All student participants received a HK\$100 voucher per hour as a token of appreciation after the completion of the interview. The recordings of the interviews were transcribed by student helpers and reviewed by two research assistants as well as the investigators.

Protocol of focus group interviews

A protocol (Appendix 5.1B) was developed by the research team based on previous studies in the Project P.A.T.H.S. (278,321,322). The first part of the protocol focused on the students' perceived difficulties/challenges during the COVID-19 pandemic. The second part focused on the students' perceptions and suggestions regarding the services provided by PolyU during the pandemic. The moderators asked the questions listed in the protocol in a semi-structured manner. In the second part, a list of the PolyU support services (Appendix 5.1C) was given to the participants as a reference during the interviews.

Data analysis

The data were initially analysed using a general inductive qualitative approach. At the initial stage, a research associate and a research assistant formed several categories based on the developed interview protocol. Another research associate, who was not involved in the initial coding stage, cross-checked the coding and categorisation. The credibility of findings was examined by intra- and inter-rater reliability (average > 80%). Thereafter, the coded and categorised narratives with the frequency of different themes were analysed.

Results

The analysis reveals the following three themes:

- Theme 1: Students' experiences in academic learning, physical and psychological health, social life, and other domains (see Table 5.1.2).
- Theme 2: Students' knowledge, usage, comments and suggestions concerning the support services provided by PolyU (see Tables 5.1.3 to 5.1.5).
- Theme 3: Students' overall feelings during the pandemic (see Table 5.1.6).

Theme 1: Students' experiences regarding various aspects of the pandemic

The outbreak of the COVID-19 pandemic and the consequent social distancing measures caused overnight a shift from face-to-face learning and teaching to an online mode. The challenges reported by students were mainly related to online academic learning, university life, physical and psychological health, and social and family lives. Table 5.1.2 presents the description and frequency of the responses with representative quotes.

Academic learning and university life

A total of 255 responses yielded the six following subcategories: (1) technical problems and teachers' information technology (IT) abilities, (2) difficulties in online communication, (3) concerns regarding assignments and assessment, (4) disruptions to studies and career plans, (5) lack of normal university life and (6) advantages of online learning.

The effectiveness of online teaching and learning heavily depended on network stability and the users' IT abilities. Students highlighted technical problems and teachers' IT abilities as a challenge to their learning ($N = 56$). The difficulties students experienced included freezing screens or sudden muting during class and, occasionally, presentations. Certain

students were concerned about their teachers' IT abilities. Teachers who were inexperienced in using online platforms disrupted teaching and learning or unnecessarily shifted between different platforms during the same class, which made students feel 'confused' and 'disorganised'.

The quality of communication in the online learning environment was low ($N = 53$). Although students and teachers could still see each other on the screen, it was not as efficient as face-to-face interactions in the traditional classroom setting. Moreover, when students had questions, they could barely obtain instant responses from their teachers. The majority of students reported that interactions among students were rare. As most of the students were unwilling to turn on their cameras, group discussions and interactions were not effective due to a lack of eye contact, meaning that much more time was required to clarify the responses of their groupmates.

Furthermore, students indicated that they had significant concerns regarding their academic performance and the fairness of assessment ($N = 51$). Students experienced difficulties in completing the assignments of subjects that required onsite training, laboratory sessions and studio work. They criticised the arrangements and requirements as 'disorganised' and 'inconsiderate' since they could not complete the assignments at home without the resources offered by the university, such as facilities, space and equipment. Moreover, certain students stated that cheating was common during assessments. They also complained about the difficulties in preparing several cameras to fulfil the strict requirements of online examinations.

As placement and exchange programmes were suspended, a few students had to rearrange their studies or career plans ($N = 33$). In addition, completing practicum hours was a requirement for graduation in certain subjects like nursing. Thus, some students had to spend extra time to fulfil the requirement of clinical practicum. A few final-year students even faced a delay in graduation. Although there was online placement,

students were concerned about its effectiveness in providing essential training skills. Moreover, the students' exchange plans were affected by travel restrictions. The students had to handle credit transfer and subject registration, among other matters, in a rush.

Most students expressed regret for not having a normal social life in the university ($N = 40$). They reported that making new friends, building interpersonal networks and participating in societies were important aspects of university life. However, campus closure limited opportunities to meet friends and develop networks. Furthermore, as students did not need and were not encouraged to return to the campus, it was difficult for them to develop a sense of belonging to the university and forge connections with teachers and fellow students.

Despite these difficulties and challenges, students also mentioned a few benefits of online teaching and learning ($N = 22$), such as higher flexibility in time. The majority of students agreed that they had more time and a more flexible learning schedule. The recordings of online lectures also gave them the freedom to review the lecture at their own pace, which helped the revision and understanding of the learning content.

Physical and psychological health

Many students reported deterioration of their physical health due to the shift from face-to-face to online learning ($N = 23$). The prolonged use of computers caused back pain, waist pain and vision problems. A few students also reported irregular sleep patterns or poor sleep quality. Moreover, since sports venues were closed and wearing a mask when doing exercise is uncomfortable, students exercised less ($N = 15$). Notably, two students reported positive changes in their physical health; they took advantage of online learning (e.g., they did not need to commute to school), spent their spare time exercising and worked on improving their physical health.

As for psychological health, most students experienced negative emotions ($N = 28$), such

as anxiety, depression, loneliness, insecurity and uncertainty. For example, two students stated that they were anxious and constantly overthinking, which led to sleep problems. Students who experienced depression felt unmotivated. However, a considerable proportion of students reported no changes in their emotions. Furthermore, 18 responses were related to spirituality. A few students considered the unpredicted pandemic as stimulation to rethink and reflect on their life goals and values ($N = 12$). A few others learnt from the pandemic that things could change suddenly and, therefore, treasured what they had and expressed gratitude for it ($N = 6$).

Social life

'No social life' was frequently mentioned by students ($N = 25$). Under the restrictions of group gatherings, a few students interacted online with their friends using a chatbox or Facetime. However, they admitted that this was not comparable to face-to-face interactions. One of the students stated that online communications with friends appeared as if 'there was a wall between us' (Group 9, B). The lack of social life was one of the primary causes of negative feelings among students. A few students felt alone and bored because their learning only involved 'me and my laptop' (Group 21, C).

Family life

Forty-five responses were related to family life, including 33 responses regarding family relationships and 12 responses regarding financial difficulties. Students spent more time staying at home than before. Those living with their parents and siblings reported that they felt care and affection from their family. Many students experienced conflicts with their family members concerning the use of space and resources, such as computers and tablets. A few students discussed the financial situation of their families/themselves, with some of them experiencing failures in the family businesses,

while some had been laid off, received pay cuts or had an unstable income.

Community cohesion and social atmosphere

A few students mentioned changes in the community and social atmosphere ($N = 30$). They observed a rise in public awareness of hygiene and social connectedness ($N = 18$). However, students also mentioned negative aspects of the social atmosphere ($N = 12$). For example, the fear of being infected, anxiety and uncertainties of the public fuelled irrational actions such as panic purchases.

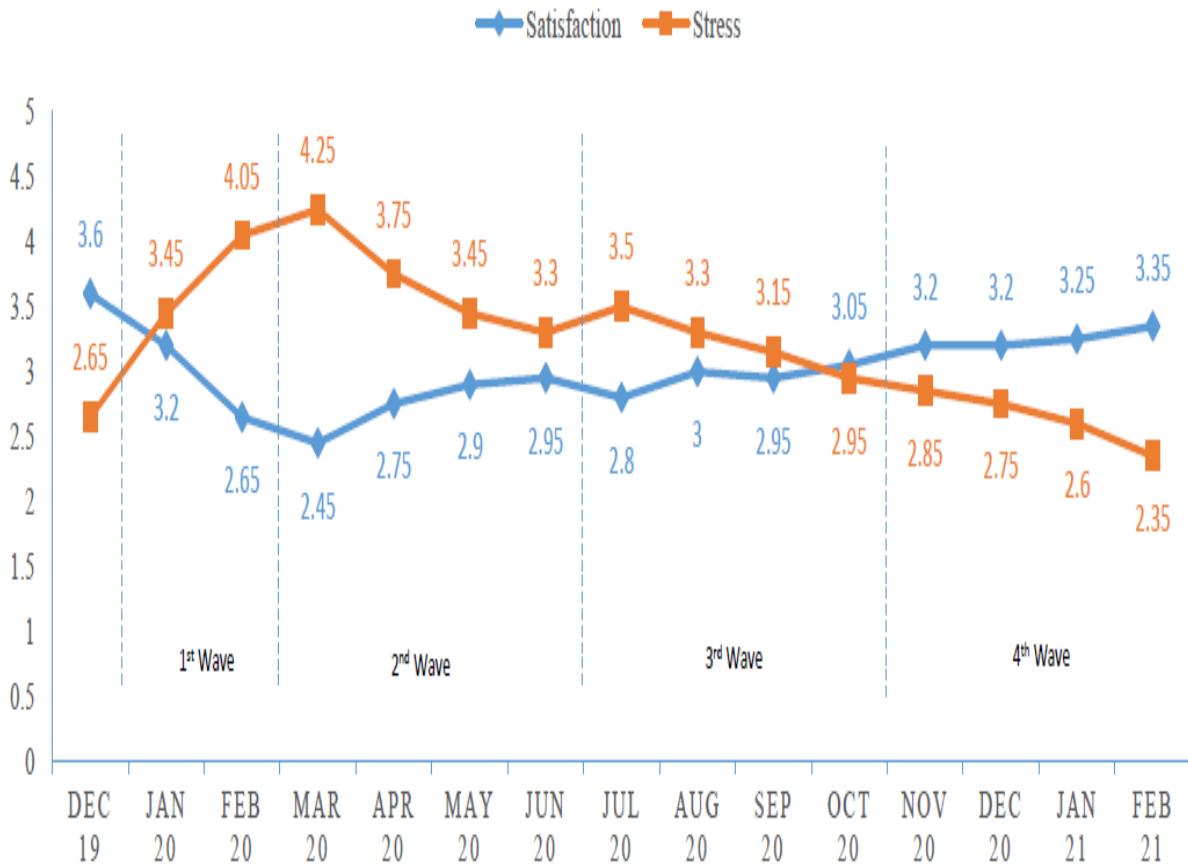
Coping strategies during the COVID-19 pandemic

To cope with the difficulties and stress induced by the COVID-19 pandemic, students engaged in recreational activities such as exercising

($N = 23$), sought help from peers ($N = 14$) and indulged in entertainment ($N = 10$) like playing online games. Students also suggested that learning new skills or exercising, for instance, doing yoga, helped release stress and motivate them. Most of the students turned to their peers when seeking help and received emotional support and practical help from friends.

Theme 2: Perceptions of support services provided by the university

Regarding the perceptions of support services provided by the university, 183 responses were identified. These responses were further grouped into three categories: (1) knowledge and usage of the services ($N = 72$), (2) comments on the services ($N = 41$) and (3) suggestions for the services ($N = 70$).



Remarks:	
Waves	Highlights in the different waves of the outbreak
Wave 1 (Jan 2020 to Feb 2020)	<p>In early January, suspected cases began appearing in Hong Kong. On 23 January, two suspected cases were finally confirmed, and there was an increase in confirmed cases at the end of January 2020. Doctors indicated that there was 'limited human-to-human transmission' of the virus in the community. Panic purchases of facial masks and other anti-epidemic supplies appeared shortly afterward. The Director-General of the World Health Organisation (WHO) announced that COVID-19 was a Public Health Emergency of International Concern (PHEIC).</p> <p>The first confirmed case without travel history and the first death were reported in February. Cases of transmission among different apartments were confirmed in Tsing Yi.</p> <p>During 3–7 February 2020, 7,000 medical workers went on strike over the government's response to COVID-19.</p> <p>The Hong Kong Government conducted the emergency evacuation of residents in the neighbourhood and settled them in a quarantine site. At the end of February, cluster infection (temple and hotspot clusters) was reported. The trend of panic purchases of masks and other anti-epidemic supplies continued.</p>
Wave 2 (Mar 2020 to Jun 2020)	<p>The WHO regarded COVID-19 as a pandemic. Cluster outbreaks were confirmed, including weddings, bars, Karaoke rooms, etc. The Education Bureau shut down all primary schools, secondary schools, and kindergartens until further notice. The government practised a stricter social distancing measure (a ban on gatherings of more than four people).</p> <p>The government closed all Karaoke rooms, nightclubs, beauty salons, massage shops, bars and Mah-jong clubs. The number of confirmed cases dropped thereafter. On 20 April, there were no confirmed cases reported, which was the first time since January.</p> <p>Four new local cases were reported on 23 April, after a period of zero cases.</p> <p>Sporadic cases were confirmed, but the number of imported cases skyrocketed since April, mainly due to sailors and travellers from South Asia.</p>
Wave 3 (Jul 2020 to Oct 2020)	<p>Infection cases rapidly increased, and numerous cluster outbreaks were reported (canteens, restaurants, shows, taxi drivers and van drivers). The number of unknown-source cases also hit the highest record with 100 new cases per day. Many new cases were related to homes for the elderly and schools.</p> <p>The pandemic continued but the number of confirmed cases dropped to a single digit at the end of August.</p> <p>Zero confirmed cases were recorded after two months of the third wave.</p> <p>The government said that the third wave of the epidemic might have been under control. The number of confirmed cases was maintained at a single digit at the end of September.</p> <p>Associated infection clusters were found in bars and hotels. The epidemic situation was stable and remained at a single digit.</p>
Wave 4 (Nov 2020 to Feb 2021)	<p>At the end of November, a new outbreak related to dancing clubs emerged, and the cluster registered over 500 cases.</p> <p>After the outbreak of the dancing club cluster, other clusters appeared, including construction sites, hostels for foreign domestic assistants and salons. Cases of transmission among neighbours in public estates were reported, and there were suspected cases of nosocomial infection. The government, then, decided to tighten the social gathering ban to two persons.</p> <p>The epidemic and cluster outbreaks continued. Over 10,000 confirmed cases of COVID-19 were recorded up to 23 January 2021. At the end of January, the government delineated specified areas, and residents in these areas were required to undergo a compulsory nucleic acid test.</p> <p>Vaccines were tested and used in different countries. In Hong Kong, the government initiated the vaccination programme. Since the confirmed cases were reduced to a low level, the government relaxed the social distancing measures (e.g., dine-in services in the evening), but staff in targeted groups were required to test regularly.</p>

Table 5.1.1. Number of students in the focus group interviews by faculty/school

Faculty/School	Number of participants
Faculty of Engineering (FENG)	16
Faculty of Construction and Environment (FCE)	14
Faculty of Health and Social Sciences (FHSS)	32
Faculty of Applied Science and Textiles (FAST)	6
Faculty of Humanities (FH)	8
Faculty of Business (FB)	22
School of Design (SD)	7
School of Hotel and Tourism Management (SHTM)	6
Total	111 (33 males, 64 females, 14 did not indicate)

Knowledge and usage of the services

During the interview, the students were invited to name the support services they were aware of. Although more than 20 types of support services were available, very few students reported being aware of certain services. After the moderator showed them the list of the available support services, they were surprised that the University provided various types of support that they ignored. In this context, the students reported knowing of the daily update on COVID-19

($N = 12$), the counselling services and assessment ($N = 10$), the emergency financial assistance scheme ($N = 6$), the psychological workshops and groups ($N = 5$) and IT support ($N = 5$).

The interviewees were invited to share their perspectives on the reasons for their limited knowledge of the university's services and why they tended not to use them (Table 5.1.3). They criticised the heavy dependence on emails to promote the services. First, the students stated that they were 'bombarded with emails' (Group 14, B) every single day and, thus, rarely paid full attention to emails related to the support services. Specifically, since teaching and learning were online and most information from the University was delivered through emails, they tended to skip emails that were not sent by someone they knew or were unrelated to their classes. Second, most of the students complained that the promotional emails used 'text-heavy presentation' that was difficult for them to read on a smartphone. Therefore, they tended to skip those emails. Third, a few students found that the architecture of the information was poorly developed and caused 'chaos in redirecting' when they attempted to access the web pages. As a result, many students quit trying to access the information provided in the emails after many unsuccessful clicks.

In addition to the ineffective promotion of the support services, the interviewees also explained why they rarely used them. One major reason was that the services were not related to their studies. In particular, being exhausted from attending online classes, the online support

services seemed like another series of online lessons, making the students reluctant to use them. Another reason was that their preference for seeking help depended on the type of issues they encountered. For academic issues, students preferred to directly seek help from their teachers. For personal issues, they tended to seek help from someone close to them (e.g., a good friend) rather than their teachers or counsellors.

Comments on the support services

The students who were aware of the support services provided by the University commented on the service they knew or had used. Most of them were satisfied with the sufficiency and the quality of the support services (Table 5.1.4). Specifically, the students expressed their appreciation for the additional support provided by teachers. They commented, 'teachers were trying with all their efforts and were willing to help the students' (Group 3, D). Teachers' support indicated that they care for their students' emotions and studies and they facilitated teacher-student connection and communication.

In contrast, certain students described the University's website as 'a mess' (Group 21, D) and not user-friendly. The major complaint was that the website contained too many sections that had to be thoroughly searched to find the target information. Furthermore, the interviewees also reported encountering difficulties in seeking information from different offices. A common complaint was that their cases and questions were transferred from one department/unit to another, and it appeared that no one could provide an answer.

Suggestions for university services

The students made various suggestions for improving university services related to learning ($N = 12$), support services related to the COVID-19 pandemic ($N = 24$) and the means to promote the support services ($N = 34$) (Table 5.1.5).

The students highlighted the importance of communication when facing uncertainty. They suggested that the University share information and facilitate student-teacher communication using additional channels, like social media. They also suggested that the home department create a contact list that summarises the duties of the staff so that students can approach the appropriate staff depending on their needs. As for lectures, students suggested adjusting the arrangement of lessons with more flexibility depending on the conditions of the pandemic. For example, applying a hybrid teaching method may enable students to attend lessons in person for certain subjects, thereby, resuming their normal social life that entails interaction with their fellow students in a face-to-face manner rather than online. Also, the students have experienced difficulties in concentrating for two to three hours for each online lesson. They advised combining teaching and self-study as an alternative structure for online classes. Regarding assessment, online learning and insufficient access to information for their assignments made students massively concerned about their examination results. Therefore, they suggested a 'pass or fail' grading system rather than a letter grading system. Apart from advising the University to provide them with additional support, students also suggested that the University further train teachers in their IT skills to smoothly conduct online lessons.

Furthermore, students proposed four major suggestions related to library resources, career planning services, wellness and financial support. The University Library is one of the major information sources for students to search textbooks and journals. However, students were not allowed to go to the library in person once the campus was closed. The majority of the students suggested that the library provide more electronic copies of textbooks or journals and improve the accessibility of the electronic resources on career planning. In addition, they suggested that the University organise more career talks and invite graduates to share tips on job seeking and interviews,

which would provide students with extra information and skills for future job interviews. The interviewees also reported having limited knowledge of dealing with stress during the pandemic. Therefore, they suggested that the University provide them with more information and training workshops regarding effective strategies to release stress. The prerequisite of using electronic devices for online lessons and examinations has increased since the adoption of online learning. Although the University has provided the Emergency Financial Assistance Scheme for students to deal with financial hardship during the pandemic, students hoped to receive additional financial support to purchase hardware and software that facilitates online learning.

The students also made several suggestions on the promotion of the support services, including combining information, simplifying the content, promoting via multiple channels and providing a guidebook of the services. To reduce the number of promotional emails, students suggested that the University combine all emails into a single email that would contain all the available services. This would allow students to easily search for relevant services. With regard to the email content, they suggested using a poster with brief explanations that would be more effective in capturing the major content of the service/activity. Given that students tended to check their social media more often than emails, the majority of the interviewees strongly suggested promoting such information via multiple channels, for example, through social media or their teachers. Students shared that their teachers or academic advisors have a better understanding of their needs and could serve as agents to promote the relevant support services. Another suggestion was to provide a guidebook with the functions and services of the different PolyU offices/units. This would also help those who are not fully aware of the support services to follow the guidebook and utilise the relevant support services based on their personal needs.

Table 5.1.2. Students' experiences in different domains during the COVID-19 pandemic (Theme 1)

Categories	Subcategories	Examples
Academic learning and university life (N = 255)	Technical problems and teachers' IT abilities (N = 56)	<ul style="list-style-type: none"> • Technical problems • 'I encountered a technical problem in using the blackboard. Sometimes, the screen would freeze . . . the speech that the teachers delivered was not synchronised with the PowerPoint notes. It made me miss [part of the] lecture content.' (Group 12, E) • 'When I was delivering a presentation, my voice got muted by the system until the professor and groupmates reminded me of this issue. It affected my presentation performance.' (Group 15, D) • Teacher's IT abilities • 'The professor did not know how to use the platform. He did not even know how to open a breakout room or share documents . . . Much disruption was caused.' (Group 9, B) • 'One lecturer delivered his assignments via different applications. It was so disorganised since we had to search through each application to find our assignments or tasks. We expressed our concerns to the teacher, and we still did not have any idea about which file was which.' (Group 20, B)
	Difficulties in online communication (N = 53)	<ul style="list-style-type: none"> • 'Without face-to-face lessons, my motivation has drastically decreased. Sometimes, certain subjects, such as English, require real-time communication. For example, we could not practise speaking with our classmates in person . . . And sometimes, when we had questions and wanted to ask our teachers, we did not get an immediate response. It was time-consuming to wait for their response. It made me eventually give up on asking questions.' (Group 13, G) • 'The other thing was less interaction among groupmates. In face-to-face teaching, we can discuss any problems in person. If the learning method is online, we are restricted to exclusively using the online platforms for discussion. The response may be delayed, and it takes more time to tackle the problems.' (Group 9, B)
	Concerns regarding assignments and assessments (N = 51)	<ul style="list-style-type: none"> • 'I am studying Engineering. This semester, we were required to complete a lab report. Because of the pandemic . . . lots of tasks are only limited to a video demonstration. To be honest, I did not learn anything from just watching the video clips.' (Group 12, C) • 'Because of the pandemic, we could not use the studio to finish our assignment. I could not do it at home since my apartment is small. Therefore, it really affected my progress on my assignment.' (Group 18, A) • 'The cancelation of face-to-face examinations was awful as it greatly increased the chances for students to cheat. Indeed, there were many students who intentionally reserved a room in PolyU so that they asked their classmates to do the exam together.' (Group 12, G) • 'We were required to use cameras to film our hands and monitors. In my opinion, it is not an easy thing for any student. Since we have to use at least two cameras to film the process, some of the students may not have the equipment.' (Group 22, A)
	Disruptions to studies and career plans (N = 33)	<ul style="list-style-type: none"> • 'As a nursing student, I had to go on placement . . . A lot of senior students were not able to attend their placement due to the pandemic. Therefore, they may have to do it after the pandemic.' (Group 12, I) • 'Because of the pandemic, the on-site placement was changed to a three-week online programme . . . [with] no chance for us to be trained in a hospital . . . We all lack practical work experience. Therefore, I am really worried about my next placement since I do not have any practical experience.' (Group 13, C) • 'I had applied for a summer exchange programme at the time . . . I had already planned my schedule according to those offers. I could have transferred the credit to make my studies less challenging for me. Suddenly, there was the COVID-19 outburst in Europe . . . It caused an adverse effect on my academic planning.' (Group 12, F)

Categories	Subcategories	Examples
	Lack of normal university life (N = 40)	<ul style="list-style-type: none"> • ‘It greatly affected the socialisation aspect. I was really looking forward to the university lifestyle, socialising and making some new friends. However, because of the pandemic, all activities were held online. It reduced my chances to make new friends. Although I have groupmates in some of the courses, I do not know them well.’ (Group 24, B) • ‘. . . like the first two years in PolyU. I could meet with friends and then hang out with them . . . Uh, it’s that the time I spent at Poly was with friends and professors I could meet face to face. But now it is online, and then, I just have to stay at home, turn on the laptop and attend classes. I feel like I belong to my laptop.’ (Group 14, A) • ‘As a 1st-year student, we did not have the chance to [get to] know other people . . . Because of online learning, we were not required to commute to the campus . . . We know nothing about PolyU. Certainly, the feeling of belongingness has gone low.’ (Group 20, A)
	Advantages of online learning (N = 22)	<ul style="list-style-type: none"> • ‘Learning is more flexible as we can review the recordings at our own pace. Even if we missed something in the lesson, we could review it again afterward.’ (Group 19, B). • ‘I did not have things to do at home, so I would find some new things to do. For example, sometimes, I would draw . . . and also read books. I cultivated more interests. Normally, I was so busy with stuff. However, having more time at home, I could develop more interests.’ (Group 9, A)
Physical and psychological health (N = 84)	Effects of online learning on physical health (N = 23)	<ul style="list-style-type: none"> • ‘My waist hurts as I sit too long for lessons.’ (Group 18, D) • ‘We stared at the computer from the beginning of the day. After the online lesson, we still had many assignments to work on. Thus, my eyes would become dry.’ (Group 21, B) • ‘I stayed a lot at home. From the beginning of the pandemic, I did not go out often. Moreover, I slept late at night as I did not have to get ready for school. I could attend the lessons without dressing up or showering. Therefore, I slept late at night.’ (Group 18, C)
	Physical activities (N = 15)	<ul style="list-style-type: none"> • ‘I used to fence regularly in the past, but now I do not do it. It is so uncomfortable wearing a mask in the venue . . . That is why I do not do it anymore.’ (Group 22, A) • ‘After changing to online teaching, my schedule has become more flexible. Therefore, I was always able to do exercise after the lesson or after finishing my homework. I also felt that I am much healthier now. However, if we had a face-to-face lesson, I would not be able to do exercise after the lesson. Therefore, I am grateful that online lessons allow me to plan my schedule.’ (Group 8, B)
	Negative emotions (N = 28)	<ul style="list-style-type: none"> • ‘I feel like I was depressed . . . [a situation that] caused [me] headaches. I felt like I do not want to sit at this place or even follow the course. I had this weird feeling of repulsiveness. Currently, I do not even want to watch recordings or attend [the class].’ (Group 13, G) • ‘I think it was anxiety . . . I only went out when I really needed to. I felt very nervous on the street. I cleaned my hands with sanitiser all the time or went to the toilet to wash my hands. I cleaned all the things, like bags, and took a bath after going home.’ (Group 1, B)
	Spirituality feelings (N = 18)	<ul style="list-style-type: none"> • ‘We had more spare time to really think about ourselves, why we studied or what we were going to do in the future or our goals. So, I think that it provides us with more time to really think about ourselves or what kind of people we are.’ (Group 17, B), • ‘Sometimes, I would think of the possibility of studying online during the four years of university life. If it is true, I will be sad since I do not have a chance to enjoy university life. Because of this, I cherish my time and the opportunity to gather with friends. Also, I will cherish my university life in the future if the pandemic is alleviated.’ (Group 19, B)

(Table 5.1.2 continued on next page)

Categories	Subcategories	Examples
Social life (N = 25)	Social life during the pandemic (N = 25)	<ul style="list-style-type: none"> • ‘My friends and I used to attend class together. If I did not understand any of the tasks, I could ask my friends immediately . . . But after transitioning to online learning, I could not do these things with them. Now, it is only me and my laptop. I feel unhappy since we changed to the online mode. I am alone, bored and feeling an emptiness inside.’ (Group 21, C) • ‘I think it was quite depressing since we could not go out to socialise. Places like party or Karaoke rooms were all closed . . . it was impossible for you and your friends to dine out, as there were restrictions on the number of people.’ (Group 22, A)
Family life of the students (N = 45)	Family relationships (N = 33)	<ul style="list-style-type: none"> • ‘I agree that our relationship is better. In the past, I used to dine out. But now, I spend more time at home dining with the family. Initially, we were not getting along with each other. However, as time went by, we became much more considerate and caring to each other. Surprisingly, our relationship has become stronger due to the pandemic.’ (Group 21, B) • ‘I had a fight with my sister-in-law over Internet data. It bothered me more, especially when there were special occasions, such as registering for courses. I would discuss this issue with her in advance, “Could you please let me register for my course first?” I tried my best to communicate with her, but sometimes it did not work, and we still fought.’ (Group 20, C)
	Family or personal financial difficulties (N = 12)	<ul style="list-style-type: none"> • ‘My dad was self-employed. It did not affect his working hours. However, his business experienced a slump in profit. Due to the influence of coronavirus, no one was buying his service. We were worried about this issue.’ (Group 11, D) • ‘I originally taught badminton. However, because of the temporary closure of the venue, I could not teach any of my students. Thus, I lost a lot of income. At that time, I was afraid of going out with my friends since I did not have enough money to socialise.’ (Group 15, C)
Community cohesion and social atmosphere (N = 30)	Social connectedness (N = 18)	<ul style="list-style-type: none"> • ‘Sometimes, some of the residents would voluntarily remind people who forgot to wear masks. You could feel that people were truly taking the pandemic seriously and were willing to do anything to prevent it . . . they would also share critical information with each other.’ (Group 21, A)
	Social atmosphere (N = 12)	<ul style="list-style-type: none"> • ‘The whole atmosphere was depressing. People were feeling anxious about getting infected . . . Although people go out, they aren’t having fun as they are worried about the virus. I feel like most of us are being depressed and unmotivated.’ (Group 9, B)
Coping strategies (N = 47)	Recreational activities (N = 23)	<ul style="list-style-type: none"> • ‘I think we could find some new activity to do. I tried to learn a new language or practise new songs on the piano; it enriched my life and kept me motivated every day.’ (Group 13, C) • ‘I started to exercise at home . . . yoga relieves my stress. It enables me to stretch my body and shoulders. It regulates my breath.’ (Group 15, D)
	Seeking help from peers (N = 14)	<ul style="list-style-type: none"> • ‘I think one of the best things that has helped me through [the pandemic] was when I was working. I would video call a friend and see them . . . we were just on a video call, each doing their own thing and working, so we were so productive. But still in the presence of another person. So, it was just supporting and knowing that I’m not alone.’ (Group 23, A)
	Relaxing by entertainment (N = 10)	<ul style="list-style-type: none"> • ‘I did not have a lot of stress. However, I was not sure how to release stress. Usually, I play Switch or computer games.’ (Group 11, D) • ‘We played games and chatted on the apps. Although we do not see each other face to face, we can hear the voice.’ (Group 20, E)

**Table 5.1.3. Reasons for the limited knowledge and usage of the support services
(the first category under Theme 2)**

Category	Examples
Promotion emails	<ul style="list-style-type: none"> • Bombarded with various types of email • ‘A lot of activities and related information were merely promoted via emails. To be honest, students may not always check their emails . . . if PolyU needs to ensure their students know the available support services, then it needs to promote its services via various platforms rather than emails alone, as promotion is important.’ (Group 20, F) • ‘I kept getting bombarded with emails, so I am not really paying attention to them.’ (Group 14, B) • Text-heavy presentation • ‘. . . the emails containing a lot of text. If the email isn’t related to our academic studies, then we tend to ignore it . . . the best way is to include some pictures that draw our attention to keep reading the contents of emails.’ (Group 15, B) • ‘I changed the settings of notifications popping up on my smartphone . . . I would see a notification once that there’s an email in Outlook. Yet, once I clicked on it, the whole email contained text only . . . [I] may not have the patience to read all the text in detail. If the email contained a video or a picture, it would attract us to [read the] details.’ (Group 24, B) • Chaos in redirecting • ‘The email itself is clear and precise (e.g., a clear email title). Take as an example WIE, the email itself is clear. However, the links included could not be accessed!’ (Group 21, D) • ‘Once I clicked the hyperlink included in the email, it transferred me to a website of general information rather than transferring me directly to the application page. The whole process was not smooth at all.’ (Group 21, 3)
Services not related to studies	<ul style="list-style-type: none"> • ‘I saw the career talk. However, most of the talks are merely related to the fields of Business and Engineering rather than Health and Social Science (HSS). Therefore, I did not find it useful.’ (Group 7, B) • ‘Honestly, I have not attended any workshop since we are already tired of online learning, and PolyU is asking us to attend another online session. I feel that it is . . . too demanding. We are already tired of sitting in front of computers, but they are asking us to do that again.’ (Group 14, C)
Preference in seeking help	<ul style="list-style-type: none"> • ‘As students, we have three major issues . . . academic studies (e.g., searching references or information), where we tend to seek help from our professors . . . technical problems, where we tend to seek help from our professors or related technical departments . . . social life, which depends on the COVID-19 pandemic. During this time, we tend to seek help from someone close to us (e.g., family) when having psychological issues.’ (Group 4, A) • ‘If the problem is related to stress or personal issues, then [we] may not want to seek help from the counselling services for our privacy issues. Therefore, we may first approach our family, then friends . . . since the counselling services provided by the University, in terms of reducing pressure, may not be that effective.’ (Group 7, C)

**Table 5.1.4. Comments on the support services
(the second category under Theme 2)**

Services	Examples
Daily updates on COVID-19	<ul style="list-style-type: none"> • ‘The daily update emails presented the confirmed cases and policies about the COVID-19 pandemic. Since I rarely go to the campus in person, these emails are the major way for me to gain the latest information about the COVID-19 pandemic.’ (Group 24, B). • ‘I found the daily update emails annoying, as the news had already mentioned the latest information on the COVID-19 pandemic. Thus, this type of email seems just to repeat what has already been reported in the news.’ (Group 12, G)
Counselling services	<ul style="list-style-type: none"> • ‘The instructor asked us to produce a painting, which I found useful in dealing with the pressure of my studies. . . All this helped me feel relaxed as it reduced the level of my stress.’ (Group 12, A)
Career and placement	<ul style="list-style-type: none"> • ‘I personally think it’s sufficient, as the University has provided support in various ways, particularly in the career field, which is something that students are most concerned about. The related support services included job board or career advice . . .’ (Group 15, B)
Financial assistance	<ul style="list-style-type: none"> • ‘I saw it in the emails . . . but I didn’t apply as the procedure seemed to be complicated and required us to prepare a lot of documents . . .’ (Group 3, C)
IT services	<ul style="list-style-type: none"> • ‘. . . there was a time when I had a Wi-Fi connection issue, and my lecture was about to start in one hour . . . I asked [the IT service] for my case to be put in priority, and then we solved the problem . . . they sent follow-up emails to check on us for references . . . I thought that was very nice.’ (Group 17, D)
Professors’ support	<ul style="list-style-type: none"> • ‘When I had an examination during the COVID-19 outbreak, my teacher noted my emotions were a bit unstable...and called me to ask if I was okay. I found it really heart-warming.’ (Group 11, C) • ‘My tutor has launched a Facebook group for our convenience to ask questions. I think this method is really good; at least we could ask the tutor questions anytime we needed.’ (Group 5, E)
Website and information seeking	<ul style="list-style-type: none"> • ‘But most of the time we do not know how to search for relevant information. This could be because the website itself contains many folders and sections under each folder.’ (Group 4, A) • ‘I did not know there are so many sections . . . I tried to call the Student Affairs Office as I could not find the relevant information. Your colleagues suggested clicking on the other section, and it made the whole procedure complicated and disorganised . . . Therefore, I found it quite exhausting.’ (Group 21, B)

**Table 5.1.5. Suggestions and recommendations regarding the support services
(the third category under Theme 2)**

Category	Suggestions	Extracts/examples
Learning (N = 12)	More channels for obtaining information and communicating with teachers	<ul style="list-style-type: none"> • ‘When I was in the exchange programme (during the COVID-19 outbreak), PolyU created a WhatsApp chat group to provide students with updated information. At that time, I was in the UK. I did not know what to do and was confused if I could get a refund. Therefore, I thought PolyU handled this issue really well by creating the WhatsApp group, where students could get the most updated information instantly.’ (Group 6, F) • ‘I think the university/department can provide students with a contact list summarising the roles of each department and/or its staff. Therefore, it will be clear to students which department/ person they should contact if needed.’ (Group 4, B)
	Increasing flexibility in lecture design and assessment	<ul style="list-style-type: none"> • ‘If there are two to three lessons packed together, then we have to work on a computer for no less than nine hours . . . this will make our eyes feel pretty tired. Therefore, I think our lecturers can somehow adjust the schedule of the lessons, like reducing the duration of a lesson, leaving half of the time for us to do self-study. One of the examples would be the module called Tomorrow’s Leaders, which involved half the time on class and half on online learning.’ (Group 13, B) • ‘I think we should use “pass or fail” for assessment of the performance, as online learning is not that efficient, which somehow affects our result and we might not perform well in every subject. Also, some lecturers may not be able to deliver high-quality teaching online. Although we still need to complete projects as part of assignments, we can only accept the grade given by our lecturers without complaining about their teaching quality. Therefore, as online teaching has some impacts on our results, it will be best for us to choose “pass or fail” rather than grading.’ (Group 2, C)
	Improving the IT skills of teachers	<ul style="list-style-type: none"> • ‘For software issues, I think the university should provide [IT] training to our teachers, teaching them how to use online software or related issues, as I saw some of our teachers knew nothing about IT issues . . . they did not know how to use online software. Therefore, we need to teach them how to use online software during class.’ (Group 11, C)
Support services (N = 24)	Providing more electronic resources	<ul style="list-style-type: none"> • ‘We need to write many research papers [as assignments] by referring to information provided by the library. If they can give us an online version of this information, then that would be great as many resources (e.g., books) do require us to go to the library in person.’ (Group 6, A)
	Organising more career talks	<ul style="list-style-type: none"> • ‘Mainly about the studies plan . . . it would be best to invite graduates to share their experience (e.g., tips for interviews) with students, so that they can perform better.’ (Group 9, B)

(Table 5.1.5 continued on next page)

Category	Suggestions	Extracts/examples
Support services (N = 24)	Providing more workshops on releasing stress	<ul style="list-style-type: none"> ‘Two major suggestions. First, providing us with accurate information about the ways of releasing pressure . . . as I do not know how to deal with pressure or negative emotions. Second, providing us with more fitness classes or workshops, as I found them really useful in releasing pressure . . . It should provide students with more quota or options to choose from.’ (Group 3, D)
	Financial support for online learning	<ul style="list-style-type: none"> ‘Maybe the university can provide us with more financial assistance in purchasing hardware, like assisting [students] to buy computers . . . software too . . . for PolyU, we need to use Zoom . . . PolyU only provided us with the basic plan that allowed 40 minutes [of video conference], but I know other universities provided their students with an upgraded plan for doing group project meetings.’ (Group 11, A) ‘Assisting students to purchase electronic devices. I think that providing students with discounts will be sufficient for us to change the device and, thus, enhance our learning experience.’ (Group 22, D)
Promotion of the support services (N = 34)	Combining information and simplifying the content	<ul style="list-style-type: none"> ‘I am a bit confused about when all these support services send a separate email to us. Like, one from the Student Affairs office and another one from the library? I think it will make it hard to find the email once needed. Therefore, I would suggest organising the information into one single email. Then, we can click on the relevant information when needed.’ (Group 21, A) ‘The activities organised by my department have a poster attached to the email and a brief explanation. However, the emails sent by the Student Affairs office tend to have just an email [only with text in English] . . . Therefore, I thought it would be best to attach a little poster in the email or the content itself also in a Chinese version for the ease of understanding.’ (Group 19, D)
	Multiple channels	<ul style="list-style-type: none"> ‘I think the promotion should be done via social media, as most of the young people now use social media, particularly due to the COVID-19 pandemic. Alternatively, for more general purposes, it could be a Facebook page or Instagram, that students can follow and see the update, which is more convenient than checking emails; as students may only check their emails once a day, but pretty sure that they would check their social media more than once a day.’ (Group 24, A) ‘Academic advisors [should] interact with students more. Theoretically, they should know more about what students need. When they meet the students in person, they can present to them the related support services, and students would not need to search the services aimlessly.’ (Group 20, C)
	Guidebook of the support services	<ul style="list-style-type: none"> ‘You may not know what kind of support service you need . . . if there’s a guideline or index that you can refer to when checking what kind of support you need, then it’ll enhance the level of efficiency of workshops/activities.’ (Group 21, B) ‘As a 1st-year student, all these services are new to me. It would be helpful if a guideline was available, particularly if I do not have the chance to ask my fellow students.’ (Group 24, B)

Table 5.1.6. Overall feelings during the pandemic (Theme 3)

Feeling	Examples
Negative (N = 18)	<ul style="list-style-type: none"> • ‘It feels like I cannot predict the future, the things that I had planned stopped after the COVID-19 pandemic . . . [I am] feeling that it is better just to wait and see, rather than plan everything ahead. Also, being restricted in Hong Kong for such a long period, [makes me feel] helpless and forced to accept the reality.’ (Group 7, D) • ‘I think there is a dramatic change in my life that required me to make many decisions at that time. And I agree with other students that it is quite overwhelming.’ (Group 14, A)
Neutral (N = 16)	<ul style="list-style-type: none"> • ‘I would describe this year as [involving] a lot of changes, ups and downs. When I was free, I got nothing to do. Yet, once things started to get back to normal, I needed to attend classes, work and participate in competitions. Thus, I have learnt how to manage my time.’ (Group 15, C) • ‘I think this year is okay, as I have done what I needed to complete, I mean the final year project, and the outcome is not bad. Yet, [it is] just a shame that our social life has changed.’ (Group 20, F)
Positive (N = 16)	<ul style="list-style-type: none"> • ‘I agree that the year 2020 was not very easy for anyone . . . although it made me feel pressure and anxiety, I also experienced a growing-up process both emotionally and physically . . . it [had] a lot of changes, but I liked them because it allows me to have a new overview of myself and what kind of person I am.’ (Group 17, B) • ‘Before the Pandemic, I could take part in the service-learning by going to Africa . . . everything changed to online because of the COVID-19 pandemic. Yet . . . this actually is not that bad, as I have more time to stay at home, spend quality time with my family, do things I enjoy or learn something I had never learnt before.’ (Group 6, A)

Themes 3: Overall feelings during the pandemic

Overall, students had mixed feelings regarding the pandemic (Table 5.1.6). On one hand, the pandemic was unexpected and had brought various changes and challenges, for instance, changes in the school arrangement and travel restrictions. On the other hand, a few students expressed that the pandemic brought them an opportunity to develop self-awareness, self-growth and self-discipline. They also took this opportunity to learn something new and engage in self-reflection. A few students felt 'okay' (i.e., neutral, $N = 16$) about their life during the pandemic. Although there were a few challenges in their daily lives, they did not feel too bad, in general. Figure 5.1 depicts the levels of stress and life satisfaction of the students during the pandemic. Generally speaking, there are fluctuations in both measurements. Students felt more stress and experienced lower levels of life satisfaction during the pandemic than they did before.

Teachers' focus group interviews

The overnight shift from face-to-face teaching on campus to virtual classrooms has affected teacher-student and peer interactions in teaching and learning (T/L). While several studies have analysed students' learning and mental health issues during the pandemic from the student perspective (36,323), very few have investigated teachers' perceptions. The new normal of online classes is challenging for teachers, who are struggling to learn new methods of teaching (324). Their experiences and feedback are essential to understanding the impacts of the COVID-19 pandemic on students and teachers and to improving the T/L process. Through their interactions with students, teachers gain first-hand observations of common needs and difficulties. Moreover, teachers understand both students' needs and the university's policies; thus, they may supply unique perspectives on the T/L process and suggestions for improving

support services (325). Lastly, by triangulating the findings from students' surveys and focus group interviews (321,322), this study provides supplementary information that helpfully clarifies their needs, experiences, and mental health status, as well as the effectiveness of support services and any impact on students of the University's policies during the pandemic.

The purposes of this qualitative study were to understand teachers' perceptions of students' experiences and mental health status, their own teaching and research experiences, and the support services provided by the University to both students and teachers during the pandemic. Qualitative approaches are often used to explore different viewpoints, meanings, and motivations; thus, they help explain the gaps between assumptions in epidemiological models and social realities (326).

Methods

Twenty-six participants (18 male and 8 female teachers, with an average of 11 years of teaching experience at PolyU) participated in the interviews (Table 5.2.1). Five group interviews were conducted via Zoom in April 2021, each session of which included four to six teachers. A purposeful sampling method was employed. In late March 2021, the principal investigator (PI) invited Deans to nominate colleagues in their faculties or schools to join the study. The inclusion criteria of the nomination were 1) teachers who taught course(s) in the past academic year and 2) teachers who are passionate about students' study and development. An invitation letter was sent by the PI to each nominated teacher, and those who opted to participate received a confirmation email with interview objectives, along with a consent form (Appendix 5.2A), a graph for indicating the perceived level of life satisfaction and stress over the past 15 months (Appendix 5.2A), and an interview guide (Appendix 5.2B). They were asked to complete and return the documents before the interviews, which lasted approximately two hours, and a participatory souvenir was gifted after completion of the process. The interview

sessions were moderated by a teacher and two team members joined the group interview sessions as observers. The moderators generally followed the interview schedule in a semi-structured format. The interviews were recorded on Zoom and were transcribed verbatim by student assistants.

Protocol of focus group interviews

Based on previous studies of T/L conducted during the COVID-19 pandemic in both international and local contexts and on the findings of the student focus group interviews (2 pilots and 23 interviews), five questions were used to explore teachers' observations of students' needs and challenges in learning (327,328), mental health (37,39), psychological and social health Kaplan-Rakowski (329), financial hardships, and uncertainty regarding the future (330). The first question explored teachers' observations pertaining to the needs of students and the difficulties they faced during the pandemic. The second question explored teachers' perceptions of the services provided by different units at PolyU to students and their recommendations for refinement (331,332). In this part, a list of the PolyU support services (Appendix 5.2C) was given to the participating teachers as a reference during the interviews. The third focused on the difficulties teachers encountered while teaching or performing research (333-336). The fourth interview question covered the assistance and support provided by faculty, departments, and the University to teachers to help students during the pandemic (324,334). Lastly, participants were invited to freely express their perceptions of teaching and research during the first 15 months of the pandemic as well as any emotional changes or personal feelings they experienced during that time.

Data analysis

An inductive qualitative approach was used for data analysis, as it allows for straightforward analysis of qualitative data and produces reliable and valid findings (337). The data were

independently analysed by a research associate and a research assistant; they made consistent reference to the conceptual framework and formed the initial categories. The coding and categorisation were further cross-checked by another research associate, and any conflicting codes were discussed and resolved by the team. To enhance the credibility of the findings, we checked the intra- and inter-rater agreement, both of which achieved an average of 85% in the categories of codes and interpretations. The coded and categorised narratives, as well as the frequency of the themes, were described and analysed.

Findings

The qualitative analysis elucidated six themes: perceptions of students' needs and difficulties during the pandemic (see Table 5.2.2), perceptions of services provided by the University to students (see Table 5.2.3), teachers' experiences related to teaching and research during the pandemic (see Table 5.2.4), perceptions of institutional support (see Tables 5.2.5 and 5.2.6), perceptions of online teaching and learning (see Table 5.2.7), and teachers' well-being and feelings related to the pandemic (see Table 5.2.8).

Theme 1: Perceptions of students' needs and difficulties during the pandemic

Teachers commonly shared that they did not see students' faces, only their names, and that they 'only know the needs of my computer but not my students'. Teachers believed that students might have developed stronger needs pertaining to 'individual care' due to the lack of peer support caused by social distancing measures, and these teachers considered lack of social life a risk factor that jeopardises students' mental health. A total of 71 responses that communicated this worry were grouped into four categories: challenges with learning ($N = 45$), challenges with psychological and social health ($N = 15$), family

and financial pressure ($N = 7$), and challenges with physical and spiritual health ($N = 4$; see Table 5.2.2).

Challenges related to learning

A total of 45 responses were classified into five subcategories of challenges related to learning: unsatisfactory environments for online learning ($N = 12$), difficulties in meeting practicum requirements ($N = 10$), decrease in motivation and concentration ($N = 8$), impediments to group work ($N = 8$), and modes of and technical requirements for assessment ($N = 7$).

Teachers observed that a few students attended lectures in unsatisfactory environments, such as in a cramped room with children playing nearby or in a public area populated by passers-by. They were concerned about the impact of such an environment on students' learning and emotions. Moreover, network environment was another concern. Students reported that the Internet connections at home were poor, particularly for those living in rural areas. The disconnections from and reconnections to the network were distracting for both teachers and students, particularly during group presentations or discussions.

Furthermore, the COVID-19 pandemic negatively affected the practicum or placement of undergraduate students and the job-seeking process of graduates. Teachers indicated that students studying subjects that required lab testing, clinical placement, and work-integrated education (WIE) suffered the most, as external parties provided only a few positions or even suspended placement schemes after the outbreak. Although the University provided alternative 'online training', students were not confident because they were not able to experience any of the hands-on practical experience required for employment. With regard to learning motivation, a few teachers noticed that students showed decreased learning motivation and 'Zoom fatigue'. Teachers also observed that their students focused less on class and had fewer interactions with teachers than in the traditional face-to-face mode. Specifically, they shared that a few students who had difficulty concentrating

in an online learning environment had given up and begun to skip all lessons.

Teachers also mentioned that students sought help from them regarding forming learning groups and handling the 'free riders' in their group. A few students complained about group members who were not engaged or contributing and asked their teachers to maintain fairness in assessments. Regarding assessment, teachers shared that a few students had struggled to find devices sufficient for online examination, and that they also worried that disconnection during the examination might lead to disqualification. Last, teachers commented that the online invigilated examinations put increased pressure on students.

Psychological and social health

A few teachers shared that there were cases of emotional problems among students during the pandemic, such as feeling lonely or anxious, but they were not sure if this was caused by the pandemic or merely individual circumstances. In general, teachers did not observe an increase in help-seeking for psychological problems. Most stated that they had limited knowledge of each student's psychological status, as the students seldom discussed personal issues with them. In addition, teachers observed that a few students from mainland China were exhibiting signs of increased stress, and a small number of those students asked about the progress and academic performance of other students. Teachers commented that international students felt significantly more pressure than did local students, as international students had to study alone in their hometowns and their academic performance was a deciding factor in receiving a scholarship.

Further, the lack of student peer support or social scene was observed by teachers. Students had limited opportunities to meet classmates or make new friends at the university during the COVID-19 pandemic. The teachers suggested that this lack of peer support was a critical issue in learning and social life, particularly for junior students.

Family and financial pressure

Teachers received a few student requests for financial assistance, and some students were even forced to drop out due to economic difficulties so they could look for a full-time job. Further, to help support their families, many students had to work increased hours at part-time jobs. Teachers also believed that there were probably more students who encountered familial economic hardship during the pandemic than those who came forward with requests for financial assistance. However, since students regarded family financial problems to be a private matter, only very few students sought help from their teachers.

Moreover, teachers also shared that there were a few cases of international students who faced the dilemma of staying at PolyU or transferring to a university in their hometown. Their parents criticised the ineffectiveness of online learning and urged them to drop out and transfer, as their hometown had resumed normal life.

Physical and spiritual health

Although a few teachers remembered asking about their students' health, most admitted that they were barely 'aware of' their students' physical health problems unless the students visited their offices or proactively shared information. Thus, most of the teachers reported that they were not aware of any issues related to students' physical or spiritual health, though a small number of teachers expressed concerns regarding the visual health of students due to the prolonged use of computers.

Theme 2: Perceptions of the support services provided to students

Teachers generally had limited knowledge of the support services provided by the university to students. Some of them could name one or two kinds of services. Most mentioned the counselling services provided by the Student Affairs Office (SAO; $N = 6$), the daily report on

confirmed cases of COVID-19 provided by the Vice President of Campus Development and Facilities ($N = 6$), or the support provided by the Information Technology Services (ITS) Office ($N = 5$). Additionally, a small number named the services provided by the library ($N = 2$) and those related to financial support ($N = 2$). When the moderator showed them a services list, they were surprised that the University had begun offering different kinds of services during the pandemic. Moreover, the teachers either argued that they did not receive the emails on related services or admitted that they might have deleted the promotional emails, as there were 'a lot of emails to read every day from different departments and other colleagues.' Teachers who were responsible for students' affairs (e.g., academic advisors) showed a basic understanding of the services provided by the University, as it was part of their responsibility to inform students or follow up on special cases.

Furthermore, teachers made three types of recommendations: the promotion of services ($N = 10$), improvement of campus facilities ($N = 5$), and relaxation of university policies ($N = 4$; see Table 5.2.3). Several teachers indicated that 'students don't bother to read emails' and that the students might have ignored promotion emails unrelated to their study. Instead of sending multiple emails from offices and departments, they suggested a webpage that provides complete service information on one platform, enabling students to easily search for specific services.

They further noted that the promotion of services could be tailored to the targeted group and that the information could be focused on PolyU. With regard to facilities, teachers suggested providing more space on campus for students; they also suggested that the university provide some hardware (e.g., computers) and software (e.g., licenses of software) to students in need. Regarding policies, teachers proposed relaxing the requirements for scholarships and for graduation, including the Work-Integrated Education (WIE) requirement. They also recommended that the applications be reviewed on a case-by-case basis to maintain fairness. The

teachers supported the financial assistance scheme that will enable students to maintain financial soundness for a period of time after the end of the pandemic, as families might continue to suffer negative impacts. They also suggested that the university provide online sports activities to the students.

Theme 3: Difficulties regarding teaching and research faced by teachers

With regard to challenges in teaching and research, 55 responses were grouped into five subcategories: engaging students and over-reliance on recordings ($N = 21$), mode of assessment ($N = 12$), changes in curriculum design ($N = 8$), IT literacy of teachers and technical issues ($N = 6$), and an increase in administrative work ($N = 3$). Moreover, teachers reported facing difficulties in the data collection process ($N = 5$; see Table 5.2.4).

The teachers often shared that it was difficult to establish relationships and interact with students. Although they could use tools like chat-box to communicate with their students, it was difficult to engage them. They also noticed a drop in students' attendance for online lectures. Certain students skipped lessons, preferring to learn merely through the lecture recording afterwards. Teachers were also concerned regarding assessment, as they found that the alternatives to traditional examinations made it difficult to differentiate students' performances and abilities. They also worried about whether professional organisations would accept the results of online or take-home examinations, as well as pass/fail grading, and about the successful administration of online exams.

With regard to teaching, revision of teaching plans and class activities required substantial effort and time and was considered a 'big challenge' by the teachers. They felt particularly stressed in the beginning because they did not have any experience using online teaching tools, and the poor connectivity of the network caused interruptions in their teaching. Teachers also voiced their negative feelings regarding rapid

changes in policies and increased administrative work, both of which were significant burdens.

With regard to research, the teachers believed that the pandemic had negative impacts on the progress of their projects, though they generally agreed that the influence of the pandemic was highly dependent on the research topic. Specifically, projects requiring on-site visits or field trips, lab experiments, or human contact were more seriously affected because many organisations maintained minimal operation or even closed in response to COVID-19. Moreover, social gathering restrictions and other preventative measures complicated various aspects of the data collection process, including finding sufficient numbers of participants and renting venues for experimentation.

Theme 4: Perceptions of institutional teacher support for facilitation of students' learning

The teachers generally agreed that the University was more 'responsive' and 'coming closer to what they need' regarding institutional support. They also agreed that technical support was most important to their instruction in the online environment, internal communication was effective, and they hoped that the university would offer financial support for the purchase of new teaching equipment (see Table 5.2.5).

As shown in Table 5.2.6, suggestions for four support subcategories emerged from 17 responses: improving facilities and equipment in classrooms ($N = 6$), providing financial support to purchase hardware and software ($N = 5$), increasing flexibility in lesson arrangement ($N = 4$), and providing support regarding guidelines and examinations ($N = 2$). The teachers agreed that there were more requirements related to facilities and equipment for the hybrid mode than for the 'fully online' mode, and they suggested upgrades to the facilities and classroom equipment. Moreover, a few teachers also made suggestions related to improving the online learning software, such as designating software for multiple-choice questions and online

discussion. In addition, many teachers argued that the current financial support scheme or research fund had a substantial number of limitations related to buying hardware and stated that they would appreciate it if the University would allow them to spend the money in more flexible ways or provide them with financial assistance. The teachers also requested more flexibility in lesson design and online assessment. For example, they suggested that the University allocate ‘some proportion of marks to encourage students’ participation in the lesson’. With regard to examinations, they suggested that the university provide clearer standards and more accounts for invigilation.

Theme 5: Teachers’ perceptions of online teaching and learning

‘Every coin has two sides’ was how teachers described online T/L. In addition to the difficulties summarised in Theme 3, major benefits mentioned by the teachers included flexibility ($N = 9$), a self-paced environment ($N = 8$), provision of alternative communication methods ($N = 7$), and co-creation and presentation capabilities ($N = 6$). Table 5.2.7 presents some of the teachers’ perceptions of the benefits of online T/L.

Theme 6: Teachers’ well-being and feelings related to the pandemic

Teachers appeared to have complex feelings about the pandemic (see Table 5.2.8 for examples). When describing their feelings, the words ‘adaptive’ and ‘flexible’ were frequently used. As one of them pointed out, it is important for teachers to set a good example in tough times: ‘Stay positive. And when I look at all of these, if I’m not positive, my colleagues will not be positive. If my colleagues are not positive, the student will not be positive. So, start from us’ (Group 1, A). Figure 5.2 presents the levels of life satisfaction and stress among teachers during the pandemic.

Stock-taking survey of key service providers

To understand the services different units at PolyU provided to support students during the COVID-19 pandemic, a stock-taking survey was conducted to document the specific services and/or support various units offered to students, the effectiveness of these services and the service providers’ perspectives on extra services or suggestions for improvements.

Participants and procedures

The PI sent an invitation email to the Vice President of Student and International Affairs and the directors or deans of the Student Affairs Office (SAO), Academic Registry (AR), Educational Development Centre (EDC), Library (LIB), Graduate School (GS), Global Engagement Office (GEO) and University Health Service (UHS) in mid-May 2021. The email clarified the objectives of the study and the aims of the survey. An online questionnaire was developed using Qualtrics, and a link to the online questionnaire was sent along with the invitation email. To accommodate the respondents’ preferences, the questionnaire was also converted into both Word and PDF formats and then attached to the invitation email. Respondents/representatives of the units/offices could complete either the online questionnaire or the Word/PDF file depending on their preferences.

Instrument and data analysis

The PI designed the questions according to the objectives of the study and the administration of the University. The questionnaire comprised six questions. The full questionnaire is presented in Appendix 6A. The first question investigated the services individual units provided. The respondents were invited to list the support and/or services their offices offered to students during the COVID-19 pandemic. They were encouraged to upload/attach documents (e.g., pamphlets, PowerPoint slides, reports, etc.) related to the services they mentioned in their responses.

Table 6.1. Summary of services provided by different units/offices to students during the COVID-19 pandemic

Units/Offices		Services
SAO	CWS	<ul style="list-style-type: none"> • Psychological wellness: Different modes in delivering counselling services, including online chat and video counselling; projects on promoting mental health; workshops and groups on psychological health; daily tips for students; wellness funds; and counselling support for students under quarantine or who have contracted COVID-19. • Physical wellness: Sports skills training courses, online sports team training sessions, online personal fitness consultation, video clips on fitness and online campaigns and webinars related to exercise and wellness. • Academic advising services.
	CPS	<ul style="list-style-type: none"> • 'INSPIRE' Mentorship Programme and STEM Internship Scheme. • Online work-integrated education (WIE) programmes and virtual internships. • Online training workshops, career advice and mock interviews.
	Admin	<ul style="list-style-type: none"> • EXCELL programme moved online. • Online application and feedback collection.
	SR	<ul style="list-style-type: none"> • Scholarships and financial assistance with online applications and briefing sessions. • Online interviews and meetings with awardees and donors. • Online support and activities for students with special education needs (SEN). • MS teams/Zoom hall activities. • Enhancing hygiene in amenities, sports facilities and student halls of residence. • Support to non-local students who are planning to return to Hong Kong.
	SDU	<ul style="list-style-type: none"> • Seven online activities in enhancing student integration and promoting whole-person development and lifelong learning.
AR	<ul style="list-style-type: none"> • Online communication with students on programme registration and assessments. • Providing and updating a list of Q&A, guidelines and latest admissions arrangements. • Guidelines for online invigilated exams and take-home exams for students. • Providing support to non-local students for reissuance of student visas. • Online registration for all admission schemes. • Using multiple modes to communicate with students. • Special arrangements for the dissemination of learning teaching arrangement (LTA) information, department coordination, MTR stamping and distribution of face shields. 	
LIB	<ul style="list-style-type: none"> • Partial reopening of the library to fulfil students' needs regarding study space and operating with a flexible approach. • Special arrangements related to open areas, fines, equipment locations, examination period measures and access to physical collections. • Expanding e-resources, self-service, virtual services and new studios. • Sterilizing returned library books and strengthening hygienic measures. 	
EDC	<ul style="list-style-type: none"> • Live online cultural events. • Online training courses on media production. • Online orientation info day and learning page. 	
GEO	<ul style="list-style-type: none"> • Special funding to cover students' financial losses due to the cancellation of outbound exchange activities. • Providing advice and support to students dealing with travel alerts/restrictions. • Assisting students in virtual exchange. • Contacting students via small group meetings, consultations and online exchanges. • Assisting and helping students and inbound exchange students with exchange problems. • Online Exchange and Study Abroad Fair 2020. 	
UHS	<ul style="list-style-type: none"> • Supporting students' health through Mental Wellness Clinic and the UHS clinic's stringent clinical triage system for suspected cases. • Help in screening non-local students before entry into the residential student hall. • Providing face-to-face consultation and teleconsultation to students. 	
GS	<ul style="list-style-type: none"> • Stipends, assistantships, hardship schemes and waivers of continuation fees for non-local students. • Deferring submission deadlines and allowing students to opt for pass/fail grades. • Late drops of subjects. • Online seminars, registration and oral examinations. • Maintaining essential services. 	

Note. SAO = Student Affairs Office; CWS = Counselling and Wellness Section; CPS = Careers and Placement Section; Admin = Administration Team; SR = Student Resources; SDU = Student Development Unit; AR = Academic Registry; LIB = University Library; EDC = Educational Development Centre; GEO = Global Engagement Office; UHS = University Health Service; GS = Graduate School.

Table 6.2. User evaluation and most frequently requested services by students

Units/Offices	User evaluations	Most frequently requested services
A	<ul style="list-style-type: none"> Students welcomed online events. 	<ul style="list-style-type: none"> Opportunities to learn new skills, perform and connect.
B	Nil	Nil
C	Nil	<ul style="list-style-type: none"> Scholarships and financial assistance. Extra time for assignments and online examinations for SEN students. Introducing more amenities/facilities and relaxing the capacity control. Online hall activities. Providing information on arrangements and financial support to non-local students.
D	Nil	<ul style="list-style-type: none"> A more flexible payment system that can also accept payments of small amounts. Technical assistance in online teaching platforms.
E	Nil	<ul style="list-style-type: none"> Space for attending online classes and collaborative learning. Convenient access to online scholarly resources. Assistance in finding and using library resources and services.
F	<ul style="list-style-type: none"> Positive feedback on the timeliness of AR's updates on the academic activity schedule. 	<ul style="list-style-type: none"> Adopting social media channels for important updates.
G	Nil	<ul style="list-style-type: none"> More face-to-face and hybrid modes for campus integration events.
H	<ul style="list-style-type: none"> Satisfaction rates were high. Students were satisfied and appreciated the flexibility of the appointment booking system, counselling and workshops services and different health and academic advising programmes. 	<ul style="list-style-type: none"> Diversified delivery modes. More choices in Cantonese psychological workshops. More information on relaxation and stress management. More interaction despite the online mode.
I	<ul style="list-style-type: none"> Students appreciated the caring attitude and prompt attention of the Mental Health Clinic, the availability of medication treatment at UHS and the convenient location of the campus clinic. 	<ul style="list-style-type: none"> Mental health assessments. Drug treatments. Referrals to psychiatrists. Medical reports. Medical follow-ups.
J	<ul style="list-style-type: none"> Students were satisfied with the arrangements, timely response, information and services from the team through different channels. 	<ul style="list-style-type: none"> Insurance that covers COVID-19 related claims. Funding for exchange travelling and support of inbound students to meet local friends. More online social activities. Earlier decisions on exchange programme details. Provisions of masks and hand sanitizers.
K	<ul style="list-style-type: none"> Faculties/departments generally appreciated support/services rendered to RPg students, and they agreed the GS was responsive to their urgent needs and demands. 	<ul style="list-style-type: none"> Waiving the continuation fees in the 2020/21 academic year. Hardship scheme.

Note. The sequence and names of the units have been changed to preserve anonymity.

Table 6.3. Improvements in and suggestions for support services

Units/Offices	Improvements suggested	Resources required for improvements	Additional services suggested	Extra resources for additional services
A	<ul style="list-style-type: none"> Using a hybrid delivery mode for workshops. More small-group face-to-face workshops. 	<ul style="list-style-type: none"> Hybrid delivery mode, technical enhancement and training. Professional development for counsellors. More resources for professional video productions. 	<ul style="list-style-type: none"> Online platforms to facilitate student health. Encouraging student involvement through student-initiated projects for wellness promotion. 	<ul style="list-style-type: none"> Continuous funding and resources support to enhance and stabilise the newly developed services.
B	<ul style="list-style-type: none"> A mobile application for 'INSPIRE', which was developed and launched in September 2021. 	<ul style="list-style-type: none"> A mobile application for 'INSPIRE'. 		
C	<ul style="list-style-type: none"> Sending a set of more simplified guidelines on common technical issues to enhance efficiency. Introducing new courses that are suitable for online/hybrid modes of teaching. 	<ul style="list-style-type: none"> Simplifying existing guidelines. Additional manpower, financial resources and Zoom accounts to teach new courses. 	<ul style="list-style-type: none"> Adjustment to the online payment system to allow settlement on a small amount of enrolment fee. 	<ul style="list-style-type: none"> Adjustments to the online payment system by FO
D	<ul style="list-style-type: none"> Working with AR on online examination arrangements for SEN students. New means to publicise. Working closely with academic departments to promote availability. Providing funding for non-local students. Providing training and online activities for hall residents. More frequent cleaning in halls. 	<ul style="list-style-type: none"> Assistance from academic departments to promote scholarships and support services for SEN students. Assistance from AADO to solicit donations to support non-local students. Additional manpower and financial support to provide more frequent cleaning and disinfection. 	<ul style="list-style-type: none"> Authority to defer tuition fee payments for non-local students. Providing more pastoral care to non-local students via the Non-Local Student Services Team (NLSST). 	<ul style="list-style-type: none"> Cooperation with academic departments, FO and SAO to assist in the deferral of students' tuition fee payments. Additional manpower to provide pastoral care to non-local students.
E	<ul style="list-style-type: none"> Using the hybrid delivery mode to facilitate interaction and connection with participants. 	<ul style="list-style-type: none"> More relevant software support to facilitate online student activities. 	<ul style="list-style-type: none"> Special attention to the bonding and needs of members of the Global Student Ambassador Programme (GSAP) who are currently outside Hong Kong due to the COVID-19 pandemic. 	<ul style="list-style-type: none"> More regular online communications and follow-up actions with GSAP members.

Units/Offices	Improvements suggested	Resources required for improvements	Additional services suggested	Extra resources for additional services
F	<ul style="list-style-type: none"> • Providing increased and effective assistance to students. • Confirming and announcing special LTAs earlier. • Streamlining the verification process into a hybrid mode of study. • Expanding communication channels to include social media. 	<ul style="list-style-type: none"> • Increasing channel coverage with the social media management platform. 		
G	<ul style="list-style-type: none"> • Installing different convenience facilities and furniture. • Improving fresh air supply and the library's contingency plan. • Increasing e-resources collections and promoting resource lists. • Increasing the number of rooms, furniture, equipment and work environments. • Enhancing the website and systems. • Embedding library instruction into the online learning programme. 	<ul style="list-style-type: none"> • Financial resources to expand online content, acquire furniture and obtain equipment to support online learning and maintain a hygienic environment. • Technological resources to improve various library systems and web services. • Spatial resources for supporting quiet or collaborative study. • Manpower resources to provide service and assistance. 	<ul style="list-style-type: none"> • Enhancing communication with students. • Interacting with other campus partners. • Providing flexible, adaptable and innovative services under the new normal. 	<ul style="list-style-type: none"> • Enhancing communication with students through the university. • Sharing contingency measures implemented by different departments. • Maintaining the hygiene of the university through the FMO. • Library extension and revitalisation projects through the CDO. • A robust IT infrastructure with stable and sufficient bandwidth through the ITS.
H	<ul style="list-style-type: none"> • More online resources on the eLearning page. 		<ul style="list-style-type: none"> • More preparation and support for students' online studies and assessments. 	
I	<ul style="list-style-type: none"> • Prompt and firm decisions on exchange arrangements. • Including COVID-19-related insurance terms. • Enhancing buddy programmes and social activities for inbound exchange students. 	<ul style="list-style-type: none"> • The collective efforts of different stakeholders in the university working collaboratively. 		<ul style="list-style-type: none"> • Funding to ensure diverse and tailored support services, including health and well-being services, that are provided to students.
J	<ul style="list-style-type: none"> • Exploring further means to support students with complicated mental health issues. 	<ul style="list-style-type: none"> • More accessible financial assistance to students with genuine needs. 		
K	<ul style="list-style-type: none"> • Measures to promote the psychological well-being of RPg students. 	<ul style="list-style-type: none"> • Organising a talk with SAO on mental support for RPg students. 	<ul style="list-style-type: none"> • SAO's counselling services for RPg students or chief supervisors. 	<ul style="list-style-type: none"> • Academic staff members who help maintain the psychological well-being of RPg students.

Note. The sequence and names of the units have been changed to preserve anonymity.

The second question focused on how respondents evaluated the services they provided in terms of their adequacy, timeliness, effectiveness, uniqueness and benefit to students. The five aspects were evaluated on a 5-point Likert scale, ranging from 1 ('Strongly disagree') to 5 ('Strongly agree'). The respondents were invited to further illustrate their own perspectives about the services' benefits to students. They were also asked to rate the overall quality of the services their units provided on a 5-point Likert scale, ranging from 1 ('Can be improved') to 5 ('Excellent').

The third question addressed the evaluations of the services the units provided. The respondents were asked if they evaluated any of the services. They were also told to provide information about the results of these evaluations (if any) and the services that were most requested by students.

The fourth question focused on how to improve the services the units provided. The respondents were invited to comment on and suggest ways to improve the services and the support/resources required to make such improvements.

The fifth question referred to which additional services respondents thought were required. The respondents were asked to make suggestions on extra services for students and the support/resources required from the University to provide the service(s) that they suggested.

The final question asked about the respondents' knowledge of the services other units at PolyU provided. The respondents were instructed to name, to the best of their knowledge, the services other PolyU units provided to support students during the COVID-19 pandemic.

A total of 11 completed questionnaires were received from 11 units/sections at PolyU, including the following 5 sections from the SAO: the Counselling and Wellness Section (CWS), Careers and Placement Section (CPS), Administration Team (Admin), Student Resources (SR) and Student Development Unit (SDU). Other units included AR, LIB, EDC, GEO, UHS and GS. The collected responses and materials were developed into profiles and categorised in Excel.

Findings

Different types of services were provided to students during the pandemic, and a large number of these services were made available online (see Table 6.1). Services related to the psychological and physical health of students were primarily provided online by the CWS of the SAO and the UHS. Career development and internship services were offered to students by the CPS of the SAO. Financial support was provided by several units, including the SR sections of the SAO, GEO and GS. For academic issues, special arrangements and services were provided by the AR and GS. Additionally, the AR and GEO offered assistance to non-local students and students who joined exchange programmes.

Evaluation of support services

The respondents (i.e., service providers) had rather positive perceptions of the support services provided to students during the pandemic. They were in high agreement that the services were sufficient ($M = 4.60$; $SD = 0.55$), timely ($M = 4.80$; $SD = 0.45$), unique ($M = 4.80$; $SD = 0.45$), effective ($M = 4.80$; $SD = 0.45$) and beneficial ($M = 4.80$; $SD = 0.50$) to students. The respondents perceived the quality of the services to be excellent. However, only six out of the eleven units conducted user evaluation of the services (see Table 6.2). The respondents reported that most of their users were positive about the supporting services and had high levels of satisfaction with the services. Moreover, according to their evaluation results and observations, the services that students requested most were primarily related to health, finances and study (see Table 6.2 for a summary).

Improvements in support services

The respondents made suggestions to improve the support services, described the resources required for making these improvements and recommended additional services and resources the

university would need to provide to implement the extra services (see Table 6.3 for a summary). With regard to improvements, the respondents made suggestions for how to deliver the services and enhance the efficiency of the services and support. The respondents also recommended increasing resources to support the hybrid mode

of teaching and learning. Regarding the resources required to make such improvements, the respondents generally agreed that they needed more resources, such as human resources, professional development, financial support and coordination from the organisational level of the university.

Table 6.4. Knowledge and examples of services provided by different units/offices to students during the COVID-19 pandemic

Units/Offices	Services
A	<ul style="list-style-type: none"> • EDC has provided instructors and students with information and guidelines for online learning and teaching.
B	<ul style="list-style-type: none"> • Services by SAO, ITS and CSO.
C	<ul style="list-style-type: none"> • KTEO's CEO Shadowing Programme, GBA Start-up Postdoc Programme and PolyU Micro Fund 2021. • GEO's Exchange and Study Abroad Fair 2020 and Study Aboard Fund.
D	<ul style="list-style-type: none"> • Yes (without example).
E	<ul style="list-style-type: none"> • SLLO online activities. Includes an international symposium and online service-learning activities.
F	<ul style="list-style-type: none"> • SAO's counselling service.
G	<ul style="list-style-type: none"> • Yes (without example).
H	<ul style="list-style-type: none"> • Yes (without example).
I	<ul style="list-style-type: none"> • SAO's The COVID-19 Fund.
J	<ul style="list-style-type: none"> • No.
K	<ul style="list-style-type: none"> • UHS's health education activities for students. • SAO and UHS's co-organised activities in helping students' mental health and well-being. • SLLO's online service for PolyU students who wish to serve the needy in other countries.

Note. The sequence and names of the units have been changed to preserve anonymity.

The respondents made various recommendations about the potential for providing additional services to students. For example, a few respondents suggested developing an online platform to deliver services and communicate with students. Others recommended strengthening services for non-local students who may require more assistance during the pandemic. In summary, the resources required for implementing the extra services, such as extra human resources, financial support and coordination among units at the organisational level, were similar to those needed to improve existing services.

Knowledge of support services provided by other units

The respondents indicated that they had basic knowledge of the services provided by other units at PolyU. Most could name one or a few services

the other units offered, including counselling services, financial support and online support to overseas students (see Table 6.4 for a summary).

Discussion and recommendations

Consistent with other findings on mental health issues among college students during the pandemic, the results of this study revealed that mental health problems—including depression, anxiety, stress, post-traumatic stress disorder (PTSD), and internet addiction—were prevalent in the current sample. Specifically, the overall prevalence of mild and more severe levels of depression, anxiety, and stress, as assessed by the respective subscales in the Depression Anxiety Stress Scales (DASS-21), were 55.3%, 61.0%, and 35.2%, respectively (see Table 7.1). In particular, 40.1% of the students reported mod-

erate to severe depression, and 50.7% reported moderate to severe anxiety (see Table 7.1). In addition, approximately one-fifth of students displayed excessive PTSD symptoms based on the cut-off of the Trauma Screening Questionnaire (TSQ), and 48.4% displayed symptoms of depression based on the categorisation adopted by the Centre for Epidemiologic Studies Depression Scale Revised (CESD-R) (338). Comparatively, the overall prevalence rates of depression, anxiety, and stress in the present study were higher than those reported in previous studies conducted with college students during the COVID-19 pandemic in mainland China (339,340) (see Table 7.1). However, this observation of high prevalence rates of mental health problems was similar to those of previous findings based on non-Chinese samples (203, 339, 341, 342) (see Table 7.1). The discrepancy in these findings might be due to several factors, such as the time of data collection (e.g., at the early phase of outbreak versus between waves), the level of trust in the government and in the responses and measures taken, the available health resources (developed countries versus developing countries), and the use of different scales and cut-offs in the measurement of psychological morbidity.

Over half of the students (51.9%) in this study displayed behaviour that indicated internet addiction. Moreover, addiction was positively correlated with the perceived threat of COVID-19 and other mental health problems (including depression, anxiety, stress, PTSD, and suicidal behaviour). Our findings are consistent with recent studies on the rising internet and social media addiction during COVID-19 and its positive relationship with mental health problems among students (70, 98, 343-345). During the pandemic, social-distancing measures were adopted, and students were asked to stay at home and study online. Consequently, they spent more time surfing the net—particularly social media—to receive COVID-19 information, to remain connected with classmates and friends, and for entertainment purposes. Previous studies have revealed that over-exposure to COVID-19 information might trigger negative feelings, such

as distress and depressive symptoms (346-348). In our survey, almost 40% of students reported that they frequently checked posts related to COVID-19 on social media, which reflected that it had been a key tool for the collection of information and connection with others. It follows that overuse of social media may have contributed to the students' mental health problems. Hence, programmes aimed at educating students regarding the responsible use of the internet and social media must be promoted to prevent addiction. Furthermore, 12.3% of students reported that they had suicidal thoughts, and over 4% even reported to have made suicide attempts. Obviously, it is critical for teachers and related units to identify students who display the warning signs of suicide and provide prompt assistance.

With regard to positive well-being, students in the current sample reported a moderate level of life satisfaction and flourishing, as reflected by the mean score of flourishing, which was above the mid-point of the scale. This finding is notable in light of the prevalent mental health problems discussed earlier in this section. Previous studies have reported similar observations (284, 349) or found increased levels of mental health problems but stable positive well-being (350). For example, in Li, Shek and Shek's (284) study conducted before the COVID-19 pandemic, university students in Hong Kong perceived moderate life satisfaction (mean score of 3.91 on a 6-point scale) and relatively high psychosocial competence (mean score of 4.64 on a 6-point scale), while they also displayed moderate levels of depression (mild and above: 47.6%), anxiety (mild and above: 65.0%), and stress (32.3%). It was noted that when students' mental health problems became more prevalent, their life satisfaction as an indicator of subjective well-being also decreased (3.91 versus 3.38). The deep examination of flourishing assessed in the current study and the measure of psychological competence in Li, Shek and Shek (284), both of which can be considered indicators of students' psychological well-being (e.g., personal growth, competence, meaning, and success), revealed that students' psychological well-being

also decreased (4.64 on a 6-point scale before COVID-19 and 4.50 on a 7-point scale in the current study). Furthermore, measures of positive well-being were negatively correlated with the perceived threat of COVID-19 and all measures of mental health problems, which is consistent with previous observations (237, 351, 352). Our findings suggest that there is room to improve students' positive well-being and reduce their mental health problems; this can be accomplished by addressing various psychosocial correlates, such as promoting protective factors and reducing risk factors.

Socio-demographic factors and mental health during the COVID-19 pandemic

Several socio-demographic factors were significantly associated with mental health during the COVID-19 pandemic. First, our results revealed that economic hardship (e.g., encountering personal or family financial difficulty or being unemployed during the pandemic) was associated with more mental health problems and lower positive well-being among students, which indicated that those students who experienced financial problems were more likely to report higher levels of mental health problems and lower levels of subjective and psychological well-being. Our findings also revealed that worrying about the socio-economic consequence of COVID-19 was a strong predictor of mental health problems. Our results support previous findings that financial strain had a significant negative impact on the mental health of young people during the pandemic (39,353).

Second, negative correlations were also found between the year of study and mental health problems, with junior students showing more symptoms of mental health problems than did senior students. This observation is consistent with the findings of previous studies (51, 190). A possible explanation is that, compared with junior students, senior year students are more mature and have more life experience, which may help them better adjust to challenges and cope with difficulties and negative emotions during

the pandemic. Another explanation is that senior students may have a better understanding of the support services provided by the university and closer relationships with classmates and teachers, which may serve as additional resources in difficult times. Due to the outbreak of COVID-19 and the social unrest in late 2019, most Year 1 and Year 2 (2019 intake) students had limited or even no experience of campus life at PolyU before the pandemic. For example, a few junior students expressed in the interviews that they had not experienced 'normal university life' since their intake, and some even stated that they might never set foot in PolyU. Since they had only a limited understanding of the services and people in the university and probably faced difficulties and uncertainties in seeking help, they may have consequently experienced more intense negative emotions. The gap between students' expectations of university life and reality may also have negatively affected their mental health, as the schooling routine is important to the academic and interpersonal development of college students. The results suggest that freshmen may be most in need of institutional support, and special programmes must be designed to enhance their understanding of the PolyU community and its support services.

Third, the living status of students was significantly correlated with depression, anxiety, stress, and suicidal behaviour—students who lived alone demonstrated more mental health problems than did students living with roommates or family, although the effects were not strong. This finding is expected, as friends or family members can serve as essential resources of social support that help students cope with adversity (55, 257, 354, 355). In contrast to reports that international students experienced higher levels of distress during the pandemic than did local students (39, 356), our study found the opposite—that local students had higher levels of distress but lower levels of positive well-being than their international counterparts. This may be partially explained by the aftermath of the social unrest in 2019. Wong et al (357) investigated the impact of social unrest and the pandemic on the mental health of young people in Hong Kong and

suggested that the distress during population-level crises may act as additional personal stressors to influence mental health. The high prevalence of mental health problems in the current study may similarly be a result of the co-occurrence of a series of social events (particularly in 2019) and the pandemic.

Psychosocial risk and protective factors of mental health

In our conceptual model, we considered the mental health of students to be a developmental outcome of personal and environmental influences. With regard to individual factors, the results revealed that resilience, emotional competence, and self-efficacy in the face of COVID-19 were protective factors that promoted students' mental health, while the effect of belief in the face of adversity was not strong (see Table 4.32). With regard to external factors, peer support and positive family functioning were beneficial for the positive well-being of students; community cohesion also promoted the positive well-being of students, but the effect was relatively weak (see Table 4.32). In contrast, negative family functioning and worrying about the socio-economic consequences of COVID-19 were identified as risk factors for students' mental health. These results echo previous findings that positive personality traits (358), financial stability (39), peer support (55, 257), and family support (344, 354) were negatively associated with mental health problems during the COVID-19 pandemic, which implies that the higher the levels of these aspects in an individual, the fewer mental health problems they are likely to encounter.

Among the different protective factors, psychosocial competencies (e.g., resilience and emotional competence) related to positive youth development (PYD) deserve particular emphasis. In fact, recent studies on PYD and COVID-19 found significant protective effects of PYD attributes (e.g., emotional competence and bonding with others) in buffering the negative impacts of the pandemic on students' mental health

(228). Although the present study only covered resilience and emotional competence, previous studies have consistently identified positive associations between different PYD qualities and students' positive well-being as well as negative relationships between PYD attributes and mental health problems (224, 226, 243, 284). Since youth programmes can be one of the primary ways to promote PYD and the mental health of young people (359, 360), strengthening PYD attributes during the pandemic and preventing mental health problems of students must be highlighted (220). Thus, programmes facilitating the development of resilience and emotional competence as well as other PYD attributes must be further developed in a university setting.

As reflected in the student survey and interviews, peer support was critical for the mental health of students. For example, sharing with peers (including classmates and friends) was most often used by students to cope with difficulties and negative feelings. They mentioned that support and encouragement from their peers enhanced their positive well-being and reduced negative emotions. In addition, we also found that positive family functioning was a predictor of positive well-being, while negative family functioning showed significant adverse effects on mental health.

Recent studies have revealed that good relationships with family members can help students feel safe and better cope with distress caused by social isolation during the COVID-19 pandemic (344). In the focus group interviews, a few students shared that they had developed a closer relationship with their family members because they had more family time. However, a few students shared that they had more conflicts with their family members due to limited space, irritation caused by using electronic appliances, and differences in learning, working, and sleeping patterns. This annoyance may have been further exacerbated by work-from-home arrangements or because family members were laid off or underemployed during the pandemic. Such a situation possibly made them feel trapped and increased the pressure on both students and their family members, triggering conflict. This would

have been particularly true for those students who have poor relationships with their families. Since family plays a critical role in shaping an individual's mental health, the importance of positive family functioning in supporting students' mental health must be emphasised. To promote positive peer and family relationships, programmes to enhance students' social competencies (interpersonal skills, resolving conflict, negotiation, etc.) and affective education (e.g., understanding diversity and respect for others) could help students to develop positive relationships with their peers and family.

This study also identified that satisfaction of needs was critical to the positive well-being of students, and related difficulties encountered by students were associated with mental health problems. These results are generally in line with previous findings, including that needs satisfaction and life difficulties were positively and negatively, respectively, associated with individual mental health (361-363). The findings indicated that if students' needs in daily life during the COVID-19 pandemic (e.g., having a good learning environment, increasing IT literacy, maintaining connections to friends) had been satisfied, they would have enjoyed higher levels of both subjective and psychological well-being. Meanwhile, students certainly faced difficulties (i.e., stressors) in multiple aspects (e.g., learning, emotion, and social life), all of which may have made students feel stressed, thereby leading to mental health issues. The findings reflected that, in order to reduce student distress during the COVID-19 pandemic, it is important to provide institutional support that can satisfy the students' needs and help them resolve difficulties.

Participants' experiences of the COVID-19 pandemic

In the interviews, participants shared their experiences and the challenges they faced in various life domains and discussed how they coped with difficulties during the pandemic. At the beginning of the outbreak (December 2019

to January 2020), due to limited information regarding the virus, the fear of being infected, and preventive measures (e.g., social distancing, and the closure of entertainment and catering venues), there was a dramatic increase in stress among both students and teachers and a reduction in life satisfaction. Schools and universities were closed at the end of January 2020, and teaching and learning activities were moved online. Although both students and teachers might have already experienced online education due to the social unrest in late 2019, these sudden changes, in addition to the fear and uncertainties caused by the virus, further intensified negative feelings. Consequently, the level of stress peaked, while life satisfaction fell drastically in March 2020 for both students and teachers (see Figures 5.1 and 5.2). Students faced technical issues during online lectures and communication problems with their classmates and teachers. A few were unable to concentrate in the online learning environment, and a few others suffered from a lack of private space for learning at home. In addition, some students also faced the loss of income from part-time jobs or personal or family financial hardship. They also felt isolated and turned to online connections with their friends (see Tables 5.1.2 and 5.2.2). Meanwhile, revamping the curriculum to cater to online teaching and learning was regarded as a major challenge for teachers. Those with limited IT skills were under excessive pressure, as they faced technical problems during lessons and had to quickly develop and apply a range of new skills in order to teach online (see Table 5.2.4). In fact, teachers reported substantially higher amounts of stress during the semester than did students (see Figures 5.1 and 5.2). For example, in March 2020, teachers scored 4.25 on a 5-point stress scale, while students scored 4.03 on the same scale.

Relatively speaking, the second wave (March–June 2020) was less severe. After three months of practice, students and teachers were more familiar with online learning and teaching and had partially adapted to the 'new normal'. Therefore, the stress experienced by both groups decreased steadily, accompanied by a recovery in life satisfaction. However, a substantial uptick in

COVID-19 cases was observed in July 2020 (the third wave), which caused another increase in stress and a corresponding drop in life satisfaction, but these effects were weaker and lasted for only a brief period. As the semester ended in July 2020, both teachers and students faced less education-related stress. The levels of stress and life satisfaction were stable for students during the fourth wave of the outbreak, despite a slight increase in stress that was possibly caused by the final examination at the end of the semester. For teachers, a steady decrease in stress and a rise in life satisfaction began in the third wave of the outbreak. In the interviews, both students and teachers shared that, with more knowledge about the virus and the relatively low death rate in Hong Kong, they accepted that the pandemic would probably persist for a while, and they stated that it was important to seek a balance between prevention and normal life as the pandemic continued. In order to cope with the difficulties of such tough times, students and teachers engaged in the following coping behaviours: sharing with friends, colleagues, and family members; consuming entertainment; and engaging in relaxing activities (see Table 5.1.2).

Needs satisfaction and difficulties encountered

The findings from the survey revealed that the students' needs in various aspects were basically satisfied, with a few exceptions (see Table 4.22). For example, over half of the students felt that their needs for making friends (53.3%) and having a sense of connection to the university (53.5%) were not satisfied. This finding was echoed by both students and teachers in the focus group interviews. Specifically, difficulties in academic and social domains were highlighted by both students (see Table 5.1.2) and teachers (see Table 5.2.2). In general, there is room for improvement regarding students' needs satisfaction.

Similar to the findings in recent studies on the benefits and disadvantages of online learning

(324, 364, 365), students and teachers generally agreed that online learning provided convenience and flexibility (see Tables 5.1.2 and 5.2.7), but they also pointed out difficulties in maintaining concentration and socialising with others (see tables 5.1.2 and 5.2.2). A few students indicated that they did not have a good environment or good strategies for learning online (see Tables 4.22 and 4.23). In addition, teachers also noticed discipline problems (skipping lessons, cheating, etc.) and low engagement in online lessons and considered these to be primary challenges associated with online learning (see Table 5.2.2). Changes to the assessment format also caused concerns among students and teachers (see Tables 5.1.2 and 5.2.4).

Furthermore, students could hardly meet their classmates or friends on campus due to the closure of the campus; thus, their social needs were not satisfied (see Tables 4.22 and 4.23). As revealed by the results of the survey, the satisfaction rate related to making friends at the university and having a sense of belonging to the university was low (see Table 7.4). The teachers observed that students' learning was adversely affected by the lack of mutual peer support and that it was difficult for students to develop interpersonal networks in the online environment (see Table 7.4). Hence, more work should be done to support the social needs of students and to help them build connections between each other and with the university (see Table 7.4).

With regard to physical and psychological health, students' needs appeared to be generally satisfied. However, considering the high prevalence rates of mental health problems among students (see Table 7.1), these satisfaction rates might be partially due to low awareness among students regarding mental health. Moreover, the level of knowledge about and utilisation of psychological support services were low (see Tables 4.24 and 4.25). Thus, additional studies should be conducted on students' mental health, and more programmes should be provided to promote critical knowledge of and the importance of physical and mental health (see Table 7.2).

Table 7.1. Examples of studies on the prevalence of mental problems among college students/youth adults during the COVID-19 pandemic

Study	Sample size	Depression	Anxiety	Stress	PTSD	Internet addiction	Remarks
Present study	1,648	Mild and above: 55.3% Moderate and above: 40.1% Severe and extremely severe: 17.2%	Mild and above: 61.0% Moderate and above: 50.7% Severe and extremely severe: 27.8%	Mild and above: 35.2% Moderate and above 22.3% Severe and extremely severe: 11.1%	22.3%	51.9%	DASS-Mild and above
Li, Wang, et al. (339)	706,415	Overall: 39% Chinese: 26% Non-Chinese: 60%	Overall: 36% Chinese: 20% Non-Chinese: 60%	Not included			Meta-analysis of 27 studies
Wang, Wen, et al. (340)	436,799	37%	29%	23%			Meta-analysis of 28 studies
Deng et al. (402)	1,441,828	34%	32%	Not included			Meta-analysis of 89 studies
Chang et al. (403)	147,993	34%	31%	Not included			Meta-analysis of 16 studies
Islam, Sujjan, et al. (341)	3,122	76.1%	71.5%	70.1%			DASS-Mild and above
Lan et al. (404)	304	50%	19.7%	37.3%			DASS-Moderate and above
Odrizola-González et al. (203)	2,530	34.19%	21.34%	28.14%			DASS-Moderate and above
Talapko et al. (342)	823	50.8%	50.9%	49.9%			DASS-Mild and above
Ghazawy et al. (217)	1,335	70.5%	53.6%	47.8%			DASS-Mild and above
Wathelet et al. (405)	22,883				19.5%		
Liu, Zhang, et al. (406)	898				31.8%		
Kar et al. (407)	733				34.1%		
Cai et al. (353)	1,070					23.3%	
Hosen et al. (408)	601					86.9%	Including smartphone use
Tahir et al. (409)	2,749					67.6%	

Table 7.2. Summary of recommendations for reflection and service enhancement (Mental health and wellness)

Issues	Observations			Recommendation(s) for refinement
	Student survey	Student and teacher focus group interviews	Stakeholder survey	
Issue 1: Disturbing physical and mental health concerns	<ul style="list-style-type: none"> • High prevalence rates of depression, anxiety, stress, PTSD, and internet addiction (Tables 4.4–4.8). • 12.3% indicated they had suicidal thoughts (Table 4.9). • 48.8% reported hopelessness (Table 4.10). • Room for improvement in hope and positive well-being, self-efficacy, resilience, and emotional competence (Tables 4.10–4.12; 4.16–4.17). • Approximately 40% encountered physical health problems (e.g., showing symptoms, difficulty exercising), and 30% had sleep problems (Tables 4.7 and 4.23, respectively). 	<ul style="list-style-type: none"> • Negative emotions caused by online learning and the prevention measures of COVID-19 were mentioned by students (Table 5.1.2). • Emotional problems were observed by teachers (Table 5.2.2). • Physical health problems and sleep problems due to prolonged computer use and a lack of exercise were mentioned by students (Table 5.1.2). • Teachers noted that it was difficult to observe students' physical health in an online learning environment (Table 5.2.2). 	<ul style="list-style-type: none"> • Counselling services were provided, but students still requested more information on relaxation and stress management as well as online interactive programmes (Table 6.2). • Workshops and activities on physical health were provided, but more fitness classes were requested by students (Table 5.1.5). 	<p>Department/Faculty Level</p> <ul style="list-style-type: none"> • Teachers must pay attention to the psychological health of students, make a referral to counselling services if necessary, and encourage students to seek help from professionals when in need. • Academic advisors should be actively involved. • Tailored learning arrangements should be crafted for students with mental health problems. <p>Non-Academic Unit Level</p> <ul style="list-style-type: none"> • Provide resources and educational programmes for both students and teachers to increase awareness of mental health problems and emphasise the importance of seeking help from professionals (e.g., counsellors, doctors). • Launch more quota and interactive activities to promote physical wellness (e.g., online sports day, video classes) and reduce stress; alternatives such as art or music therapy (e.g., singing bowl) and meditation can also be considered. <p>University Level</p> <ul style="list-style-type: none"> • Disseminate positive messages and the experiences of both students and teachers during the COVID-19 pandemic.

Observations			Recommendation(s) for refinement
Student survey	Student and teacher focus group interviews	Stakeholder survey	
<ul style="list-style-type: none"> • Intrapersonal factors (particularly resilience and emotional competence) were strong predictors of positive well-being and protectors against negative mental health (Figure 4.3). • Peer support and positive family functioning were important in supporting positive well-being (Figure 4.4). • School support of satisfaction of students' needs was important in supporting positive well-being (Figure 4.5). • There was a low level of satisfaction related to the need to develop a sense of connection or belonging to the university (Table 4.22). 	<ul style="list-style-type: none"> • Seeking help from peers was one of the most important coping strategies when students faced difficulties (Tables 5.1.2 and 5.1.3). • Conflicts with family members during the pandemic were mentioned by students (Table 5.1.2). • Lack of peer support in learning and social life was observed by teachers (Table 5.2.2). • A few international students were under pressure from their parents regarding academic development (Table 5.2.2). 	<ul style="list-style-type: none"> • Support for workshops and groups on enhancing the psychological health of students (Table 6.1). 	<p>Department/Faculty Level and Non-Academic Unit Level</p> <p><i>Early identification program:</i></p> <ul style="list-style-type: none"> • Identify at-risk students and explore stressors in different disciplines; understand students' needs and satisfaction of needs; build a database on mental health data. <p><i>PYD training programmes to strengthen protective factors and prevent mental health problems:</i></p> <ul style="list-style-type: none"> • Programmes to strengthen resilience, emotional competence, coping skills, self-efficacy, and other internal assets. • <i>Life education/spirituality wellness:</i> • Programmes to promote hope, life meaning, spiritual health, and adaptability in the face of uncertainty. <p><i>Peer support and family support:</i></p> <ul style="list-style-type: none"> • Peer mentoring programmes for junior students to strengthen support. • Training programmes on interpersonal competence and resolving conflicts to maintain positive relationships with peers and family members. • Build connections between the university and parents. <p><i>Media education:</i></p> <ul style="list-style-type: none"> • Programmes to promote healthy use of the internet, digital devices, and appropriate selection of media content. <p><i>University Level</i></p> <ul style="list-style-type: none"> • Develop a caring community that emphasises the value of care and empathy; foster a sense of belonging and trust among members of PolyU; share positive messages and the experiences and achievements of members.

Table 7.3. Summary of recommendations for reflection and service enhancement (Learning and academic aspects)

Issue	Observations			Recommendation(s) for refinement
	Student survey	Student and teacher focus group interviews	Stakeholder survey	
Issue 1: Worries related to learning and academic performance	<ul style="list-style-type: none"> 47% worried about academic performance; over 40% encountered difficulties in concentration and motivation and a lack of learning strategies; approximately 57% found it difficult to do an internship/exchange (Tables 4.22 & 4.23). Approximately 51% indicated that their need to obtain comprehensive and consistent guidelines was not satisfied (Table 4.22). 	<ul style="list-style-type: none"> Concerns regarding assessments, disruptions to study, and career plans were mentioned by students (Table 5.1.2). Communication problems between students and teachers were observed by both students and teachers (Tables 5.1.2 & 5.2.2). Issues related to the format of the assessment were raised by both students and teachers (Tables 5.1.2 & 5.2.2). Difficulties in meeting internship and practicum requirements were mentioned by both students and teachers (Tables 5.1.2 and 5.2.2). A decrease in learning motivation and over-reliance on the lesson recordings were observed by teachers (Table 5.2.2). 	<ul style="list-style-type: none"> Academic advice services, online training on media production, and an increase in e-resources for students were already extant, but there was some room for improvement (Tables 6.2 & 6.3). Although units have already provided guidelines to students, the satisfaction rate was not high (Table 6.1). 	<p><i>Department/Faculty Level</i></p> <ul style="list-style-type: none"> Provide clear guidelines on assessment and assignment. Maintain communication with students; social media and instant messaging could be used. Utilise other applications (e.g., Mentimeter) to increase teacher-student interaction in the lessons. Collect feedback and understand the difficulties faced by educators in teaching and research; provide support with teaching. <p><i>Non-Academic Unit Level</i></p> <ul style="list-style-type: none"> Organise activities on sharing learning skills and strategies and maintaining concentration in the online learning environment. <p><i>University Level</i></p> <ul style="list-style-type: none"> Increase the flexibility in lecture design to enhance teaching and learning effectiveness.
Issue 2: Technical issues related to online learning	<ul style="list-style-type: none"> Approximately 30% did not have a good online learning environment (Table 4.22) Approximately 20% encountered technical problems or lacked IT skills (Table 4.23). 	<ul style="list-style-type: none"> Lack of IT skills was reported by a few teachers and students (Table 5.1.2 & 5.2.4). Technical problems related to using online learning platforms were noted by both groups (Table 5.1.2). Online learning resources were not sufficient (Table 5.1.5). More flexible arrangements for lecture and assessment were demanded by both students and teachers (Table 5.1.5 & 5.2.6). The unsatisfactory learning environment and lack of space for online learning were mentioned, and improvements in facilities were demanded (Tables 5.2.2, 5.2.3, & 5.2.4). 	<ul style="list-style-type: none"> The library has already designated additional space for students in need, but students requested more space in the library or on campus for attending online classes and collaborative learning (Table 6.2). More online resources were requested (Table 6.2). Technical support in online teaching platforms was requested (Table 6.2). 	<p><i>Non-Academic Unit Level</i></p> <ul style="list-style-type: none"> Promote the IT ability of students. Promote online teaching strategies and the IT literacy of teachers. Collect students' opinions and understand their experience in online learning through evaluations. <p><i>University Level</i></p> <ul style="list-style-type: none"> Promote digital transformation with extra resources to encourage staff to learn new technology (e.g., financial support, flexible time) and equipment for hybrid learning, such as supporting purchases of WiFi data cards.

Table 7.4. Summary of recommendations for reflection and service enhancement (Social aspect)

Issue	Observations			Recommendation(s) for refinement
	Student survey	Student and teacher focus group interviews	Stakeholder survey	
Lack of normal university life and social life	<ul style="list-style-type: none"> Over 50% indicated difficulties in their social life, such as meeting/making friends; needs related to making friends in university were not satisfied (Tables 4.22 and 4.23). 63% indicated that they did not have a normal university life (Table 4.23). 	<ul style="list-style-type: none"> Students reported that lack of communication with classmates made it difficult to make new friends (Table 5.1.2). More channels for communicating with teachers were requested by students (Table 5.1.5). Lack of peer support for learning and emotions and difficulty developing interpersonal networks were observed by teachers (Table 5.2.2). 	<ul style="list-style-type: none"> Online social activities were offered by different units, but students requested more campus integration events (Table 6.2). 	<p><i>Department/Faculty Level</i></p> <ul style="list-style-type: none"> Organise online social activities for students in the same school/faculty via the online platform. <p><i>Non-Academic Unit Level</i></p> <ul style="list-style-type: none"> Build partnerships with student organisations to organise online social activities for students. Utilise newly developed and popular social applications, such as gather.town. <p><i>University Level</i></p> <ul style="list-style-type: none"> Organise social activities to increase students' knowledge of PolyU and connection among members of the PolyU community.

Table 7.5. Summary of recommendations for reflection and service enhancement (Financial support)

Issue	Observations			Recommendation(s) for refinement
	Student survey	Student and teacher focus group interviews	Stakeholder survey	
Financial pressure	<ul style="list-style-type: none"> Worry about the socio-economic consequence of COVID-19 was a predictor of negative mental health (Figure 4.4). Approximately 40% of students found it difficult to get a part-time job (Table 4.23). There was room for improvement in the satisfaction rate of financial supporting services (Table 4.27). There were service gaps in financial support (Table 4.28). 	<ul style="list-style-type: none"> Financial pressure due to a drop in/unstable family income or unemployment was mentioned by students (Tables 5.1.2 & 5.2.2). Financial support, particularly for online learning, was suggested by both students and teachers (Tables 5.1.5 & 5.2.3). Teachers reported cases of financial difficulties and a need for scholarships (Table 5.2.2). 	<ul style="list-style-type: none"> Financial assistance schemes were provided, but students requested more financial assistance programmes and hardship schemes; they also requested more information about the arrangement and financial support for non-local students (Table 6.2). 	<p><i>Department/Faculty Level</i></p> <ul style="list-style-type: none"> Provide assistance and special arrangements for learning to students facing financial difficulty. <p><i>Non-Academic Unit Level</i></p> <ul style="list-style-type: none"> Students were not aware of the financial support provided by the university; more promotion of the funding should be instituted. Simplify the application process. Provide financial support for online learning. Make resources and tips on managing personal finances available to students. <p><i>University Level</i></p> <ul style="list-style-type: none"> Provide and maintain the COVID-19 funding for a period after the end of the pandemic. Create special arrangements for the scholarships for international students with financial difficulties or those who need additional time to complete their studies.

Table 7.6. Summary of recommendations for reflection and service enhancement (Career development support)

Issue	Observations			Recommendation(s) for refinement
	Student survey	Student and teacher focus group interviews	Stakeholder survey	
Worries related to career development	<ul style="list-style-type: none"> Approximately 53% worried about their future career (Table 4.23). 57.5% were satisfied with the career development services (Table 4.27). Students noted service gaps in the career development services (Table 4.28). 	<ul style="list-style-type: none"> Internship and placement programmes were adversely affected by the pandemic, which led to disruptions of career plans (Table 5.1.2). Students experienced a lack of practical and hands-on experience due to the cancellation of placement (Table 5.2.2). 	<ul style="list-style-type: none"> Online internships/WIE on several subjects were already provided, as were workshops, advising, and mock interview practice; however, more career talks were requested by students (Table 6.2). 	<p><i>Department/Faculty Level</i></p> <ul style="list-style-type: none"> Provide more support for career planning and job seeking in the industry. <p><i>Non-Academic Unit Level</i></p> <ul style="list-style-type: none"> Organise more career talks and other activities related to the job search; coordinate with departments to provide tailored programmes and support services for students according to their major of study. <p><i>University Level</i></p> <ul style="list-style-type: none"> Craft more flexible arrangements for internships and practicum.

**Table 7.7. Summary of recommendations for reflection and service enhancement
(Communication, dissemination of information, and service implementation)**

Issue	Observations			Recommendation(s) for refinement
	Student survey	Student and teacher focus group interviews	Stakeholder survey	
Issue 1: Information search and dissemination	<ul style="list-style-type: none"> Students pointed out room for improvement in the provision of information, such as guidelines (Table 4.27). 	<ul style="list-style-type: none"> It was difficult to locate information on the university website and search for services, especially for the first-year students (Table 5.1.3). Lack of coordination and chaos in the communication between offices (Table 5.1.3). 	<ul style="list-style-type: none"> Units had limited knowledge of the services provided by other units/offices (Table 6.4). 	<p><i>Department/Faculty/Non-Academic Level</i></p> <ul style="list-style-type: none"> Strengthen internal communication between offices to provide updated and consistent information to students. <p><i>University Level</i></p> <ul style="list-style-type: none"> Create a one-stop website that can function as hub for information related to COVID-19 (including campus information), for special services provided by the university, and for the contact information of units and offices; use applications such as chat-bot to filter inquiries so that staff can respond to urgent cases quickly; begin to use instant messaging to communicate with students. Utilise push notifications on mobile apps and social media to disseminate important news or activities at PolyU. Create a guidebook on the services provided by different units/offices and their contact information that is accessible through the university's website/app.
Issue 2: Promotion and evaluation of services	<ul style="list-style-type: none"> Students reported low knowledge and use of the supporting services (Tables 4.24 & 4.25) Service gaps in counselling or psychological support, financial support, and career development support were also reported (Table 4.28). Users were positive about the quality of services in general (Table 4.26). Students were satisfied with most of the services provided, but still noted room for improvement (Table 4.27). 	<ul style="list-style-type: none"> Both students and teachers mentioned low knowledge of the supporting services and the ineffectiveness of email promotions (Tables 5.1.3 & 5.2.3). Reactions to the services from both students and teachers were generally positive, but they noted some room for improvement (Tables 5.1.4 & 5.2.3). 	<ul style="list-style-type: none"> No evaluation of the effectiveness of promotion was conducted (Table 6.2). Findings did not tally with the student survey; there is still room for improvement (Table 6.2). Only some units/offices evaluated the services provided (Table 6.2). 	<p><i>Department/Faculty/Non-Academic Level</i></p> <ul style="list-style-type: none"> Evaluate the effectiveness of promotion by tracking statistics (open rate, hit rate, search engine and hashtag, etc.) Reduce the number of promotional emails with a weekly summary. Integrate social media and mobile apps in the promotion of services and events; use push notifications to target clusters of students (e.g., freshmen, final year students) through the PolyU app. Invite teachers and departments to assist in promotion of the services. <p><i>Non-academic Unit Level</i></p> <ul style="list-style-type: none"> Strengthen evidence-based practice by conducting needs assessments at different stages of services (e.g., need assessment at the planning stage, evaluations at the end to collect comments from users). Collect ideas and comments from both students and teachers, as the two groups provided different feedback perspectives. <p><i>University level</i></p> <p>Engage community members in the review of policies and services; regular meetings with community members would be helpful.</p>

Table 7.8. Examples of practices in other universities

Categories	Organisations and links
Thematic website/app on mental health	<p><i>Thematic website on mental health during the COVID-19 pandemic</i></p> <ul style="list-style-type: none"> • New York University https://www.nyu.edu/students/health-and-wellness/services/counseling-services/mental-health-during-covid-19.html • University of Calgary https://www.ucalgary.ca/risk/emergency-management/covid-19-response/mental-health-covid-19 • Purdue University https://www.purdue.edu/caps/covid-19/coping-with-mental-health.html • <i>Mobile applications for mental health during the COVID-19 pandemic</i> • Northern Arizona University • San Francisco State University • University of California San Francisco https://www.modolabs.com/uploads/2020/09/Modo-Health-and-Wellness-Case-Study.pdf • University of Toronto (MySPP app) https://www.viceprovoststudents.utoronto.ca/covid-19/
Training resources for teachers and staff	<ul style="list-style-type: none"> • University of California https://www.ucop.edu/student-mental-health-resources/training-and-programs/faculty-and-staff-outreach/index.html
Promoting protective factors at the intrapersonal level	<p><i>Resilience and emotional competence</i></p> <ul style="list-style-type: none"> • University of Calgary https://taylorinstitute.ucalgary.ca/resources/resilience-during-COVID-19-and-beyond • Brandeis University https://www.brandeis.edu/health/promotion/programs/resilience.html <p><i>Spiritual health and happiness</i></p> <ul style="list-style-type: none"> • McGill University https://www.mcgill.ca/morsl/ • Yale University https://www.coursera.org/learn/the-science-of-well-being
Promoting protective factors at the environmental level	<p><i>Resources on enhancing interpersonal relationships with peers and family</i></p> <ul style="list-style-type: none"> • University of Cambridge https://www.counselling.cam.ac.uk/selfhelp/relats • Shih-hsin University https://osa.web.shu.edu.tw/%E5%AE%B6%E5%BA%AD%E9%97%9C%E4%BF%82%E6%8E%A2%E7%B4%A2-%E5%B7%A5%E4%BD%9C%E5%9D%8A%EF%BC%88%E5%A0%B1%E5%90%8D%E8%87%B31050408%E6%AD%A2%EF%BC%89/

(Table 7.8. continued on next page)

Categories	Organisations and links
Promoting protective factors at the environmental level	<p><i>Parent connection program</i></p> <ul style="list-style-type: none"> • Purdue University https://www.purdue.edu/parentandfamily/ • Boston University https://www.bu.edu/parentsprogram/ <p><i>Peer-led programs</i></p> <ul style="list-style-type: none"> • Emory College https://humanhealth.emory.edu/degreesandprograms/health-1-2-3-4.htm • Chinese University of Hong Kong http://www2.osa.cuhk.edu.hk/wacc/en-GB/activities/peer-counsellors-training
	<p><i>Internet use, device use, and media education</i></p> <ul style="list-style-type: none"> • Oxford University http://podcasts.ox.ac.uk/your-digital-life-during-lockdown • New York University https://www.nyu.edu/students/health-and-wellness/services/counseling-services/mental-health-during-covid-19.html • Hong Kong Baptist University https://comd.hkbu.edu.hk/factcheckservice/en/latest-news/workshops
Promoting physical wellness	<p><i>Online physical wellness programmes/events</i></p> <ul style="list-style-type: none"> • Iowa State University https://www.news.iastate.edu/news/2021/01/26/studentwellness • University of Nottingham https://www.nottingham.ac.uk/sport/health-and-wellbeing-home.aspx • Lingnan University https://www.ln.edu.hk/osa/sports/sday • Duke University https://today.duke.edu/2020/01/blue-devil-week-shaping-well-being-duke <p><i>Facilities</i></p> <ul style="list-style-type: none"> • The Chinese University of Hong Kong https://www.sunshine.cuhk.edu.hk/mindfulforest/
Learning effectiveness	<p><i>Tips on online learning</i></p> <ul style="list-style-type: none"> • Regis College https://www.regiscollege.edu/blog/online-learning/7-tips-online-learning-during-covid-19

Categories	Organisations and links
Social life	<p><i>Sense of belonging</i></p> <ul style="list-style-type: none"> Boston University https://www.bu.edu/dos/student-engagement-and-belonging/
Financial support	<p><i>Tips on personal finances</i></p> <ul style="list-style-type: none"> University of Sydney https://www.sydney.edu.au/students/financial-support.html <p><i>Extension of scholarship</i></p> <ul style="list-style-type: none"> University of Oxford https://www.ox.ac.uk/students/fees-funding/covid-19-financial-support
Career development	<p><i>Tips on career development</i></p> <ul style="list-style-type: none"> Minnesota State University Mankato https://mankato.mnsu.edu/university-life/career-development-center/career-resources-during-the-covid-19-pandemic/
Communication	<p><i>One-stop website on COVID-19</i></p> <ul style="list-style-type: none"> The University of Texas at Austin https://protect.utexas.edu/ University of Minnesota https://onestop.umn.edu/covid-19 <p><i>Mobile app</i></p> <ul style="list-style-type: none"> University of Houston https://uh.edu/go/ https://staff.admin.ox.ac.uk/working-at-oxford/staff-news-and-events/university-bulletin <p><i>Guidebook on services</i></p> <ul style="list-style-type: none"> University of Cambridge 'Stay safe Cambridge Uni' https://www.studentwellbeing.admin.cam.ac.uk/files/where_to_go_january_2021.pdf <p><i>Internal communication</i></p> <ul style="list-style-type: none"> University of Minnesota https://university-relations.umn.edu/blog/2021/04/16/keeping-internal-communications-spotlight University of Oxford
Promotion of services	<p><i>Mass email</i></p> <ul style="list-style-type: none"> The Chinese University of Hong Kong https://www.itsc.cuhk.edu.hk/all-it/email-messaging-and-collaboration/weekly-digest-of-mass-mail/ <p><i>Push notification</i></p> <ul style="list-style-type: none"> University of Findlay https://www.modolabs.com/type/blog-post/the-best-university-mobile-apps-of-2020/

The findings from the student survey and the interviews revealed that there was still a demand for financial aid during the pandemic and that there is a service gap between students' expectations and the services provided (see Table 7.5). Although the university had already provided several financial aid schemes to students, 71.1% of the students indicated that they were unaware of the special funding for COVID-19 (see Table 4.24), and very few students could provide details about the schemes in the focus group interviews. Meanwhile, a small number of teachers received student requests to drop their courses due to familial financial problems (see Table 5.2.2). The situation reflected a discrepancy between the supply of and demand for services, which might be due to privacy concerns or cultural beliefs that lead to hiding family problems from others. Some students might have felt that it is shameful to seek help from others for financial problems; therefore, they tended to endure financial hardship or suspend their learning rather than seek help. Greater promotion of the available schemes would help provide information to students facing an emergency and encourage them to consult professionals when dealing with financial problems.

In both the surveys and the interviews, a few students indicated that they encountered difficulties in obtaining information and guidelines from the university. Furthermore, in the interviews, a similar number recounted difficulties in communicating with their teachers and department (see Table 5.1.5). Obviously, the methods through which information is disseminated to students must be discussed among different units in the university to ensure access to consistent and comprehensive guidelines in an accurate, timely, and effective manner (see Table 7.7).

Perceptions and evaluation of supporting services

Students were generally satisfied with the support services provided by PolyU during the pandemic and found those services useful. Except for career development services (57.5%, see Table 7.6), over 60% of the participants indicated positive

responses to each of the service items. However, it must be noted that in the surveys and interviews, most participating students and teachers admitted that they had only a scant understanding of the support services. Such a low level of awareness deserves the attention of service providers (see Tables 5.1.3 and 5.2.3). However, we should also note that the experiences reported by the students may reflect only one aspect of reality. One possible scenario is that the support units disseminated information during the pandemic, but students simply missed that information. While service providers self-reported rather positive perceptions of their services, both students and teachers made a few suggestions for improvement, mainly regarding the promotion of the services and the availability, range, and quality of services. For example, a few participants of the focus group interviews indicated that email promotion is not an effective means of drawing students' attention or delivering information regarding services, and they suggested that other promotion strategies—including using different platforms, such as Instagram and Facebook (366)—should be considered (see Table 7.7). Moreover, there were gaps in the demand for career development activities and financial support provided by service units and offices, and students expected an increase in the quota and diversity of services (see Tables 7.5 and 7.6).

In addition, it was noticed that only a few units or offices conducted evaluations of their services. Evaluation, an essential component in evidence-based practice, clarifies understanding of the effectiveness and direction of improvement, and it can be conducted through multiple approaches (367). Thus, the importance and the value of conducting user evaluation at different stages of services implementation as well as the different evaluation strategies (e.g., process evaluation during the implementation of services and subjective outcome evaluation after the services) must be explained and highlighted. Collecting comments from both students and teachers would clarify their real needs, improve service quality, and enable an effective design of future services (see Table 7.7).

Theoretical implications of findings

To the best of our knowledge, this is the first study that assesses mental health status and psychological well-being—as well as the related psychosocial correlates, including risk and protective factors—among college students in Hong Kong during the COVID-19 pandemic. We also conducted a needs assessment to understand the difficulties and challenges faced by those students and to evaluate the services provided by the university. By triangulating and summarising the findings derived from different research designs (surveys and interviews), data types (quantitative and qualitative), and informants (students, teachers, and service units), the present study provides valuable findings for educators, service providers, and university leaders that clarify the mental health status, predictors, and subjective experiences of students during the COVID-19 pandemic as well as provide instruction on how to better address students' needs in the future.

Several aspects of the findings are noteworthy. Practically, the high prevalence rates of mental health problems that were revealed by the study indicate that the mental health of college students worsened during the pandemic. As such, educators and higher education officials must be more sensitive to the mental health needs of college students during this difficult time. Theoretically, as there is a dearth of empirical study of the needs of college students and their experiences during the pandemic in Hong Kong, this study filled the research gap by conducting a survey and using focus group interviews to understand both students' and teachers' experiences. The findings revealed the difficulties they encountered, and needs in academic, social, psychological, physical, and financial domains were highlighted by both students and teachers. Second, we explored the association between mental health problems and risk and protective factors through structural equation models and related analyses from the perspective of developmental systems. Based on the identified risk and protective factors, strategies to foster student mental health by strengthening protective factors and reducing risk factors in the university context

must be adopted at various environmental levels. Further studies must be conducted to understand the impact and interaction (e.g., moderators and mediators) of risk and protective factors.

With regard to satisfaction of needs and perceptions of support services, the present study triangulated the findings from students, teachers, and units and offices that provide key services. Since only limited research has been conducted to understand the needs of university students during the pandemic, this study provided information for universities in terms of planning, implementing, and refining current services; it also provided ideas for the development of future services. Overall, both students and teachers are positive about the services provided by different units in PolyU, but there is still room for improvement in several aspects. These findings will allow units to reflect on their performance. The comments from both students and teachers provide valuable feedback that units can use to refine their current services.

Implications and recommendations for services

Notwithstanding that the university has responded to COVID-19 by providing special support services to students (see Table 6.1), a few more specialised services could be developed, and current services could be refined to better address mental health problems exacerbated by the disruptions and difficulties caused by the pandemic and related needs dissatisfaction. Based on the findings from the surveys and focus group interviews, we have made several recommendations (see Tables 7.2–Table 7.7).

Enhancing mental health and physical wellness

The growing prevalence of negative mental health among students is a critical issue, as psychological distress impacts students' physical, cognitive, emotional, and interpersonal functioning (368). In response to the deterioration of the mental health of university students, the unique role of the university in supporting students'

mental health must be emphasised. As stated in the Ottawa Charter for Health Promotion (369), ‘health promotion is the process of enabling people to increase control over, and to improve, their health’ (369), and it ‘works through concrete and effective community action in setting priorities, making decisions, planning strategies and implementing them to achieve better health’ (369). In the university setting, in addition to developing student competence in stress management and coping with adversity, it is also important to identify and promote protective factors and support students’ mental health in the online teaching and learning environment. Based on the findings, we suggest adopting, at multiple levels of the university, a more proactive approach for promotion, identification, and prevention.

Increase resources for and programmes on mental health and wellness

In fact, various units and offices, including the Student Affairs Office (SAO) and the University Health Service (UHS), introduced online projects and services during the pandemic to promote the mental health and physical wellness of students (e.g., virtual counselling, helplines, workshops, and group activities on mental health and the wellness fund; see Table 6.1), and their user evaluation resulted in generally positive responses (see Table 6.2). However, considering the very limited knowledge of the services among students reflected the dispersion of related information on mental health and wellness, it is critical to undertake an increased number of promotion campaigns as well as the re-organisation of resources and programmes. Developing online resources—such as launching a thematic website on mental health—to disseminate information on mental health and services would promote mental health literacy and strengthen awareness among PolyU members. Moreover, as a few students expressed privacy concerns related to using the mental health services and others were unaware of where or how to ask for help in the focus group interviews, the importance of seeking help from professionals when encountering mental health issues in order to receive the right care must also be highlighted. Other institutions have also identi-

fied this need. For example, New York University launched a webpage on mental health during the COVID-19 pandemic, as did the University of Calgary and Purdue University (see Table 7.8).

Further, knowledge and information pertaining to mental health can be presented in a more interesting manner. In addition to thematic websites, special modules on mental health can also be provided via applications created in collaboration with the health and wellness units and the information technology department. For example Northern Arizona University launched a special module entitled ‘Be Healthy’ via the university mobile app. The module included content on mental health, interactive polls, surveys, FAQs on mental health, and services, such as booking counselling services and discussion with health professionals (370). Similar applications were offered at San Francisco State University and the University of California San Francisco (371). The University of Toronto similarly provided a mobile application, available in multiple languages that gave students access to 24-hour support for any school, health, or general life concerns.

In early March 2022, the Wellness Centre of the SAO launched a mobile application, ‘PolyU WellFit’, to promote wellness in the PolyU community. The mobile app allowed students to book consultation services and watch fitness videos. ‘FitCoin’ was introduced to encourage students to watch the videos and participate in the fitness activities, and in-app promotion via notifications was used to create awareness of and promote the activities. Obviously, these are helpful initiatives in the long run.

Involving teachers and staff in supporting students’ mental health

Teachers can play a front-line role in identifying students with early symptoms of mental health issues and providing the first layer of support (330,372). This is not to say that teachers and staff must become experts in mental health or counselling, but they can be more sensitive to and knowledgeable about supporting students’ mental health. Clear guidelines and educational progr-

ammes or resources that introduce the symptoms of mental health problems as well as training on how to respond to students in distress must be organised for teachers and general staff (373, 374) (see Table 7.2). The University of California offers training for academic staff on students' mental health that provides information about and practices to support students in distress, a mental health handbook, and educational videos (see Table 7.8). The potential of teachers and staff to enhance students' mental health must be promoted at the faculty level. At PolyU, since academic advisors often have more opportunities to communicate with students and a better understanding of their academic progress, it is suggested that academic advisors take an active role in understanding students' needs and health statuses and helping to identify at-risk students, particularly with reference to suicidal ideation or self-harm. Strengthening the academic advising service provided by SAO is also important. Internally, ensuring that teachers and staff are familiar with the available services and know how to refer students to them would help to support those at risk (330, 374, 375).

Identification of at-risk students

Early identification programmes must be organised regularly in order to identify potential mental health problems caused or worsened by the COVID-19 pandemic. In addition, surveys on students' satisfaction and need assessments must be regularly conducted to understand their mental health issues across different stages of the pandemic (375). A broader understanding of the everyday circumstances of student lives would help identify and address the stressors students face in different disciplines and assist in the development of mental health support programmes that are tailored to those needs (376). In the long term, it would be beneficial to build a student mental health database to analyse the impact of COVID-19 and provide insights into the mental health problems experienced by PolyU students. This would aid in the design of on-campus prevention programmes and services.

In terms of prevention, we recommend strengthening protective factors at both intrapersonal and environmental levels through the development of personal skills and the cultivation of a supportive environment.

Positive Youth Development (PYD) Programmes to strengthen protective factors at the intrapersonal level

In addition to the current developmental programmes organised by different units and offices, PYD training programmes and resources for developing students' resilience, emotional competence, coping skills, self-efficacy, and positive beliefs in adversity as developmental assets at the intrapersonal level should be strengthened to encourage development of self-regulatory skills and prevent mental health problems. For example, during the pandemic, the University of Calgary organised webinars for students on resilience, coping skills, and emotional wellness (see Table 7.8), and 'Resilience Fairs' were held to promote resilience among students at Brandeis University (see Table 7.8). Further, programmes, activities, and resources promoting hope, life meaning, and spiritual health could be integrated into life education to foster students' well-being. McGill University recently organised a series of online events to promote spirituality and psychological wellness, including events on life meaning, mindfulness, and relationship building (see Table 7.8). Also, an online course entitled 'The science of well-being' was produced by Yale University and made available for public use in a bid to increase participants' happiness and build more productive habits through a series of challenges (see Table 7.8).

Utilising peer and family support and promoting positive relationships

Since peer support and family support are key factors for positive well-being, developing positive relationships with peers and family members would promote the mental health of students. Programmes or resources to enhance students'

affective social competencies, such as interpersonal skills, resistance skills, negotiation, and conflict resolution, could assist students in developing positive peer relationships and family communication. As an example, the University of Cambridge provides students with resources for managing relationships and conflicts (see Table 7.8). Resources on child-parent relationships and family education could also be added to the current developmental programmes to help students build healthy relationships with family members. The workshops organised at Shih-hsin University in Taiwan, which centre on reflection on family relationships, are an example of this student-centric programming (see Table 7.8). In addition, parent-connections programmes could enhance parents' understanding of their children's university experience and development during the transition from adolescence to early adulthood, which would further promote positive family functioning. Purdue University organised an example of this kind of resource—virtual events to engage parents in supporting their children's studies (see Table 7.8). Also, Boston University developed programmes that help parents support students' growth (see Table 7.8).

Furthermore, students' participation in the organisation and promotion of peer support mental health programmes could be considered as 'user empowerment', which is one of the key elements of successful health promotion programmes (377). As students hold the most intimate understanding of their learning and life experiences, their participation provides unique insights that cannot be provided by teachers or programme developers (373). Peer mentoring and counselling programmes could be designed for students in different study years and subjects to provide peer support and develop interpersonal networks. This is particularly important for first-year students, who tend to face various challenges while adjusting to university life. Senior students can be recruited as wellness ambassadors and receive training on wellness, which would help them develop knowledge of well-being and the ability to support peers. For example, a peer-led health programme at Emory College cultivated upperclassmen to be health partners in fostering

positive influences on peer health (see Table 7.8). In addition, a programme entitled 'uBuddies' was adopted at the Chinese University of Hong Kong to promote peer mutual support and peer counselling (see Table 7.8).

It is essential to foster a sense of inclusion that allows students to feel that they are not alone. Thus, the values of care and empathy must be emphasised at the university level to develop connections and encourage mutual support among internal PolyU entities, thereby promoting a caring community. Sharing positive messages, experiences, and achievements of students, teachers, staff, and alumni during the pandemic could promote mutual trust, confidence, rapport, and resilience among members; it could also enhance organisational resilience during the crisis (378).

Preventing internet addiction with media education programmes

In response to the prevalence of internet addiction during the COVID-19 pandemic and the 'infodemic' caused by high social media exposure, programmes that promote healthy use of the internet and social media must be adopted. In this vein, Oxford University offered a podcast and blog, both of which encouraged students to reconsider how best to use digital devices during the COVID-19 lockdown (see Table 7.8), while New York University provided tips related to staying informed about COVID-19. These included reminding students to use fact-based, reliable sources and to limit the time spent checking for updates (see Table 7.8). Further, Hong Kong Baptist University organised programmes and workshops on fact-checking and responding to pandemic-related information; these utilised co-curricular learning to encourage students to refer to reputable sources and avoid misinformation (see Table 7.8).

Increasing sessions and quota in physical wellness programmes

Physical activities are regarded as a key component of disease prevention and a healthy life-

style. Due to the closure of fitness centres and sports venues, physical wellness programmes were moved online during the pandemic. In the interviews, students mentioned that they need more sessions and quotas of workshops, courses, and campaigns. Online physical wellness programmes on specific topics could be conducted to help students maintain physical health, develop interests in sports, and promote a healthy lifestyle. For example, the Student Wellness Department at Iowa State University created social media campaigns to promote wellness and sleep hygiene (see Table 7.8). The University of Nottingham provided a range of virtual programmes on home workouts, guidance on nutrition (e.g., eating habits and cooking recipes), and information on applications and websites for promoting physical wellness (see Table 7.8). In Hong Kong, Lingnan University organised a student Virtual Sports Day that included a demonstration of towel exercise, a 30-second workout challenge, and an online quiz on physical health, as well as awards and a participation certificate (see Table 7.8). Moreover, various institutions have provided recreational activities, such as art therapy, music therapy, meditation, and yoga, to reduce student stress levels during the health crisis. For example, a series of group meditation classes were organised at Duke University (see Table 7.8), and specific locations and facilities for practising mindfulness were established at the student centre at the Chinese University of Hong Kong (see Table 7.8).

Enhancing support services

The present study's findings revealed that a few students encountered difficulties and were dissatisfied with the fulfilment of academic needs, social needs, financial aid, and career and placement. We propose the following suggestions to fill the service gaps between users' expectations and the implementation of services.

Supporting learning and academic needs

Following existing studies on online learning during COVID-19 (379, 380), instances of

ineffective communication between teachers and students, low engagement, a lack of community feeling, technical issues in online learning, and a lack of clear guidelines on assignments and assessments were reported by both students and teachers. To address these problems and facilitate the learning and academic performance of students, extra attention should be paid to improving the student learning experience by facilitating adaptation to an online environment (see Table 7.3).

Creating positive learning experience

Students and teachers found that communication became much more difficult in the online learning environment. They highlighted the delay of feedback and guidance and the lack of interaction as common issues. Effective communication between teachers and students not only benefits student learning but also their psychological well-being (381). In the focus group interviews, students expressed their appreciation to teachers for their helpfulness, empathy, and rapid responses to queries, which reduced their anxiety and stress during the pandemic. As stated in previous studies (379, 380), maintaining close communication with students at the department and faculty levels through both informal channels (e.g., instant messaging, chat groups, social media) and formal channels (e.g., online learning platforms, email) could reduce uncertainties and misunderstandings related to learning. A teacher's approachability (e.g., timely feedback and responses), as well as their establishment of clear expectations and guidelines on assessments and assignments, is critical to helping students plan their learning and maintain their learning motivation (373, 382).

As reflected in the interviews, teachers experienced difficulties in facilitating both teacher-student interactions and peer interactions during online lectures. They also indicated fundamental differences between a face-to-face classroom and an online setting regarding the presentation of materials and organisation of classroom learning activities. Online lectures, for example, may require both students and teachers to stare at the computer screen for up to a few

hours, and the lack of personal interaction may lessen engagement. An increase in flexibility and the use of applications in lecture design could help teachers arrange learning activities to stimulate students' learning interest and engagement and effectively deliver the lecture content, thus promoting positive learning experiences and successful instruction (380, 383, 384). In addition, collecting information from students and teachers on their experiences with online education could provide insights into which individual departments and the university as a whole can develop platforms and systems for future implementation (61, 385-388).

Competence-building in online teaching and learning

To enable all students and teachers with digital competencies to effectively study and work, a sufficient number of training programmes should be provided (389, 390). With regard to learning strategies, units that support students' learning could organise sharing activities for students or provide resources on effective online learning. During the pandemic, for example, Regis College provided a webpage of tips for online learning (see Table 7.8). Given that digital transformation and the development of virtual teaching and learning will be unavoidable in future development in higher education (391), it is necessary to upgrade infrastructure (e.g., classroom facilities) and promote digital literacy among students and teachers. Institutions might consider providing extra resources and incentives (e.g., flexible scheduling, financial support) as part of encouraging students and teachers to learn new technology as well as purchasing equipment to support hybrid learning.

Supporting social life and developing connectedness to PolyU

COVID-19 and the related social distancing measures affected most people's everyday interactions and evoked feelings of isolation. In the interviews, students expressed that they had only limited opportunities to meet their classmates during the pandemic, which echoed

the low levels of a sense of belonging that were revealed in the survey. As a key component of university life, a social life helps students to develop connections with others, obtain support for learning, relieve academic stress, and develop life skills. A recent study revealed that students who felt a greater sense of belonging and felt valued at their institutions experienced lower levels of distress during the COVID-19 pandemic (392). Therefore, promoting students' social activities may contribute to their academic performance and mental health. Although face-to-face social activities could not be conducted under social distancing measures, online social activities are a viable alternative (see Table 7.4). For example, students suggested organising social activities, such as sharing sessions, on specific topics and interests within departments or units so that students could meet their peers, develop skills, and cultivate their interests. Building partnerships with student organisations, such as clubs and societies, to develop social activities could empower students and provide them with opportunities to learn how to organise and manage events. In class, teachers could also explicitly state that they would like to build closer relationships with students, which may further facilitate identifying students' needs and providing emotional support. Further, there are various applications that could be used as platforms for establishing online common rooms (e.g., gather.town). Since the survey findings suggested that students experienced only low levels of a sense of belonging, more activities should be designed to increase students' knowledge of and connection with PolyU, particularly for freshmen. Boston University, along these lines, organised online 'Belonging Cafés' via Zoom and created spaces for students with a similar background to meet peers and join affinity groups (see Table 7.8). Last, providing more opportunities for students to meet community members (including students, teachers, staff, and alumni) and engaging students in social activities would also help them develop interpersonal networks and engagement with the university.

Financial aid

The second wave of the pandemic caused economic fallout and placed additional pressure on students by causing a deterioration in the financial and employment status of students and their families. Recent studies have found that the increases in technology and living expenses, the loss of job and internship offers, and the loss or reduction of family unit income during the pandemic led to an increase in stress and anxiety (392). Several suggestions were made in response to the situation, including promotion and extension of financial aid schemes, especially regarding online education (see Table 7.5).

Promotion of financial aid schemes

Although various financial assistance schemes are available to students, only a few of the respondents were aware of the details of the schemes. In the focus group interviews, a small number of students suggested a simplification of the application process, which may currently be too complicated to aid students in urgent need. Therefore, there should be greater promotion of these schemes by the units and offices, and that promotion should make use of various channels and facilitate cooperation between administrators and teachers (see promotion of support services section). Finally, tailored contingency plans and flexible arrangements must be considered for students with special needs.

Financial support for online learning and resources for personal finance

As reflected in the interviews, the unexpected expense of the technology and equipment made necessary by the shift from classroom learning to online learning was burdensome for both students and teachers. The university might consider establishing special funding or interest-free loans to support online learning for community members with financial needs. Moreover, resources on financial education would help students maintain personal financial stability in a crisis. For example, the University of Sydney offered financial support to students

during the pandemic, including bursaries, interest-free loans, and financial support vouchers, to help them deal with essential study and living costs; the university also provided tips and resources to help students manage their finances (see Table 7.8).

Extension of financial support and scholarship

As reported by teachers in the focus group interviews, a few international students have encountered more difficulties and heavier pressure on their studies due to the poor internet network in their countries. In addition, they face the risk of losing their scholarship if they do not meet the Grade Point Average (GPA) requirements. Due to the difficulties created by COVID-19, the University of Oxford created a COVID-19 Scholarship Extensions Fund to allow research students who hold university scholarships to apply for additional time to finish their studies (see Table 7.8). For undergraduate students, scholarship extension as a special arrangement at the university level could also be established to support international students with connection problems or those who need more time to complete their courses. Moreover, as suggested by teachers in the interviews, COVID-19 funding must be maintained for a period even after the pandemic, as some students may still need financial assistance to support their studies and live.

Career development

With regard to career development, students suggested that services in career planning and employment could be provided by departments or faculties to better meet the unique needs and preferences of students in their disciplines (see Table 7.6). Students also reported a need for more programmes supporting employment in their disciplines. Non-academic units may consider organising career talks on topics such as working in a virtual environment (393), industry experience in the time of COVID-19, and job hunting in the industry (e.g., resume and profile preparation, interview skills, social media

platform job searching). For example, Minnesota State University Mankato provided a website with information and resources on career development to students during the COVID-19 pandemic (see Table 7.8). Since students may currently face difficulties in completing internships or practicum, more flexible requirements could be considered at the university level. Moreover, increased collaboration and cooperation between departments would improve students' employability by promoting their skills and positive work attributes.

Communication and information dissemination

Effective communication plays a critical role in reducing perceived uncertainties during a crisis, and the importance of providing all institutional stakeholders with timely, relevant, and transparent updates regarding COVID-19 has been highlighted by business and communication professionals (378) and by health educators (394). However, the mercurial pandemic situation has posed additional challenges to the dissemination of information among and interaction between stakeholders (see table 7.7). Although PolyU provided a thematic website for information on COVID-19 (<https://www.polyu.edu.hk/en/combatCOVID19>), the findings from both the surveys and interviews reflected that students were unaware of that website. In addition, they found it difficult to successfully search for necessary information on the university website. To facilitate the search for information during the pandemic, the thematic website could be redesigned as an information hub or index divided into different sections—such as updates, information, and advice related to university events and services available to students, teachers, and staff—with redirect links and a contact for inquiries. The link to this index must be prominently placed on the university website so that it is easy to access, even for those unaware of the thematic website. Applications such as chatbot or an FAQ section could also be used to facilitate the search function. For example, the

University of Texas at Austin designed a website for stakeholders called 'Protect Texas Together' that provided information categorised into various sections and links to support services (see Table 7.8). At the University of Minnesota, a similar resource was used to provide information on COVID-19 and support services to students (see Table 7.8).

As smartphones and tablets are common components in the daily lives of students, teachers, and staff, mobile applications can play an instrumental role in keeping members connected, engaged, and safe. The potential of using the university mobile application (iPolyU) for communication with students and staff must be reviewed. In the future, important campus updates and notices on COVID-19 (e.g., confirmed cases on campus or changes in vaccination requirements) could be sent to members via push notifications from the university mobile app. Moreover, access to support services—including mental health, wellness, academic, financial, and career development—could also be integrated into the app. The University of Houston, for example, shared COVID-19 updates using a mobile application that also allowed access to academic features, health and wellness services, financial services, career development services, and upcoming events. A new mobile app for PolyU staff that was launched in late February 2022 includes the ability to subscribe to news from units and to receive news and updates via push notifications as well as access to staff services. Similar functionality could be applied in the latest version of the student mobile application to provide up-to-date campus information and easy access to services.

Maintaining close communication between students, teachers, and departments and faculties and providing prompt responses with factual information would help to reduce anxiety among students (395). Calonge et al. (366) reviewed the literature on communication strategies applied by higher education institutions during COVID-19 and recommended social media as a primary communication channel because 1) it is widely used by students (including international

students), teachers, and staff; 2) it can facilitate information searches and a connection to the campus community; 3) it can provide clarifying information and communicate changes in campus guidelines in a timely manner; and 4) it can be used to inform internal and external stakeholders. It must be noted that certain students in the interviews also suggested providing more channels for communication, including the use of social media and instant messaging (e.g., WhatsApp groups), to maintain close and direct communication with teachers and departments. Apart from the advantage of allowing for a rapid response, social media and instant messaging also facilitate communication that is more direct and better capable of expressing emotion, which could help educators and staff communicate empathetically with students, particularly during a crisis. The strategies employed by the University of New South Wales during the influenza H1N1 virus are an example of the successful use of this communication channel (396, 397). During the crisis, the university delivered information and campus updates and communicated with students through multiple informal channels, including Twitter and Facebook, as well as through formal channels.

In the interviews, students also expressed that they received inconsistent information from different units and offices, leading to confusion and annoyance. While the university primarily focused on providing information on COVID-19 and instructions related to online teaching and learning, the attention paid to internal communication and coordination between units and offices must be generally strengthened. In addition to teaching and learning activities, other support services and student activities were diverted to online modes after the closure of the campus. All staff were required to cope with new patterns of working and collaborating. Therefore, communication via multiple channels and touchpoints between units and offices must be encouraged (366). Further, the websites of individual units and offices must be updated regularly to ensure the accuracy of information and easy accessibility of links. The tips and tricks on effective internal communication

with colleagues and students that were shared by the University of Minnesota during the pandemic are useful resources on this topic (see Table 7.8). Another tactic was utilised by the University of Oxford, which sent out a newsletter of relevant news and activities for teachers and staff on a weekly basis in response to internal communication needs during the pandemic.

Finally, students suggested that the university provide a guidebook of service units that would allow them to promptly and easily obtain information on services and support. The University of Cambridge, via a thematic website entitled ‘Stay Safe Cambridge Uni’, issued a similar booklet on student support services available during the pandemic that included updated contact details (see Table 7.8). Students could obtain further information by scanning the QR codes in the booklet.

Promotion of support services

The students and teachers of PolyU indicated that they were ‘bombarded’ by emails during the pandemic. They also criticised the ineffectiveness of email promotion, as emails are easy to miss or confuse for unrelated content. To reduce the number of promotional emails, a weekly digest coordinated by a special unit could be considered. A similar weekly digest of mass emails is provided by the Information Technology Service Centre at the Chinese University of Hong Kong (see Table 7.8). The senders can check the view counts of their message to evaluate effectiveness and adjust their promotion plan. Moreover, the effectiveness of the promotion and messages can be further assessed by reviewing the open rate, hit rate, views, or search metrics on the website or social media platform. As more students are using mobile devices (including smartphones and tablets) and mobile applications to learn and receive information from the university, push notifications could also be used to promote services. The University of Findlay used push notifications for this purpose—to inform students regarding campus information and interactively invite students to events during COVID-19 (371).

Both students and teachers suggested in the interviews that teachers and departments could help promote the services to specific target groups of students (e.g., a specific year of study). Collecting feedback from students and teachers on the effectiveness of service promotion would facilitate the selection of appropriate promotional tools for specific groups of users.

Strengthening evidence-based practice through services evaluation

To close the service gaps in times of health crisis, units and offices should strengthen the evidence-based practice of services and programmes and conduct assessments and evaluations at different stages of implementation (398). For example, need assessments and user evaluations must be conducted in the planning stage, during the process, and at the end of the support services and programmes (399, 400). The evaluation not only identifies gaps between needs and implementation but also provides feedback to departments and units that may be helpful in the design of future programmes. In this sense, both students' and teachers' evaluations are of significance, as they are key stakeholders with different perspectives. Essentially, designing approaches for programme planning, implementation, and evaluation in emergencies would help the university meet students' needs and promote service quality (399).

Last but not least, engaging faculties, staff, teachers, and students in the review of practices and policies would assist in the refinement of services as well as build trust and help leaders make decisions during a global crisis (401-409). Regular meetings in varied formats with stakeholders of PolyU would promote resilience, unity, and connections at the organisational level.

Limitations of the study and future directions

This study has several limitations. First, it only collected data from students and teachers at

PolyU. Future studies could improve the research design by recruiting more students from multiple universities to obtain a fuller picture and more easily generalise the findings to college students in Hong Kong. Second, as the design of this study was cross-sectional, causality between different constructs could not be established. Moreover, the observed student mental health statuses may only reflect the situation during a specific period within the past two years. Additional longitudinal studies would facilitate understanding of the changes in students' mental health statuses as the pandemic progressed. Third, the data of this study were based on self-reported measures, and the levels of mental health distress were not confirmed at the clinical level. While self-report measures can help educational professionals and institutions understand the mental health status of college students during the pandemic, prepare supporting services, and address students' mental health needs, future studies should include different types of measures, such as clinical diagnosis, to obtain a more comprehensive picture of student mental health status.

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Appendix 4A

UGC COVID-19 INFORMATION SHEET

Promotion of psychological well-being in university students under COVID-19: Needs assessment and mental health survey

You are cordially invited to participate in a research study conducted by the Department of Applied Social Sciences at The Hong Kong Polytechnic University (PolyU). The objective of the study is to understand the psychological well-being, including the needs and mental health, of university students under COVID-19. Your participation in this study is very important as you can help in setting the policy and improving the services of the University by giving us your views as a student of PolyU.

You are invited to complete a questionnaire, which will last for about half an hour. To show our appreciation of your kind assistance, a \$100 supermarket coupon will be given to you if you complete the questionnaire in full in a dedicated manner. The information you provide as forms part of the research data. Your participation in this study is anonymous (i.e., no need to put down your name). There is no identified risk in completing the questionnaire and the personal data (e.g., gender, age, faculty, etc.) collected will not reveal your identity. All information related to you will remain confidential. Only the research team will have access to personal data and research data will be analysed in an anonymous and aggregate manner. Responsible members of The Hong Kong Polytechnic University may be given access for monitoring and/or audit of the research. The information collected will be kept until 3 years after project completion/publication. The Hong Kong Polytechnic University takes reasonable precautions to prevent the loss, misappropriation, unauthorised access or destruction of the information you provide. You have every right to withdraw from the study before or during the measurement without penalty of any kind. If you have any questions, you may ask our helpers now or later, even after the study has started. You may contact:

- Prof Daniel T.L. Shek (tel. no.: 2766 5652/ email: daniel.shek@polyu.edu.hk)
- Dr Zhu Xiaoqin (tel. no.: 2766 5741/ email: xiaoqin.zhu@polyu.edu.hk)
- Dr Dou Diya (tel. no.: 2766 5731/ email: diya.dou@polyu.edu.hk)

of PolyU under the following situations:

- if you have any other questions in relation to the study;
- if, under very rare conditions, you become injured as a result of your participation in the survey;
- if you want to get access to/or change your personal data before Jan 2025.

The project has been approved by the PolyU Institutional Review Board (PolyU IRB) (or its Delegate) (HSEARS Reference Number: 20201230003). If you have questions about your rights as a research participant, please contact Miss Cherrie Mok (cherrie.mok@polyu.edu.hk) at the Human Subjects Ethics Sub-Committee, PolyU. In the event you have any complaints about the conduct of this research study, you may contact Secretary, PolyU Institutional Review Board in writing (rohsec@polyu.edu.hk) stating clearly the responsible person and department of this study as well as the PolyU Reference Number.

Thank you for your interest in participating in this study.

Yours sincerely,
The Research Team

CONSENT TO PARTICIPATE IN RESEARCH

If you agree to participate in this survey, it means:

- you understand that information obtained from this research may be used in future research and published. However, your right to privacy will be retained, i.e., your personal details will not be revealed.
- the procedure as set out in the above Information Sheet has been fully explained. You understand the benefits and risks involved. Your participation in the project is voluntary.
- you acknowledge that you have the right to question any part of the procedure and can withdraw at any time without penalty of any kind.

Yes, I consent to participate in the captioned research
No, I don't want to participate

Data quality is essential to a research study. We hope you can stay focused when you are answering the questions. Instructed response items are used in this questionnaire as attention checking, please follow the instruction when you are responding to those items.

Please read the instruction carefully and pay attention to each item.

Yes, I can do it.
No, I can't do it.

Part A DASS-21

Below is a list of the ways you might have felt or behaved. Please choose the most appropriate response to tell us how often you have felt this way in the past week or so.

	Not at all (0)	Sometimes (1)	Frequently (2)	Most of the time (3)
1. I found it hard to wind down				
2. I was aware of dryness of my mouth				
3. I couldn't seem to experience any positive feelings at all				
4. I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)				
5. I found it difficult to work up the initiative to do things				
6. I tend to over-react to situations				
7. I experienced trembling (e.g., in the hands)				
8. I felt that I was using a lot of nervous energy				
9. I was worried about situations in which I might panic and make a fool of myself				
10. I felt that I had nothing to look forward to				
11. I found myself getting agitated				
12. I found it difficult to relax				
13. I felt down-hearted and blue				
14. I was intolerant of anything that kept me from getting on with what I was doing				
15. I felt I was close to panic				
16. I was unable to become enthusiastic about anything				
17. I felt I wasn't worth much as a person				
18. I felt that I was rather touchy				
19. I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)				
20. I felt scared without good reason				
21. I felt that life was meaningless				

Part B PTSD-10

Please indicate whether or not you have experienced any of the following situations at least twice a week during COVID-19 pandemic.

	Yes (1)	No (0)
1. Upsetting thoughts or memories about COVID-19 that have come into your mind against your will		
2. Upsetting dreams about the COVID-19		
3. Acting or feeling as though the COVID-19 were happening again and again		
4. Feeling upset by reminders of the COVID-19		
5. Bodily reactions (such as fast heartbeat, stomach churning, sweatiness, dizziness) when reminded of the COVID-19		
6. Difficulty falling or staying asleep		
7. Irritability or outbursts of anger		
8. Difficulty concentrating		
9. Heightened awareness of potential dangers to yourself and others		
10. Being jumpy or being startled at something unexpected		

Part C CESD-R-20

Below is a list of the ways you might have felt or behaved. Please choose the most appropriate response to tell us how often you have felt this way in the past week or so.

	Not at all or less than 1 day (0)	1-2 days (1)	3-4 days (2)	5-7 days (3)	Nearly every day f or 2 weeks (4)
1. My appetite was poor					
2. I could not shake off the blues					
3. I had trouble keeping my mind on what I was doing					
4. I felt depressed					
5. My sleep was restless					
6. I felt sad					
7. I could not get going					
8. Nothing made me happy					
9. I felt like a bad person					
10. I lost interest in my usual activities					
11. I slept much more than usual					
12. I felt like I was moving too slowly					
13. I felt fidgety					
14. I wished I were dead					
15. I wanted to hurt myself					
16. I was tired all the time					
17. I did not like myself					
18. I lost a lot of weight without trying to					
19. I had a lot of trouble getting to sleep					
20. I could not focus on the important things					

Part D Suicidal Behavior-3

In the past year, have you ever had:

	Yes (1)	No (0)
1. Suicidal thoughts		
2. Suicidal plans		
3. Suicidal attempts		

Part E Internet Addiction-10

In the past 12 months:

	Yes (1)	No (0)
1. Do you feel preoccupied with the Internet or on-line services and think about it while off-line?		
2. Do you feel a need to spend more and more time on-line to achieve satisfaction?		
3. Have you repeatedly made unsuccessful efforts to control, cut back, or stop Internet use?		
4. Do you feel restless, moody, depressed, or irritable when attempting to cut down or stop Internet use?		
5. Do you stay on-line longer than originally intended?		
6. Have you jeopardised or risked the loss of a significant relationship, job, educational or career opportunity because of the Internet?		
7. Have you lied to family members, teachers, social workers, or others to conceal the extent of involvement with the Internet?		
8. Do you use the Internet as a way of escaping from problems or of relieving a dysphoric mood (e.g., feelings of helplessness, guilt, anxiety, depression)?		
9. Do you keep returning even after spending too much money on online fees?		
10. Do you feel depressed, irritable, moody, or anxious when you are offline?		

Part F Danger & Contamination-5

The following lists various kinds of worries that you might have experienced over the past 12 months. Please choose the most appropriate response which can represent your experience. In the statements, we refer COVID-19 as “the virus.”

	Not at all (0)	Rarely (1)	Sometimes (2)	Often (3)	Always (4)
1. I am worried about catching the virus					
2. I am worried that basic hygiene (e.g., handwashing) is not enough to keep me safe from the virus					
3. I am worried that people around me will infect me with the virus					
4. I am worried that if I touched something in a public space (e.g., handrail, door handle),					
5. I would catch the virus					
6. I am worried that if someone coughed or sneezed near me, I would catch the virus					

Part G Socio-economic Consequence-5

The following lists various kinds of worries that you might have experienced over the past 12 months. Please choose the most appropriate response which can represent your experience. We refer COVID-19 as “the virus” in the statements.

	Not at all (0)	Rarely (1)	Sometimes (2)	Often (3)	Always (4)
1. I am worried about supermarkets running out of food or water					
2. I am worried about supermarkets or drug stores running out of cleaning or disinfectant supplies					
3. I am worried that online shops running out of supplies					
4. I am worried that online shops' delivery will be delayed					
5. I am worried that the economy will collapse because of COVID-19					

Part H Checking Behavior-5

During the past one year, how much have you checked the followings because of concerns about COVID-19?

	Not at all (0)	Rarely (1)	Sometimes (2)	Often (3)	Always (4)
1. Social media posts concerning COVID-19					
2. Seeking reassurance from friends or family about COVID-19					
3. Checking your own body for signs of infection (e.g., taking your temperature)					
4. Asking health professionals (e.g., doctors or pharmacists) for advice about COVID-19					
5. Searched the Internet for treatments for COVID-19					

Part I Social Event-10

In 2019-2020, the “social event” took place in Hong Kong. The following items ask about your experience related to the “social event” in the past 12 months. In the following statements, please choose the most appropriate response which can represent your experience.

	Not at all (0)	Rarely (1)	Sometimes (2)	Often (3)	Always (4)
1. I am worried about the social event					
2. I feel stressful about the social event					
3. I am worried that the Hong Kong Government won't be able to protect my loved one					
4. I am disturbed by the violence involved in the social event					
5. I am worried that our lives would be adversely affected by the social event					
6. I am worried that freedom in Hong Kong would diminish					
7. I am disappointed by the action taken by the Hong Kong Government to handle the social event					

During the past one year, how much have you checked the followings because of concerns about the social event?

	Not at all (0)	Rarely (1)	Sometimes (2)	Often (3)	Always (4)
1. Social media posts concerning the social events					
2. Discussion with friends on the social event					
3. Searched the Internet for news about the social event					

Part J Self-Efficacy-11 (Item 8 is attention checking)

Please read each statement below and choose the option that can indicate how much the statement applied to you over the past one year. There is no right or wrong answer. Do not spend too much time on any statement.

	Not at all (1)	Barely true (2)	Moderately true (3)	Exactly true (4)
1. I can always solve the difficult problems facing me related to COVID-19				
2. I am confident in my ability to achieve my educational goals during COVID-19 outbreak				
3. It's easy for me to adhere to the COVID-19 preventive measures				
4. I am sure I can handle efficiently the unexpected events of COVID-19				
5. I can manage the emergency situations that resulted from the COVID-19				
6. I can solve most of the problems caused by social distance if I make the necessary effort to overcome them				
7. My abilities help me cope with home quarantine				
8. This is an attention checking, please choose 'exactly true'				
9. When I encounter problems related to home quarantine requirements, I am able to find many alternative solutions				
10. When there are crises arising from COVID-19, I can usually think of suitable and alternative solutions				
11. I can usually overcome problems related to distance education during the spread of the COVID-19				

Part K Life Satisfaction-5

Please read the below statements carefully and choose the answer that best reflects your feelings.

	Strongly disagree (1)	Disagree (2)	Slightly disagree (3)	Slightly agree (4)	Agree (5)	Strongly agree (6)
1. My life is close to my ideal state in many aspects						
2. The conditions of my life are excellent						
3. I am satisfied with life						
4. So far, I have gotten the important things I want in life						
5. If I can live again, there is almost nothing I want to change						

Part L Flourishing-8

Please read the below statements and choose the answer that reflects your feelings most appropriately.

	Strongly disagree (1)	Disagree (2)	Slightly disagree (3)	Neutral (4)	Slightly agree (5)	Agree (6)	Strongly agree (7)
1. I lead a purposeful and meaningful life							
2. My social relationships are supportive and rewarding							
3. I am engaged and interested in my daily activities							
4. I actively contribute to the happiness and well-being of others							
5. I am competent and capable in the activities that are important to me							
6. I am a good person and live a good life							
7. I am optimistic about my future							
8. People respect me							

Part M Beliefs of Adversity-9

Please read the below statements and choose the response that best reflects your feelings.

	Strongly disagree (1)	Disagree (2)	Slightly disagree (3)	Slightly agree (4)	Agree (5)	Strongly agree (6)
1. Hardship increases stature (吃得苦中苦，方為人上人)						
2. Whether a life is good or bad depends on fate (好醜命生成)						
3. When there is a will, there is a way (有志者事竟成)						
4. If you work hard enough, you can turn an iron rod into a needle (只要有恆心，鐵柱磨成針)						
5. Poverty stifles ambition (人窮志短)						
6. Diligence is an important factor to overcome poverty (要戰勝貧窮，勤奮是一個重要的因素)						
7. Man is the master of his own fate (人定勝天)						
8. Happy is he who is contented (知足常樂)						
9. Man is not born to greatness; he achieves it by his own effort (將相本無種，男兒當自強)						

N Hope-hopelessness-5

Please read the statements and choose the answer that best reflects your feelings.

	Strongly disagree (1)	Disagree (2)	Slightly disagree (3)	Slightly agree (4)	Agree (5)	Strongly agree (6)
1. I would not anticipate in succeeding to get what I want						
2. I could foresee that my future is miserable						
3. I would give up because I can't make things better for myself						
4. To me, the future seems gloomy						
5. Things always don't happen as I want						

Part O Resilience & EC-6

Please read the statements carefully and choose the answer that best reflects your feelings.

	Strongly disagree (1)	Disagree (2)	Slightly disagree (3)	Slightly agree (4)	Agree (5)	Strongly agree (6)
1. I would not give up easily even in face of difficulties						
2. Even though the future is not very optimistic, I would still hang on						
3. I believe there are always solutions to problems in life						
4. I know how to ventilate my emotions appropriately in times of distress						
5. During conflicts, I can still cope with my emotions						
6. I can put myself in others' shoes to understand their worldviews and feelings						

Part P Locus of Coping-14

When you face life stress, you will:

	Never (0)	Rarely (1)	Often (2)	Always (3)
1. Face the problem and devise the solution				
2. Forbear and remain calm				
3. Maintain optimism and self-confidence				
4. Seek help from friends				
5. Seek help from supervisors/teachers				
6. Seek help from relatives (excluding parents)				
7. Seek help from parents				
8. Seek help from professional helpers (e.g., counsellors etc.)				
9. Seek help from fortune-tellers (向相士/算命先生求助)				
10. Adopt an attitude of "to see a thing through" (i.e., to be resigned to what is inevitable). (自己看開一點)				
11. Adopt an attitude of "a sailboat going through the current will automatically pass the arches of a bridge" (相信「船到橋頭自然直」)				
12. Adopt an attitude of "coping with the shifting events by sticking to one's unchangeable ways" (「以不變應萬變」)				
13. Employ means to make one feel more comfortable. (Drown the worries by drinking) (用方法開解自己, 如娛樂、飲酒)				
14. Appeal to a supernatural power (祈求神明幫助)				

Part Q Family Factor-9

Please read the following statements about family and choose the answer that best describes your feelings.

	Very unlike (1)	Somewhat unlike (2)	Neutral (3)	Somewhat like (4)	Very like (5)
1. Family members love each other					
2. There is no mutual concern among family members					
3. Family members are cohesive					
4. There is much friction among family members					
5. Family members get along well					
6. There is a lack of harmony among family members					
7. We have a good family relationship					
8. Parents understand children's mind					
9. Parents often talk to their children					

Part R Peer Support-4

Please read the following statements about friends and choose the answer that best describes your feelings.

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)
1. My friends really try to help me (1)					
2. I can count on my friends when things go wrong (2)					
3. I have friends with whom I can share my joys and sorrows (3)					
4. I can talk about my problems with my friends (4)					

Part S Community Atmosphere-3

Please read the following statements about your community and choose the answer that best describes your feelings.

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)
1. People around here are willing to help their neighbors					
2. Most people in this community are friendly					
3. People in this area do things to help the community					

Part T Needs in different areas and how well such needs are met-15

Below is a list of needs commonly expressed by university students. How well have such needs been met in your situation in the past year?

	Not met at all (1)	Moderately not met (2)	Slightly not met (3)	Slightly met (4)	Moderately met (5)	Fully met (6)
1. Prevent infection of COVID-19						
2. Keep physical fitness						
3. Keep good emotional health						
4. Maintain a sound financial condition						
5. Have a good learning environment (e.g., space, device, WIFI connection, etc.)						
6. Have an effective online learning strategy						
7. Have self-discipline						
8. Have technology literacy						
9. Make new friends at the University						
10. Go out with friends						
11. Maintain close connection with friends						
12. Maintain harmony in the family						
13. Feel safe and relaxed in the community						
14. Have a sense of connection or belonging to the University						
15. Get comprehensive and consistent guidelines (e.g., campus facilities, resources) from the University						

Part U Difficulties and challenges surrounding different life domains-25 (item 20 is attention checking)

Please indicate how often you encounter the following difficulties and challenges in the past year.

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
1. Physical symptoms (e.g., dry eyes and backpain) because of using the computer for long hours					
2. Difficult to exercise					
3. Emotional symptoms (e.g., negative emotions, loneliness)					
4. Tired of staying at home					
5. Afraid of going out					
6. COVID-19 fatigue (tired of following prevention measures)					
7. Hard to do or get a part-time work					
8. Lack of technology literacy (e.g., editing presentation videos)					
9. The online learning platforms or systems do not work well on my devices (e.g., not responding)					
10. Encounter connection problems during online lecture or assessment (examinations)					
11. Easily distracted during online lectures					
12. Low learning motivation					
13. Lack of effective online learning strategy					
14. Hard to find time and a place to meet groupmates when doing group project					
15. Online communication issues with groupmates (e.g., lack of reactivity)					
16. Free-rider issue in group project					
17. Worry about academic performance					
18. Have conflicts with family members					
19. Competition on learning resources (e.g., computer, table) and space in the family					
20. This is an attention checking, please choose 'never'					
21. Hard to make new friends					
22. Hard to meet friends face to face					
23. Do not have a normal university life					
24. Hard to do an internship or go on exchange					
25. Worry about the future career (e.g., hard to find jobs)					

Part V Understanding of PolyU services-10x2

Please indicate if you know the services/help provided by the following departments/parties and if the services are useful for you.

	Do you know the service?		Do you think the service is useful for you?						
	Yes (1)	No (0)	I have not used it (0)	Not at all (1)	Moderately not (2)	Slightly not (3)	Slightly yes (4)	Moderately yes (5)	Completely yes (6)
1. Vice President Campus Development and Facilities (VPCDF, send Daily Update on the COVID-19)									
2. CWS (Counselling and Wellness Section, formerly known as OCW–Office of Counselling and Wellness)									
3. OGUR (Office of General University Requirements)									
4. SAO (Student Affairs Office)									
5. UHS (University Health Service)									
6. AR (Academic Registry)									
7. Library									
8. Home Faculty (Department)									
9. Student Union (SU)									
10. Special funding under COVID-19 pandemic									

Part W Evaluation of PolyU service-12

What is your perception of the support/guidelines/services provided at PolyU during the COVID-19 pandemic? Please indicate your level of agreement with the following statements.

	Strongly disagree (1)	Disagree (2)	Slightly disagree (3)	Slightly agree (4)	Agree (5)	Strongly agree (6)
1. PolyU provide sufficient support/guidelines/services for students during the COVID-19 pandemic						
2. It is easy to use the support/guidelines/services provided by PolyU						
3. The support/guidelines/ services provided at PolyU are helpful						
4. In general, teachers and staff are competent to provide support/ guidelines/services for students						
5. In general, teachers and staff are willing to offer help to students in need						
6. I am satisfied with the support/ guidelines/services related to subject registration						
7. I am satisfied with the support/ guidelines/services related to using campus facilities (e.g., restaurants, classrooms, library resources)						
8. I am satisfied with the support/ guidelines/services related to online teaching and learning (e.g., online platforms, class schedule, assessment, etc.)						
9. I am satisfied with the support/ guidelines/services related to counselling and psychological health						
10. I am satisfied with the support/ guidelines/services related to financial issue						
11. I am satisfied with the support/ guidelines/services related to career development (e.g., internship, exchange, etc.)						
12. Overall speaking, I am satisfied with support/ guidelines/services provided at PolyU						

Part X Service gaps-6

Do the following services meet your expectation?

	Not at all (1)	Moderately Not (2)	Slightly Not (3)	Slightly Yes (4)	Moderately Yes (5)	Completely Yes (6)
1. Guidelines for subject registration						
2. Introduction of campus facilities and resources						
3. Support related to online teaching and learning						
4. Counselling or psychological support						
5. Financial support						
6. Career development						

Sociodemographics-16

1. What is your age? (Please answer in integer)
2. What is your gender? • Male (1) • Female (2) • Prefer not to say (3)
3. What year are you in? • Year 1 (1) • Year 2 (2) • Year 3 (3) • Year 4 (4) • Others (Please specify) (5)
4. Which faculty your program belongs to? • Faculty of Engineering (FENG) (1) • Faculty of Construction and Environment (FCE) (2) • Faculty of Health and Social Sciences (FHSS) (3) • Faculty of Applied Science and Textile (FAST) (4) • Faculty of Humanities (FH) (5) • Faculty of Business (FB) (6) • School of Design (SD) (7) • School of Hotel and Tourism Management (SHTM) (8)
5. What is your major?
6. What is your mode of study? • Full-time (1) • Part-time (2)
7. Are you a local or an international student (including Mainland China)? • Local (1) • International (Please specify your home country in the box) (2)
8. What is your living status during the COVID-19 pandemic? • Live with family (1) • Live with roommates (e.g., in a dorm or off-campus) (2) • Live alone (3)
9. Does your family receive the Comprehensive Social Security Assistance (綜合社會保障援助計劃 (俗稱「綜援」))? • Yes (1) • No (0) • Don't know (99)
10. Does your family experience financial difficulty at the present time? • Yes (1) • No (0) • Don't know (99)
11. Do you experience financial difficulty at the present time? • Yes (1) • No (0) • Don't know (99)
12. Are you or your family member(s) become unemployed during the COVID-19 pandemic? • Yes (1) • No (0) • Not sure (99)

13. Have you or your family member(s) tested positive (confirmed) for COVID-19? <ul style="list-style-type: none"> • Yes (1) • No (0) • Not sure (99)
14. What is your place of residence in the last month? <ul style="list-style-type: none"> • Hong Kong (1) • Mainland China (2) • Others (Please specify) (3)
15. How do you know about this survey? <ul style="list-style-type: none"> • Referrer 介紹人 (Please provide referrer's code in the box) (1) <hr style="width: 20%; margin-left: 0;"/> • Department (2) • Lecturer (3) • Friend (4) • Classmate (5) • Others (Please specify) (6)
16. Do you want to have \$100 supermarket coupon as appreciation? <ul style="list-style-type: none"> • Yes (Please provide your email address in the box and we will contact you for the collection of coupon later) (1) • No (0)

Appendix 5.1A



INFORMATION SHEET

Promotion of psychological well-being in university students under COVID-19: Needs assessment and mental health survey

You are invited to participate in the above project conducted by a research team of the Department of Applied Social Science at The Hong Kong Polytechnic University.

The objective of this project is to understand the psychological well-being, including the needs and mental health, of university students under COVID-19. Your participation in this study is very important to us, you can help in setting the policy and improving the services of the University by giving us your views as a university student.

You are invited to participate in a focus group interview, which will take you an hour. A token of \$100 supermarket coupon will be given as our appreciation for participants who complete the interview.

The information you provide as part of the project is the research data. Your response is anonymous. There is no identified risk in participating in the interview and the personal data (e.g., gender, age, faculty, etc.) collected will not reveal your identity.

All information related to you will remain confidential and only the research team will have access to personal data and research data for the objectives of the study in an aggregated manner. Responsible members of The Hong Kong Polytechnic University may be given access to monitoring and/or audit of the research. The information collected will be kept until 3 years after project completion/publication. The Hong Kong Polytechnic University takes reasonable precautions to prevent the loss, misappropriation, unauthorised access or destruction of the information you provide.

You have every right to withdraw from the study before or during the interview without penalty of any kind.

If you have any questions, you may ask our helpers now or later, even after the study has started. You may contact:

- Prof. Daniel T.L. Shek (tel. no.: 2766 5652/ email: daniel.shek@polyu.edu.hk)
- Dr. Zhu Xiaoqin: (tel. no.: 3400 8518/ email: xiaoqin.zhu@polyu.edu.hk)
- Dr. Dou Diya: (tel. no.: 3400 8507/ email: diya.dou@polyu.edu.hk)

of PolyU under the following situations:

- if you have any other questions in relation to the study;
- if, under very rare conditions, you become injured as a result of your participation in the study; or
- if you want to get access to/or change your personal data before 25 Jan 2025.

The project has been approved by the PolyU Institutional Review Board (PolyU IRB) (or its Delegate) (HSESC Reference Number: 20201230003). If you have questions about your rights as a research participant, please contact Miss Cherrie Mok (cherrie.mok@polyu.edu.hk) at the Human Subjects Ethics Sub-Committee, PolyU. In the event you have any complaints about the conduct of this research study, you may contact the Secretary, PolyU Institutional Review Board in writing (rohsehc@polyu.edu.hk) stating clearly the responsible person and department of this study as well as the PolyU Reference Number.

Thank you for your interest in participating in this study.

Yours sincerely,
The Research Team



CONSENT TO PARTICIPATE IN RESEARCH TITLE OF RESEARCH PROJECT

I _____ hereby consent to participate in the captioned research conducted by Prof. Daniel T.L. Shek.

I understand that information obtained from this research may be used in future research and published. However, my right to privacy will be retained, i.e., my personal details will not be revealed.

The procedure as set out in the attached information sheet has been fully explained. I understand the benefit and risks involved. My participation in the project is voluntary.

I acknowledge that I have the right to question any part of the procedure and can withdraw at any time without penalty of any kind.

Name of participant

Signature of participant

Name of Parent or Guardian (if applicable)

Signature of Parent or Guardian (if applicable)

Name of researcher: Prof. Daniel T.L. Shek

Signature of researcher

Date

Hung Hom Kowloon Hong Kong 香港九龍紅磡

Tel 電話 (852) 2766 5111 Fax 傳真 (852) 2784 3374

Email 電郵 nhk@polyu.edu.hk

Remarks	<p>網上流傳武漢一帶出現疑似 SARS 個案。</p> <p>第一波疫情 1 月初，香港開始出現懷疑個案。1 月 23 日出現首兩宗正式確診感染新型冠狀病毒個案。至一月尾個案數字陸續增加。醫生指病毒出現「有限度人傳人」情況。市面開始出現口罩及防疫用品的搶購潮。世衛組織總幹事宣布新型冠狀病毒病構成國際關注的突發公共衛生事件。</p>	<p>出現無外遊記錄的本地感染個案及第一宗死亡個案。青衣出現鄰近單位傳染個案，政府決定緊急疏散居住同室號上下單位的居民，並安排指定地點作隔離營。至 2 月尾出現大型群組(佛堂、打邊爐)感染個案。市民繼續搶購口罩等防疫用品及日用品。</p>	<p>第二波疫情 世衛組織宣布新型冠狀病毒爆發為大流行。多個大型群組爆發，包括婚宴、酒吧、卡拉 OK 等。教育局宣布全港中小學及幼稚園停課至另行通知。政府宣布進一步社交限制措施(4 人限聚令)。</p>	<p>政府宣布暫時關閉所有卡拉 OK，夜總會，美容院，按摩院，酒吧和麻將館。疫情回落，4 月 20 日首次錄得零確診。</p>	<p>繼 23 日無新增本地個案後再次出現本地 4 個案。</p>	<p>疫情持續出現零星個案，外地輸入個案錄得自 4 月初來最多，主要來自船員及南亞國家入境人士。</p>	<p>第三波疫情 感染個案快速增加，並出現多個群組(食堂、酒樓、歌舞晚會、的士及貨櫃車司機)，源頭不明個案亦創新高。單日新增個案連日破百。安老院舍、學校多人感染。</p>	<p>疫情持續但每日新增感染人數回落至雙位數字，並於八月底回落至單位數。</p>	<p>本地零確診兩個多月來首現，政府指第三波疫情或已受控。九月底，新增確診數字多日維持單位數。</p>	<p>酒吧、酒店群組再現。至十月底每日新增確診數字維持單位數。</p>	<p>第四波疫情 11 月底，跳舞群組爆發，累計新增超過 500 人受感染。</p>	<p>繼跳舞群組後再次出現多個群組爆發，如地盤、外傭宿舍、理髮店等。多個公共屋邨出現鄰近感染個案，醫院內亦出現醫護人員感染個案。因應第 4 波疫情，政府決定收緊限聚令人數至 2 人。</p>	<p>疫情持續，多個群組繼續出現感染。至 1 月 23 日抗疫一周年本地確診數字已破萬宗。至一月底，政府劃出指定區域並要求區域內居民及工作人員於指定時間內接受強制檢測。</p>	<p>多種疫苗通過測試並開始在不同國家使用，政府落實於月底展開疫苗注射計劃。個案回落，政府放寬社會距離措施(如晚市堂食)，指定行業員工需定期進行檢測方可工作。</p>
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Appendix 5.1B

Students Focus Group

Basic information of the interviewee

(This part will be done by a short questionnaire before the FG and sent with the consent form)

- Name:
- Department:
- Gender:

Main discussion

Difficulties faced by students

- Can you tell me about the challenges you encountered under COVID-19? Please share your experience.
 - Academic
 - Unfulfilled personal & professional goals due to the suspension of learning activities
 - Online learning
 - Disruption of outbound activities
 - Uncertainty on career and employment
 - University life & sense of belonging
 - Technology literacy related to online learning
 - Uncertainty on academic development
 - Personal (physical, psychological, social and spiritual)
 - Physical health (illness, lack of exercise, dry eyes, sleep problems, body pain)
 - Psychological (negative emotions: feel nervous/anxious/worried/depressed/hopeless, fear of going out, bored, fatigued)
 - Social (loneliness, lack of peer support, friendship, peer relationship, organisation)
 - Spiritual (reflection on/rethinking life, human relationship, living, etc.)
 - Family
 - Competition to use family resources (e.g., Wi-Fi, space, furniture)
 - Increased family conflict
 - Financial hardship (unemployed/underemployed/business close down/rent/loan)
 - Role change (take care of siblings/elder/sick family members when learning)
 - Family members/relatives/friends suffered from the COVID-19
 - Community
 - Discrimination (test-positive/under quarantine/travel history)
 - Community sentiment (measures and policies imposed by the government, performance of officials/members of Legco, experts)
 - Other examples provided by the interviewees
- How did you feel at that time? Did you experience distress in facing the challenge(s)?
- How did you deal with the challenge(s) and the feeling(s) (stress, negative feelings)? Why did you choose this way? Was it useful?

Services provided by the University

- How much do you know about the services provided by the university under COVID-19? (Open-ended→showing a Service List to the group)
- Did you think the university has provided enough protection and support to you under the pandemic?

- Did you seek help from the university (teachers/dept/services) in a difficult time? Why and why not?
- Did you seek help from other organisations (e.g., NGOs, churches, online forums)? Why and why not?
- Did you receive any help/support from the teachers/dept/services? What kinds of support have your teacher(s) dept/services provided to you? Do you think it is helpful? Give specific examples.
- Do you have any suggestions on the services provided to students under the pandemic?
 - Kinds of service
 - Modes
 - Methods of delivery

Feelings from January 2020 to February 2021

- How did you feel last year?
 - Life satisfaction
 - Level of stress

Appendix 5.1C

Service List

Department	Section	Service
Vice President	Campus Development and Facilities	Daily update on the COVID-19
SAO	Counselling & Wellness Section (former OCW)	Counselling (online chat, hotline, video) & assessment
		Academic advising; workshops related to COVID-19
		Emergency support in emotional crisis
		Community helplines (provided by NGOs)
		Psychological workshops and groups
	Resources on <ul style="list-style-type: none"> • Self-care tips (rethinking social distancing, inner peace, self-compassion, daily actions, etc.) • Adjustment for new students 	
	Careers & Placement Section	Career advising, online interview practice
		Job recommendation scheme
	Student Resources & Support Section	Emergency Financial Assistance Scheme
EDC	Support on Online Learning	Guidelines on online learning and examination/workshops
		Guidelines related to online learning/teaching/workshops
SLLO		Special arrangements on service-learning subjects/workshops
OGUR		Seminar for freshman on adjustment/workshops
AR		Guidelines for subject registration
LIB		Online learning support & workshops on learning
UHS		Information on preventing COVID-19 (Videos, posters, talks)
Home faculty		Depends on faculty
HSO		Videos on health tips
		Posters on health tips for physical and mental wellness
		Updates on information on COVID-19 (email)
Student Union		YouTube, Facebook, Instagram: Information on subject registration, the introduction of campus facilities, group buying of face masks, updates on campus news on COVID-19
AADO		Student support fund
ITS		IT support

Note. SAO = Student Affairs Office; OCW = Office of Counselling and Wellness; EDC = Educational Development Centre; SLLO = Service-Learning and Leadership Office; OGUR = Office of General University Requirements; AR = Academic Registry; LIB = University Library; UHS = University Health Service; HSO = Health & Safety Office; AADO = Alumni Affairs and Development Office; ITS = Information Technology Services Office.

Appendix 5.2A



INFORMATION SHEET

Promotion of psychological well-being in university students under COVID-19: Needs assessment and mental health survey

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The objective of this project is to understand the psychological well-being, including the needs and mental health, of university students under COVID-19. Your participation in this study is very important to us, you can help in setting the policy and improving the services of the University by giving us your views as a teacher in the university.

You are invited to participate in a focus group interview. The information you provide as part of the project is the research data. Your response is anonymous. There is no identified risk in participating in the interview and the personal data collected will not reveal your identity.

All information related to you will remain confidential and only the research team will have access to personal data and research data for the objectives of the study in an aggregated manner. Responsible members of The Hong Kong Polytechnic University may be given access to monitoring and/or audit of the research. The information collected will be kept until 3 years after project completion/publication. The Hong Kong Polytechnic University takes reasonable precautions to prevent the loss, misappropriation, unauthorised access or destruction of the information you provide.

You have every right to withdraw from the study before or during the interview without penalty of any kind.

If you have any questions, you may ask our helpers now or later, even after the study has started. You may contact:

- Prof. Daniel T.L. Shek (tel. no.: 2766 5652/ email: daniel.shek@polyu.edu.hk)
- Dr. Zhu Xiaoqin: (tel. no.: 3400 8518/ email: xiaoqin.zhu@polyu.edu.hk)
- Dr. Dou Diya: (tel. no.: 3400 8507/ email: diya.dou@polyu.edu.hk)

of PolyU under the following situations:

- a. if you have any other questions in relation to the study;
- b. if, under very rare conditions, you become injured as a result of your participation in the study; or
- c. if you want to get access to/or change your personal data before 25 Jan 2025.

The project has been approved by the PolyU Institutional Review Board (PolyU IRB) (or its Delegate) (HSESC Reference Number: 20201230003). If you have questions about your rights as a research participant, please contact Miss Cherrie Mok (cherrie.mok@polyu.edu.hk) at the Human Subjects Ethics Sub-Committee, PolyU. In the event you have any complaints about the conduct of this research study, you may contact the Secretary, PolyU Institutional Review Board in writing (rohsestc@polyu.edu.hk) stating clearly the responsible person and department of this study as well as the PolyU Reference Number.

Thank you for your interest in participating in this study.

Yours sincerely,
The Research Team



**CONSENT TO PARTICIPATE IN RESEARCH
TITLE OF RESEARCH PROJECT**

I _____ hereby consent to participate in the captioned research conducted by Prof. Daniel T.L. Shek.

I understand that information obtained from this research may be used in future research and published. However, my right to privacy will be retained, i.e., my personal details will not be revealed.

The procedure as set out in the attached information sheet has been fully explained.

I understand the benefit and risks involved. My participation in the project is voluntary.

I acknowledge that I have the right to question any part of the procedure and can withdraw at any time without penalty of any kind.

Name of participant

Signature of participant

Name of Parent or Guardian (if applicable)

Signature of Parent or Guardian (if applicable)

Name of researcher: Prof. Daniel T.L. Shek

Signature of researcher

Name:	Department:	Did you teach lecture classes during COVID-19 (January 2020 till now)? Yes/No
Gender:	Function/Position:	Did you teach tutorial classes (including lab, placement etc.) during the COVID-19 (January 2020 till now)? Yes/No
Teaching experience (years):	Teaching experience at PolyU (years):	

Remarks

Dec 2019	Jan 2020	Feb 2020	Mar 2020	Apr 2020	May 2020	Jun 2020	Jul 2020	Aug 2020	Sep 2020	Oct 2020	Nov 2020	Dec 2020	Jan 2021	Feb 2021
網上流傳武漢一帶出現疑似 SARS 個案。	第一波疫情 1 月初，香港開始出現懷疑個案。 1 月 23 日出現首兩宗正式確診感染新型冠狀病毒個案。 至一月尾個案數字陸續增加。醫生指病毒出現「有限度人傳人」情況。市面開始出現口罩及防疫用品的搶購潮。世衛組織總幹事宣布新型冠狀病毒病構成國際關注的突發公共衛生事件。	出現無外遊記錄的本地感染個案及第一宗死亡個案。青衣出現鄰近單位傳染個案，政府決定緊急疏散居住同室號上下單位的居民，並安排指定地點作隔離營。至 2 月尾出現大型群組(佛堂、打邊爐)感染個案。市民繼續搶購口罩等防疫用品及日用品。	第二波疫情 世衛組織宣布新型冠狀病毒爆發為大流行。多個大型群組爆發，包括婚宴、酒吧、卡拉 OK 等。教育局宣布全港中小學及幼稚園停課至另行通知。政府宣布進一步社交限制措施(4 人限聚令)。	政府宣布暫時關閉所有卡拉 OK，夜總會，美容院，按摩院，酒吧和麻將館。疫情回落，4 月 20 日首次錄得零確診。	繼 23 日無新增本地個案後再次出現本地感 4 個案。	疫情持續出現零星個案，外埠輸入地錄得 4 月初來最多，主要來自船員及南亞國家入境人士。	第三波疫情 感染個案快速增加，並出現多個群組(食堂、酒樓、歌舞晚會、的士及貨櫃車司機)，源頭不明個案亦創新高。單日新增個案連日破百。安老院舍、學校多人感染。	疫情持續但每日新增感染人數回落至雙位數字，並於八月底回落至單位數。	本地零確診兩月多來首現，政府指第三波疫情或已受控。九月底，新增確診數字多日維持單位數。	酒吧、酒店群組再出現。至十月底每日新增確診數字維持單位數。	第四波疫情 11 月底，跳舞群組爆發，累計新增超過 500 人受感染。	繼跳舞群組後再次出現多個群組爆發，如地盤、外傭宿舍、理髮店等。多個公共屋邨出現鄰近感染個案，醫院內亦出現醫護人員感染個案。因應第 4 波疫情，政府決定收緊限聚令人數至 2 人。	疫情持續，多個群組繼續出現感。至 1 月 23 日抗疫一周年本地確診數字已破萬宗。至一月底，政府劃出指定區域並要求居民及工作人員於指定時間內接受強制檢測。	多種疫苗通過測試並在開始在不同國家使用，政府落實於月底展開疫苗注射計劃。個案回落，政府放寬社會距離措施(如晚市堂食)，指定行業員工需定期進行檢測方可工作。

Appendix 5.2B

Teacher Focus Group

Basic information of the interviewee

(*This part will be done in the graph sent with the consent form)

- Name:
- Department:
- Gender:
- Function/Position:

Do you have teaching duties? If yes:

- Teaching experience (years):
- Teaching experience at PolyU (years):
- Did you teach lecture classes during COVID-19 (January 2020 till now)?
- Did you teach tutorial classes (including lab, placement, etc.) during the COVID-19 (January 2020 till now)?

Main discussion

Students' needs and difficulties

- Differences in needs/learning faced by students
 - Based on your understanding, what are the differences in students' needs before and after COVID-19?
 - From your observation, what are the differences in students' learning before and after COVID-19?
- Learning difficulties faced by students
 - From your observation, what kinds of difficulties/challenges are faced by students under COVID-19? For example:
 - Learning performance
 - Learning motivation
 - Learning environment
 - Physical health
 - Psychological health
 - Social health
 - Spiritual health
 - Financial pressure
 - Others (please specify)
 - Can you share any specific cases of the difficulties/challenges faced by students?
- What do you think are the benefits of online teaching and learning for students?

Services provided by the University

- Has your department provided any services for students during the COVID-19? Any examples?
- Do you consider the service(s) effective? Why?
- Was there any student seeking help from you when facing problems related to the pandemic? What did you do?
- Do you know any services provided by PolyU to students during the COVID-19 pandemic? (Open-ended→showing a Service List to the group)
- What do you think about the support provided by the university during the COVID-19 pandemic to students?
- What's your suggestion about the services?

Teaching/work difficulties faced by teachers/staff

- To you, what is the difference in teaching/your work (for those without teaching duty) before and after COVID-19?
- Did you experience any stress in teaching/your work? What was the most difficult thing for you? Did you seek help? If yes, from whom?
- What methods did you use in maintaining teaching quality and enhancing students' learning/work quality?
- What do you think are the difficulties/challenges of online teaching during the COVID-19 pandemic?
- What do you think are the benefits/gains of online teaching during the COVID-19 pandemic?

Support provided by the University

- Did you receive any support from the department/university in helping students during the pandemic?
- Did you have any suggestions on the support provided to teachers in helping students during the COVID-19 pandemic?

Feelings from January 2020 to February 2021

How did you feel last year?

Appendix 5.2C**Service List**

Department	Section	Service
Vice President Campus Development and Facilities		Daily update on the COVID-19
SAO	Counselling & Wellness Section (former OCW)	Counselling (online chat, hotline, video) & assessment
		Academic advising; workshops related to COVID-19
		Emergency support in emotional crisis
		Community helplines (provided by NGOs)
		Psychological workshops and groups
	Resources on	<ul style="list-style-type: none"> • Self-care tips (rethinking social distancing, inner peace, self-compassion, daily actions, etc.) • Adjustment for new students
	Careers & Placement Section	Career advising, online interview practice
	Student Resources & Support Section	Job recommendation scheme
	Emergency Financial Assistance Scheme	
EDC	Support on Online Learning	Guidelines on online learning and examination/workshops
		Guidelines related to online learning/teaching/workshops
SLLO		Special arrangements on service-learning subjects/workshops
OGUR		Seminar for freshman on adjustment/workshops
AR		Guidelines for subject registration
LIB		Online learning support & workshops on learning
UHS		Information on preventing COVID-19 (Videos, posters, talks)
Home faculty		Depends on faculty
HSO		Videos on health tips
		Posters on health tips for physical and mental wellness
		Updates on information on COVID-19 (email)
Student Union		YouTube, Facebook, Instagram: Information on subject registration, the introduction of campus facilities, group buying of face masks, updates on campus news on COVID-19
AADO		Student support fund
ITS		IT support

Note. SAO = Student Affairs Office; OCW = Office of Counselling and Wellness; EDC = Educational Development Centre; SLLO = Service-Learning and Leadership Office; OGUR = Office of General University Requirements; AR = Academic Registry; LIB = University Library; UHS = University Health Service; HSO = Health & Safety Office; AADO = Alumni Affairs and Development Office; ITS = Information Technology Services Office.

Appendix 6A

Dear Colleague,

Please note that we are now conducting a study on the psychological well-being of PolyU students under COVID-19. We have already collected 2,000+ questionnaires from students. Besides, we will run several focus groups for 100+ students and 30+ teachers from different programs and faculties/schools.

To get a full picture about this topic, we also wish to know what measures have been carried out by different units of the University to support students under COVID-19, which may eventually promote their psychological well-being. As such, you are cordially invited to respond to the attached questionnaire, which covers:

- Support or specialised programs for students under COVID-19 offered by your office;
- Evaluation of related service by your office (adequacy, timeliness, effectiveness, uniqueness, benefits to the students, challenges and difficulties; evaluation of service by students);
- Additional services and/or improvements needed.

I understand that you may have publicity materials and documents (such as reports) on your service related to COVID-19. I should be grateful if you would let me have such materials so that I can learn more about the programs.

I trust you understand the importance of promoting the psychological well-being of PolyU students particularly under COVID-19. Hence, I should be most grateful if you would provide the above information to us. For the evaluation of related services provided by your office, the findings will be presented in an anonymous manner.

If you have any questions, please feel free to contact me (daniel.shek@polyu.edu.hk; 2766-5652).

Daniel Shek

What is your name?

What unit/office do you work in?

1a) What support or specialised services for the students have been provided by your office under COVID-19?

1b) It would be helpful if you could attach available documents (e.g., pamphlets, PPT slides, reports, etc.) on the support or specialised services mentioned above.

2a) How would you evaluate the services covered under Question 1a? Please choose the option that best indicates your feelings in each statement.

	Strongly disagree	Somewhat disagree	Neutral	Somewhat agree	Strongly agree
The services are adequate.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The services are delivered in a timely manner.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The services address the unique needs of the students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The services are effective.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The services are beneficial to students. (Please specify the benefits of the services)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2b) Overall speaking, how would you rate the quality of services provided to the students under COVID-19 by your unit? Please choose the option that best indicates your self-evaluation.

Can be improved	Fair	Good	Very good	Excellent	Fair
○	○	○	○	○	○

3a) Have you/your unit collected evaluation data for the services (such as feedback from the service recipients)? If yes, what are the findings?

3b) What support or service is most requested by students?

4a) What improvements can be made in the related services?

4b) What support or resource will be needed for making the improvements?

5a) What additional services are needed?

5b) What extra support or resource from the University would be helpful in providing the additional services?

6) Do you know the services provided by other units in PolyU in supporting students under COVID-19?

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