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Artificial Intelligence Chatbot as Perceived by Nursing Students: A Qualitative Study

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Abstract

This study aimed to explore the perspectives of Indonesian nursing students on the utilization of ChatGPT in their learning process. A qualitative descriptive design was conducted among 19 second-year nursing students (age 18–20) who were purposively selected. Data were collected in February 2023 through online (Zoom meetings) and offline (face-to-face) focus group discussions (FGDs), lasting 43 to 64 min each. The qualitative data were analyzed using thematic analysis. Three main themes were developed: (1) ChatGPT may be helpful but not fully trusted, (2) Nurse skills will never be replaced, and (3) The need for evaluating and advancing curriculum. In conclusion, this study provides vital insights into nursing students' attitudes toward using ChatGPT. Although acknowledging the ChatGPT's benefits, students are mindful of its limitations. This study also recommends integrating artificial intelligence and emerging technologies into the nursing curriculum while highlighting nurses' unique abilities and the essence of caring in nursing.

Plain language summary

What nursing students really think about using ChatGPT for learning

This study asked Indonesian nursing students how they felt about using ChatGPT to help them learn. Nineteen students in their second year and aged between 18 and 20 shared their views in Zoom and face-to-face discussions. They said ChatGPT could be helpful, but they are unsure if they can always trust it. They believe being a good nurse involves skills that no computer or artificial intelligence can replace. They also think their nursing education should update their lessons to include new technology while focusing on what makes nursing unique: caring. This research gives us a peek into what nursing students think about using high-tech tools in their education.

Keywords

ChatGPT, artificial intelligence, focus groups, nursing students, curriculum, policies

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Data Availability Statement included at the end of the article

Background

OpenAI launched an artificial intelligence (AI) chatbot called ChatGPT (Generative Pre-training Transformer) on November 30, 2022 (OpenAI, 2022), which has become extremely popular. The model is acknowledged as one of the most advanced publicly available language generation models due to its training on a diverse range of internet texts, allowing it to potentially reduce the amount of time spent on literature searches, data analysis, and academic writing (OpenAI, 2022).

The societal impact of ChatGPT is undeniably significant and warrants attention. Since its introduction, educational institutions have expressed apprehensions regarding students' utilization of ChatGPT, particularly its ability to generate essays rapidly. This ease of use raises concerns about students relying on AI for writing papers or completing online exams (Moons & Van Bulck, 2023; Stokel-Walker, 2022), prompting educators to question the level of intellectual effort invested in assignments. Consequently, schools and universities are proactively developing policies to govern students' use of ChatGPT (Moons & Van Bulck, 2023).

Although there are some concerns, the AI language model may offer opportunities in various fields. For instance, in healthcare, ChatGPT and other AI technologies may aid nurses and other healthcare professionals in making accurate diagnoses, patient monitoring, medication administration, and documentation and improve patient outcomes (Kwak et al., 2022; Moons & Van Bulck, 2023; O'Connor, 2023). In addition, Vaughn et al. (2024) found that ChatGPT shows promise in efficiently generating simulation scenarios for healthcare education. Despite variations in realism across scenarios, with some missing information, the generated content generally proved accurate. Peer reviewers expressed surprise at the overall comprehensiveness of the scenarios.

However, to the researchers' knowledge, there is a notable scarcity of research studies examining the utilization of ChatGPT among nursing students. The existing literature primarily comprises editorials, commentaries, opinions, letters to editors, and case studies on ChatGPT (Gunawan, 2023b; O'Connor, 2023; Sallam, 2023; Shay, 2023; Vitorino & Júnior, 2023). Research articles are limited, with one notable study conducted by Labrague et al. (2023), who assessed the readiness of student nurses at a Philippine nursing school to embrace AI, identifying perceived barriers. Their findings indicated that technological proficiency, understanding of AI, and perceived AI use in nursing influenced readiness, with higher proficiency, understanding, and positive perceptions correlating with greater readiness. Barriers included a lack of computer skills, AI knowledge, and time constraints.

Furthermore, Lukić et al. (2023) conducted a multicenter study across Croatian nursing schools, examining attitudes toward AI among first-year nursing students, which yielded generally positive attitudes consistent across universities, unrelated to age but slightly higher among male students. Additionally, Luo et al. (2023) revealed that Chinese nursing students, despite having an intermediate AI quotient, which is a person's capacity to use artificial intelligence (Qin et al., 2024), had limited familiarity with ChatGPT. Their survey of 1,788 students found that 81.30% had not used ChatGPT, and 65.40% were unfamiliar with the technology. Employability correlated with AI quotient, self-regulation, and home location, with males scoring higher.

Moreover, Benfatah et al. (2024) discovered that integrating ChatGPT as a virtual patient in nursing education in Morocco was positively received by students, receiving high accessibility and engagement ratings. Students perceived its value for training, and their interaction skills positively impacted overall performance. This suggests that ChatGPT holds promise in enhancing clinical learning and preparing students for real patient interactions.

Given the limited research in this area, our study aims to bridge this gap by exploring nursing students' perspectives on the use of ChatGPT in their learning process. The significance of our research lies in its potential to offer valuable insights into nursing students' attitudes and readiness toward integrating ChatGPT into their studies. Understanding these perspectives can inform educational institutions and policymakers about the opportunities and challenges associated with incorporating AI technologies like ChatGPT into nursing education. This knowledge can facilitate tailoring training programs and curriculum development to better equip future nurses for the evolving healthcare landscape, contributing to enhanced patient care and outcomes.

Methods

Study Design

The methodology employed in this study was a qualitative descriptive design, which is an appropriate approach for obtaining a direct and uncomplicated description of the phenomenon under investigation. The information from various participants was gathered and condensed into a succinct descriptive summary, which was arranged according to themes/subthemes, categories/subcategories, and depictions of events or perspectives, following the structure outlined by Lambert and Lambert (2012). This design did not involve any manipulation or commitment to any theoretical view, as there was no philosophical or epistemological bias. The findings were solely derived from the coded data, which reflects the naturalistic inquiry (Lambert & Lambert, 2012). However, this design used a grounded theory overtone

as the constant comparative analysis was done, but no theory was developed. In addition, this design used a phenomenology overtone but with less "interpretive descriptive" design (Lambert & Lambert, 2012). Additionally, the consolidated criteria for reporting qualitative research (COREQ) developed by Tong et al. (2007) was used to ensure that each step of the study was presented accurately.

Participants

Purposive sampling was employed in this study, which enabled researchers to obtain rich information from those who understand a phenomenon (Patton, 2015), particularly based on the inclusion criteria, namely: (1) nursing students (either in Diploma III or in Bachelor Degree in Nursing program) and (2) those who have been using ChatGPT for at least 1 week.

In Indonesia, nurses come from diverse educational backgrounds, including Diploma III, Diploma IV, Bachelor's degree, Master's degree/specialist, and Doctoral degree. Diploma III is a 3-year nursing program offered at the college/university level, while Diploma IV is a 1-year diploma program that focuses on a particular clinical area of nursing taken after completing Diploma III (Gunawan, 2019). Bachelor's/Ners degree is a 5-year program with 3.5 years of academic study and 1.5 years of professional training. A Master's degree in nursing follows the Bachelor's/Ners degree and is a 2-year academic program, followed by a 1-year specialty program tailored to the interests of the nurse. A Doctoral degree in nursing follows a Master's degree in nursing, a 3-year program primarily focused on research (Gede Juanamasta et al., 2021).

The student participants were from a nursing program at the Health Polytechnic in Indonesia. Despite being a coastal region, the availability of high-speed internet has enabled widespread access to ChatGPT among its residents.

Data Collection

Data were collected online (using Zoom meeting) on February 8, 2023, and offline (face-to-face) on February 9, 2023, in the school meeting room. The focus group discussion (FGD) method was used, in which the researchers acted as a "facilitator" or a "moderator" in a group discussion between participants (Nyumba et al., 2018). The researchers contacted the participants via mobile phone (WhatsApp group) and set the meeting once they agreed to join the study.

The Zoom meeting (audio and video) was automatically recorded, while offline FGD was audio-recorded. The Zoom meeting was well-received as all students were familiar with this technology for teaching and learning. All discussions were transcribed verbatim and validated by re-listening to the records. Two researchers (NN & JG) conducted the first FGD and one researcher (EC) conducted the second FGD in Bahasa or Belitung/Bangka language. The initial probing questions are shown in Table 1, with additional feedback, such as, "What do you think of the response from Participant 1?," "Do you agree with Participant 2"?, "why?" etc. The questioning process continued until researchers identified a point of data saturation, which was determined by the facilitator or moderator's judgment when the same comments were repeatedly heard, and no new information was provided. There was no content validity for the semi-structured questions.

Table 1. Semi-Structured Interview Questions.

- Do you know about ChatGPT? What do you think?
- What benefits do you get from ChatGPT? Can you explain?
- Do you use ChatGPT only for chatting? Do you use it every day? Do you consider it as a friend?
- Do you also ask ChatGPT to make your assignment? Why/why not?
- What do you think of ChatGPT and plagiarism?
- What other topics do you think are important? Can you explain?
- What do you think of AI for future nurses?
- What should future nurses prepare in response to advanced technology?
- What is your recommendation for our nursing education?

The first FGD lasted about 43 min, and the second FGD lasted for 1 hr and 4 min. In addition, there was no repeated FGD. Notably, there was a significant relationship between the researchers (NN and EC) and the participants (between teachers and students) before the study that may have influenced the participants' responses. However, JG handled it as an outsider during data collection and by other authors during the data analysis process.

Data Analysis

A thematic analysis method based on Vaismoradi et al. (2013) was utilized. The process involved several steps, including transcribing each interview, reading the transcripts multiple times, identifying codes that had meaning units, and developing themes by organizing, comparing, and contrasting the meaning units (Vaismoradi et al., 2013) The analysis focused on providing an explicit description of the data, rather than a deeper, implicit interpretation (Vaismoradi et al., 2013, 2016). As a result, the findings were reported without further theoretical analysis, which made this thematic analysis suitable for the qualitative descriptive study design.

For this study, the data analysis was performed manually. Initially, JG and NN transcribed the data verbatim, coded it using 90 codes, and developed categories, subthemes, and themes in the Indonesian language from February 10, 2023, to February 20, 2023. Then, all themes and participants' quotes were translated into English, and the first versions of the study report and manuscript were created between February 21 and March 1, 2023. JG and NN were familiar with Indonesian-English translation as they had graduated with Master's and Doctoral degrees from overseas. On March 2, 2023, a draft manuscript containing initial themes and all quotes was shared with the research team, and their feedback on March 21, 2023, was incorporated to refine the results.

The translation decisions were guided by the framework of Abfalter et al. (2021, which included the following elements: (1) Why—the purpose of publication and developing scientific value among researchers, (2) When—the time frame from initial draft development to the end of the study, with translation of initial findings allowing all researchers to review the data and determine if additional interviews were needed, (3) What—the data to be translated included interview data and all reports, (4) Who—JG and NN were responsible for translating the interview data and drafts, (5) How—JG translated from Bahasa to English, while NN and EC compared both versions for clarity, (6) Where—the translation was done within an English-speaking research team environment, and (7) By what means—language proficiency was ensured, and no translation and grammatical applications were used.

Trustworthiness

In order to increase the study rigor, several measures were taken, including a peer review process by four nursing experts within the research team: one professor in nursing and three associate professors in nursing. The purpose of this was to examine the authenticity and credibility of the study, and it was completed within 2 weeks. Member checking was also done on all participants in terms of the thematic findings of the study.

Ethical Consideration

The study approval was obtained on February 2, 2023, from the Research Ethics Committee of Politeknik Kesehatan Kementrian Kesehatan Pangkal Pinang, Bangka Belitung, Indonesia (No. 045/EC/KEPK-PKP/VI/2023). Permission for this study was also obtained from the study setting. Participants had to sign a written or oral informed consent (from audio/video record) and understand the study objectives to participate in this study. Participants in this study were voluntary and had the option to withdraw from participation at any point until data collection was completed. Confidentiality of the data was highly maintained and stored in a secured computer. The researchers did not use real names when reporting the study data. Instead, numbers were used (such as P1 or Participant 1).

Results

Nineteen diploma nursing students (second year) were involved in this study. Nine were included in the first FGD (at Belitung Island), and ten students were included in the second FGD (at Bangka Island) via Zoom meeting. All participants are students at the same university. Among the participants, only three were male nursing students. All of them used ChatGPT for more than 1 week. Their age ranged from 18 to 20 years, considered Generation Z (Gen Z). Generation Z, born after 1995, according to Bolser and Gosciej (2015), is also known as "Generation Me," "Digital Natives," "Internet Generation," and "Mobile Mavens" (Aggarwal et al., 2022). However, some researchers, like Tulgan (2013), place their birth year as 1990.

Three themes were developed in this study according to the nursing students' perspectives: (1) ChatGPT may be helpful but not fully trusted, (2) Nurse skills will never be replaced, and (3) The need for advancing curriculum. It is noted that the study's themes were not preconceived by the researchers and instead developed naturally during the course of the research. The themes are supported by examples provided by the participants presented through quotations (Figure 1).

Theme 1: ChatGPT May be Helpful But Not Fully Trusted

According to the participants, ChatGPT benefits the students by providing fast response, ease of obtaining an answer, and helpful assignment-making. Some answers from the ChatGPT based on users' prompts might be correct, but the majority of the responses might not be fully trusted as the answers have no citations. It was noted that although the users asked for literature support for their answers, the majority of the references could not be identified. The participants' quotes can be seen below:

- *ChatGPT helps me in finding information regarding nursing diagnoses. It gave me ten, and it was nice to read the responses. The next day, I asked my teacher the same thing, and the answers from ChatGPT and my teacher were quite the same. That's interesting!* [P1]

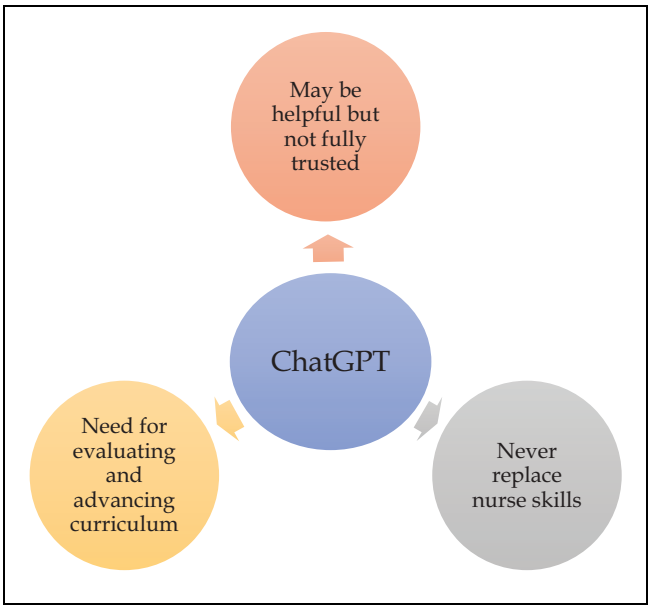

Figure 1. Thematic findings of the Indonesian nursing students on the utilization of ChatGPT.

- *I agree with P1. ChatGPT answers every question to the point. When you ask, it answers quickly, and the answers may be correct. This can be an additional teacher, but I cannot find references. As students, we need to find references to support the answers.* [P3]
- *Yes, fast response, 11 to 12 (similar) with Google. It is fun, though, and practical. Chatting with ChatGPT can open the perspectives. However, because it is new, we cannot trust this easily. We need to check and recheck. We come to school to study, right?* [P11]
- *It is helpful, but it is most likely to be an error. It can also be used in* 1 *hr (out of capacity). And, the cut-off knowledge of the ChatGPT is only until 2022. I say it is not up-to-date. Why?* [P7]

Theme 2: Nurse Skills Will Never be Replaced

The presence of artificial intelligence, such as ChatGPT, can be perceived as a threat, challenge, or opportunity. The participants in this study addressed AI not only with the ChatGPT itself but also with AI robotics, which will be living with human beings in the future. The participants said that they might not be comparable with the ability of AI to present knowledge, which is a threat as well as a challenge for the nurses to update the knowledge. However, the participants also believe they will be dominant in terms of skills, which no robotics can replace, particularly regarding human touch, communication skills, psychosocial aspects, and clinical skills. However, AI can be useful in clinical decision-making or retrieving nursing and medical information, and it represents an opportunity to become a better nurse. The participants provided these quotes:

- *There may be a chance that AI will conquer the world. Many jobs, including nursing jobs, may be replaced by AI or robots. This is a threat to nurses in the future.* [P14]
- *Yes, the same with P4. It's a threat! Imagine if many AI robots could take care of patients and any nurses' work. We need to prepare ourselves.* [P15]
- *For me, I won't be bothered with AI and robots. It is actually a tool for us to advance our care. What we need to prepare is to improve our nursing knowledge by being up to date with new information. However, AI robots will never replace nurses. We (nurses) have touch skills, emotional skills, communication skills, empathy, and, of course, critical thinking and clinical skills.* [P8]
- *My opinion is that now everyone can access ChatGPT as well. They can obtain any information easily. Thus, we need to update too.* [P16]
- *The main arena for nursing is nursing practice. We combine skills, attitudes, and knowledge. ChatGPT and robots do not have those yet. They may already have knowledge and a bit of skills. But this is a warning for us to improve our competency.* [P2]

Theme 3: the Need for Evaluating and Advancing Curriculum

With the new technology, it is essential that nursing education improves its nursing curricula, particularly those related to technology and nursing informatics, and integrates with ChatGPT. This specific subject in the nursing curriculum in Indonesia hasn't been emphasized, and it can be considered outdated. On the other hand, many nurse educators are unfamiliar with the technology, which may impact teaching and learning. Additionally, the participants discussed plagiarism issues related to AI and asked the teachers to discuss ethics for the students learning. This is expressed by the participants:

- *In our school, we only learn general information technology, which is not specific to health/healthcare or even nursing. Therefore, the curriculum needs to be updated.* [P8]
- *I really encourage our school curriculum to be integrated with ChatGPT. We cannot prevent everyone from using ChatGPT for now. We better utilize it in our teaching and learning.* [P11]
- *Our teachers also need to know about ChatGPT and the writing style or verbal pattern of each*

student so they can check whether the students copy and paste the text from ChatGPT or not. Actually, we can notice the structure of the sentences from ChatGPT and students, and ChatGPT creates much better sentences than the students. [P15]

- *Agreed! We also need to think of plagiarism. We, as students, need to be aware of this issue. We cannot just duplicate the answers from ChatGPT.* [P17]
- *Well, that depends on us as students. If we really want to cheat, there are many things we can do. We can manage to duplicate partly or fully. Therefore, the teachers need to teach or remind the students about ethics many times.* [P3]
- *Yes, I agree. We need to upgrade the curriculum, not only about ChatGPT, but also for health promotion using online education, visual animation, and making apps. In addition, health informatics is related to documentation, such as electronic health records and others.* [P8]

Discussions

The study's findings might offer novel perspectives on nursing education and ChatGPT, specifically from the viewpoints of Gen Z. As per Serafin et al. (2020), involving Gen Z nursing students in the educational process is crucial. It is noteworthy that the study findings were not anticipated before data analysis, as they are purely the perspectives of the nursing students. In this section, the authors discuss each theme, followed by the implications of this study on nursing education, strengths, limitations, and recommendations for future research.

The first theme, "ChatGPT may be helpful yet not fully trusted," offers two key insights. Firstly, the students acknowledged the benefits of ChatGPT for their studies, such as quick and concise responses and the ability to provide to-the-point answers. They even tested its accuracy by comparing its responses with those of their teachers. However, most students did not completely trust ChatGPT's answers due to its limited training data, which was only up to 2022, and a lack of proper citations or sources that could not be verified. Therefore, students were advised always to confirm the information provided by ChatGPT, as noted in a study by Gunawan (2023a). Although ChatGPT aims to provide accurate and relevant data, its expertise has limitations, and it is crucial to apply logical reasoning and cross-check information with multiple sources to ensure reliability.

Additionally, the study participants identified the weaknesses of the free version of ChatGPT, such as error browsing, limited capacity, and only 1 hr of use. These limitations may not apply to a subscribed/plus version, but students still expect these issues to be resolved using free software.

The second theme describes the students' perspectives on the comparison between nurses, AI, and robots. Robots are part of AI and often utilize AI algorithms to perform actions sense, and process information. If nurse robotics were integrated with AI power, such as ChatGPT, to provide and analyze knowledge, it could be a threat to nurses. Many robots have been created to offer nursing care, communicate with patients, provide entertainment, and bring joy (Betriana et al., 2022; Tanioka et al., 2021). Despite the abilities of AI robots, most of the study participants responded positively, stating that nurses' skills are irreplaceable. Algorithms may enable AI robots to imitate human creativity, but they cannot create something that emotionally connects with people. Also, a robot's programing may lead to delays in making ethical decisions when confronted with uncommon situations that may significantly impact someone's life. In addition, nurses possess therapeutic touch (Ünal Aslan & Çetinkaya, 2022), communication skills, attitudes, clinical skills (nurse-led interventions), and patient-nurse relationships (Danielis et al., 2022), which AI robots still struggle to achieve. However, instead of considering "replacement" or "competition" with AI and robots, Gen Z nursing students perceive AI and robots as tools for "integration" or "combination" to improve nurse job knowledge, competency, and performance. This is in line with the theory of Technological Competency as Caring in Nursing, which illustrates the harmonious coexistence between technologies and caring in nursing (Locsin, 2005, 2020); specifically: (1) nurses use machine technologies such as ChatGPT to enhance nursing activities and provide quality patient care; and, (2) nurses utilize technologies that mimic human beings and activities, such as nurse robots, to meet the demands of nursing care practice.

The last theme of the study's findings presents recommendations to assess the existing nursing curriculum and update it by integrating AI. According to the participants, the information technology course in the Indonesian nursing curriculum is general and unrelated to healthcare and nursing. Simply put, incorporating ChatGPT could be the initial step toward opening new teaching and learning systems. Rather than prohibiting or restricting access to ChatGPT, it is better to use it in a beneficial way. Nevertheless, nurse educators must be mindful of plagiarism issues and instruct students on the ethics associated with it. A new standard for evaluating students' abilities must be established, considering numerous students copy ChatGPT content or request it to prepare essays, papers, and assignments (Mitchell, 2022). For instance, it is recommended that the standard concentrate more on oral examinations and clinical nursing practice rather than writing skills. However, if writing exams are still included, each nurse educator is

required to get to know each student better to become familiar with their writing style and quality of work. Usually, teachers see how the students speak, their knowledge level, and what vocabulary they use (Belagere, 2023). In other words, verbal and writing patterns in each student can be noticed quickly by the teachers who know their students.

Additionally, the advent of ChatGPT serves as a wake-up call as the majority of universities in Indonesia, especially the faculties and departments of nursing, have not prioritized information technology, nursing informatics, and artificial intelligence in their curriculum. Therefore, with the widespread use of ChatGPT, many nursing students were caught off guard while their instructors were left anxious. Nevertheless, artificial intelligence has existed considerably in nearly every facet of our lives, such as using Siri, Alexa, and Google search, and we are only starting to grasp its capabilities. Fortunately, it is not too late to assimilate AI into the nursing curriculum and enhance our understanding of this rapidly advancing field.

Implications

As this study employed a qualitative descriptive design, the findings may have several implications: (1) Nurse educators must acknowledge the benefits and limitations of ChatGPT and teach students how to verify information provided by the software and provide ethics training to prevent plagiarism; (2) The nursing curriculum should be modified to focus on information technology, nursing informatics, robotics, artificial intelligence, and other technologies in healthcare that nurses will face in the future. In other words, the nursing technology curriculum program should be introduced at the beginning of the basic nursing degree program rather than being solely provided as a subspecialty program at the master's degree level; (3) Nurse educators should emphasize the importance of caring and nurses' unique skills, such as therapeutic touch, emotional intelligence, communication skills, patient-nurse relationships, and other competencies.

Strengths

The study offers an in-depth exploration of nursing students' perspectives on ChatGPT, providing detailed insights into their attitudes and experiences. The methodology utilized a qualitative descriptive design, allowing for a straightforward description of participants' viewpoints free from theoretical biases. Thorough data collection was achieved through online and offline FGDs, facilitating diverse perspectives. Audio and video recordings ensured accurate transcription, enhancing the reliability of the data. The rigorous thematic analysis method involved multiple steps, including transcription, coding, and theme development, providing systematic and comprehensive data analysis. Trustworthiness measures such as peer review by nursing experts, member checking, adherence to COREQ guidelines, and ethical considerations were implemented, enhancing the credibility and authenticity of the study findings. Overall, the study thoroughly examines nursing students' perceptions of ChatGPT, contributing valuable insights to nursing education and practice.

Limitations

It is noteworthy that this particular study solely involved nursing students with a Diploma-level background from a single province in Indonesia. As such, their viewpoints may not reflect all Indonesian nursing students and nurses and may differ from those with a Bachelor's or Master's level education. Therefore, additional research should be conducted with a larger sample size from various educational levels and different settings to validate and compare these results.

Conclusion

The study's results may offer valuable insights into Gen Z Diploma nursing students' viewpoints regarding the usage of ChatGPT. Although the students appreciate ChatGPT's advantages, they are also aware of its limitations and the necessity of verifying information supplied by the software. The students also view ChatGPT and AI robots as complementary instruments to enhance nursing knowledge, abilities, and performance rather than replacements or competitors for nurses. Finally, the study proposes that nursing educators modify the curriculum to include AI and other developing technologies while emphasizing nurses' distinctive abilities.

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Authors' Contributions

Joko Gunawan contributed to study's conception and design, data acquisition, data analysis, wrote the first draft of the manuscript and revised it, and given final approval of the version to be published.

Yupin Aungsuroch contributed to study's conception and design, data acquisition, data analysis, involved in the first

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Colleen Marzilli contributed to study's conception and design, data analysis, involved in the revision of the manuscript, and given final approval of the version to be published.
Nazliansyah contributed to data acquisition, data interpretation, involved in the first draft of the manuscript, critically discussed the revision, and given final approval of the version to be published.
Erni Chaerani contributed to data acquisition, data interpretation, involved in the first draft of the manuscript, critically discussed the revision, and given final approval of the version to be published.
Jed Montayre contributed to data analysis and interpretation, rewritten and revised the manuscript for important intellectual content, and given final approval of the version to be published.

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Data Availability Statement

Data generated or analyzed during this study are available from the corresponding author.

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