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Original article

The Effects of the Connecting All Generations Through the Gerontech (CARETech) Program on Motivating Young People to Enter the Elderly Care Sector

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A B S T R A C T

Purpose: This study aims to organize an intergenerational program to provide unemployed young people with operational skills related to gerontechnology and the experience required to deliver digital outreach rehabilitation services to community-dwelling older people.
Methods: A quasi-experimental research design was adopted. The young participants received a 12-session training program on the management of common chronic diseases, communication with older people, the functions and use of interactive games, and techniques to teach and match interactive games with older people. The perception of elderly outcomes (i.e., knowledge and attitude toward elderly care, willingness to care for the elderly), personal outcomes (i.e., life satisfaction, self-efficacy), and desired vocational outcomes (i.e., hours worked in the nongovernmental organization's center, hours spent with older people) were evaluated preprogram and postprogram.
Results: Fifty-one young people joined the program. A statistically significant improvement was seen from preprogram to postprogram in their willingness to care for the elderly ($p = .016$) and life satisfaction ($p = .005$), as well as in the number of hours that they spent in the community center volunteering or engaged in social services for older people.
Discussion: The findings proved that the program could improve the willingness of young people to care for older people, as well as improve their own life satisfaction. Using gerontechnology can serve to bridge the intergenerational gap and bring benefits to both young adults and older people. It may provide policy makers with a way to address the manpower shortage in elderly care services and help frail older people to age in place.

IMPLICATIONS AND CONTRIBUTION

The findings suggest that young people could be engaged to support older people living in their homes, thereby promoting aging in place. Using gerontechnology can serve to bridge the intergenerational gap and needs to be considered further in terms of policy and practice.

Conflicts of interest: The authors have no conflicts of interest to declare.
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The global population is aging, with individuals aged 65 years or more accounting for 9.3% in 2020, potentially rising to 16% in 2050 [1]. In Hong Kong, the older population is expected to grow from 15% in 2014 to 33% in 2064 [2]. With more older people choosing to live at home, there is an urgent need for more healthcare workers to join community-based elderly services to promote health and self-care management. However, the global shortage of healthcare workers in elderly care services remains a significant obstacle to achieving these objectives. Hong Kong's shortage of elderly healthcare workers reached 19% in recent years, comparable to Japan (13.6%) [3,4]. The evidence suggests that insufficient elderly healthcare workers contribute to higher rates of medication errors, complications, and infections, and results in unmet care needs and delayed discharge among older people, consequently worsening their health outcomes [5]. To mitigate the adverse effects of understaffing, it is crucial for researchers and policymakers to explore innovative strategies to attract more individuals to the field of elderly healthcare services.

In Chinese culture, intergenerational care holds profound significance, reflecting deeply ingrained values of filial piety, respect for elders, and family harmony. Traditionally, it is the duty of adult children to care for their aging parents, often involving multigenerational living arrangements where multiple generations reside together under one roof. This practice not only provides practical support for older adults but also fosters emotional closeness and mutual respect among family members. Respect for elders is deeply rooted in Confucian teachings, emphasizing the importance of honoring one's parents and ancestors. Intergenerational care extends beyond mere physical assistance to encompass emotional support, companionship, and the passing down of cultural traditions and wisdom from one generation to the next. While modernization and urbanization have brought changes to family structures in China, the cultural value of intergenerational care continues to shape familial relationships and societal expectations surrounding eldercare. Efforts to preserve and adapt these traditions in the face of societal changes reflect a commitment to maintaining familial bonds and promoting the well-being of older generations within Chinese society.

The evidence suggests that young people possess knowledge, intelligence, and responsiveness, making them ideal candidates to provide timely treatments and minimize injuries during emergency situations for older people, such as sudden falls or deteriorating health conditions [6]. Young people also demonstrate the flexibility and capability to offer a wide range of services and adapt their approaches to the personalities and needs of the older population [7]. Moreover, they generally exhibit a high level of technological literacy, enabling them to assist older people in using innovative health devices like smartwatches, wearable devices, virtual reality tools, and information-sharing platforms to improve their health and reduce health risks [8]. Research has shown that older people enjoy interacting with young people [9]. This positive attitude toward young people fosters social relationships between the two generations, which in turn helps older people cope with aging-related stress and enhances their cognitive functioning [10].

Young people globally have encountered challenges in finding employment for reasons such as insufficient experience and skills, high expectations regarding jobs and salaries, and negative attitudes toward jobs that involve overtime work [11]. The COVID-19 pandemic has further narrowed their employment opportunities as the global economic recession and unprecedented job losses have disproportionately affected young people [12]. Although there are more job vacancies in the elderly care service sector than in other fields [3,4], young people hesitate to pursue such careers. This reluctance can be attributed to their negative perceptions of older people as lazy, suspicious, demanding, and conservative [13]. Poor career prospects and a lack of self-efficacy in caring for older people may also be contributors [14]. The imbalance between youth unemployment and the increased job vacancies in the elderly care service sector not only causes distress and lowers self-esteem among young people but also poses health risks to older people, thereby jeopardizing the well-being of both groups.

Introducing young people to the elderly care service sector can lead to mutual benefits, where unemployed young individuals can secure stable employment, and older people can find suitable caregivers to support and promote their health. Intergenerational programs play a crucial role in facilitating interactions and the exchange of skills, knowledge, and life experiences between younger and older individuals. Many such programs have successfully reduced negative attitudes among young people toward older people [15–17]. For instance, an intervention study that combined elderly simulation with intergenerational activities like day camps, group discussions, and presentations significantly improved young people's attitudes toward older people [16]. Another study gave high school students opportunities to engage with older people, resulting in increased caregiving self-efficacy and a greater intention to pursue a career in elderly services [18]. Additionally, a university developed an intergenerational service-learning course that created an environment fostering active learning opportunities for both social work students and older people [19]. The results indicated that the course effectively enhanced geriatric competencies among both graduate and undergraduate social work students.

Recent studies exploring intergenerational activities and geriatric courses have shown positive outcomes in improving young people's attitudes toward older people and enhancing their comfort when interacting with nonfamilial older individuals [16]. These initiatives have also been effective in promoting geriatric competencies [19], increasing general self-efficacy [18], and improving self-concept clarity and interpersonal behavior among young people [16,20]. These findings suggest that providing more opportunities for intergenerational interaction and offering geriatric knowledge and skill-based courses to young people can foster a positive relationship between the generations and broaden young people's perspectives.

However, there remains a knowledge gap regarding whether participation in such programs translates into young individuals actually joining the elderly workforce. Additionally, the persistent shortage of healthcare workers in the elderly care service sector further underscores the need for innovative solutions [18]. Therefore, our study aims to address this gap by establishing an innovative intergenerational program. This program will equip unemployed young individuals with operational skills related to gerontechnology products and provide them with the experience to deliver digital outreach rehabilitation services to community-

dwelling older people. The objectives are to improve young people's attitudes toward older people, enhance their self-efficacy in caring for older individuals, and ultimately increase the number of unemployed young people entering the elderly care service sector. If successful, this program could provide researchers and policymakers with valuable insights on how to motivate and encourage young people to embrace the prospect of an aging workforce. By achieving these goals, we aim to contribute to promoting the health and independent living of older people while addressing workforce shortages in the elderly care service sector.

Aim

The objective of the present study was to test the effects of the Connecting All Generations through the Gerontech (CARETech) program on the perception of elderly outcomes (i.e., knowledge and attitude toward elderly care, willingness to care for the elderly), personal outcomes (i.e., life satisfaction, self-efficacy, perceived social support, depression), and desired vocational outcomes (i.e., hours worked in a nongovernmental organization [NGO] in volunteering or social services, hours spent with older people, employment status) among unemployed young people.

Research questions

(1) Is there a difference in the perception that unemployed young people have of elderly outcomes before and after the program?
(2) Is there a difference in the personal outcomes of unemployed young people before and after the program?
(3) Is there a difference in the desired vocational outcomes of unemployed young people before and after the program?

Methods

Design

This was a quasi-experimental study conducted between September 2021 and October 2023 at six community centers run by an NGO in Hong Kong. The study protocol received approval from the Human Ethics Sub-committee of the Hong Kong Polytechnic University (HSEARS20220225001) and was registered on ClinicalTrials.gov (NCT05267444). The study is guided by the Transparent Reporting of Evaluations with Nonrandomized Designs (TREND) statement checklist.

Participant and recruitment

The community centers advertised the program on their Facebook page and Instagram account. Interested young people called the staff of the community centers. The staff screened and recruited young people into the study if they were unemployed, aged 17–35 years, and educated to secondary 5 or above. Those with a full-time job and already participated in another program related to older people caregiving at that time were excluded. A list of eligible participants was compiled and sent to a research assistant (RA) every week. The RA met the potential participants at the community centers, thoroughly explained the study to them, and obtained their written consent. Baseline data were then gathered from those participants.

Connecting all generations through the Gerontech (CARETech) program

The training program comprised 12 sessions, each lasting 3.5 hours, and was meticulously designed by an occupational therapist. Its primary aim was to equip participants with a comprehensive understanding of elderly care and the necessary skills to effectively engage with older adults, particularly through the use of motion-based video games.

The initial 10 sessions were dedicated to lectures and workshops, covering a wide range of topics essential for providing care to the elderly population. Participants delved into the intricacies of major chronic diseases prevalent among older adults, learned about general elderly care practices, and honed their home visitation skills. Additionally, the program introduced participants to the Person-Environment-Occupation model, serving as an analytical framework to understand the interplay between individuals, their environment, and occupational engagement. Key concepts emphasized during this phase included effective communication and interaction with older adults, utilization of digital technology and assistive devices, and adaptation of environmental factors to facilitate exercise protocols tailored to the needs of older individuals.

Following the theoretical foundation provided in the lectures and workshops, participants engaged in two face-to-face practicums, each lasting 3.5 hours. These practicums provided participants with invaluable hands-on experience by facilitating visits to elderly individuals residing in the community. Under the guidance and supervision of the occupational therapist, participants had the opportunity to apply their newly acquired knowledge and skills in a real-world context. These practicums not only reinforced theoretical concepts but also allowed participants to gain insight into the practical challenges and nuances of providing care to older adults.

The final phase of the training program involved a comprehensive follow-up home visitation phase. Participants who completed the program successfully conducted a total of 11 follow-up home visits to the same one or two older individuals over a period of 4.5 months. The structured visitation schedule included five weekly visits in the first month, followed by six bi-weekly visits. During these visits, participants followed individualized exercise plans developed by the occupational therapist specifically for the older individuals, with support from the occupational therapist and center staff. Furthermore, participants provided technological support to help older individuals engage in and maintain their practice of playing prescribed motion-based video games as part of their daily routine. Beyond physical assistance, participants applied communication skill (e.g., active listening, patience), shared stories and experiences on the use of technology, and offered invaluable psychological support such as acknowledging and validating the emotions and concerns of older people, and providing empathetic listening and support to address any fears or concerns older individuals may have had regarding the use of technology, thus fostering a positive and empowering experience.

Upon completion of the service program, participants underwent a single 3.5-hour career coaching session facilitated by NGO staff members. This session provided participants with an opportunity for reflection on their experiences throughout the program and facilitated discussions on their future career aspirations. NGO staff guided participants in identifying their

strengths and weaknesses, setting career goals, and exploring potential career paths related to elderly care and technology.

Sample size

Sample size calculation was conducted using a power analysis. It was determined by assuming a two-tailed alpha of 0.05, a probability of 0.2 for the beta error (achieving 80% power), and an effect size of 0.56. The effect size was calculated in relation to the primary parameter of interest, which is knowledge and attitude toward elderly care. These calculations were based on the findings of a previous similar article [21]. The analysis indicated that at least 28 subjects would be needed. However, considering an anticipated drop-out rate of 20%, the total sample size required was determined to be 34 subjects.

Data collections

Data were collected at two time points: at baseline pre-intervention (T1) and at 10.5 months when the program was completed (T2). The data were collected at the NGO's centers. RAs not involved in the intervention collected the data.

Outcome measures

There were four sets of measures: demographics, perception of elderly outcomes (i.e., knowledge and attitude toward elderly care, willingness to care for the elderly), personal outcomes (i.e., life satisfaction, self-efficacy, perceived social support, depression), and desired vocational outcomes (i.e., hours worked in the NGO in volunteering or social services, hours spent with older people, employment status).

Background demographic data. Sociodemographic characteristics were collected at baseline, such as age, gender, marital status, religion, living condition, level of education, experience in working and living with older people, smoking and drinking habits, and monthly family income.

Perceptions of elderly outcomes

Knowledge and attitudes toward elderly care. Knowledge on elderly care was assessed using a set of knowledge questions containing 30 true/false items. The questions were all designed by the same occupational therapist responsible for the design, teaching, and supervision of the training course. The overall score on caring for older people was obtained by recoding and converting every correct answer into 1 and incorrect answer into 0. The scale has high content validity index of 0.82.

Attitude toward the elderly was assessed using Kogan's Attitude toward Old People scale [22]. This scale consists of 34 items grouped into two factors assessing positive and negative attitudes toward old people. It is a Likert-type scale with 17 matched pairs of statements about older people. The seven response categories range from strongly agree (7) to strongly disagree (1). The items were developed to measure how participants feel about the dependence, living arrangements, intelligence, and personality of older people. The scale exhibited evidence of satisfactory internal consistency reliability, with a coefficient of 0.83.

Willingness to care for the elderly. The Willingness to Care for the Elderly Scale [23] was used to measure the participants' willingness to care for older people. It is a Likert scale with five questions, with higher scores representing greater willingness to care for older people. The Cronbach's α of the scale was 0.85, indicating good internal consistency.

Personal outcomes

Life satisfaction. Life satisfaction was assessed using the Satisfaction With Life Scale [24]. It is a five-item scale designed to measure global cognitive judgments of one's life satisfaction. Participants indicated how much they agree or disagree with each of the five items using a seven-point scale ranging from 7 (strongly agree) to 1 (strongly disagree). Diener et al. [24] conducted a series of validation studies showing that the Satisfaction With Life Scale has a single-factor, high internal consistency, and is reliable and content-appropriate for young people.

Self-efficacy. Self-efficacy was assessed using the Chinese version of the General Self-Efficacy Scale [25]. It is a 10-item scale measuring a broad and stable sense of personal competence to deal efficiently with a variety of stressful situations. The Chinese version of the General Self-Efficacy Scale measures the strength dimension of self-efficacy on a four-point Likert scale. Scores are summed to give a total range of 10–40, with higher scores representing greater self-efficacy.

Perceived social support. Perceived social support was evaluated using the Chinese version of the Medical Outcomes Study Social Support Survey [26]. It is a 20-item Likert scale, with higher scores representing higher perceived social support. The Cronbach's alpha for the scale was 0.98. Its two-week test-retest reliability as measured by the intraclass correlation coefficient was 0.84 [27].

Depression. Depression was assessed using the Center for Epidemiological Studies-Depression scale [28]. It is a 20-item measure that asks caregivers to rate how often over the past week they experienced symptoms associated with depression, such as restless sleep, poor appetite, and loneliness. Response options range from 0 to 3 for each item (0 = rarely or none of the time, 1 = some or a little of the time, 2 = moderately or much of the time, 3 = most or almost all the time). Scores range from 0–60, with high scores indicating greater depressive symptoms. The Cronbach's alpha of the Center for Epidemiological Studies-Depression scale was 0.87 [29].

Desired vocational outcomes. The participants were asked about the number of hours they were involved in volunteer/social services in the NGO and in working with the elderly. Employment status was obtained by asking the participant if their present work is related to elderly services.

The details of the outcome measures are shown in Table 1.

Data analysis. The data were analyzed using SPSS version 29 software. The baseline characteristics of the participants were compared using the chi-squared test or Fisher's exact test for categorical variables, and the two-sample independent *t*-test for continuous variables. A significance level of $p < .05$ was used for determining statistical significance in the two-tailed test. The paired *t*-test or Wilcoxon signed rank test was

employed based on the distribution normality of the data for each outcome. Intention-to-treat was adopted as the primary method of analysis.

Ethical considerations. Prior to launching the program, ethical approval was obtained from the ethics committee of the university. Informed consents were obtained from both the young and old people participating in the program at the center and their home, respectively. Ensuring respect for autonomy, privacy, and confidentiality is crucial, particularly when handling sensitive participant information. All eligible subjects were provided with comprehensive information regarding the procedures, potential risks, protocols for maintaining confidentiality, data storage practices, and anticipated benefits associated with their participation. Written informed consent to participate in the program was obtained from all participants.

Results

Demographic characteristics

Fifty-eight young people were interested in the CARETech program, and after screening, 51 were deemed eligible to participate. Most were aged 21–25 years and only one was married. More than 91% had a tertiary level of education or higher; more than half had no experience working with the elderly (72.5%). The majority (64.7%) had a monthly family income of HK$20,000 or more (Table 2).

The perception of elderly outcomes

How the CARETech program affected perceptions of elderly outcomes is summarized in Table 3. Overall, the participants demonstrated an enhanced knowledge and more positive attitude toward elderly care. However, the difference between pretest and post-test results was not statistically significant. Only in willingness to care for the elderly was there a statistically significant difference from T1 to T2 ($p = .016$).

Personal outcomes

Regarding personal outcomes, participants reported that the CARETech program improved their life satisfaction ($p = .005$). They also had higher mean perceived social support scores and lower mean depressive scores at T2 than at T1, although the results were not statistically significant (Table 3).

The desired vocational outcomes. The hours that the participants spent in the NGO volunteering or in social services increased sharply from preprogram (5.6) to postprogram (17.6). Similarly, the hours that they spent with older people increased from T1 (5.8) to T2 (14.2) (Table 3). Regarding employment status, 21.7% of the participants were currently employed in a position related to the elderly (Table 4).

Discussion

In this study, we tested the effects of the CARETech program on young people in Hong Kong with regard to three categories of outcomes: perception of the elderly, personal outcomes, and desired vocational outcomes. The findings indicate that after the program, statistically significant improvements were observed in willingness to provide care and life satisfaction. Although we did not observe statistically significant differences regarding knowledge and attitude, self-efficacy, perceived social support, and depression, mean values improved from baseline to

Table 1
Motion-based video games

Games	Description
Osmo Kit set	Instruction: Learn design shapes and placement through puzzle games (Tangram); develop problem-solving skills by drawing lines and placing accessories (Newton); enhance creative drawing skills (Masterpiece); practice calculation using numbers and dice (Numbers); and gain knowledge of letters, spelling, and vocabulary (Words). Acquired Skills: Skills in solving visual problems, puzzles, mathematics, freehand drawing, improved listening skills, learning physics, and enhancing spelling and vocabulary.
Osmo Pizza set	Making pizzas for customers, collecting payments, and giving change (paper money/coins) while understanding the profitability of the business. Other game concepts include addition, subtraction, fractions, mental math, design, and communication skills (Pizza Co.). Acquired Skills: Real-world (business) math, money handling, addition, subtraction, fractions, quick mental math, business operations and development, social interaction, listening, critical thinking, observation skills, creative problem-solving, and basic business concepts.
BlazePod	BlazePod introduces a new approach to sports training. It uses visual cues to push older adults to challenge their speed and reaction limits, enhancing their training performance. We can use a mobile application to design and track their athletic performance, providing precise timing down to milliseconds, allowing them to see their progress.
Squegg	An ergonomically designed and durable smart device, specifically designed for grip strength training and hand therapy.
AR Archery	Train hand-eye coordination.
Sphero Indi Driven	Design and Build: Solve problems like an engineer, design, and construct custom mazes for the Indi character to navigate. Screenless Learning and App Support: Learn the basics of programming using the included color cards or upgrade to Sphero's new drag-and-drop block coding with the free Sphero Edu Jr app.
Sphero mini	Sphero Mini Soccer combines various advanced technologies, including a gyroscope, accelerometer, and customizable LED lights that can be set to any color. It comes with eight miniature soccer cones. Kick Mode: In Kick Mode, simply flick with the fingers to kick the ball. The older adults can tap to stop the ball and use curved flicks to change direction. Tilt Mode: Explore other control modes with a robot. Choose a favorite mode, tilt the device, pull back on a slingshot, or use joystick controls. Games: Use Mini Soccer as a game controller to dodge and destroy asteroids, navigate spinning tunnels, or demolish polygon bricks.
Sphero Ring	By tapping on it or on various colors on the Play Pad, older adults can produce sound effects, looped melodies, and beats through the app on iPhone or iPad.

Table 2
Demographic characteristics of the participants (N = 51)

	Total (n = 51)	Table Valid N%
	Count	
Gender		
Male	21	41.2%
Female	30	58.8%
Age range		
19–20	4	7.8%
21–25	33	64.7%
26–30	10	19.6%
31–33	1	2.0%
Marital status		
Single	50	98.0%
Married	1	2.0%
Religion		
No	40	78.4%
Christian	9	17.6%
Roman Catholic	1	2.0%
Buddhist	1	2.0%
Living conditions		
Flat	49	96.1%
Subdivided flat	1	2.0%
Others	1	2.0%
Living with	4	7.8%
Alone		
With family	47	92.2%
Highest Education Level		
Secondary school	3	5.9%
Tertiary or above	48	94.1%
Have you ever lived with an elderly person?		
Yes	20	39.2%
No	31	60.8%
Have you worked with elderly people before?		
Yes	14	27.5%
No	37	72.5%
Total Monthly Family Income ($HKD)		
Less than 9,000	1	2.0%
90,001–15,000	7	13.7%
15,001–20,000	7	13.7%
20,001–30,000	13	25.5%
30,001–40,000	4	7.8%
40,001 or more	16	31.4%
Prefer not to tell	3	5.9%
Smoker		
Yes	2	3.9%
No	49	96.1%
Drinker		
Yes	0	0.0%
No	51	100.0%

postintervention. Vocational outcomes, including hours worked and hours spent with the elderly, improved significantly. Additionally, at the end of the study, up to 21.7% were actively employed in the elderly care sector. The findings suggest that a structured program may help to prepare and situate young persons within the elderly care context. Thus, more attention needs to be paid to devising such programs.

In the current training, young people were taken through several educational modules to enable them to appreciate their unique role of supporting older people. Those sessions may have helped them to reassess their values, beliefs, prejudices, and stereotypes, thus preparing them to take on a role within the context of elderly care. They may also have equipped them with the skills needed to navigate through various issues related to elderly care. These may explain the statistically significant improvement in their willingness to provide care. Interestingly, although improvements were seen in the scores for both knowledge and attitude, they were not statistically significant. A study conducted in mainland China examining the knowledge, attitudes, and willingness of young nursing students to provide care concluded that their knowledge about aging and their attitudes directly influenced their willingness to provide care [23]. Chu and Chu [30] also noted that attitude toward the elderly could be a mediating factor between knowledge about aging and care willingness. It remains unclear why, although the scores for both knowledge and attitude were not statistically significant in the present study, the opposite was true for care willingness. With the explosion of information in Hong Kong and the Internet regarding aging, the participants in the present study might already have had some information about aging and caring for older people, prior to receiving the opportunity to actually do something in that area. This assertion may further be supported by the finding in the present study that the number of hours worked and hours spent with older people increased exponentially from 5.6 to 17.6 and 5.8 to 14.2, respectively.

Consequent to the improvement in the willingness to provide care, the present study also observed a statistically significant improvement in life satisfaction. This is noteworthy, considering the vast number of studies that highlight the pressures associated with caring for older people leading to poor life satisfaction [31–34]. A potential explanation for this positive finding may be related to the fact that the younger people may have regarded their roles with the older people as meaningful or rewarding, possibly leading to the notion of contributing to the well-being of an elderly person. Moreover, they were equipped with the knowledge and skills to navigate through their roles, possibly leading them to appraise their caregiving experiences more positively. Additionally, unlike family caregivers who need to stay with their relatives and offer round-the-clock care, the young people had a shorter elderly care schedule. Thus, family caregivers are likely to experience more stressors than the young people [35]. One possible recommendation is to engage young people to offer a limited period of respite to family caregivers.

Although scores for both perceived social support and depression improved, these were statistically insignificant. While it is unclear why this was the case among the young people, existing studies have described perceived social support as a variable that protects carers from psychological distress, including depression [36,37]. Congruent with the social causation model, perceived social support has emerged as an antecedent of well-being; therefore, its lack or limited availability is viewed as being causally related to psychological distress [38,39]. This finding may suggest a need to consider the availability of peer support to actively engage with and support young people.

This study had some limitations. First, it only measured outcomes from the perspective of young people; those of the older people were not included. Future intergenerational interventions may need to ascertain outcomes from both older people and younger people to attain a fuller understanding of the impact of the intervention. Second, although some outcomes improved, it is unclear whether the improvements would be sustainable. Third, the absence of a control group in this study makes it challenging to determine whether the results in the outcome measures are truly due to the program itself or to other factors, such as social desirability effect. Last but not the least, we only assessed whether the young people had entered the elderly

Table 3
Effects of the program on outcomes

		Total (N = 51)		Mean differences (T2–T1)	(SD)	Point estimate Cohen's d	Paired sample *t*-test or Wilcoxon signed rank test
		Mean	(SD)				*P* value
Knowledge of elderly care	T1	13.8	(3.0)				
	T2	14.0	(3.0)	0.13	(2.58)	0.051	.90
Attitude towards elderly care	T1	102.0	(24.0)				
	T2	104.0	(19.2)	1.91	(20.6)	0.093	.67
Willingness to care for the elderly	T1	20.2	(3.0)				
	T2	21.7	(2.5)	1.48	(2.70)	0.55	.016*
Life satisfaction	T1	22.2	(6.1)				
	T2	25.4	(4.0)	3.17	(4.94)	0.64	.005*
Self-efficacy	T1	37.2	(5.9)				
	T2	27.2	(4.9)	−9.74	(7.65)	−1.27	< .001*
Perceived social support	T1	3.56	(0.64)				
	T2	3.81	(0.48)	0.12	(0.41)	0.30	.17
Depression	T1	14.0	(3.9)				
	T2	18.1	(9.9)	4.09	(10.4)	0.40	.15
Hours worked at NGO	T1	5.6	(16.9)				
	T2	17.6	(45.0)	13.2	(47.4)	0.20	.006*
Hours spent with elderly people	T1	5.8	(14.2)				
	T2	14.2	(45.7)	12.1	(44.7)	0.27	.015*

NGO = nongovernmental organization; SD = standard deviation.
*Significance level of 0.05.

sector; however, we did not inquire about their specific roles and responsibilities within those positions.

Conclusions

The findings suggest that it might be possible to engage young people to support older people and bring benefits to both young adults and older people. Policymakers could consider integrating gerontechnology initiatives into existing policies aimed at supporting aging in place. This could involve incentivizing the development and adoption of technologies that facilitate intergenerational connections and support older adults' independence at home. Future research could conduct longitudinal studies to assess the long-term impacts of intergenerational engagement facilitated by gerontechnology on both young people and older adults. This could provide insights into the sustainability of such initiatives and their effects on various aspects of well-being over time.

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Table 4
Effects of the program on employment status

After joining the program, are you currently employed in an elderly-related position?	Yes	6	21.7%
Employment status	No	15	29.4%
	Did not respond	30	58.8%
	Full time	2	8.7%
	Part time	6	11.8%
	Self-employed	1	2.0%
	Unemployed	1	2.0%
	Other (Full-time student)	12	23.5%

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