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Evaluation of an Online Physical and Mental Wellbeing Program for UST-CRS Students: A Feasibility Study

Catherine Joy T. Escuadra[*1], Jordan Barbra P. Nava[1], Arlene Chiong C. Maya[1], Neil Zachary M. Aningalan[1], Beatriz Joy E. Borhillo[1], Llana Eunice R. Duya[1], Marco Celso S. Francisco III[1], Katrina Angela G. Jarobel[1], Darlene Sofia A. Lim[1], Jan Mikaela B. Ramos[1], Julia Vanesa B. Villocillo[1], John Emmanuel R. Wycoco[1]

[1]University of Santo Tomas, Manila, Philippines

*Address all correspondence to Catherine Joy T. Escuadra at: ctescuadra@ust.edu.ph

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Abstract

Introduction. With the recent transition to online learning due to the COVID-19 pandemic, students experience academic difficulties, which affect their wellbeing. There is a need for an online wellbeing intervention program for students to address such concerns. This study aims to evaluate the feasibility and effectiveness of a six-week online educational wellbeing program for the physical and mental wellbeing of the University of Santo Tomas College of Rehabilitation Sciences (UST-CRS) students.

Methods. This is a quasi-experimental one-group pretest-posttest study that recruited UST-CRS students without physical and mental conditions. Physical and mental wellbeing modules developed by experts were deployed using Wix. The International Physical Activity Questionnaire Short Form (IPAQ-SF) and World Health Organization-Five Well-Being Index (WHO-5) were used for wellbeing assessment, while the Website Grader Tool and survey were used for website evaluation. Descriptive and inferential statistics, like Wilcoxon Signed Rank test and effect size, were conducted using JAMOVI. Alpha was set at 0.05.

Results. Seventeen students participated in the online wellbeing program. Results revealed statistically significant difference in the pre and post intervention IPAQ-SF scores on MET-minute for walking ($p=0.04$; 95% CI=647-1955), total MET-minute activities ($p<0.01$, 95% CI=259-2412), and WHO-5 scores ($p=0.05$; 95% CI=4.36-36.5), with effect sizes of Cohen's $d=0.43-0.71$. Participants reported satisfaction with the modules, platform, and organizers despite inconsistent attendance.

Discussion. The online wellbeing program is feasible and effective in increasing the physical and mental wellbeing of the students. The findings of this study may guide future experimental studies for online wellbeing programs for university students.

***Keywords*:** online, wellbeing program, physical wellbeing, mental wellbeing, feasibility

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Introduction

With the recent transition to online learning due to the COVID-19 pandemic, students experienced academic difficulties, which greatly impacted their physical and mental wellbeing (Savage et al., 2020; Gewalt et al., 2022). As the pandemic halted the academic routine of delivering face-to-face teaching and learning strategies and assessments in universities, a decline in reported physical and mental wellbeing has been prevalent in various countries worldwide (Violant-Holz et al., 2020).

In the Philippines, a large-scale survey found that student respondents experienced greater depressive, anxiety, and stress symptoms compared to employed respondents (Tee et al., 2020). In addition, lack of time, equipment, energy, and willpower was found to affect students' motivation to engage in physical activities during the pandemic (Puen et al., 2021).

With these, several experts have suggested the formulation of programs that will help students improve their physical and mental wellbeing to aid in their learning (Tee et al., 2020; Violant-Holz et al., 2020; Puen et al., 2021), with several online wellbeing programs being proposed to address the physical and mental wellbeing of students during the pandemic (Viskovich & Pakenham, 2020; Morgan & Simmons, 2021; Escuadra et al., 2023).

Previous studies reported that the development and use of physical and mental wellbeing online programs are beneficial for students in terms of improving their lifestyle, health, and wellness (Morris et al., 2012; Worobetz et al., 2020). However, it is important to note that local studies about such interventions are still lacking (Escuadra, et al., 2023). Like any other health and behavioral program, the local implementation of an online wellbeing program may not be the same for all countries. In the Philippines, local contextual factors such as poor internet connectivity, lack of study space at home, power interruptions, weak infrastructure, and high internet costs may serve as barriers to the implementation and should be considered (Baticulon et al., 2021).

With these, the study's objective is to evaluate the effectiveness and feasibility of a six-week online educational wellbeing program with materials created by healthcare professionals for rehabilitation sciences students of the University of Santo Tomas College of Rehabilitation Sciences (UST-CRS) students.

Methods

Ethical Consideration

The study was reviewed and approved by the UST-CRS Ethical Review Committee (UST-CRS-ERC) [Protocol Number: SI-2021-035-R2].

Study Design

A quasi-experimental one-group pretest-posttest design was used in the study (Portney & Watkins, 2009). The study was part exploratory and part experimental research to assess the feasibility of the proposed online wellbeing program, which is not a characteristic of a pure experimental design.

Participants

The recruitment criteria were adapted from previous online wellbeing education studies (Hall, 2012; Sember et al, 2020; Thomas et al., 2020).

The study utilized a purposive sampling method. A total of 40 was computed for the sample size using the Stata 17 software to reach 80% power of the study, with a 0.05 significance level while considering the possible 20% attrition rate (Levin et al., 2020).

Setting

The intervention was implemented online using the Wix platform that allows the creation of members only pages. The site also allowed the researchers to view the site members and manage the permissions and information of the participants.

Intervention

The online wellbeing intervention encompassing mental and physical activities was prepared by qualified and licensed health professionals and delivered using an educational and modular format (Lattie et al., 2017). This approach was the most feasible for the pilot study as it allowed the students ample time to participate despite their other tasks.

The program lasted for a total of six weeks, with 1 module per week, was done consecutively for the intervention proper. Separate activities for physical and mental wellbeing were provided per week. Depending on the objective and description of the module, some activities were implemented synchronously (first and last modules), while the rest were done asynchronously. Data pertaining to participant website usage was monitored, with participants being requested to provide evidence of completion for asynchronous activities. Additionally, synchronous activities were monitored using data obtained from Zoom.

Modules typically include short educational videos or instructions for participants to read and follow for 30 minutes to one hour. Psychological and physical activities integrated in the modules include physical activity tracking, virtual group exercises, Positive Psychological Intervention, walking, motivational interviewing, mindfulness exercises, Acceptance and Commitment Therapy, and Internet-based cognitive behavioral therapy. Participants were allowed to backtrack from the previous modules. Passwords were needed to proceed to the next module, which were provided by the end of the week. Email notifications

were also implemented as a means of providing participants with timely reminders for important updates or tasks. See the study by Escuadra et al. (2023) on the Evaluation of an Online Physical and Mental Wellbeing Program for UST-CRS Students: A Feasibility Study Protocol or the specific online wellbeing program timeline, modules, and screenshots of the website layout.

Table 1. Recruitment Criteria

Inclusion Criteria	Exclusion Criteria
• Bonafide students of the UST-CRS were enrolled for both the 2nd Semester of Academic Year 2021-2022 and the 1st Semester of Academic Year 2022-2023. • UST-CRS students who are 18 years old and above • Participants who are cleared by psychiatrists, physicians, and counselors • With stable internet connection (at least 5 Mbps) • With PC, Laptop, smartphone, tablet, or any device capable of accessing the website for the program • With a device capable of downloading the pacer pedometer and step tracker mobile application	• Participants with psychological conditions such as depression, anxiety disorders, bipolar disorders, and schizophrenia, unless given clearance by their psychiatrists or guidance counselors • Participants with concerns in performing physical activities as checked by the Physical Activity Readiness Questionnaire (PAR-Q), as well as physical comorbidities like cardiovascular diseases, respiratory diseases, and type 2 diabetes mellitus, unless cleared by their physicians • Participants at the risk of suicide, who obtained a high score on the Counseling Center Assessment of Psychological Symptoms-Screen test

Tools

Screening. The Physical Activity Readiness Questionnaire (PAR-Q) is a stand-alone screening instrument used to determine an individual's eligibility for increased physical activity or a fitness appraisal to assess exclusion criteria (Espino et al., 2020).

The Counseling Center Assessment of Psychological Symptoms (CCAPS) is a 34-item self-administered questionnaire that assesses various mental health concerns pertinent to college students, such as depression, general and social anxiety, academic distress, and hostility (Hall, 2012).

Pretest and Posttest. The International Physical Activity Questionnaire (IPAQ-SF) is a seven-item questionnaire that assesses the physical activity intensity types and the sitting time people, including college students, do in their everyday lives (Craig et al., 2003). This has consistently shown to have high reliability (0.66-0.88) and validity with accelerometer (r^2=0.30, p=0.01, 95% CI = 0.07-0.49) (Sember et al., 2020).

The World Health Organization-Five Wellbeing Index (WHO-5) is a short five-item, self-reported measure of mental wellbeing, including university students (Dadfar et al., 2018). High reliability (α=0.91) and good construct validity, which negatively correlated with the Patient Health Questionnaire (PHQ) presented as PHQ-9 (r^2=-0.36), PHQ15 (r^2=-0.33), and BDI-13 (r^2=-0.48), is demonstrated by the WHO-5 (Dadfar et al., 2018).

Other Tools. The Website Grader Tool by HubSpot was used to measure the effectiveness of a website by examining different factors such as website performance (page loading time, page size, page requests), website security, and website search engine optimization. This provides recommendations on how to improve the website (Vaughan, 2010).

To assess the acceptability and usability of the program, the researchers adapted the modified measure used in the study conducted by Ruijgrok-Lupton et al. (2018). It consisted of 15 questions evaluated on a five-point Likert scale with excellent reliability (α = 0.912) (Ruijgrok-Lupton et al., 2018).

Both asynchronous and synchronous monitoring procedures were conducted to confirm the participants' compliance. For asynchronous activities, the participants were requested to upload a photo after finishing each module and were tracked every week for progress verification. Moreover, all possible website-generated data were considered to ensure that participants were accessing the intervention materials. Zoom was utilized for live sharing and significant analyses about the viewing time and other relevant statistical data of the participants' technical engagement for synchronous activities.

Data Gathering Procedures

After receiving clearance from technical and ethical review committees, the researchers coordinated with the Office of the Dean for permission to conduct the study. An ethics review committee-approved poster was published on social platforms, like Facebook and Instagram, to recruit participants, including a form where participants can express their intent to join the study. Participants completed the screening tools to determine their eligibility.

A pretest was emailed to the participants as the baseline for the interventions. This includes a profile sheet and two outcome measure tools. Outcome measure tools include the IPAQ-SF and the WHO-5, targeting the participant's physical and psychological wellbeing. They were given one week to accomplish the requirements.

The intervention program commenced for six weeks with one module per week, as this experimental period was inferred to have significant improvement in the wellbeing of participants from other studies with similar interventions. Interventions were done

synchronously and asynchronously online on the Wix website. Each participant was required to accomplish and complete each module to proceed to the next activity.

The participants answered the IPAQ-SF and the WHO-5 Wellbeing Index to reassess their psychological and physical wellbeing after the interventions after the 6th week. A program evaluation was also emailed after the post-test. Participants were given a week to accomplish the post-test.

Data Analyses

Google Sheets was used for data encoding, and JAMOVI was used for data analysis. In addition, an intention-to-treat (ITT) strategy was conducted for participants who dropped out of the study as part of data management. (White et al., 2011). Descriptive statistics was used to summarize the participants' socio-demographic characteristics and the study's feasibility component (i.e., total attendance, completion of the program, the participants' feedback on their program experience) (Pearson et al., 2020). For effectiveness, the Wilcoxon Signed Rank Test was used to compare the pre and post-test results of the participants, while effect size was used to identify the magnitude of effect of the program (Kerby, 2014).

Results

A total of 22 individuals showed interest in joining the study and underwent the screening procedure to determine their participation eligibility based on the recruitment criteria. After strictly adhering to the recruitment criteria and thoughtfully reviewing the screening forms, five individuals did not meet the qualifications for participation in the study. Out of the initial group of 17 participants considered eligible for the intervention, two opted to withdraw before implementation. Additionally, during the implementation phase, one participant decided to drop out. Upon further coordination with them, these participants reported having experienced difficulties in finding dedicated time for the module due to school commitments and personal obligations, resulting in their decision to withdraw or drop out of the program. As a result, 14 participants completed the intervention.

Table 2 summarizes the demographics of the participants eligible to join the study after the screening process based on the recruitment criteria.

Referring to the data gathered from the eligible participants who answered the IPAQ-SF based on their metabolic equivalents (METs) for each activity (Table 3), it was found that there is a positive significant difference in MET-minute for walking and MET-total activities with high effect sizes of 0.43 and 0.61, respectively, after the six-week online educational wellbeing program.

Referring to the data gathered from the eligible participants who answered the WHO-5 Questionnaire (Table 4) reveals that there is a positive significant difference in the mental wellbeing of the participants after the six-week online educational wellbeing program with a high effect size of 0.71.

Table 2. Demographics of Participants

Age (mean ± SD)		20.94	1.09
Year Level (n, %)	1st year	1	5.88
	2nd year	0	0
	3rd year	5	29.41
	4th year	11	64.71
Program (n, %)	Physical Therapy	10	58.82
	Occupational Therapy	1	5.88
	Sports Science	3	17.65
	Speech Language Pathology	3	17.65
Sex (n, %)	Male	8	47.06
	Female	9	52.94

Note: frequency is presented as n; percentage as (%); standard deviation as (SD)

Figure 1 summarizes the attendance of the participants for each module. Analysis revealed a decline in participants accessing the website from week 1 to week 5, with a small increase of participants on week 6.

In addition, the participants rated the wellbeing program's acceptability and usability as satisfactory using the tool of Ruijgrok-Lupton et al. (2018). This shows that the modules, platform, monitoring, and reminder system implemented were effective and valuable enough to be utilized by the participants. Also, it is noteworthy that injury reports were recorded, implying that the conduct of the program online was safe.

The website's security was graded 10/10. The search engine optimization of the website content was grade 25/30, as it was mainly adjusted well enough to gain organic traffic, as shown by the site permitting it to be stored in the index of search engines. The overall website score is 70/100. Its performance based on the website accessibility passed the web grader criteria as measured by different components such as browser caching, minimal page redirects, image and page size, minified JavaScript, and cascading style sheets. Moreover, the website has a user-friendly font size and easily accessible buttons and links.

The main issue found by the grader was the lack of a meta-description, which is a component that can be used to inform potential visitors of the site about the general content to entice them to access the website. The website's page speed is considered slow regarding user interaction, which may negatively affect the user's motivation to interact with the website. Users are more likely to abandon the website due to slow interactive capabilities.

Additionally, the website loads a large number of files per page, which causes problems with the speed of the entire site. The website received a 20 out of 30 rating for mobile performance, indicating that there was too much internet traffic and that this affected the website's performance on mobile devices.

Table 3. IPAQ-SF Pretest and Posttest Results

IPAQ-SF Categories	Pretest		Posttest		Difference			P-Value
	Median	IQR	Median	IQR	Median	IQR	95% CI	
MET-Minute for a vigorous level of physical activity	8	1680	11	1080	6	900	-885, 3085	0.78
MET-Minute for a moderate level of physical activity	10	510	14	480	9	240	-597, 779	0.99
MET-Minute for walking	15	495	15	536	8	322	647, 1955	0.04
Total MET-Minute per week	16	1146	16	1823	9	717	259, 2412	<0.01

Note: Interquartile Range is presented as IQR; Confidence Interval as CI; MET as Metabolic Equivalent

Table 4. WHO-5 Questionnaire Pretest and Posttest Results

IPAQ-SF Categories	Pretest		Posttest		Difference			P-Value
	Median	IQR	Median	IQR	Median	IQR	95% CI	
Raw Score	16	10	19	5	4	6	1.09, 9.13	0.05
Percentage Score	64	40	76	20	16	24	4.36, 36.5	0.05

Note: Interquartile Range is presented as IQR; Confidence Interval as CI

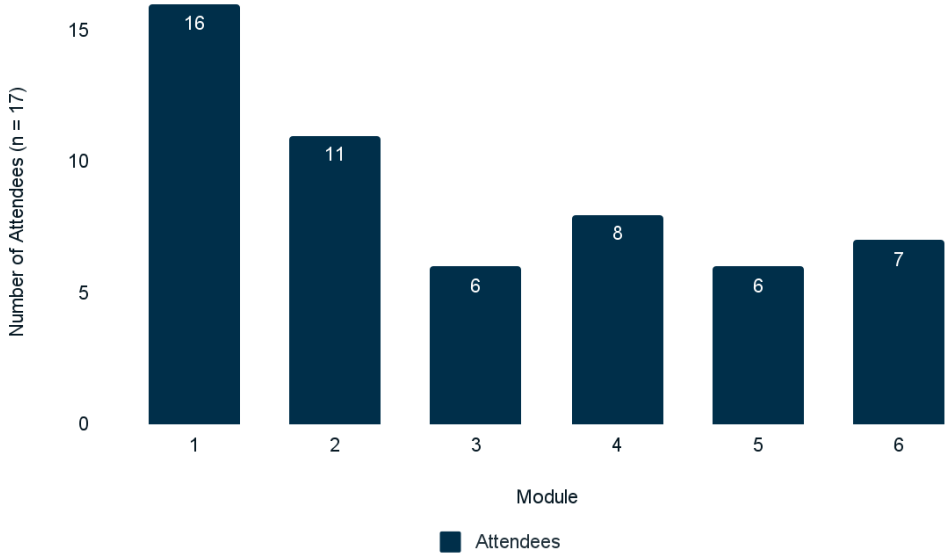

Figure 1. Attendance of the participants in the modules

Discussion and Conclusion

This study was conducted to assess the effectiveness of a six-week online wellbeing program, mainly focusing on the physical and mental wellbeing of the participants. A significant effect has been found in the more specific areas of these two dimensions of health. The WHO-5 and IPAQ-SF scores of the participants have significantly improved, especially in terms of MET Walk and MET Total. Although decreased attendance was recorded, modules, platforms, and organizers were found to be accessible and overall satisfactory. Findings from this study revealed that the online wellbeing program developed is feasible and may be effective for improving university students' physical and mental wellbeing.

The COVID-19 pandemic contributed widely to the world's increased sedentariness and physical inactivity, leading to chronic diseases and a higher probability of being hospitalized and dying from COVID-19 (Stambulova et al., 2021). The contribution of module authors in the online wellbeing program was instrumental in inculcating a positive and constructive perspective towards physical health, which is a critical aspect of improving the motivation and understanding of student participants, as emphasized by Eloff and Dittrich (2021). Prevention and

treatment of numerous health conditions are one of the many benefits of exercise. Exercise and physical activity have long been used interchangeably, however, both terms have different meanings. Exercise is considered as a subcategory of physical activity (Yang, 2019). Exercises are planned, structured, and repetitive and are purposely focused on improving or maintaining one or more components of physical fitness, while physical activity is known to encompass any standard daily activities and is any bodily movement produced that requires energy expenditure (Dasso, 2018).

The study's significant effect on the participants' MET Walk and MET Total suggests that their physical wellbeing has generally improved mainly on these two activities. Walking is essentially part of the everyday routine of almost every person, which is why with the help of the program, participants could engage more in walking activities. Walking can provide a renewed focus on wellbeing and help manage some problems a person is experiencing during the pandemic (Fedtke, 2021). It emphasizes the connection between the body and the brain because it is also hugely beneficial for the mind (Fedtke, 2021). The fifth module of the online wellbeing program mainly focused on walking, contrasting moderate and vigorous exercises. While these exercises were mentioned in other modules, they were not as thoroughly discussed in a dedicated module as walking. This might also be one of the reasons why the participants also provided a more significant result in their MET Walk.

The implemented online wellbeing program did not yield a significant effect on the participants' MET moderate and MET vigorous activities, similar to the study of Hebden et al (2014). Less specific types of exercises involved in the moderate and vigorous physical activities were in the online wellbeing program, which may be a reason why the participants were also not able to engage themselves in the activities. Adult physical activity guidelines for moderate-intensity aerobic physical activity include 150-300 minutes per week, and muscle-strengthening exercises should be done 2-3 times a week. A moderate-intensity exercise requires 3-5 METs, with examples including brisk walking, dancing, doubles tennis, and slow swimming. Vigorous intensity requires >6 METs, with examples such as jogging, running, carrying heavy groceries, participating in strenuous fitness classes, and fast swimming (Hebden et al., 2014). Moderate and vigorous exercise participation has decreased due to the COVID-19 pandemic (MacIntosh et al., 2021). The closing of sports clubs, fitness centers, and other activity-related facilities disrupted the fixed leisure time for sport and exercise.

Significant improvement in the participants' mental wellbeing after the six-week online educational wellbeing program was observed. This suggests that an online wellbeing program with various mental activities components may be beneficial in improving students' mental wellbeing (Wheaton, 2019). Participation in such interventions was associated with improved cognitive skills such as acceptance, defusion, valued living, and present moment awareness, potentially improving wellbeing, compassion, life satisfaction, distress, and academic performance (Viskovich & Pakenham, 2020).

One module covered the cultivation of social support and positive relationships, which is in line with a study by Eloff that stated the most prominent factor supporting the wellbeing of undergraduate students proved to be their interpersonal relationships with their family, friends, and lecturers (Eloff & Dittrich, 2021). Another module focused on helping participants identify resources and using strength in goal pursuit with Positive Psychological Intervention (PPI). It promotes psychological flourishing since positive feelings help broaden people's thinking and attention, allowing them to build relationships, health, and work resources (Auyeung & Mo, 2019). An increase in resources would then facilitate gains in positive wellbeing. A positive outlook on oneself aids in formulating steps toward goal achievement and self-actualization. With this, people are encouraged to nurture their strengths and focus on things within their control instead of channeling their efforts into dwelling on the unreachable. Mental wellbeing interventions also benefit these students since the general population had psychosocial stressors due to the COVID-19 pandemic, which the public needed to improve their mental wellbeing and maintain their social relationships (Stambulova et al., 2021).

Like in previous studies, having weekly reminders and schedules helps the participant's compliance and participation in which they can do the activities at their convenience (Sullivan & Lachman, 2017). Also, no similar studies used the same approach of online delivery of different interventions on physical and mental wellbeing for six weeks. This study provides different methods each week, unlike other studies focusing on a single mental wellbeing intervention, which maintains the study's novelty. This also catered to UST-CRS students after the COVID-19 pandemic and during the hybrid mode of educational delivery, which is specific to the population and situation. However, there is still no existing evidence of the effectiveness of an online wellbeing program, whether synchronously or asynchronously. Only web-based programs, either facilitated or self-directed, showed significant differences in outcomes (Morgan & Simmons, 2021).

The following statements present the study's limitations that may affect its internal and external validity. Regarding design, as the study does not have a control group, the counterfactual scenario needed to justify the causality of dependent and independent variables was not present. Also, this study is purely quantitative with a pretest-posttest design, which means that the formation of habits was not guaranteed. In terms of participants, the small sample size has resulted in a 78.5% power of the study. Despite using a purposive sampling method through social media platforms in the recruitment process, the participants are still not diverse since most are 4th-year students or interns, and only a few are from the lower year levels. Different schedule and work demands is another limitation since this resulted in a decrease in the participant's compliance with the study. In terms of intervention, the chosen platform may not be ubiquitous to all types of devices, which may limit or challenge the access of some participants. In terms of assessment, the posttests are the exclusive basis for the effectiveness, which may influence the results obtained through external factors other than the intervention.

Also, the study showed positive results, but external factors (such as schedule, instructions, and personal problems) were not considered in this study. These are important covariates that may have affected the results of the study.

Future studies should involve participants under the same target population or other health-related courses by using other sampling methods to obtain more distinct and extensive results. There may also be an assigned control or waitlist group which will follow the same timeline as the intervention group but will differ in implementation date. Regarding recruiting potential participants, they may be asked if they had prior experience in physical and mental wellbeing programs. Subsequent follow-ups may be conducted with the participants to ensure the effectiveness of the study in the long term. This provides qualitative responses for future studies to thoroughly analyze their program involvement since the researchers could not gather extensive data about the participants' wellbeing.

Despite the positive results of the study, caution must always be exercised since the interventions discussed can influence the participants' wellbeing, which may or may not affect factors outside the scope of the study. Ensure also that the implementation of the modules does not conflict with the participants' schedules to increase their compliance and motivation. Apart from proper scheduling, future studies should consider the physical and social environment, lifestyle, and other characteristics of the participants for a more personalized intervention. Future studies that will stratify the results are also recommended to acknowledge the outcome of this study. Further investigation and analysis of the results in terms of each participant's characteristics, attitude, and behaviors can be done to extract more information and cater specifically to the needs of each participant. Exploring other research designs, like qualitative design, to analyze different outcomes to gather extensive results that could improve the program may also be considered. In particular to the physical wellbeing modules, the specificity of the outcome measure tools utilized in the study should also be considered to properly analyze the participants' improvement regarding their walking, moderate, and vigorous activities.

Conflict of Interest

The authors declare no competing interests.

References

Auyeung, L., & Mo, P. K. H. (2019). The efficacy and mechanism of online positive psychological intervention (PPI) on improving well-being among Chinese university students: A pilot study of the best possible self (BPS) intervention. *Journal of Happiness Studies, 20*(8), 2525-2550. https://doi.org/10.1007/s10902-018-0054-4

Baticulon, R. E., Sy, J. J., Alberto, N. R. I., Baron, M. B. C., Mabulay, R. E. C., Rizada, L. G. T., Tiu, C. J. S., Clarion, C. A., & Reyes, J. C. B. (2021). Barriers to online learning in the time of COVID-19: A national survey of medical students in the Philippines. *Medical science educator, 31*(2), 615-626. https://doi.org/10.1007/s40670-021-01231-z

Craig, C. L., Marshall, A. L., Sjöström, M., Bauman, A., Booth, M., Ainsworth, B. E., Pratt, M., Ekelund, U., Yngve, A., Sallis, J. F., & Oja, P. (2003). International Physical Activity Questionnaire: 12-Country Reliability and Validity. Medicine and Science in Sports and Exercise, 35(8), 1381–1395. https://doi.org/10.1249/01.mss.0000078924.61453.fb

Dadfar, M., Momeni Safarabad, N., Asgharnejad Farid, A. A., Nemati Shirzy, M., & Ghazie pour Abarghouie, F. (2018). Reliability, validity, and factorial structure of the World Health Organization-5 Well-Being Index (WHO-5) in Iranian psychiatric outpatients. *Trends in psychiatry and psychotherapy, 40*(2), 79-84. https://doi.org/10.1590/2237-6089-2017-0044

Dasso, N. A. (2018). How is exercise different from physical activity? A concept analysis. *Nursing forum, 54*(1), 45-52. https://doi.org/10.1111/nuf.12296

Eloff, I., & Dittrich, A. K. (2021). Understanding general pedagogical knowledge influences on sustainable teacher well-being: A qualitative exploratory study. Journal of *Psychology in Africa, 31*(5), 464-469. https://doi.org/10.1080/14330237.2021.1978166

Escuadra, C.J.T, Nava, J.B.P., Maya, A.C.C., Aningalan, N.Z.M., Borhillo, B.J.E., Duya, L.E.R., Francisco, M.C.S., III., Jarobel, K.A.G., Lim, D.S.A., Ramos, J.M.B., Villocillo, J.V.B., & Wycoco, J.E.R. (2023). Evaluation of an Online Physical and Mental Wellbeing Program for UST-CRS Students: A Feasibility Study Protocol. *Philippine Journal of Allied Health Sciences, 6*(2). https://doi.org/10.36413/pjahs.0602.008

Espino, R. V., Gonzalez-Suarez, C., Pineda, K. L., Balid-Attwell, S. A., Devora, K., & Mendoza, D. (2020). Physical Activity Patterns of College Students of the University of Santo Tomas. *Philippine Journal of Allied Health Sciences, 3*(2). https://doi.org/10.36413/pjahs.0302.006

Fedtke, J. (2021). Pandemic promenadology: walking for wellbeing in academic life. *Journal of Learning Development In Higher Education*, 22. https://doi.org/10.47408/jldhe.vi22.683

Hall, S. B. (2012). *Using the Counseling Center Assessment of Psychological Symptoms-34 (CCAPS-34) to Predict Premature Termination in a College Counseling Sample.* [PhD Dissertation, Old Dominion University]. https://doi.org/10.25777/cy04-qq03

Hebden, L., Cook, A., Van Der Ploeg, H. P., King, L., Bauman, A., & Allman-Farinelli, M. (2014). A mobile health intervention for weight management among young adults: a pilot randomised controlled trial. *Journal of Human Nutrition*

and Dietetics, 27(4), 322-332. https://doi.org/10.1111/jhn.12155

Gewalt, S. C., Berger, S., Krisam, R., & Breuer, M. (2022). Effects of the COVID-19 pandemic on university students' physical health, mental health and learning, a cross-sectional study including 917 students from eight universities in Germany. *PLOS ONE, 17*(8), e0273928. https://doi.org/10.1371/journal.pone.0273928

Kerby, D. S. (2014). The simple difference formula: An approach to teaching nonparametric correlation. *Comprehensive Psychology, 3*, 11-IT. https://doi.org/10.2466/11.IT.3.1

Lattie, E. G., Duffecy, J. L., Mohr, D. C., & Kashima, K. (2017). Development and evaluation of an online mental health program for medical students. *Academic Psychiatry, 41*, 642-645. https://doi.org/10.1007/s40596-017-0726-0

Levin, M. E., Krafft, J., Hicks, E. T., Pierce, B., & Twohig, M. P. (2020). A randomized dismantling trial of the open and engaged components of acceptance and commitment therapy in an online intervention for distressed college students. *Behaviour Research and Therapy, 126*, 103557. https://doi.org/10.1016/j.brat.2020.103557

MacIntosh, B. R., Murias, J. M., Keir, D. A., & Weir, J. M. (2021). What is moderate to vigorous exercise intensity? *Frontiers in physiology, 12*. https://doi.org/10.3389/fphys.2021.682233

Morgan, B., & Simmons, L. (2021). A 'PERMA'response to the pandemic: an online positive education programme to promote wellbeing in university students. *Frontiers in Education, 6*. https://doi.org/10.3389/feduc.2021.642632

Morris, A., Do, D., Gottlieb-Smith, R., Ng, J., Jain, A., Wright, S. M., & Shochet, R. B. (2012). Impact of a fitness intervention on medical students. *Southern Medical Journal, 105*(12), 630–634. https://doi.org/10.1097/SMJ.0b013e318273a766

Pearson, N., Naylor, P. J., Ashe, M. C., Fernandez, M., Yoong, S. L., & Wolfenden, L. (2020). Guidance for conducting feasibility and pilot studies for implementation trials. *Pilot and Feasibility Studies, 6*(1). https://doi.org/10.1186/s40814-020-00634-w

Portney, L. G., & Watkins, M. P. (2009). *Foundations of clinical research: Applications to Practice.* Prentice Hall.

Puen, D. A. Y., Cobar, A. G. C., Dimarucot, H. C., & Camarador, R. A. (2021). Perceived Barriers to Physical Activity of College Students in Manila, Philippines during the COVID-19 Community Quarantine: An Online Survey. *Sport Mont Journal, 19*(2). https://doi.org/10.26773/smj.210617

Ruijgrok-Lupton, P. E., Crane, R. S., & Dorjee, D. (2018). Impact of mindfulness-based teacher training on MBSR participant well-being outcomes and course satisfaction. *Mindfulness, 9*, 117-128. https://doi.org/10.1007/s12671-017-0750-x

Savage, M. J., James, R., Magistro, D., Donaldson, J., Healy, L. C., Nevill, M., & Hennis, P. J. (2020). Mental health and movement behaviour during the COVID-19 pandemic in UK university students: Prospective cohort study. *Mental Health and Physical Activity, 19*, 100357. https://doi.org/10.1016/j.mhpa.2020.100357

Sember, V., Meh, K., Sorić, M., Starc, G., Rocha, P., & Jurak, G. (2020). Validity and reliability of international physical activity questionnaires for adults across EU countries: Systematic Review and Meta Analysis. *International Journal of Environmental Research and Public Health, 17*(19), 7161. https://doi.org/10.3390/ijerph17197161

Stambulova, N. B., Ryba, T. V., & Henriksen, K. (2021). Career development and transitions of athletes: The international society of sport psychology position stand revisited. *International Journal of Sport and Exercise Psychology, 19*(4), 524-550. https://doi.org/10.1080/1612197X.2020.1737836

Sullivan, A. N., & Lachman, M. E. (2017). Behavior Change with Fitness Technology in Sedentary Adults: A Review of the Evidence for Increasing Physical Activity. *Frontiers in Public Health, 4*, 289. https://doi.org/10.3389/fpubh.2016.00289

Tee, M. L., Tee, C. A., Anlacan, J. P., Aligam, K. J. G., Reyes, P. W. C., Kuruchittham, V., & Ho, R. C. (2020). Psychological impact of COVID-19 pandemic in the Philippines. *Journal of Affective Disorders, 277*, 379-391. https://doi.org/10.1016/j.jad.2020.08.043

Thomas, E. C., Snethen, G., O'Shea, A., Suarez, J., Hurford, I., & Salzer, M. S. (2020). An Examination of the Community Participation Interests of Young Adults with Serious Mental Illnesses. *Journal of Behavioral Health Services & Research, 47*, 526-543. https://doi.org/10.1007/s11414-019-09678-0

Vaughan, P. (2010). Website Grader Analyzes Over 2 Million Sites. *HubSpot.* https://www.hubspot.com/blog/bid/5539/Website-Grader-Analyzes-Over-2-Million-Sites

Viskovich, S., & Pakenham, K. I. (2020). Randomized controlled trial of a web-based Acceptance and Commitment Therapy (ACT) program to promote mental health in university students. *Journal of Clinical Psychology, 76*(6), 929-951. https://doi.org/10.1002/jclp.22848

Violant-Holz, V., Gallego-Jiménez, M. G., González-González, C. S., Muñoz-Violant, S., Rodríguez, M. J., Sansano-Nadal, O., & Guerra-Balic, M. (2020). Psychological Health and Physical Activity Levels During the COVID-19 Pandemic: A Systematic Review. *International Journal of Environmental*

Research and Public Health, *17*(24), 9419. https://doi.org/10.3390/ijerph17249419

Wheaton, B. (2019). Staying 'stoked': Surfing, ageing and post-youth identities. *International Review for the Sociology of Sport*, *54*(4), 387-409. https://doi.org/10.1177/1012690217722522

White, I. R., Horton, N. J., Carpenter, J., & Pocock, S. J. (2011). Strategy for intention to treat analysis in randomised trials with missing outcome data. *The BMJ*, *342*, d40. https://doi.org/10.1136/bmj.d40

Worobetz, A., Retief, P. J., Loughran, S. T., Walsh, J. C., Casey, M., Hayes, P., Bengoechea, E. G., O'Regan, A., Woods, C., Kelly, D., Connor, R. O., Grath, D. M., & Glynn, L. (2020). A feasibility study of an exercise intervention to educate and promote health and well-being among medical students: the 'MED-WELL' programme. BMC Medical Education, 20(1). https://doi.org/10.1186/s12909-020-02097-2

Yang, Y.J. (2019). An overview of current physical activity recommendations in primary care. *Korean Journal of Family Medicine*, *40*(3), 135-142. https://doi.org/10.4082/kjfm.19.0038