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# Contributions of service learning to the development of university students' spiritual well-being and psychological health: a quasi-experimental study

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## ABSTRACT

In this study, the impacts of service learning (SL) on the spiritual well-being and psychological health of Chinese university students in Hong Kong are determined. The SL programme is a six-month, credit-bearing programme (not less than 80 working hours). The study adopted a pre-test–post-test quasi-experimental design, wherein students enrolled in SL comprised the experimental group ( $n = 132$ ; 59 male, 73 female), and those who were not enrolled in SL comprised the control group ( $n = 128$ ; 55 male, 73 female). The students completed the spiritual well-being questionnaire (SWBQ) to evaluate the status of their spiritual well-being (including the personal and communal, environmental, and transcendental domains), and the Depression, Anxiety and Stress Scale-21 (DASS-21) was used to assess their emotional states of depression, anxiety and stress before and after the SL programme. At pre-test, no significant differences were observed between the two groups in SWBQ and DASS-21 scores. Findings indicated that students in the experimental group had greater increases in spiritual well-being in personal and communal, environmental and transcendental domains and decreases in stress, anxiety and depression than those in the control group at the end of the SL programme.

## KEYWORDS

Service learning; spiritual well-being; psychological health; DASS-21; Chinese youths

Most schools, especially higher education institutions, have recently emphasised the holistic education and all-around development of students. Although intellectual and technical training is essential in college education, mental, emotional and spiritual training is important for students as well. Service learning (SL) is popularly integrated in the higher education curriculum owing to its ability to bring constructive change to society (Shek, Ma, and Yang 2020). Specifically, SL promotes the balanced development of the youth and provides them with holistic education (Pong 2021). SL programmes widen students' horizons, expand their worldview and instil beliefs and value systems for a fulfilling life experience (Astin and Sax 1998).

However, the COVID-19 pandemic has affected the youth to varying degrees. Across the world, students suffered from increased psychological stress and decreased well-being due to the spread of COVID-19; school closures, social distancing and adjustment to new

learning models were their main challenges during the pandemic (Alqahtani and Rajkhan 2020).

College students normally undergo tremendous physical, mental, spiritual and emotional difficulties during this phase in their lives. However, during the pandemic, cases of teen suicides and psychological disorders such as stress, anxiety and depression continue to rise (Manzar et al. 2021).

Past empirical research has found that extracurricular activities such as sports, music and volunteering contribute to the psychological and spiritual well-being of the youth (Pong 2018). However, the circumstances and conditions today have changed significantly from the past. Moreover, research on spiritual and psychological well-being in the context of the COVID-19 pandemic has been scarce.

SL, spiritual well-being and psychological health in higher education have been independently and separately explored in the past decade. However, research on the impact of SL as an intervention on the development of university students, especially for the purpose of their spiritual well-being and psychological health, is rare in the Asia-Pacific region (Leung, Shek, and Dou 2021). Thus, this study attempted to answer two research questions in a sample of university students in Hong Kong:

Research Question 1: Would Chinese university students' spiritual well-being (including: personal, communal, environmental and transcendental domains) increase as a result of the intervention programme (SL) during the pandemic compared with students who did not join the SL programme?

Research Question 2: Would Chinese university students show changes in their psychological disorders, including symptoms of psychological disorders (i.e. depression, anxiety and stress) as a result of the intervention programme (SL) during the pandemic compared with students who did not join the SL programme?

## Service learning

Service learning (SL) is a form experiential learning that integrates service and learning in a practical approach (Jacoby 1996). By promoting students' intellectual development and skill acquisition, SL ultimately improves their abilities and academic performance (Welch and Koth 2013; Thakur, Cao, and Warren 2014).

In the higher education context, SL is associated with curriculum design, assessment and pedagogy (Kahne, Westheimer, and Rogers 2000). Additionally, SL is increasingly linked to the spiritual development of students (Welch and Koth 2013). Studies have shown that SL builds students' self-esteem and recognition of cultural diversity, and strengthens their citizenship (Bringle and Hatcher 2002). In SL programmes, meaningful community engagement is combined with mentoring and reflection. This two-pronged approach deepens students' learning experience to empower them to identify and reach their personal goals by exploring their moral and ethical stance towards themselves and their community and to relate to larger social issues (Astin, Lindholm, and Lindholm 2011; Bringle and Hatcher 2002).

However, students face challenges in SL. Firstly, SL entails a significant amount of time and effort (Thakur, Cao, and Warren 2014). For example, SL encourages students to solve complex social problems without remedies and answers (Kiely 2005). Secondly, SL

exposes students to the intense conflict between social ideals and theoretical expectations and harsh social realities (Kiely 2005).

The success and effectiveness of SL depends heavily on adequate support and appropriate guidance from the school (Hatcher, Bringle, and Muthiah 2004; Kiely 2005). For example, school administrators and faculty can effectively address these challenges and incorporate a new way of thinking into students' lives, which can be supported through reflection and classroom discussions (Hatcher, Bringle, and Muthiah 2004).

### ***Spirituality, spiritual health, and spiritual well-being***

Spirituality refers to the intrinsic and fundamental characteristics of human beings (Tanyi 2002). It is a broad concept that involves dreams, thoughts, meanings, principles, visions and beliefs (Palmer 2003). Most scholars claimed that spirituality equates to religion (Tacey 2004), but Tanyi (2002) and Palmer (2003) argued that spirituality is not necessarily related to religious themes. The relationship between spirituality and religion has been a subject of debate for decades (Ammerman 2013), but no consensus has been reached yet. Notably, Tisdell (2003) pointed out that spirituality and religion can be closely related without being the same.

Spiritual health is the condition that guides people to find meaning and purpose in life and to enjoy love, pleasure, harmony and nature (Ellison 1983). It symbolises the fusion of body, mind and spirit in an internal harmonious environment on the basis of the relationship with others, nature and transcendence (Fisher 2021). Thus, a spiritually healthy person experiences a sense of unity and synchronisation of mind and body (Hawks 2004).

Spiritual well-being is the intrinsic state of spirituality and spiritual health (Ellison 1983). Thus, spiritual well-being is always used as a key indicator of spiritual health (Ellison 1983; Gomez and Fisher 2003), similar to how heart rate and body temperature indicate bodily fitness.

Spiritual well-being is not only closely associated with the current quality of life (Gomez and Fisher 2003); it is also closely linked with an individual's current emotional, thought and behavioural relationships with themselves (Leung & Pong 2021), others, nature and transcendence (Fehring, Brennan, and Keller 1987). People with healthy spiritual well-being always exude calmness, joy and fulfilment.

Fisher developed the Spiritual Health and Life-Orientation Measure (SHALOM) in 1998. SHALOM consists of 20 items that cover four domains, namely, personal, communal, environmental and transcendental. Each domain has 5 items. The question items of SHALOM refer to the harmonious environments in which a person lives and the person's good relationships with oneself (personal), others (communal), nature (environmental) and the divine (transcendental). Participants were instructed to provide two responses for each item according to their personal experiences and ideal values. The lived experience questions were identified as the Spiritual Well-being Questionnaire (SWBQ). Researchers have broadly employed the SWBQ to assess the spiritual health of teachers and students in Australia and the UK (Fisher 1999; Fisher, Francis, and Johnson 2002) and Hong Kong (Fisher and Wong 2013). The SWBQ has been confirmed based on the well-established measures of personality and psychological health (Gomez and Fisher 2003).

The 20-item form of SWBQ is now widely accepted and translated into more than 30 different languages, including Chinese (Fisher and Wong 2013), Hebrew (Elhai et al. 2018), Persian (Abhari et al. 2018), Brazilian (Nunes et al. 2018) and Portuguese (Valdivia, Alves, and Rocha 2020). It has always achieved high consistent reliability in many studies (Abhari et al. 2018; Fisher 2021; Nunes et al. 2018).

Instead of the four-factor structure of SWBQ, the three-factor structure (i.e. personal and communal, environmental and transcendental domains) was used in this study because Confucian values are deeply rooted in the Chinese population (Pong, Leung, and Lung 2020). Chinese tradition places emphasis on family unity and harmonious relationships with others (Chuang et al. 2018). By contrast, Western cultures tend to value individualism more (Triandis 1995). Such differences in the structure of spirituality partially reveal cultural diversity (Fisher and Wong 2013).

Fisher and Wong (2013) modified the transcendental part of SWBQ to include God or deities, ancestors, higher power and the higher self. Significant differences in transcendent spiritual well-being were also found between religious and non-religious in Chinese (Pong, Leung, and Lung 2020) and Western samples (Valdivia, Alves, and Rocha 2020) using the SWBQ scale.

### ***Psychological health***

Although religion is believed to have the most significant contribution to mental well-being (Silberman 2005), meditation and mindfulness programmes contributed to the spiritual growth and inner peace of university students (Astin, Lindholm, and Lindholm 2011). Moreover, physical exercises (Papinczak et al. 2015) and music training (Demirbatir et al. 2013) provide benefits to college students' well-being and psychological health.

SL positively impacts students' psychological health, both personally and socially (Astin, Lindholm, and Lindholm 2011). The programme develops kindness and empathy (Brandenberger and Bowman 2013), increases respect for diversity (Astin, Lindholm, and Lindholm 2011), reduces substance abuse (Kuh and Gonyea 2006), improves risky health behaviours (Nelms et al. 2007) and ensures students' success in life (Walker and Dixon 2002). SL often conveys a superior perception of value, meaning and purpose in one's life by caring for and helping others (Welch and Koth 2013), and such perception cultivates individuals' mental health and psychological resilience.

According to studies, engaging in volunteer work improves access to social and psychological resources that are known to combat negative emotions such as depression and anxiety (Musick and Wilson 2003). For example, Mellor et al. (2009) found that volunteers had higher personal and neighbourhood well-being than non-volunteers, and that volunteering contributed additional variance in well-being even after psychosocial and personality factors were accounted for.

### ***Present study***

The current study aims to test whether a SL course at a university in Hong Kong would be beneficial in increasing students' spiritual well-being and improving psychological disorders (i.e. lower depression, anxiety and stress) during the COVID-19 pandemic. For

example, disadvantaged community members were provided with help and support. We used an experimental design to compare students who had enrolled in the SL course with students who had not enrolled. The measure of spiritual well-being (SWBQ) and the measure of Depression, Anxiety and Stress Scale-21 (DASS-21) were administered at pre-test and post-test.

## Method

### Participants

A total of 275 university students participated in the pre-test, and 260 of those university students also participated in the post-test. Of these 260 students who participated in both the pre-test and post-test, 132 students took the SL course. These students comprised the experimental group. The remaining 128 students who had never taken any courses related to SL comprised the control group.

Students who understood the importance of SL and want to experience the changes in their life through SL would join as participants in the experimental group. By contrast, students who did not join SL, but are interested in the study, such as SL, spirituality, well-being, depression, anxiety and stress, would join as participants in the control group.

### Measures

Given the bilingual cultural context of Hong Kong, a Chinese version and an English version of the questionnaire were distributed to students, and they could freely choose to complete either version. All participants completed the questionnaires in Chinese.

### Demographics

Participants provided demographic information about their gender, age, years of part-time working experience and monthly part-time job salary.

### Spiritual Well-being Questionnaire (SWBQ)

On the SWBQ (Fisher 1998; Fisher and Wong 2013), participants rated how much they agree with each of 20 statements on a five-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). The measure was employed to assess the four areas of spiritual well-being: personal (5 items, e.g. 'meaning in life'); communal (5 items, e.g. 'respect for others'); environmental (5 items, e.g. 'connection with nature'); and transcendental (5 items, e.g. 'prayer in life').

In the pre-test, the internal consistency values ( $\alpha$ ) were .99, .97 and .97 for the personal and communal, environmental and transcendental domains, respectively, and .90 for the full scale. In the post-test, the internal consistency values ( $\alpha$ ) were .99, .97 and .97 for the personal and communal, environmental and transcendental domains, respectively, and .96 for the full scale.

Principal component analysis showed that the four-domain version was appropriate for use in our sample at pre-test (Kaiser–Meyer–Olkin value = .86; Bartlett's test of sphericity significant at  $p < .001$ ) and post-test (Kaiser–Meyer–Olkin value = .92; Bartlett's test of sphericity significant at  $p < .001$ ). Exploratory factor analysis identified

three factors (each with an eigenvalue > 1.0) corresponding to the personal and communal, environmental and transcendental domains, which explained 46.63%, 22.17% and 21.99% of the variance, respectively at the pre-test. For the post-test, they were 59.26%, 22.22% and 9.78% of the variance in the personal and communal, environmental and transcendental domains, respectively. Table 1 shows the factor loadings for the three-factor model of the pre-test and post-test.

### *Depression, Anxiety and Stress Scale 21 (DASS 21)*

The study used the Chinese version (Lu et al. 2018) of DASS-21 (Norton 2007; Lovibond and Lovibond 1995) to measure the psychological health of participants over the last week. The scale consists of 21 statements that are rated on a four-point scale ranging from 0 ('did not apply to me at all') to 3 ('applied to me very much or most of the time'). DASS 21 consists of three subscales: depression (seven items, e.g. 'I was unable to become enthusiastic about anything'), anxiety (seven items, e.g. 'I felt scared without any good reason') and stress (seven items, e.g. 'I felt that I was using a lot of nervous energy').

**Table 1.** Results of exploratory factor analysis of items on the Spiritual Well-Being Questionnaire (SWBQ) (N = 260).

	Personal and communal	Environmental	Transcendental	Personal and communal	Environmental	Transcendental
1. A love of other people	<b>.941</b>	-.018	.029	<b>.928</b>	.118	.195
2. Personal relationship with the Divine/God	-.015	.010	<b>.978</b>	.222	.305	<b>.878</b>
3. Forgiveness towards others	<b>.951</b>	-.045	-.024	<b>.927</b>	.139	.207
4. Connection with nature	-.133	<b>.934</b>	-.002	.083	<b>.910</b>	.256
5. A sense of identity	<b>.941</b>	-.053	.019	<b>.927</b>	.140	.190
6. Worship of the Creator	-.017	.030	<b>.975</b>	.291	.307	<b>.851</b>
7. Awe at a breathtaking view	-.040	<b>.963</b>	-.004	.162	<b>.911</b>	.219
8. Trust between individuals	<b>.955</b>	-.097	.064	<b>.924</b>	.080	.202
9. Self-awareness	<b>.933</b>	-.111	.065	<b>.926</b>	.053	.219
10. Oneness with nature	-.115	<b>.960</b>	-.011	.090	<b>.916</b>	.211
11. Oneness with God	.060	.076	<b>.937</b>	.269	.307	<b>.858</b>
12. Harmony with the environment	-.004	<b>.976</b>	-.004	.150	<b>.930</b>	.227
13. Peace with God	.088	-.157	<b>.857</b>	.290	.140	<b>.878</b>
14. Joy in life	<b>.929</b>	-.087	.053	<b>.915</b>	.098	.236
15. Prayer in life	.019	.004	<b>.962</b>	.253	.274	<b>.886</b>
16. Inner peace	<b>.971</b>	-.054	.017	<b>.951</b>	.103	.180
17. Respect for others	<b>.976</b>	-.037	-.009	<b>.946</b>	.144	.186
18. Meaning in life	<b>.964</b>	-.029	.000	<b>.940</b>	.131	.196
19. Kindness towards other people	<b>.963</b>	-.068	.022	<b>.930</b>	.111	.221
20. A sense of 'magic' in the environment	-.066	<b>.910</b>	-.015	.106	<b>.902</b>	.212

Participants were asked to complete the Spiritual Well-Being Questionnaire (SWBQ), which consists of 20 items that are divided equally into four subscales measuring the spiritual status in personal and communal, environmental, and transcendental domains.



Probable marks for the three components vary from 0 to 21, with higher marks indicating higher degrees of distress. To provide clinically substantial indication about the psychological state of the youths in our sample, we transformed the DASS-21 marks to their equivalent on the 42 items of DASS by multiplying each item mark by two. The new marks could then be categorised utilising five severity brands: normal, mild, moderate, severe and extremely severe (Lovibond and Lovibond 1995).

In previous studies (e.g. Norton 2007; Lovibond and Lovibond 1995), this scale has been shown to have high reliability, strong convergent and discriminant validity.

### **Procedure**

The ethical approval from the research ethics committee of the institution for the study was obtained. Before the commencement of data collection, the purpose of the research was explained to participants, who gave written consent to participate in the study.

Participation is voluntary, and students can withdraw at any time without penalty or damage. No compensation is offered. The top of the questionnaire states that all information would be used for statistical purposes only, and responses would be kept strictly confidential. Student consent was sought before the commencement of the questionnaires. Participants were given enough time to complete the questionnaire, and each participant took approximately 15 minutes to finish.

Participants provided their responses anonymously. However, they were asked to indicate the last three digits of their student ID and the same code number (the birth date of their mother or that of close family members that they would remember, or their lucky number) on each of their responses so that responses from the same individual collected at the beginning and end of the SL could be matched. Instructions were provided at the beginning of each section of the questionnaire.

The SL course was promoted with the support of the faculty and administrators of the university's business school. The study employed convenience and snowballing sampling, and the data collection ran for 20 weeks. The pre-test questionnaires were self-administered from April 2021 to May 2021 before the commencement of SL activities. Students (including experimental group and control group) were invited to complete an online self-report questionnaire (i.e. pre-test).

Students who previously took SL courses may be exempted. Therefore, students who participated in SL at the time were classified as the experimental group, and students who volunteered but did not participate in SL were classified as the comparison group. Finally, 275 out of 377 invited students finished the questionnaires, resulting in a 73% response rate.

The post-test was conducted as a follow-up and second measurement (after the intervention programme) of the 275 participants. It was conducted from September 1 to 17, 2021. The two questionnaires were again self-administered. They were distributed to the same 275 participants in the same classes. Finally, 260 participants' data were successfully matched between the pre-test and post-test. The attrition rate of 5.45% compares satisfactorily with those of other longitudinal studies (e.g. Pong 2021). No significant differences in gender, age, spiritual well-being and DASS marks were found between the matched sample ( $n = 260$ ) and students who dropped out of the research ( $n = 15$ ).

### ***Intervention: Service Learning (SL)***

In the implementation of the SL programme during the COVID-19 pandemic, instruction to participants and services to the community were conducted in mixed mode. SL activities could be direct (face-to-face) or indirect (online platform). During the pandemic, indirect service, where students could serve without physical contact, became the viable choice.

Blended learning was used due to social distancing arrangements. Lectures for SL combined high-tech and digital media (such as online and in real-time via the Zoom video conferencing tool) with traditional teacher-led classroom activities.

The SL programme is a General Education credit-bearing elective, and it is offered for Year 2 and Year 3 students at the university. The SL programme ran for six months, and it was divided into three stages: (1) Pre-service: March–June, (2) Community Service: June–August (80–100 hours) and (3) Post-service: September. The first phase is preparation and workshops (4 sessions: 2 hours 45 minutes each) before the SL activities started.

Recipients of the SL programme include vulnerable groups such as severely ill or recovered patients and their families, new immigrant families and poor families. Services include collecting recycled useful materials and resources to donate to the poor. Initially, the service period was planned to take place from June 2021 to August 2021. However, participants were asked to come to the centre in late May 2021 to familiarise themselves with the operation and recipients.

In addition to gaining familiarity with the local community and disadvantaged groups, SL students were able to utilise their learning and skills in the classroom to realise their potential through a variety of SL activities. Through such social exercises, the programme helped develop college students' spiritual and psychological health.

### ***Results***

SPSS Version 27 was employed for data analysis. Data cleaning was performed to correct any coding errors and illogical data values. No missing data were found.

### ***Descriptive statistics***

Table 2 presents the demographic characteristics of the experimental and control groups. We used a sample of 132 students in the experimental group ( $M$  age = 19.60,  $SD$  = 1.28; 59 male; 44.7%, 73 female: 55.3%) and 128 students in the control group ( $M$  age = 20.04,  $SD$  = 0.88; 55 male; 43.0%, 73 female: 57.0%). Approximately 56.2% of the sample were female ( $N$  = 146). No significant differences were found between the two groups in age, gender, years of study, part-time work experience and part-time wages ( $p > .05$ ). These findings indicated that the two groups of students generally had the similar backgrounds.

### ***Development of Chinese university students' SWBQ and DASS 21***

The first set of analyses were conducted to verify the influence of the 'Service Learning' intervention on students' SWBQ and DASS 21. At the pre-test, six independent  $t$ -tests revealed that no statistically significant differences were found on the scores of SWBQ and DASS 21 between the experimental and comparison groups before the intervention programme (SL).

**Table 2.** The demographic characteristics of the experimental and control groups.

Factors	N (Total) (%)	CSL (%)	Non-CSL (%)
<b>Gender</b>			
Male	132 (50.8%)	59 (44.7%)	55 (43%)
Female	128 (49.2%)	73 (55.3%)	73 (57%)
Total	260 (100%)	132 (100%)	128 (100%)
<b>Age</b>			
19	82 (31.5%)	57 (43.2%)	25 (19.5%)
20	114 (43.8%)	39 (29.5%)	75 (58.6%)
21	53 (20.4%)	31 (23.5%)	22 (17.2%)
22	8 (3.1%)	4 (3.0%)	4 (3.1%)
23	3 (1.2%)	1 (0.8%)	2 (1.6%)
Total	260 (100%)	132 (100%)	128 (100%)
<b>Years of studies</b>			
Year 2	167 (64.2%)	84 (63.6%)	83 (64.8%)
Year 3	93 (35.8%)	48 (36.4%)	45 (35.2%)
Total	260 (100%)	132 (100%)	128 (100%)
<b>Part-time working experience</b>			
Less than 1 year	65 (25%)	34 (25.8%)	31 (24.2%)
1 < Y < 2	65 (25%)	32 (24.2%)	33 (25.8%)
2 < Y < 3	65 (25%)	32 (24.2%)	33 (25.8%)
>3	65 (25%)	34 (25.8%)	31 (24.2%)
Total	260 (100%)	132 (100%)	128 (100%)
<b>Part-time job salaries (Monthly)</b>			
Less than \$3,000	87 (33.5%)	39 (29.6%)	48 (37.5%)
\$3,000 <\$ <\$6,000	151 (58.1%)	80 (60.6%)	71 (55.5%)
\$6,000 <\$ <\$9,000	22 (8.4%)	13 (9.8%)	9 (7%)
Total	260 (100%)	132 (100%)	128 (100%)

However, statistically significant differences were found in the scores of both SWBQ (including personal and communal, environmental and transcendental score) and DASS 21 (including stress, anxiety and depression score) between the two groups at post-tests. Table 3 shows these results.

Moreover, as shown in Table 4, the interaction effects of group and pre-test–post-test change were significant on both SWBQ (including personal and communal, environmental and transcendental score) and DASS 21 (including stress, anxiety and depression score) which indicated that students who took the course ‘Service Learning’ had greater improvement in personal and communal, environmental and transcendental domains of SWBQ as well as stress, anxiety and depression of DASS 21 during the course period, compared with those who had not never taken the SL programme.

A series of mixed between-within ANOVAs were performed to compare the two groups on the pre-test and post-test measures of students’ SWBQ and DASS 21 scores. In each analysis, the within-subject factor was set as Time (pre-test and post-test), the between-subject factor was set as Group (experimental and control); the dependent variables were the three domains of SWBQ and the three dimensions of DASS 21. As shown in Table 4, significant Time × Group interaction effects were found for all dimensions of SWBQ and DASS 21. This result indicates that the two groups held different feelings and experiences of these variables over time. However, no group differences were found in the pre-test; the experimental group had higher scores on all measures at post-test.

Moreover, Table 4 shows that Group and Time had main effects, and a significant interaction exists between Group and Time. The interaction effects on personal and communal,  $F(1, 258) = 355.87, p < .001$ ; Environmental,  $F(1, 258) = 331.98, p < .001$ ;

**Table 3.** Descriptive statistics: Participants' demographics and their Spiritual Well-Being Questionnaire (SWBQ) and with the Depression, Anxiety and Stress Scale-21 (DASS-21).

Factors	N (%)	Pre-test			Post-test		
		Personal and Communal	Environmental	Transcendental	Personal and Communal	Environmental	Transcendental
		Mean (S.D.)	Mean (S.D.)	Mean (S.D.)	Mean (S.D.)	Mean (S.D.)	Mean (S.D.)
All		3.18 0.66	2.21 0.63	2.98 0.4	3.7 0.79	2.75 0.75	3.5 0.55
Groups							
1.Experiment Group	132 (50.8%)	3.16 0.68	2.24 0.65	2.98 0.38	4.05 0.73	3.14 0.61	3.88 0.28
2.Control Group	128 (49.2%)	3.20 0.64	2.18 0.60	2.98 0.41	3.35 0.69	2.35 0.66	3.12 0.50
		$t = -.499$	$t = .863$	$t = .010$	$t = 7.919^{***}$	$t = 10.032^{***}$	$t = 15.182^{***}$
Factors	N (%)	Pre-test			Post-test		
		Stress Mean (S.D.)	Anxiety Mean (S.D.)	Depression Mean (S.D.)	Stress Mean (S.D.)	Anxiety Mean (S.D.)	Depression Mean (S.D.)
		Mean (S.D.)	Mean (S.D.)	Mean (S.D.)	Mean (S.D.)	Mean (S.D.)	Mean (S.D.)
All		13.38 3.69	6.68 1.75	9.19 2.51	12.68 3.76	6.12 1.78	8.55 2.55
Groups							
1.Experiment Group	132 (50.8%)	13.45 3.77	6.83 1.93	9.29 2.63	12.15 3.81	5.79 1.92	8.08 2.62
2.Control Group	128 (49.2%)	13.30 3.63	6.53 1.54	9.09 2.39	13.22 3.65	6.47 1.56	9.03 2.38
		$t = .343$	$t = 1.393$	$t = .622$	$t = -2.306^{**}$	$t = -3.137^{**}$	$t = -3.075^{**}$

$N = 260$ .

$**p < 0.01$ ,  $***p < 0.001$

and Transcendental,  $F(1,258) = 370.92$ ,  $p < .001$  of SWBQ and stress,  $F(1,258) = 180.85$ ,  $p < .001$ ; anxiety,  $F(1,258) = 110.03$ ,  $p < .001$ ; and depression,  $F(1,258) = 156.53$ ,  $p < .001$ , of DASS 21 remained significant when age and gender were controlled for in the analyses. Post-hoc comparisons showed that the experimental group had higher scores for personal and communal, environmental and transcendental domains of SWBQ as well as stress, anxiety and depression of DASS 21 at post-tests but not pre-tests.

These effects, as shown in Table 4, are qualified by a significant Time  $\times$  Group interaction for SWBQ (including personal and communal, environmental and transcendental domains) as well as DASS 21 (including stress, anxiety and depression). These interaction effects indicated that participants' changes in the mean scores over the time between the two repeated measurements, on all subscales of both SWBQ and DASS 21, varied as a function of whether or not they were in the treatment group (i.e. whether or not they were in SL).

## Discussion

In this study, we examined whether Chinese youths' spiritual well-being and psychological health would be altered by nurturing through SL. The findings of the study showed that SL conducted promoted Chinese youths' spiritual well-being and psychological

**Table 4.** The main effect of time, and interaction effects between time and group, in the participants’ SWBQ and DASS-21 scores from the results of the repeated measures analysis of variance for SWBQ and DASS-21.

Variables	Group	M (S.D.)		The main effect of Time		Time X Group Interaction (effect)		Partial $\eta^2$
		Pre-test	Post-test	Wilk’s Lambda	F	Wilk’s Lambda	F	
SWBQ- Personal and Communal	Experiment	3.16 (0.68)	4.05 (0.73)	.272	689.336***	.420	355.869***	.580
	Control	3.20 (0.64)	3.55 (0.69)					
SWBQ – Environmental	Experiment	2.24 (0.65)	3.14 (0.61)	.262	725.609***	.437	331.977***	.563
	Control	2.18 (0.60)	2.35 (0.66)					
SWBQ – Transcendental	Experiment	2.98 (0.38)	3.88 (0.28)	.273	685.447***	.410	370.924***	.590
	Control	2.98 (0.41)	3.12 (0.50)					
DASS – 21 (Stress)	Experiment	13.45 (3.77)	12.15 (3.81)	.529	229.930***	.588	180.849***	.412
	Control	13.30 (3.63)	13.22 (3.65)					
DASS – 21 (Anxiety)	Experiment	6.83 (1.93)	5.79 (1.92)	.649	139.793***	.701	110.029***	.299
	Control	6.53 (1.54)	6.47 (1.56)					
DASS – 21 (Depression)	Experiment	9.29 (2.63)	8.08 (2.62)	.573	192.420***	.622	156.530***	.378
	Control	9.09 (2.39)	9.03 (2.38)					

health. Lin and Shek (2021) found that participation in SL may be a protective factor that counteracts the adverse effects of disease outbreaks on young people’s well-being.

Despite the limited face-to-face interactions with teachers and service recipients because of social distancing measures during the pandemic, students were able to meet with teachers and provide indirect services to the community through online platforms. This mixed approach is flexible and suitable during the pandemic. The results of the current study are consistent with the studies carried out in Hong Kong by Leung, Shek, and Dou (2021) and Lin and Shek (2021). They found that students who participated in SL subjects, with or without face-to-face interaction, showed similar positive changes in subjective and psychological well-being and life satisfaction.

Numerous studies have shown the impact of SL on the mental health of university students: (1) therapeutic function or self-healing ability (Litchke et al. 2020), (2) resilience or rehabilitation ability (Litchke et al. 2019) and (3) preventive ability (Macklem 2014).

### **Personal and communal**

The results of this study are similar with the study of Shek, Ma, and Yang (2020) who found that there was a great impact of SL participation to participants and the positive changes at intrapersonal, interpersonal and societal levels of students. Besides, Leung, Shek, and Dou (2021) and Lin and Shek (2021) showed that participants had a heightened sense of belonging to the community and were integrated into local culture

and customs even during the pandemic. Shaw and Halley (2021) found that SL activities and coursework continued to provide reciprocally favourable opportunities to students and community partners even during challenging circumstances. Participants felt their own growth and maturity, and they felt they were not merely volunteers, but like-minded supporters (Shaw and Halley 2021).

SL projects could develop students' moral and moral reasoning skills, as well as improve their tolerance for others, communication skills, a sense of community belonging and their social responsibility (Tian and Noel 2020). Chiu (2015) showed that students experienced the meaning and goal of life and the importance of kindness.

### ***Environmental***

Moreover, our results are in agreement with Shek and Lin (2015) who found that community SL meets social needs through the continuous provision of high-quality personal services, not only including individuals, others, groups, communities, but also systems and environments.

SL enhances civic responsibilities and improves students' awareness of surroundings, including the natural environment (Dentith and Harper 2010). The findings of this research are consistent with the findings of Chiu (2015) who suggested that students experienced the connection between the individual and the universe through SL. For example, Tedesco and Salazar (2006) used environmental factors, such as, water quality issues and environmental management activities in SL to promote behavioural change and increase environmental awareness. Parece and Aspaas (2007) also noted that environmental sustainability was cultivated in students.

### ***Transcendental***

Our findings are consistent with those of Sikula and Sikula (2005) who found that SL in higher education is closely related to spirituality, because it gives students the opportunity to find their calling through the experience of serving those in need, while reaching for the highest version of themselves. Chiu (2015) stated that SL could be viewed as self-transcendence or spiritual growth through service to others. Delgado (2005) mentioned that self-transcendence implied an ability to transcend oneself, to go beyond personal concerns and to take on a broader perspective on life, activities and goals.

Astin, Lindholm, and Lindholm (2011) found that students' engagement in SL has a profound impact on spiritual pursuits, caring ethics and universal worldviews of spirituality. Kuh and Gonyea (2006) noted that students' engagement in SL significantly correlated with participation in spiritual practices and a deepened sense of spirituality. Numerous studies (e.g. Astin, Lindholm, and Lindholm 2011; Kuh and Gonyea 2006) found that students who participated in SL in higher education discovered spiritual growth as a valuable outcome of their SL experience.

### ***Psychological health***

The findings of the current study correspond with the study of Litchke et al. (2019) who found that community SL reduced symptoms of stress, anxiety and depression levels, and

improved social resilience and overall enjoyment of the experience. Litchke et al. (2020) demonstrated the value of SL for the therapeutic potential for mental health, such as development of positive emotions and release of stress and anxiety.

A variety of community SL, through helping the disadvantaged through music (e.g. drumming), produces gratifying feelings, releases emotional trauma and rejuvenates oneself (Bartolome 2013). Community SL can create a sense of connection with self and others, and SL through music can guide the brain and stimulate feelings of pleasure (Winkelman 2003).

According to Haddock et al. (2013) students who participated in SL increased their confidence and improved their ability to cope with challenges and stress. Litchke et al. (2019) also found that students' confidence, optimism and coping skills improved in overcoming stressful situations.

The findings of this study were similar with those of Carson and Domangue (2013) who found that students who participated in SL experienced emotional and mental health benefits from serving those in need (Carson and Domangue 2013). Despite the challenges, uncertainties and difficulties caused by the pandemic, students who participated in SL have witnessed and experienced in their lives that they have learned to reflect, appreciate and value themselves, others and their surroundings (Shek 2021). As the main task in SL, reflection enhances psychological flexibility to maintain a positive quality of life (Shek 2021).

A review of more than 40 studies on the relationship between volunteering and health over the past 20 years revealed that volunteering was strongly associated with improved well-being, lower depression and a 22% lower risk of premature death (Jenkinson et al. 2013). Previous studies (e.g. Fancourt et al. 2016; Papinczak et al. 2015) showed significant improvements in mental well-being, social resilience and depression of participant students and targeted recipients after they participated in community SL (e.g. through music) as an intervention.

These activities help promote recovery, relieve chronic stress, promote positive mental health and coping and eliminate long-term negative health deficits (Joseph and Linley 2008). Lin and Shek (2021) found similar positive changes in psychological well-being of SL students during the pandemic. Litchke et al. (2019) found that SL through music could improve stress, anxiety, depression, social resilience and enjoyment of participating students.

## Limitations

The study has four major limitations. Firstly, the generalisability of the results may be constrained because the sample of 260 students from one university is insufficient compared with the total population of Chinese university students in Hong Kong. Future studies should recruit a larger sample and compare these results by repeating the study in bigger cities such as Beijing and Guangzhou.

Secondly, although the SWBQ and DASS 21 have been shown to be reliable and valid multi-dimensional assessments of spiritual well-being and psychological disorders, respectively, the literature lacks agreement about the meaning of terms and concepts such as transcendence, spirituality and emotion – which remain subjective. Thus, future research should focus on gathering additional information from third parties such as parents and teachers to understand participants' spiritual well-being and psychological health.

Thirdly, the increases identified between the pre-test and post-test may characterise a 'honeymoon effect' that will progressively vanish over time (Rosch and Schwartz 2009).



Hence, future studies should conduct follow-up evaluations within a few months of the programme's conclusion. These evaluations can assess whether the impact and contribution of a SL programme in spiritual well-being and psychological health is sustained over a long period of time.

Fourthly, participants may not report their spiritual and psychological status accurately in the SWBQ and DASS 21. Considering that participants may have a tendency to select ideal answers (i.e. preference and the best one) instead of their real answers (experiences) due to social expectations, they may have overrated or underrated themselves in the questionnaire. Future studies should consider using in-depth interviews and focus group discussions simultaneously as a mixed research methodology. This approach will not only help confirm and enrich our findings but also address this limitation.

## Conclusion

Despite the above limitations, the present research offers new insights for researchers and practitioners interested in community SL programmes in flexible mode as a way to promote university students' spiritual well-being and psychological health during the pandemic. The current findings showed that university students showed increases in these domains in response to a 6-month SL programme. These findings are consistent with study of Wong, Lau, and Chan (2021) who found positive impacts of SL on Chinese university students. This research is the first study on the impact of SL on the spiritual well-being and psychological health of Chinese youths in the Asia-Pacific region. The findings present implications for integrating community SL into interventions for students to enhance their quality of spirituality and psychological health during the pandemic.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

## Notes on contributor

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