

A Strength-Based Online Community Intervention (SOCI) for promoting resilience among adults in Hubei province, China, during COVID-19 lockdown

Xiao Liu, Siu-Man Ng, Yuan Yuan Xing, Xin Liu, Hui Yun Li, Melody Hiu Ying Fung & Cecilia Lai Wan Chan

To cite this article: Xiao Liu, Siu-Man Ng, Yuan Yuan Xing, Xin Liu, Hui Yun Li, Melody Hiu Ying Fung & Cecilia Lai Wan Chan (2021) A Strength-Based Online Community Intervention (SOCI) for promoting resilience among adults in Hubei province, China, during COVID-19 lockdown, *Asia Pacific Journal of Social Work and Development*, 31:4, 253-270, DOI: [10.1080/02185385.2021.1923560](https://doi.org/10.1080/02185385.2021.1923560)

To link to this article: <https://doi.org/10.1080/02185385.2021.1923560>



© 2021 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.



Published online: 22 Jun 2021.



[Submit your article to this journal](#)



Article views: 766



[View related articles](#)



[View Crossmark data](#)

ARTICLE

 OPEN ACCESS

 Check for updates

A Strength-Based Online Community Intervention (SOCI) for promoting resilience among adults in Hubei province, China, during COVID-19 lockdown

Xiao Liu^a, Siu-Man Ng ^b, Yuan Yuan Xing^c, Xin Liu^{d,e}, Hui Yun Li ^b,
Melody Hiu Ying Fung^b and Cecilia Lai Wan Chan^b

^aCivil Affairs Bureau of Jinjiang District, The Ao Xiang Social Work Service Center of Jinjiang District, Chengdu, China; ^bThe University of Hong Kong, Hong Kong SAR, China; ^cWuhan Civil Affairs Bureau, The Wanbang Social Work Service Center of Wuhan, China; ^dDepartment of Law, Southwest Petroleum University, Chengdu, China; ^eCentre on Behavioral Health, The University of Hong Kong, Hong Kong SAR, China

ABSTRACT

During COVID-19 pandemic, people experienced lockdown and associated distress. As face-to-face intervention was unfeasible, an 8-week Strength-based Online Community Intervention (SOCI) was developed and evaluated with a quasi-experimental design in Hubei Province, China from February to April 2020. Participants (N = 150) self-elected to join either the SOCI group or a casual discussion control group. Pre-/post-measures on post-traumatic stress, positive and negative affect, resilience, and spirituality were taken. Multivariate ANOVA revealed a significant combined effect with a medium effect size (partial eta squared = 0.11). Specifically, significant group × time interaction effects were revealed for resilience, spirituality, and positive affect.

ARTICLE HISTORY

Received 22 January 2021
Accepted 23 April 2021


KEYWORDS

COVID-19; quarantine;
lockdown; resilience; SOCI

Introduction

Since November 2019, there have been more than 32 million confirmed cases of COVID-19 globally. With a fatality rate of around 3% to date, over 2.06 million people have died from the disease as of January 2021 (WHO, 2020 September 2020; Worldometer, 2020). Wuhan, the city in China which experienced the earliest outbreak of this global pandemic, had more than 50,000 confirmed cases between February and April 2020, of whom 3,869 patients died (M. Liu et al., 2020). COVID-19 is highly infectious and there was a mass transmission all around China. To contain the outbreak of this unknown disease, the Chinese government implemented a stringent lockdown policy covering the whole of Hubei Province, where Wuhan is located. The population of Wuhan was placed under mass quarantine for 76 days, from 23 January to 7 April 2020. The other cities in Hubei followed the same lockdown policy soon after Wuhan to contain the outbreak. This policy not only prevented people from entering or leaving the city but also banned residents from engaging in most outdoor activities.

Quarantine, the separation of people to contain contagious disease, is commonly used following a pandemic outbreak. While mass quarantine is effective, being under

CONTACT Siu-man Ng  ngsiuman@hku.hk

© 2021 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.
This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

mass quarantine can lead to high prevalence of psychological distress in the community, manifesting in conditions relates to a deteriorating physical health (Mattioli et al., 2020), post-traumatic stress disorder (PTSD) and depression (Chatterjee & Chauhan, 2020; Jiang et al., 2020; Lau et al., 2020). A recent survey found over half (53.8%) of Wuhan residents reported PTSD-like symptoms, such as fear, anxiety, and other psychological distress during the lockdown (Wang et al., 2020). Similarly, during 2003 SARS outbreak, a web survey discovered a high prevalence of PTSD (28.9%) and depression symptoms (31.2%) among 129 people who experienced long period quarantine.

Other than quarantine, the pandemic-related psychological distress was found to have a long-lasting influence on people's mental well-being. During the early stage of the COVID-19 pandemic, research revealed a prevalence of depression and anxiety symptoms (19% and 14%, respectively) among populations who had not experienced quarantine in Hong Kong (Choi et al., 2020). Jalloh et al. (2018) administered a cross-sectional survey to 3,564 community residents a year after the Ebola outbreak in Sierra Leone. The survey revealed a relatively high prevalence of anxiety-depression symptoms (48%) and PTSD symptoms (76%). Similarly, Cowling et al. (2010) reported that greater anxiety was associated with greater social distancing in the general population in Hong Kong during the H1N1 pandemic.

Although traumatic experience is considered causing psychological distress, taking a trauma lens of viewing the pandemic is not necessarily being harmful. It might contradictorily offer opportunities for understanding the impact of the pandemic on the mental health and well-being of the population. Traumatic experiences can bring new perspectives and positive changes to a person's life. Tedeschi and Calhoun (1995) identified five aspects of posttraumatic growth (PTG): the emergence of new opportunities, the strengthening of interpersonal relationships and empathy, the enhancement of inner control, the rearrangement of priorities, and the deepening of spirituality. Further research suggested that post-traumatic PTG is commonly found among people who have experienced trauma, which is positively correlated with improved resilience, a sense of coherence, and spiritual change (Chan et al., 2006; Lau et al., 2020; M. Liu et al., 2020; A. Liu et al., 2017; Nishi et al., 2010; Zaki, 2020). PTSD symptoms have been found to remain and coexist with PTG over 12 months.

To moderate the adverse psychological effects of quarantine on people during the epidemic, preventive psychological crisis intervention was considered effective. Researchers have concluded that crisis intervention, individual counselling, and emergency material delivery might be effective in promoting positive mental health status and protecting at-risk people from suicidal behaviours during quarantine (Ning et al., 2020; Pruitt et al., 2020). Wang et al. (2020) also suggested using relaxation exercises and activity scheduling based on a cognitive behavioural therapy (CBT) approach to counteract anxiety and depression during the COVID-19 quarantine period. Considering the impossibility of delivering face-to-face interventions and the constraints on both time and resources, online psychological support was more plausible. Huang et al. (2020) reported a preference for a one-on-one online crisis intervention model. Ribeiro et al. (2020) reported on the implementation of a one-month telephone-based psychological crisis intervention in the Portuguese community. In Germany, Benecke et al. (2020) reported on the delivery of CoPE (Coping with Corona: Extended Psychosomatic care),

an online psychotherapy support, to citizens affected by all sorts of psychological distress during the COVID-19 pandemic outbreak in Essen.

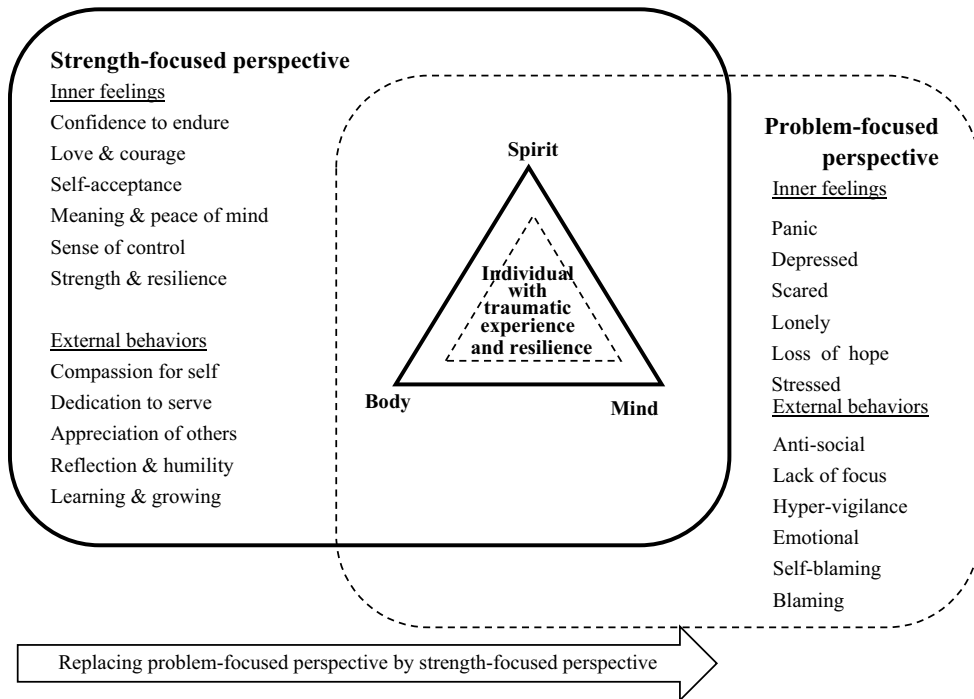
However, a psychopathology lens has its limitation. Traditional preventive psychological crisis intervention is symptom oriented. The psychological distress under a mass quarantine is intertwined with many other factors, such as lacking physical and social activities and the feeling of uncertainty with the unpredictable future. Only focusing on relieving the symptoms might be insufficient. Furthermore, people who take a traditional psychological support might need to deal with stigmatisation and unfamiliarity. Moreover, due to the vast population under lockdown and the limited number of qualified professionals, a traditional one-on-one intensive counselling can hardly meet the need of the mass population under quarantine. Therefore, intervention focusing on holistic well-being that connect individuals with not only their physical and mental health but also with their community to generate a positive vision of future is considered more appropriate.

Strength-based Online Community Intervention (SOCI)

SOCI is a strength-oriented group intervention focusing on improving the holistic well-being of the participants. This intervention model is guided by the theoretical framework of Integrative Body-Mind-Spirit (I-BMS) Social Work practice (Lee et al., 2018). Differing from traditional psychological interventions, I-BMS Social Work incorporates a more holistic orientation based on Eastern philosophies and therapeutic techniques. It emphasised the connection of physical, mental and spiritual well-being. The intervention is composited with three parts: body movement, mental health self-reflection and sharing, and meaning of life reformation. I-BMS Social Work practice has been well researched empirically. Many research has demonstrated its effectiveness in promoting resilience and mental well-being among people with depression (Brenner et al., 2018), patients coping with cancer (Ho et al., 2018) and employees experiencing burnout and stress (Ng et al., 2018). An example of the model built on I-BMS Social Work practice is the SMART (Strength-based Meaning-oriented Approach to Resilience and Transformation) group intervention model. This model was developed to help individuals to achieve personal growth and thrive in their personal life during SARS (Ng, T. H. Y. Chan, & C. L. Y. Chan et al., 2006).

The SMART model has been used in a variety of scenarios and has been proven to be effective. Yan et al. (2004) investigated survivors in Hong Kong during the SARS epidemic, and found that SMART participants showed greater acceptance and regained a sense of control over their life. It has also been found that residents in the community who experienced SARS presented improved psychological well-being after social support, self-care training, and mental health training (Mak et al., 2009).

Built on SMART, SOCI had expanded the vision to a community application. Under the community setting, SOCI aims to foster collective resilience, builds community capacities, and facilitates the discovery of positive meanings in a challenging situation, such as a pandemic outbreak. Figure 1 summarised the theoretical structure of SOCI. Instead of focusing on symptoms and psychopathologies, SOCI took the strength-based view, drawing on individual's resources to build resilience. By incorporating meaning-oriented view, it aims to foster transformation from suffering to develop meaning of life.



Ideas of the figure:

1. *Strength-focused perspective as an alternative/replacement for problem-focused perspective*
2. *Bold lines symbolize resilience after adopting the strength-focused perspective*

Figure 1. The role of strength-focused perspective in building resilience in people with traumatic experience.

Most innovatively, the application of SOCI is through an online platform. Online intervention has multiple benefits, such as avoiding contact and risk of infection, saving time and effort due to the development and availability of technology, and reducing the cost of management training (Razuri et al., 2016). As face-to-face group intervention was impossible due to stringent social distancing rules, online intervention was the only viable option during the lockdown in Hubei.

To sum up, the SOCI model bears the following characteristics: i) it is growth-oriented; ii) it promotes emotional and spiritual reflection; and iii) integrates the Chinese traditional philosophy of growing through pain. Innovatively to cater the ‘new normal’ during COVID-19, it was delivered through online social platform. Based on the potential benefits SOCI could provide in improving holistic well-being in the community, this research aims to explore the efficacy of SOCI application in the community of Wuhan, where the residents experienced elongate COVID-19 mass quarantine. By delivering the 8-week intervention, we would like to understand the following research questions. 1) Is SOCI effective in promoting participants’ overall well-being? 2) Is SOCI promoting the overall resilience of the participants?

Materials and method

Study design and participants

A quasi-experimental design was adopted. Sample size was calculated based on an effect size (Cohen's d) of 0.3, which is suggested as an average standardised target effect size of clinical trials (G* Power 3.1.9.4; Rothwell et al., 2018). A total of 150 eligible participants was recruited through the community network of the Wanbang Social Work Service Center of Wuhan, using convenient sampling method. Due to ethical consideration, participants were assigned to an intervention ($n = 90$) or a control group ($n = 60$) based on their own preference. This was to avoid adding extra psychological stress to the participants as they are all dealing with huge psychological challenges everyday due to the stringent lockdown. They were adults aged 18 and above residing in the lockdown areas during the earliest outbreak of COVID-19 in China. The majority (83.9%) of the participants lived in Wuhan City. Others (16.1%) were from townships outside Wuhan in Hubei Province which also experienced extensive lockdown. Most were living with their family (92.6%) in a property they owned (69.9%). The majority of the participants were not diagnosed with COVID-19 (99.3%) and reported being physically healthy (92.6%). Most reported having experienced a complete lockdown of their neighbourhood (76.4%), while less than half also reported wide-area community lockdown (41.2%). Most of the participants believed that they had not had close contact with a COVID-19 carrier (72.3%). While most of the participants reported that they had received sufficient resources for daily living (75.7%), support in other domains was less common, such as support from their neighbourhood (16.9%), counselling services (4.1%), and social work services (23.6%). The demographic characteristics of the participants are presented in [Table 1](#).

Materials

Chinese version of the impact of life scale

The Chinese version of the Impact of Life Scale (CIES-R; Hyer & Brown, 2008) consists of 22 items that measure subjective stress in response to a traumatic life event. The original Impact of Life Scale (IES-R) has reported high validity in various populations (Hyer & Brown, 2008). The CIES-R contains three sub-domains measuring intrusion, avoidance, and hyperarousal. Participants are asked to indicate their distress level for each of the 22 symptoms on a five-point scale where 0 indicates that the participant feel 'not at all'; 1 = 'a little bit'; 2 = 'moderately'; 3 = 'quite a bit'; and 4 = 'extremely' under each stressful life event scenario. The cut-off point of a score of 33 or above suggests a probable case of PTSD (Asukai et al., 2002). Although the scale can predict PTSD, it is not a clinical diagnostic measure. Each subscale of the CIES-R has been found to have high reliability, with Cronbach's α coefficients ranging from .87 to .91 for the intrusion subscale, .84 to .85 for avoidance subscale, and .79 to .90 for the hyper-arousal subscale (Wu & Chan, 2003).

Body-mind-spirit well-being inventory

The Body-Mind-Spirit Well-Being Inventory (BMSWBI; Ng et al., 2005) is an inventory for assessing holistic health, comprised of four scales: physical distress, daily functioning,

Table 1. Demographics and characteristics of the participants (N = 115).

	Intervention Group (n = 40)	Control Group (n = 75)	χ^2	p^a
	n (%)	n (%)		
Gender	9 (22.5)	20 (26.7)	.24	0.66
Male	31 (77.5)	55 (73.3)	22.31	0.00*
Female	1 (2.5)	8 (10.7)	6.89	0.23
Age (years)	6 (15.0)	22 (29.3)	3.54	0.32
18–25	8 (20.0)	23 (30.7)	5.23	0.27
26–30	4 (10.0)	12 (16.0)	3.20	0.20
31–40	8 (20.0)	6 (8.0)	1.89	0.35
41–50	13 (32.5)	4 (5.3)	3.38	0.34
51–60	0 (0.0)	1 (1.3)	7.96	0.01*
>60	13 (32.5)	11 (14.7)	4.72	0.32
Highest Level of Education	10 (25.0)	28 (37.3)	7.67	0.05
Primary school	15 (37.5)	27 (36.0)	1.83	0.40
Middle/High school	2 (5.0)	7 (9.3)		
Diploma	0 (0.0)	1 (1.3)		
Bachelor's degree	27 (67.5)	37 (49.3)		
Master's degree	9 (22.5)	25 (33.3)		
PhD	3 (7.5)	10 (13.3)		
Annual Income Status (CNY)	1 (2.5)	2 (4.0)		
<50,000	31 (77.5)	59 (78.7)		
50,000–100,000	5 (12.5)	4 (5.3)		
100,000–300,000	1 (2.5)	0 (0.0)		
>300,000	3 (7.5)	11 (14.7)		
Religious Affiliation	0 (0.0)	1 (1.3)		
Non-religious	21 (52.5)	47 (62.7)		
Belief in ancestors	4 (10.0)	2 (2.7)		
Christian	15 (37.5)	26 (34.7)		
Buddhism	1 (2.5)	0 (0.0)		
Other religion	39 (97.5)	75 (100.0)		
Lockdown Status	1 (2.5)	2 (2.7)		
Fully isolated	3 (7.5)	10 (13.3)		
Going out for emergencies only	9 (22.5)	8 (10.7)		
Going out for daily living	27 (67.5)	55 (73.3)		
COVID-19	7 (17.5)	2 (2.7)		
Positive	33 (82.5)	73 (97.3)		
Negative	10 (25.0)	24 (32.0)		
Contact with COVID-19 Patients	14 (35.0)	29 (38.7)		
Close contact	8 (20.0)	9 (12.0)		
Some contact	8 (20.0)	13 (17.3)		
Possible contact	26 (65.0)	59 (78.7)		
Nil contact	2 (5.0)	6 (8.0)		
Chronic Disease	12 (30.0)	8 (10.7)		
Yes	0 (0.0)	2 (2.7)		
No	25 (62.5)	37 (49.3)		
Exercise Status (weekly)	10 (25)	26 (34.7)		
No exercise	5 (12.5)	12 (16.0)		
Moderate exercise				
Exercise <90 mins				
Exercise >90 mins				
Sleep Status				
Sufficient sleep				
Lack of sleep				
Poor sleep				
Severe sleeping issues				
Previous Traumatic Event Experience				
Never				
Once				
>Twice				

^a χ^2 analysis was performed for the characteristic variables, except for gender, COVID-19, and chronic disease. Fisher's exact test was used.

^b1USD = 6.96CNY.

* $p < .05$

affect, and spirituality. It was designed in a Chinese cultural background and is therefore considered suitable for the participants in this study. We used the affect (19 items) and spirituality (13 items) subscales to measure changes in the participants' emotional state and spirituality. Both scales showed excellent reliability, with a Cronbach's α value of .92 and .89, respectively (Ng et al., 2005).

Affect Scale. The affect scale includes 19 descriptive words, with 8 describing positive feelings, such as 'happy', 'content', or 'grateful', and 11 describing negative feelings, such as 'sad', 'angry', or 'lonely'. Participants are asked to indicate how often they feel each of these feelings, from 0 (never felt) to 10 (felt very often).

Spirituality Scale. The spirituality scale consists of 13 descriptive sentences that measure self-reported perception of the meaning of life. Three domains are included in this scale: tranquillity, life orientation, and gratefulness. Sample descriptions are 'I can be content with whatever comes', 'I have lost direction in life' (reverse item), 'To me, facing a predicament is a challenge and learning opportunity'. Participants are asked to score their agreement with each sentence, from 0 (totally disagree) to 10 (totally agree), with higher score representing a higher spirituality level.

Connor-Davidson resilience scale

The Connor–Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003) is a 25-item self-rated scale to measure resilience, originally designed to assess treatment for PTSD. This scale has been used in many studies in China to measure resilience as a protective factor for depression, anxiety, and stress (Ni et al., 2016; Wu et al., 2017; Zhong et al., 2016). The CD-RISC requires participants to respond to each of the 25 statements with reference to the previous month. Sample statements are 'I am able to adapt when changes occur' and 'I can deal with whatever comes my way'. Scoring for each item ranges from 0 to 4. With a full range of 0–100, a higher score reflects greater resilience. The results from a general population survey in Hong Kong ($n = 10,997$) have suggested a median CD-RISC score of 62, with four quartile groups scored as 0–53, 54–62, 63–72, and 72–100 (Ni et al., 2016). The CD-RISC has high predictive validity for PTSD and depression, and is sensitive to predict the effect of resilience-enhancement interventions. The Chinese version of CD-RISC is also reported to have excellent reliability ($\alpha = .78$) (Ye, Qiu, & Li et al., 2017).

Procedures and analysis

Procedures

Ethical approval was obtained from the Human Research Ethics Committee (HREC) of The University of Hong Kong. Consent was given by all the participants prior to the study. Baseline measures for both groups were gathered through online survey (T0). The intervention is delivered through online platform. Participants were assigned to Wechat groups for weekly intervention. SOCI intervention is delivered by experienced social workers. To ensure the treatment fidelity, the social workers are required to receive compulsory 11-week training and group supervision before and during the intervention period (see Table 2). To distinguish SOCI from other psychological or

Table 2. SOCI social worker training syllabus and supervision arrangement.

	Pre-intervention	During Intervention
Training Course Syllabus	Week 1 – Evidence-based Research Method Week 2 – Integrative Body-Mind-Spirit Social Work Intervention Introduction Week 3 – Social Support and Strength-Based Social Work Intervention: Theory and Practice	Week 4 – Principal and Method in Rapport Building Week 5 – The Role and Mission of Social Worker in Public Health Emergency and Crisis Week 6 – Techniques of Online Social Work Service Week 7 – Case Management Week 8 – Self-Care of Service Providers in Public Health Emergency and Crisis Week 9 – Medical Social Work Practice Application Week 10 – Ethical Guidelines for Online Social Work Practice Week 11 – Research Skills and Practice
Group Supervision Content	<ul style="list-style-type: none"> • Research recruitment and arrangement • Service plan discussion 	<ul style="list-style-type: none"> • Online service delivery issue discussion • Research difficulties and questions discussion • Research team role assignment and follow-up • Periodical need assessment of the participants • Supervision on rapport building • Experience sharing: training and practical work connection

psychosocial interventions, the training emphasised three main characters (strength-oriented, community perspective and connect individuals with their community resources) of SOCI with a practicing protocol. The intervention group participated in two 1.5-hour structured group sessions in the morning and afternoon. The structure of the group is presented in Table 2. The control group had the same schedule as the intervention group but only engaged in casual daily conversation and discussions. The programme lasted for 8 weeks, 5 days per week, during the peak of the lockdown of Wuhan (40-day programme) (Table 3). Using the same set of measures, a follow-up (T1) online survey was conducted at the end of the 8-week programme. The full intervention programme was conducted from February to April 2020. The attendance rate of the weekly group SOCI intervention is 70%. Social workers would follow up individually for those participants who failed to attend the activity. One hundred and fifty participants consented to join the programme; two dropped out before the commencement of the study. A further 33 participants were excluded due to not being willing to fill in the post-test survey. In total, 115 participants (intervention group = 75, control group = 40) were included in the final pre-post comparison analysis (Figure 2).

Analysis

The data were analysed using the Statistical Package for Social Sciences (IBM Corp., 2019) version 26. Analysis procedures included descriptive tests (mean, standard deviation, percentage, and frequency), one-way MANOVA, and ANOVA tests. Preliminary tests were conducted. The assumptions of univariate and multivariate normality,

Table 3. Content of the SOCI.

	Weeks 1–2	Weeks 3–8
AM (90 mins)	Rapport building Physical health & exercises (1) Physical training indoor (2) Exercise video and photo sharing Information and resources Self-care knowledge	Rapport building Physical health & exercises Information and resources (1) Problems of articulation (2) How to act positively to solve problems
PM (90 mins)	Mental health – emotion (1) Emotional awareness (2) Healthy way to share emotions (3) Healthy way to respond to others’ emotions Establish trusting relationship with nature and family (1) Sharing photos of nature (2) Parent–child cooperation in activities	Reform the meaning of life (1) Insights, meaning of life, and motto sharing (2) Personal history sharing (e.g. photos, songs, and stories) (3) Skills learnt due to the pandemic (e.g. self-devotion, self-awareness, self-reflection, and value of self within the community, opportunities in challenging situations, growth through pain)

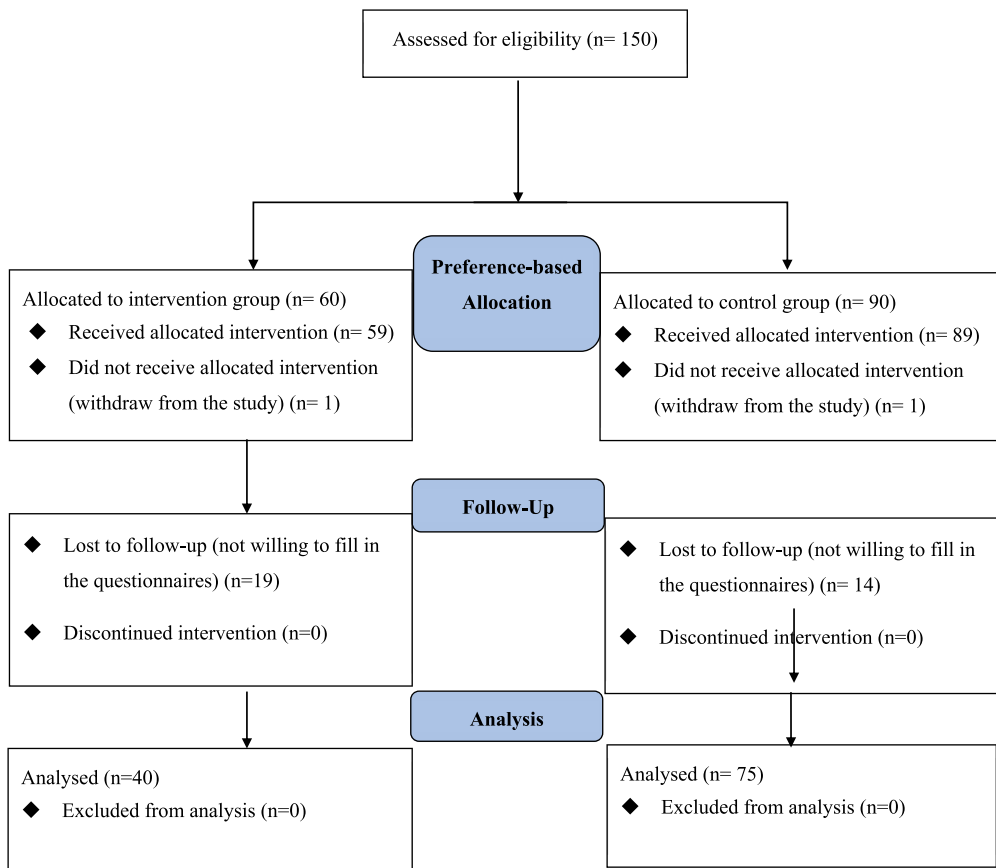


Figure 2. Consort figure for SOCI Intervention participants allocation.

Table 4. One-way multivariate and univariate ANOVA of pre-test (T0) and post-test (T1) of intervention and control groups (N = 115).

Outcome Variables	Intervention efficacy (T0 vs. T1)		
	F (df)	<i>p</i> -value	partial η^2
Combined Effect ^a	3.06 (109)	0.03*	0.11
Posttraumatic stress	0.55 (113)	0.46	0.00
Positive affect	3.98 (113)	0.05*	0.03
Negative affect	0.07 (113)	0.79	0.00
Resilience	8.14 (113)	0.00**	0.07
Spiritual growth	11.27 (113)	0.00***	0.09

^aOne-way MANOVA was conducted on all five outcome variables: subjective stress (PTSD), positive affect, negative affect, resilience, and spiritual growth.

* $p < .05$, ** $p < .01$, *** $p < .001$

homogeneity of variance, multi-collinearity, and homoscedasticity were met. The minimum expected cell frequency for the MANOVA test was also met.

Results

One-way MANOVA was conducted (see Table 4). Significant combined effects ($F = 3.06$, $p = .03$) were revealed for all five outcome measures. A medium effect size (partial eta squared = 0.11) was found in the combined effect. Individually, three outcome measures showed significant group \times time interaction effects: spirituality ($F = 11.27$, $p < .01$), with a medium effect size (partial eta square = 0.09); resilience ($F = 8.14$, $p < .01$), with a medium effect size (partial eta square = 0.07); and positive affect ($F = 3.98$, $p = .05$), with a small effect size (partial eta squared = 0.03). The group \times time interaction effects on post-traumatic stress and negative affect were nonsignificant.

To explore the within-group changes in each variable, a paired t -test was performed (see Table 5). Resilience was found to have significantly improved in the intervention group, with a medium effect size (Cohen's $d = 0.6$). In the control group, resilience showed no significant change. Negative affect decreased significantly in both the intervention ($t = 2.14$, $p < .05$) and control group ($t = 3.45$, $p < .01$), with a medium effect size in both cases (Cohen's $d = 0.48$ and 0.58, respectively). Spirituality showed no significant change in the intervention group but a significant drop in the control group.

Table 5. Within-group comparison of pre-test and post-test outcomes.

Outcome Variables	Intervention ($n = 40$)			Control ($n = 75$)		
	T0	T1	Effect Size (d)	T0	T1	Effect Size (d)
	M (SD)	M (SD)		M (SD)	M (SD)	
Posttraumatic stress	44.92 (13.64)	39.98 (15.52)	-0.34	44.49 (11.34)	41.92 (12.04)	-0.22
Positive affect	57.55 (19.61)	60.13 (20.65)	0.13	52.20 (15.39)	52.88 (17.33)	0.04
Negative affect	38.35 (22.80)	28.30 (18.61)*	-0.48	40.04 (20.95)	29.21 (16.25)***	-0.58
Resilience	87.30 (17.31)	97.62 (17.27)	0.60	89.04 (14.46)	88.96 (14.49)	-0.01
Spirituality	121.25 (19.66)	120.20 (22.49)	-0.05	112.33 (21.13)	101.93 (30.21)*	-0.40

* $p < .05$, ** $p < .01$, *** $p < .001$

Post-traumatic stress and positive affect showed no significant change in both intervention and control groups.

Discussion

Multivariate ANOVA revealed a significant combined effect with a medium effect size (partial eta squared = 0.11). Specifically, there were significant group \times time interaction effects for resilience, spirituality, and positive growth, but not for post-traumatic stress or negative affect. These results suggest that the strength-based intervention of the SOCI programme improved the overall psychological well-being of the participants living in Hubei Province during the COVID-19 quarantine period. It is hypothesised that this improvement was mainly due to the strengthening of resilience. Positive emotions, especially improved contentment and confidence, and the reduction of pivotal negative emotions, such as anger, fear, sadness, and hopelessness, had also contributed to the improved psychological well-being of the participants who received the SOCI intervention.

Although post-traumatic stress did not show a significant group \times time interaction effect, the raw score dropped from 44 to 39 in the intervention group and from 44 to 41 in the control group (with a cut-off point of 33 that indicating PTSD symptoms). This is in line with previous studies that suggest quarantine might cause psychological distress, such as PTSD and depression (Chatterjee & Chauhan, 2020; Cowling et al., 2010; Hawryluck et al., 2004; Jalloh et al., 2018; Wang et al., 2020). Our results are also consistent with previous findings that while PTSD symptoms can be persistent, PTG may emerge in parallel (A. Liu et al., 2017). It seems worthwhile to pursue a long-term follow-up study to examine the sustained effect of the SOCI programme.

The SOCI model has demonstrated the benefits of implementing a holistic view of well-being. To facilitate body-mind connectedness, participants undertake routine activities to promote mental well-being, such as training in physical exercise, self-reflection on emotions, learning self-care knowledge, and sharing resources and experiences. These activities are considered beneficial in empowering the self and regaining a sense of control in life. The enhancing positive emotion and resilience align with the previous research that emotion regulation, the ability to make adaptive appraisals, and flexible coping strategies might facilitate resilience as well as reduce the adverse psychological impact of a traumatic life event (McGiffin et al., 2016; Palinkas, 2012; Palinkas et al., 2004).

One of the main strengths of SOCI is that it improves the resilience of adults experiencing a traumatic life event. The SOCI model not only involves elements of social and emotional support but also offers a space for participants to share their insights of daily living and strategies for surviving quarantine. All these elements are considered to lead to enhanced resilience. This is consistent with the previous findings that social support, emotion regulation, and flexible coping strategies are essential to alleviating psychological distress (McGiffin et al., 2016; Palinkas, 2012; Palinkas et al., 2004). It is worth exploring the long-term effects of SOCI on resilience.

The result also supported the advantage of the SOCI model where a sustained social connectedness is emphasised. Although it is inevitable that people may develop a certain level of PTSD symptoms during a pandemic, PTG is considered an optimal factor that

encourages self-reflection and resilience. Social support has been identified as the most important factor in encouraging PTG and promoting resilience (Ribeiro et al., 2020). Living with PTSD symptoms, a sustained model that could be built into daily life, might be a more plausible way to extend the positive effect to help cope and live with PTSD symptoms. In the SOCI model, participants are guided to rebuild their relationship with their family members by actively involving them in the activities. Group sharing is also embedded in the model to reinforce connectedness between the participants and peers living in their community. Through such relationship building, SOCI aims to build a sustainable intervention model that encourages mutual help among participants after the intervention programme.

The findings suggest that the SOCI programme has an impact on the spirituality of adult participants, affecting their perception of the meaning of life. It is interesting to find that spirituality level was maintained in the intervention group while it showed a significant drop in the control group. This might suggest that the SOCI programme helped preserve the participants' tranquillity, life orientation, and gratefulness, while the 'free discussion' in the control group did not have similar effects. The increase in overall positive affect and reduction of some negative affect are consistent with the findings of studies on the SMART debriefing model used during the 2003 SARS outbreak (Chan et al., 2006; Ng et al., 2006). In these SARS studies, group intervention was found to be effective in relieving psychosocial distress. Spiritual reflection was found to have contributed to enhancing resilience and improving emotional state. The SMART studies also showed that PTG continued to increase at the 1-month follow-up. Although the follow-up effect was not tested in the current study, it is worth exploring whether SOCI, as a modified online version of SMART, shows a similar or a longer maintenance of PTG compared to the traditional SMART model.

Implications

Due to the extended lockdown, it is virtually impossible to deliver well-established psychosocial debriefing and support services during the COVID-19 pandemic. Grounded in the SMART debriefing programme developed during the 2003 SARS outbreak, we developed the innovative SOCI programme, which is designed to be delivered online. The findings of the current study support the feasibility and efficacy of the programme in such circumstances.

The SOCI programme can help individuals regain balance on three levels. The first level is the relationship between the body, mind, and spirit. By engaging in physical exercise and sharing activities as part of a daily routine, individuals are able to connect their body, mind, and spirit on an intrapersonal level, and achieve a more holistic understanding and awareness of themselves. The second level is the relationship between the individual and their community. The urge to connect with other people is innate to humanity. Under quarantine, social interaction is considered even more important to facilitate a sense of belonging to the community in individuals. SOCI provides a platform to facilitate social engagement that allows individuals to share their daily life, their joys and sorrows, their worries, and also their insights about life. Last but not least, SOCI nurtures the relationship between the individual and their natural surroundings. Despite staying at home, individuals are encouraged to recall experiences of encountering people,

trees and flowers, the ever-changing weather outside their windows, etc. The continuing sense of connection with the universe validates individuals' existence even during the uncertainties of a pandemic.

This programme is less about teaching symptom-relieving skills for participants than about learning together through communication, giving actively, mutual affirmation, and building hope for the future. When the isolation was lifted, all participants in the intervention groups considered themselves a winner, a contributor, a valuable person instead of a loser, a victim, or a useless person. This re-establishment of value not only refreshes and develops participants physically, mentally, and spiritually but also enables them to embrace a more harmonious relationship with society and nature with respect and love.

Limitations

Due to ethical and operational considerations, random sampling and allocation of participants to intervention and control groups was not implemented. Instead, allocation was done according to the participants' preference. The age distribution of participants in both groups suggests that the SOCI programme is more attractive to older adults. Without the random allocation of participants, there could be self-election bias in the participants' completion of the self-report measures.

In addition, concerning other practical constraints, the long-term effect of SOCI was not explored. Previous studies have suggested that the impact of psychological distress caused by quarantine or pandemic can last more than a year (Jalloh et al., 2018). However, as the pandemic was still evolving when this study was completed, it is not possible yet to collect post-pandemic data. Future research could be conducted to examine the sustainability of the SOCI intervention effect.

We did not explore the interaction between spiritual well-being, emotional state, and resilience. The potential mediation or moderation effects of spiritual well-being between traumatic experiences and resilience is worth exploring next.

Conclusion

This research revealed that SOCI had significantly improved participants' resilience, spirituality, and positive growth over time but not for post-traumatic stress or negative affect. The findings seem to support the efficacy and endorse the strength-based orientation of SOCI. During extended and extensive lockdowns, psychosocial debriefing and support must be delivered online. The SOCI programme provides an accessible platform for cultivating intrapersonal and interpersonal relationships as well as a sense of connection with the universe. Instead of taking a problem-based approach, SOCI adopts a strength-based perspective, aiming at promoting growth and resilience during quarantine. The current study offers preliminary evidence of the feasibility of SOCI and its efficacy in improving people's emotional state, resilience, and spiritual well-being. It would be worthwhile to further explore the long-term effects of SOCI, as well as its application in different populations, such as people with physical disabilities and older people.

Acknowledgments

We would like to acknowledge the Wanbang Social Service Centre of Wuhan, Hubei, China for helping to recruit the participants and implement the study.

Author Contributions

Esther L. X. Lee ELX contributed to the design and execution of the study, data analysis, and the writing up of the manuscript.

Professor S. M. NG (The University of Hong Kong) SM contributed to the design of the study, data analysis, and the writing up of the manuscript.

Yuanyuan XING YY contributed to the execution of the study and collection of data.

Liu XIN L contributed to the execution of the study and collection of data.

H. Y. LI HY contributed to the data analysis and the writing up of the manuscript.

Melody H. Y. Fung MHY contributed to the writing up of the manuscript.

Cecilia L. W. CHAN CLY contributed to the design of the study and the write-up of the manuscript.

Disclosure statement

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Funding

The authors claim that this research project is unfunded.

Notes on contributors

Xiao Liu, Senior social worker. He is a supervisor and a researcher in Chengdu Medical Social Work Research Project (China). After receiving her master's degree of social work at Chongqing University, she focused on practical and research in the field of medical social work for ten years. Her research interest is medical social work service, social work supervision and training and psychological resilience.

Siu-man Ng, Professor. He is a Professor in the Department of Social Work and Social Administration at The University of Hong Kong. He also serves as an Associate Director in the Centre on Behavioral Health. With a dual professional background in mental health social work and Chinese medicine, Professor Ng's research theme is mental health, mental disorders and culture. His current research areas include operationalization of the Chinese medicine stagnation syndrome as a psychological construct useful to all mental health practitioners; family expressed emotion of persons with schizophrenia and its impacts on the course of illness; critical re-examination of the conceptualization of mindfulness; and workplace well-being: a paradigm shift of focus from stress and burnout to meaning and engagement.

Yuan Yuan Xing, Senior social worker. He is the Wanbang social service organization deputy director-general, is an intermediate social worker. She commits to post-disaster reconstruction and urban community service. Her research interest is the service of COVID-19, community management and online service.

Xin Liu, Social work student. He is an undergraduate of Southwest Petroleum University, who served as the president of the school's social workers association and the deputy secretary-general of the school's student union. Her research interest is student social service and medical social work.

Hui Yun Li, Music Therapist, PhD candidate. He is a registered music therapist specialized in palliative care and children with ASD. She is also currently a PhD candidate at the Department of Social Work and Social Administration, The University of Hong Kong, under the supervision of Prof. NG Siu-man and Prof. HO Tin Hung, Rainbow. Hui Yun's research interest includes using music to improve intergroup relationship and general psychological well-being among youth and ethnic minority groups.

Melody Hiu Ying Fung, Social worker, PhD candidate Melody FUNG is currently a Doctor of Philosophy (PhD) candidate at the Department of Social Work and Social Administration, The University of Hong Kong, under the supervision of Prof. NG Siu Man and Prof. HO Tin Hung, Rainbow. As a Registered Social Worker (RSW), Melody specializes in youth mental health and occupational well-being. Her research interests include (i) psychological well-being of professional ballet dancers, (ii) family expressed emotion of persons with mental illnesses, and (iii) occupational well-being of mental health social workers. She has been conducting ethnographic studies and receiving training on Dance/movement therapy (DMT).

Cecilia Lai Wan Chan, Professor Emeritus Department of Social Work and Social Administration, Founding Director and Associate Director, Centre on Behavioral Health, The University of Hong Kong, Fellow, Hong Kong Professional Counselling Association, Founding Fellow, Hong Kong Academy of Social Work, Fellow, Association of Oncology Social Work.

ORCID

Siu-Man Ng  <http://orcid.org/0000-0001-8255-7459>

Hui Yun Li  <http://orcid.org/0000-0001-8059-7000>

References

- Asukai, N., Kato, H., Kawamura, N., Kim, Y., Yamamoto, K., Kishimoto, J., Miyake, Y., & Nishizono-Maher, A. (2002). Reliability and validity of the Japanese-language version of the impact of event scale-revised (IES-R-J): Four studies of different traumatic events. *The Journal of Nervous and Mental Disease*, 190(3), 175–182. <https://doi.org/10.1097/00005053-200203000-00006>
- Benecke, A., Bäuerle, A., Jansen, C., Schneider, J. S., Dörrie, N., Teufel, M., & Skoda, E.-M. (2020). Techniques, methods, and dissemination of community-based psychological support strategies in times of the COVID-19 pandemic. *Journal of Primary Care & Community Health*, 11, 1–3. <https://doi.org/10.1177/2150132720943328>
- Brenner, M. J., Leung, P. P. Y., Sreevani, R., & Nan, J. K. M. (2018). In M. Y. Lee, S. M. Ng, P. P. Y. Leung, & C. L. W. Chan (Eds.), *Integrative body-mind-spirit social work – An empirical based approach to assessment and treatment* (2nd ed., pp. 257–269). University Press.
- Chan, C. L. W., Chan, T. H. Y., & Ng, S. M. (2006). The strength-focused and meaning-oriented approach to resilience and transformation (SMART). *Social Work in Health Care*, 43(2–3), 9–36. https://doi.org/10.1300/J010v43n02_03
- Chatterjee, K., & Chauhan, V. S. (2020). Epidemics, quarantine and mental health. *Medical Journal Armed Forces India*, 76(2), 125–127. <https://doi.org/10.1016/j.mjafi.2020.03.017>
- Choi, E. P. H., Hui, B. P. H., & Wan, E. Y. F. (2020). Depression and anxiety in Hong Kong during COVID-19. *International Journal of Environmental Research and Public Health*, 17(10), 3740. <https://doi.org/10.3390/ijerph17103740>
- Connor, K. M., & Davidson, J. R. T. (2003). Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety*, 18(2), 76–82. <https://doi.org/10.1002/da.10113>
- Cowling, B. J., Ng, D. M. W., Ip, D. K. M., Liao, Q., Lam, W. W. T., Wu, J. T., Lau, J., Griffiths, S., & Fielding, R. (2010). Community psychological and behavioral responses through the first wave

- of the 2009 influenza A(H1N1) pandemic in Hong Kong. *The Journal of Infectious Diseases*, 202 (6), 867–876. <https://doi.org/10.1086/655811>
- Hawryluck, L., Gold, W. L., Robinson, S., Pogorski, S., Galea, S., & Styra, R. (2004). SARS control and psychological effects of quarantine, Toronto, Canada. *Emerging Infectious Diseases*, 10(7), 1206–1212. <https://doi.org/10.3201/eid1007.030703>
- Ho, R. T. H., Wan, A. H. Y., Hsiao, F. H., & Lee, G. L. (2018). In M. Y. Lee, S. M. Ng, P. P. Y. Leung, & C. L. W. Chan (Eds.), *Integrative body-mind-spirit social work – An empirical based approach to assessment and treatment* (2nd ed., pp. 228–237). University Press.
- Huang, J., Zhou, X., Lu, S., Xu, Y., Hu, J., Huang, M., Wang, H.-F., Hu, -C.-C., Li, S.-G., Chen, J.-K., Wang, Z., Hu, S.-H., & Wei, N. (2020). Dialectical behavior therapy-based psychological intervention for woman in late pregnancy and early postpartum suffering from COVID-19: A case report. *Journal of Zhejiang University-SCIENCE B*, 21(5), 394–399. <https://doi.org/10.1631/jzus.B2010012>
- Hyer, K., & Brown, L. M. (2008). The impact of event scale-revised: A quick measure of a patient's response to trauma. *The American Journal of Nursing*, 108(11), 60–68. <https://doi.org/10.1097/01.NAJ.0000339101.39986.85>
- Jalloh, M. F., Li, W., Bunnell, R. E., Ethier, K. A., O'Leary, A., Hageman, K. M., Sengeh, P., Jalloh, M. B., Morgan, O., Hersey, S., Marston, B. J., Dafee, F., & Redd, J. T. (2018). Impact of Ebola experiences and risk perceptions on mental health in Sierra Leone, July 2015. *BMJ Global Health*, 3(2), 1–11. <https://doi.org/10.1136/bmjgh-2017-000471>
- Jiang, H., Nan, J., Lv, Z., & Yang, J. (2020). Psychological impacts of the COVID-19 epidemic on Chinese people: Exposure, POST-traumatic stress symptom, and emotion regulation. *Asian Pacific Journal of Tropical Medicine*, 13(6), 252–259. <https://doi.org/10.4103/1995-7645.281614>
- Lau, B. H. P., Chan, C. L. W., & Ng, S. M. (2020). Resilience of Hong Kong people in the COVID-19 pandemic: Lessons learned from a survey at the peak of the pandemic in spring 2020. *Asia Pacific Journal of Social Work: Creativity, perseverance and resilience in the face of the pandemic - The social work*, 31(1-2), 105–114. <https://doi.org/10.1080/02185385.2020.1778516>
- Lee, M. Y., Chan, C. H. Y., Chan, C. L. W., Ng, S. M., & Leung, P. P. Y. (2018). *Integrative body-mind-spirit social work*. Oxford University Press, Incorporated.
- Liu, A., Wang, L., Li, H., Gong, J., & Liu, X. (2017). Correlation between posttraumatic growth and posttraumatic stress disorder symptoms based on Pearson correlation coefficient: A meta-analysis. *Journal of Nervous & Mental Disease*, 205(5), 380–389. <https://doi.org/10.1097/NMD.0000000000000605>
- Liu, M., Ning, J., Du, Y., Cao, J., Zhang, D., Wang, J., & Chen, M. (2020). Modelling the evolution trajectory of COVID-19 in Wuhan, China: Experience and suggestions. *Public Health*, 183, 76–80. <https://doi.org/10.1016/j.puhe.2020.05.001>
- Mak, W. W. S., Law, R. W., Woo, J., Cheung, F. M., & Lee, D. (2009). Social support and psychological adjustment to SARS: The mediating role of self-care self-efficacy. *Psychology & Health*, 24(2), 161–174. <https://doi.org/10.1080/08870440701447649>
- Mattioli, A. V., Sciomer, S., Cocchi, C., Maffei, S., & Gallina, S. (2020). Quarantine during COVID-19 Outbreak: Changes in diet and physical activity increase the risk of cardiovascular disease. *Nutrition, Metabolism, and Cardiovascular Diseases*, 30(9), 1409–1417. <https://doi.org/10.1016/j.numecd.2020.05.020>
- McGiffin, J. N., Galatzer-Levy, I. R., & Bonanno, G. A. (2016). Is the intensive care unit traumatic? What we know and don't know about the intensive care unit and posttraumatic stress responses. *Rehabilitation Psychology*, 61(2), 120–131. <https://doi.org/10.1037/rep0000073>
- Ng, S. M., Cheung, A. C. Y., Chow, K. K. W., & Wang, Q. (2018). In M. Y. Lee, S. M. Ng, P. P. Y. Leung, & C. L. W. Chan (Eds.), *Integrative body-mind-spirit social work – An empirical based approach to assessment and treatment* (2nd ed., pp. 282–292). University Press.
- Ng, S. M., Chan, T. H. Y., Chan, C. L. W., Lee, A. M., Yau, J. K. Y., Chan, C. H. Y., & Lau, J. (2006). Group debriefing for people with chronic diseases during the SARS pandemic: Strength-focused and meaning-oriented approach for resilience and transformation (SMART). *Community Mental Health Journal*, 42(1), 53–63. <https://doi.org/10.1007/s10597-005-9002-y>

- Ng, S. M., Yau, J. K. Y., Chan, C. L. W., Chan, C. H. Y., & Ho, D. Y. F. (2005). The measurement of body-mind-spirit well-being toward multidimensionality and transcultural applicability. *Social Work in Health Care, 41*(1), 33–52. https://doi.org/10.1300/J010v41n01_03
- Ni, M. Y., Li, T. K., Yu, N. X., Pang, H., Chan, B. H. Y., Leung, G. M., & Stewart, S. M. (2016). Normative data and psychometric properties of the Connor–Davidson Resilience Scale (CD-RISC) and the abbreviated version (CD-RISC2) among the general population in Hong Kong. *Quality of Life Research, 25*(1), 111–116. <https://doi.org/10.1007/s11136-015-1072-x>
- Ning, W., Huang, B., Lu, S., Hu, J., Zhou, X., Hu, C., Chen, J., Huang, J., Li, S., Wang, Z., Wang, D., Xu, Y., & Hu, S. (2020). Efficacy of internet-based integrated intervention on depression and anxiety symptoms in patients with COVID-19. *Journal of Zhejiang University-SCIENCE B, 21* (5), 400–404. <https://doi.org/10.1631/jzus.B2010013>
- Nishi, D., Matsuoka, Y., & Kim, Y. (2010). Posttraumatic growth, posttraumatic stress disorder and resilience of motor vehicle accident survivors. *BioPsychoSocial Medicine, 4*(1), 7. <https://doi.org/10.1186/1751-0759-4-7>
- Palinkas, L. A. (2012). A conceptual framework for understanding the mental health impacts of oil spills: Lessons from the Exxon Valdez oil spill. *Psychiatry: Interpersonal and Biological Processes, 75*(3), 203–222. <https://doi.org/10.1521/psyc.2012.75.3.203>
- Palinkas, L. A., Petterson, J. S., Russell, J. C., & Downs, M. A. (2004). Ethnic Differences in Symptoms of Post-Traumatic Stress After the Exxon Valdez Oil Spill. *Prehospital and Disaster Medicine, 19*(1), 102–112. <https://doi.org/10.1017/S1049023X00001552>
- Pruitt, L. D., Mcintosh, L. S., & Reger, G. (2020). Suicide safety planning during a pandemic: the implications of COVID-19 on coping with a crisis. *Suicide and Life-Threatening Behavior, 50*(3), 741–749. <https://doi.org/10.1111/sltb.12641>
- Razuri, E. B., Howard, A. R. H., Parris, S. R., Call, C. D., DeLuna, J. H., Hall, J. S., Purvis, K. B., & Cross, D. R. (2016). Decrease in behavioral problems and trauma symptoms among at-risk adopted children following web-based trauma-informed parent training intervention. *Journal of Evidence-Informed Social Work, 13*(2), 165–178. <https://doi.org/10.1080/23761407.2015.1014123>
- Ribeiro, E., Sampaio, A., Gonçalves, M. M., Taveira, M. D. C., Cunha, J., Maia, Â., Matos, M., Gonçalves, S., Figueiredo, B., Freire, T., & Soares, T. (2020). Telephone-based psychological crisis intervention: The Portuguese experience with COVID-19. *Counselling Psychology Quarterly, 44*(7), 1–15. <https://doi.org/10.1080/09515070.2020.1772200>
- Rothwell, J. C., Julious, S. A., & Cooper, C. L. (2018). A study of target effect sizes in randomised controlled trials. *Health Technology Assessment Journal, 19*(1), 544. <https://doi.org/10.1186/s13063-018-2886-y>
- Tedeschi, R. G., & Calhoun, L. G. (1995). *Trauma and transformation: Growing in the aftermath of suffering*. Sage.
- Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C. S., et al. (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *International Journal of Environmental Research and Public Health, 17*(5), 17–29. <https://doi.org/10.3390/ijerph17051729>
- World Health Organization. (2020, September 25). *Weekly operational update on COVID-19*. Retrieved from https://www.who.int/docs/default-source/coronaviruse/weekly-updates/wou-25-september-2020-for-cleared.pdf?sfvrsn=f44d4537_2
- Worldometre. (2020, January 20). *COVID-19 Coronavirus Pandemic*. Worldometre. Retrieved from <https://srv1.worldometers.info/coronavirus/>
- Wu, K. K., & Chan, K. S. (2003). The development of the Chinese version of Impact of Event Scale - Revised (CIES-R). *Social Psychiatry and Psychiatric Epidemiology, 38*(2), 94–98. <https://doi.org/10.1007/s00127-003-0611-x>
- Wu, L., Tan, Y., & Liu, Y. (2017). Factor structure and psychometric evaluation of the Connor-Davidson resilience scale in a new employee population of China. *BMC Psychiatry, 17*(1), 49. <https://doi.org/10.1186/s12888-017-1219-0>

- Yan, F., Dun, Z., & Li, S. (2004). Survey on mental status of subjects recovered from SARS. *Chinese Mental Health Journal*, 18(10), 675–677. <https://doi.org/10.1038/s41380-021-01036-x>
- Ye, Z. J., Qiu, H. Z., Li, P. F., Chen, P., Liang, M. Z., Liu, M. L., Yu, Y. L., Wang, S. N., & Quan, X. M. (2017). Validation and application of the Chinese version of the 10-item Connor-Davidson Resilience Scale (CD-RISC-10) among parents of children with cancer diagnosis. *European Journal of Oncology Nursing*, 27, 36–44. <https://doi.org/10.1016/j.ejon.2017.01.004>
- Zaki, J. (2020, June 1). *How the trauma of the pandemic can inspire personal growth*. The Washington Post. Retrieved September 28, 2020, from <https://global-factiva-com.eproxy.lib.hku.hk/redirect/default.aspx?P=sa&an=WPCOM00020200601eg610028o&cat=a&ASE>
- Zhong, X., Wu, D., Nie, X., Xia, J., Li, M., Lei, F., Lim, H. A., Kua, E.-H., & Mahendran, R. (2016). Parenting style, resilience, and mental health of community-dwelling elderly adults in China. *BMC Geriatrics*, 16(1), 135–147. <https://doi.org/10.1186/s12877-016-0308-0>