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Spiritual practices and effects of spiritual well-being and depression on elders' self-perceived health

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ABSTRACT

As the population is quickly ageing, strategies for helping elders to maintain and promote good health and well-being are urgently needed. Self-perceived health is a powerful predictor of mortality, physical morbidity, and disability among elderly people. Delivering culturally competent care is necessary for taking care of elders. Self-perceived health is a powerful predictor of mortality, physical morbidity, and disability among elderly people. Spiritual well-being has been found particularly important for older adults' overall health. This descriptive, correlational and predictive study used data that was collected from a convenience sample (N = 150) to examine the effects of spiritual well-being on the relationship between depression and self-perceived health, and to describe spiritual practices commonly used by Taiwanese elders. Findings from this study revealed that spiritual well-being was positively correlated with self-perceived health, negatively associated with depression, and significantly mediated the relationship between depression and self-perceived health. Relaxation and exercise were the most commonly used spiritual practices by Taiwanese elders. Findings from this study support the important role of spiritual well-being in elders' health and add to the body of knowledge about the spiritual practices used by Taiwanese elders. Nurses and health care providers should deliver culturally appropriate spiritual care to enhance spiritual well-being for elders to maintain good health for diverse elder population.

1. Introduction and background

Older people usually face and suffer from a variety of life stressors, chronic diseases, and disability that are related to life transitions and various underlying physiological changes (WHO, 2015; WHO, 2018). Promoting good health of older adults is essential as the consequences associated with ageing population have become more relevant and profound while society is undertaking the mounting pressure of controlling health care costs (WHO, 2015; WHO, 2017). It is projected that the ratio of global population over 60 years of age will be doubled from 12% to 22% between 2015 and 2050 (United Nations, 2017; WHO, 2018). The number of people aged 60 years and older will reach 2.1 billion by 2050 (United Nations, 2017; WHO, 2018). The needs for developing and delivering useful and effective strategies to help elders prevent and delay the decline of functional abilities and intrinsic capacities require the attentions of nurses and other health care providers to identify key factors that may significantly have impact on elders' health and well-being (WHO, 2015; WHO, 2017). As the population is speedily ageing globally in recent decades (United Nations, 2017; WHO, 2018), effective approaches for helping older people remain independent, and maintain good health as well as promoting quality of life and well-being are critically and urgently needed (WHO, 2018).

The World Health Organization defines health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (WHO, 2017). Self-perceived health is an individual's perception of one's own health status and well-being, and it is one's subjective measure of his/her overall health on multiple health related dimensions (Helvik, Engedal, Bjorklof, & Selbaek, 2012; Statistics Canada, 2016). Self-perceived health is a widely used health indicator for health research in the elderly population (Giron, 2012). Studies showed that self-perceived health is a significant indicator of mortality, physical morbidity, functional decline, disability, and utilization of health services (Isaac, McLachlan, Baune, Huang, & Wu, 2015; Machón, Vergara, Dorronsoro, Vrotsou, & Larrañaga, 2016; Statistics Canada, 2016). An individual's perception of his/her own health can be influenced by social-demographic factors, physical health, functional status, and mental health (Helvik et al., 2012; Statistics Canada, 2016). Assessing elders' self-perceived health and understanding its determinants may be useful for identifying individuals at high health risks in order to reduce the incidence of dependency as well as enhancing our

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abilities to develop, design and deliver effective health promotion strategies for the elderly population (WHO, 2017).

Depression, one of the most common mental and neurological disorders, affects approximately 7% of the world's older population (WHO, 2016; WHO, 2017a). It is also known to be a co-morbidity of many chronic illnesses among elders (Taylor, 2014; WHO, 2017a). Depression is the leading cause of disability worldwide, and it increases elders' risks for cognitive decline and vulnerability to medical illness, perception of poor health, utilization of health care services, and costs of health care (WHO, 2017a). Studies have found that spirituality may play an essential role in the process of recovery of people with depressive disorders (Peselow, Pi, Lopez, Besada, & Ishak, 2014). A higher level of spiritual well-being is associated with less depressive symptoms (Gonzalez et al., 2014; Mills et al., 2015).

Spirituality is believed to function as a valuable coping mechanism and it helps people to cope with stress from illness (Dalmida, Holstad, DiIorio, & Laderman, 2011; Gonzalez et al., 2014). Studies found that spiritual well-being is significantly associated with one's health outcomes and quality of life, and it seems particularly important for older people and people with severe illness (Ali, Marhemat, Sara, & Hamid, 2015; Bai & Lazenby, 2015; Lee & Salman, 2016). Although a growing number of studies have given attention to investigate the relationships between spirituality/spiritual well-being and people's health among various populations (Bai & Lazenby, 2015; Gonzalez et al., 2014; Mills et al., 2015), little or no research has provided robust evidence regarding whether spiritual well-being plays a mediating or moderating role in the relationship between depression and self-perceived health among older people, especially older adults with Chinese cultural backgrounds. Mediation is usually detected when there is a strong relationship between the predictor and the outcome variable, whereas moderation generally is occurred when the relationship between a predictor and the outcome variable is weak (Baron & Kenny, 1986; Hayes, 2013; MacKinnon & Pirlott, 2015). Given the associations that have been recognized between depression and health outcomes as well as the presence of depression in older adults (Ali et al., 2015; Bai & Lazenby, 2015; Gonzalez et al., 2014; Mills et al., 2015; WHO, 2017a), this study intended to examine the hypothesized mediating effect of spiritual well-being on the relationship between depression and self-perceived health.

Nursing is a profession that is concerned about using holistic approaches to improve health and overall well-being. Hence, it is essential for nurses to be capable of providing spiritual care to fulfill patients' spiritual needs and promote their spiritual well-being (Cockell & Mcsherry, 2012; Ramezani, Ahmadi, Mohammadi, & Kazemnejad, 2014). Providing culturally competent health care to reduce disparities in health care deliveries is particularly important as the worldwide globalization is speeding up (National Institutes of Health, 2015a). The impact of culture should be taken into account to provide holistic and culturally competent spiritual care (Cockell & Mcsherry, 2012). Investigations of spiritual practices commonly used by elders with specific cultural contexts and their relationships to health outcomes may contribute to enhance clinicians' knowledge and capability for developing culturally appropriate approaches to deliver spiritual interventions to clients. Few studies investigating spiritual interventions/practices have been conducted with populations in Western countries. However, evidence regarding spiritual practices used among elders with a Chinese cultural background is absent from the existing literature, and it requires investigation. Knowledge about spiritual practices that are commonly used by the elders with Chinese cultural backgrounds could be used as a foundation for future development and delivery of culturally competent care to meet the spiritual needs of Chinese elders.

2. Purpose of the study

The purpose of this study was to: (1) describe the relationship between depression, spiritual wellbeing, and self-perceived health among elders; (2) examine whether spiritual well-being mediates the relationship between depression and self-perceived health, and (3) identify the commonly used spiritual practices among Taiwanese elders.

3. Methods

3.1. Design, sample, and setting

This study used a cross-sectional descriptive design to identify the mediating role of spiritual well-being in the relationship between depression and self-perceived health, and to describe spiritual practices commonly used among Taiwanese elders. This study used data collected for a larger cross-sectional study that investigated spiritual well-being, psychosocial factors, and health outcomes among elders living in Taiwan where they are deeply influenced by Chinese culture. Potential participants were approached at public, free-accessed seniors' activity-centers located in the local communities in a major metropolitan area in Taiwan. These free-accessed seniors' activity-centers are open to public and provide an environment for elderly citizens of the local communities to participate in activities and events designed or hosted for elders.

A convenience sampling method was used to recruit elderly residents who were 65 years-old or older, living in Taiwan, able to orally communicate in mandarin Chinese (or Taiwanese) and able to read traditional Chinese. Elders whose self or family reported to be cognitively impaired or had diagnosis of a major depressive disorder were excluded from the study. One hundred and fifty Taiwanese elders were recruited and participated in this study.

Baron and Kenny's (1986) causal steps approach, the most commonly used test of mediation, was utilized to examine the mediating effect of spiritual well-being by carrying out multiple regression analysis and computing correlation coefficient. An adequate sample size was computed, by using G*Power 3.0.10 software (Faul, Erdfelder, Buchner, & Lang, 2009; Faul, Erdfelder, Lang, & Buchner, 2007), for correlation and regression analysis to achieve a power of 0.80 with medium effect sizes (0.15 for regression analysis and 0.3 for correlation analysis), and alpha level of 0.05 (Cohen, 1988).

3.2. Data collection and ethical considerations

A letter of approval for the ethical conduct of research (SC#3390) was obtained from the primary investigator's Institutional Review Board for Human Rights Protections before approaching the potential participants. Elders who met the research criteria were assured confidentiality and anonymity. After explaining the study, Taiwanese elders who agreed to participate in the study were provided with the self-administrated questionnaires and completed them in quiet and private rooms located at the seniors' activity centers. Informed consent was obtained from each participant.

3.3. Measures and instruments

Instruments used to measure self-perceived health, spiritual well-being, depression, and participants' social demographic background in this study include: the one-item numeric self-perceived health scale, the Spirituality Index of Well-Being (Daaleman & Frey, 2004), the Center for Epidemiological Studies–Depression Scale (CES-D; Radloff, 1977), the Spiritual Practices Checklist (Griffin, Salman, Lee, & Fitzpatrick, 2008), and a demographic questionnaire.

3.3.1. Self-perceived health

Self-perceived health is defined as the individual's subjective perception, view, and knowledge about his/her own state of physical, mental and social well-being (Helvik et al., 2012; Statistics Canada,

2016; WHO, 2017). In this present study, self- perceived health was measured by a single question asking the participant to rate his/her perception regarding his/her own general health on a numeric scale ranging from zero to ten (0 − 10) where the number zero indicates very poor self-perceived health status, and the number 10 indicates the perception of excellent health status.

3.3.2. Spiritual well-being

The translated Chinese version of Spirituality Index of Well-Being (SIWB-C) (Lee & Salman, 2016) which consists of 12 items measures the effect of spirituality on subjective well-being was employed to measure spiritual well-being in this study. Spiritual well-being was defined in this study as an individual's perception concerning seeking congruent, intrinsic, meaningful purpose of life and self-confidence to deal with life challenges and achieve life goals (Lee & Salman, 2016). The original English version of SIWB (Daaleman & Frey, 2004) has been translated into different languages. Studies showed that the SIWB is a reliable and valid instrument to measure spiritual well-being in various populations (Lee & Salman, 2016). The processes for the translation of the Chinese version of SIWB as well as the evaluations of using the Chinese version of SIWB in elders with Chinese cultural backgrounds have been previously published and documented (Lee & Salman, 2016). Good reliability and validity of the translated Chinese version of the SIWB used with Taiwanese elders were reported, Cronbach's alpha values ranged from 0.93 to 0.95 (Lee & Salman, 2016). The Cronbach's alpha for the sample of this study was 0.95.

3.3.3. Depression

The Chinese version of the Center for Epidemiological Studies–Depression Scale (CES-D) was used to measure depression in this study. The CES-D scale (Radloff, 1977) was developed to assess depressive symptomatology in general population, and it has been widely translated into multiple languages and used in diverse populations. Four dimensions of depressive symptoms, including depressed affect, positive affect, somatic and retarded activity, and interpersonal, are assessed in this scale (Radloff, 1977). The CES-D scale is a 4-point rating scale with a possible range of total scores between 0 and 60. It includes 20 items that ask the respondents to self-report the described symptoms occurred in the past week. A higher score on the CES-D scale indicates more depressive symptoms. Literature reported that the CES-D scale is a valid and reliable instrument. Excellent psychometric properties of the CES-D scale used in various populations and languages have been reported. Good internal consistency for its use in Taiwanese populations was also documented (Chien & Cheng, 1985; Lee & Salman, 2016; Li & Lewis, 2013). The Cronbach's alpha of 0.85 was found with the sample of this study. This study adapted the commonly used cutoff score of 16 on the CES-D scale was adapted to classify the participants into depressed or non-depressed group.

3.3.4. Spiritual practices

The Spiritual Practices Checklist was used to identify the types and the frequencies of spiritual practices. It includes a list of 12 religious and non-religious practices that could enhance spiritual well-being, and the individuals are asked to choose all applicable items. Examples of interventions to be included in the checklist are prayer, meditation, relaxation, music, evoking positive memories, yoga, etc. The original questionnaire was developed in the English language and has been used in American elders (Griffin et al., 2008). The processes for translation and adaptation of the checklist into a Chinese version followed the principles stated by Behling and Law (2000), Brislin (1970), and other researchers (Gjersing, Caplehorn, & Clausen, 2010; Lee & Salman, 2016; Sousa & Rojjanasrirat, 2011).

3.3.5. Demographic variables

A demographic questionnaire was used to collect information about the personal characteristics of the study participants. Eight questions on the demographic questionnaire were used to assess participants' age, gender, marital status, religion, educational background, employment status, etc.

3.4. Data analysis

The IBM® SPSS® Statistical package, version 20 computer software was used to analyze the data for this study. Descriptive statistics including mean, standard deviation, frequency, and percentage were utilized to describe the characteristics of the sample and participants' self-perceived health, spiritual well-being, and level of depression. Pearson's correlation was used to examine the relationship between spiritual well-being, depression and self- perceived health. Several regression models were performed to examine the effects of spiritual well-being and depression on self-perceived health. Hierarchical regression models were also employed to test the mediating effect of spiritual well-being on the relationship between depression and self-perceived health.

4. Results

4.1. Descriptions of the sample

The demographic distribution of the study sample is presented on Table 1. About 58.7% of participants of this study were at the ages of 65–74 years old. Near 94% of the participants were at the ages between 65 and 84 years old. Most of the participants were married (66%), and 22.0% of the elders in this study were widowed. Most of the participants had retired from their regular jobs (86.7%), and 80.7% of the elders were living with someone (not living alone). More than half the participants (65.4%) had completed at least high school education. Most participants (82.7%) reported having a religion (e.g. Buddhism, Christian, Taoism, or other religion), but there were about 14.0% of the participants reported that they do not choose to have or practice any religion.

Table 1
The characteristics of participants (N = 150).

Characters	*n*	%
Age, years		
65–74	88	58.7
75–84	53	35.3
≥85	8	5.3
Gender		
Male	66	44.0
Female	82	54.7
Marital status		
Single (never married)	9	6.0
Married	97	64.7
Separate or divorced	8	5.3
Widowed	33	22.0
Retired from formal jobs		
Yes	130	86.7
No	8	5.3
Living alone		
Yes	22	14.7
No	121	80.7
Being a volunteer or participate in community service		
Yes		
No		
Education		
Completed a college or higher degree	46	30.7
Completed high school (9th–12th grades)	52	34.7
Complete elementary school or less	38	25.3
Religion		
Have a religion	124	82.7
No religion	21	14.0

4.2. Descriptions of self-perceived health, spiritual well-being and depression

On average, the self-perceived health among Taiwanese elders in this study was above the median score of 5 with the mean score equals to 7.03 (SD = 1.79) on the 0 to10 rating scale. About 30.7% of the elders (n = 46) in this study perceived a score of 8 about their health status. The mean score for spiritual well-being among all participants was 41.49 (SD = 11.26), and the average score of the CES-D scale was 12.82 (SD = 9.66). When the generally used cut-off point of 16 was adopted, a total of 25.3% (n = 38) of the participants in this study had a score of 16 or higher which were considered at a risk for clinical depression.

4.3. Associations between spiritual wellbeing, self-perceived health, and depression

Pearson's correlation analysis found that a higher level of spiritual well-being was significantly related to a higher level of self-perceived health ($r = 0.28$, $p < .01$). Moreover, participants who reported a lower score on the CES-D scale had better self-perceived health ($r = -0.41$, $p < .01$), and higher level of spiritual well-being ($r = -0.46$, $p < .01$).

4.4. Effects of spiritual well-being and depression on self-perceived health

The effects of spiritual well-being and depression on self-perceived health were examined with two separate simple regression models (see Models 2a and 2b on Table 2). The results of simple regression analysis (Model 2a) showed that depression was a significant predictor of self-perceived health. Depressed elders (CES-D score ≥ 16) were more likely to report having poorer self-perceived health, and depression explained a total of 6.2% of the variances in self-perceived health. The second simple regression model (Model 2b) showed that spiritual well-being was also a significant predictor of Taiwanese elders' self-perceived health. Spiritual well-being explained a total of 7.9% of variances in self-perceived health.

4.5. The mediating role of spiritual wellbeing on the relationship between depression and self-perceived health

The results as presented above have shown that there were strong relationships between depression (independent variable), spiritual well-being (potential mediator) and self-perceived health (outcome variable). Moreover, the above results also showed that both the potential mediator (spiritual well-being) and the independent variable (depression) could predict the outcome variable. To satisfy the conditions for testing the mediating effect of spiritual well-bring, a separate simple regression analysis was performed to examine whether the independent variable (depression) is also a significant predictor of the mediator (spiritual well-being). The results (see Model 2c on Table 2) showed that depression was a significant predictor of spiritual well-being, and significantly explained a total of 20.7% variances in spiritual well-being.

Table 3
Hierarchical regression analysis for the mediating effect of spiritual wellbeing on the relationship between depression and self-perceived health (N = 150).

Predictors	Self-perceived health	
	Model 3a (β)	Model 3b (β)
Depression	−0.249**	−0.152
Spiritual well-being		0.212*
R^2		0.097
Adjusted R^2		0.083
Δ R^2		0.036*

* $p < .05$.
** $p < .01$.

To test the mediating effect of spiritual well-being on the relationship between depression and self-perceived health, a hierarchical regression analysis was performed by adding spiritual well-being to the equation in which depression was the independent variable and self-perceived health was the outcome variable (see Table 3). When the potential mediator (spiritual well-being) was put into consideration and added to the equation (model 3b), the result showed that the mediator (spiritual well-being) still predicted the outcome variable (self-perceived health) ($\beta = 0.212$, $p < .05$). However, the effect of depression on self-perceived health was significantly reduced ($\Delta R^2 = 0.036$, $\Delta F = 4.84$, $p < .05$) and no longer a significant predictor of self-perceived health ($\beta = -0.152$, $p = .116$). The significant R^2 changes resulted from adding the variable of spiritual well-being to the regression model indicated a mediating effect of spiritual well-being on the relationship between depression and self-perceived health status.

4.6. Commonly used spiritual practices

Table 4 shows that the most commonly used spiritual practice among elders participated in this study was relaxation (97.3%). In addition to relaxation, physical activity, helping others, and recalling positive memories were also frequently used by the elders in this study. More than 90% of the participants indicated that they had ever used such practices for their spiritual well-being. Yoga is a spiritual practice that is the least frequently used by Taiwanese elders. Only 13 of elders among all the participants had practiced yoga.

5. Discussion

The Taiwanese elders who participated in this study generally perceived a good health status. The mean score of self-perceived health rated by the Taiwanese elders was 7 on a 0 to 10 rating scale. Previous studies suggested that social interaction is associated with improved functional status and self-rated health and well-being in elderly (Ichida et al., 2013; Tomioka, Kurumatani, & Hosoi, 2017; WHO, 2017). The participants in this study were recruited from seniors' activity centers at local communities. It is possible that the participants were socially active and had little or no physical disability and therefore perceived a good health status. The causal inference regarding whether a greater

Table 2
Simple regression analysis for the effects of depression (CES-D score ≥ 16) and spiritual well-being on self- perceived health, and the effect of depression on spiritual well-being (N = 150).

Models	Outcome	Predictor	Unstandardized coefficient (B)	Standardized coefficient (β)	R^2	F
Model 2a	Self-perceived health	(Constant)	7.310		0.062	8.18**
		Depression	−0.991**	−0.249**		
Model 2b	Self-perceived health	(Constant)	5.175		0.079	11.15**
		Spiritual well-being	0.045**	0.281**		
Model 2c	Spiritual well-being	(Constant)	44.671		0.207	33.99**
		Depression	−11.386**	−0.455**		

** $p < .001$.

Table 4
Descriptions of the spiritual practices used by elders ($N = 150$).

Ranking/spiritual practices	Had ever used	Never used
	n (%)	n (%)
1. Relaxation	146 (97.3%)	3 (2.0%)
2. Exercise (e.g. walking)	143 (95.3%)	7 (4.7%)
3. Helping others	138 (92.0%)	12 (8.0%)
4. Recall positive memories	135 (90.0%)	14 (9.3%)
5. Listening music/playing music	130 (86.7%)	19 (12.7%)
6. Visit house of worship or quiet place	119 (79.3%)	29 (19.3%)
7. Family activities	111 (74.0%)	39 (26.0%)
8. Pray alone	97 (64.7%)	52 (34.7%)
9. Reading spiritual materials	97 (64.7%)	51 (34.0%)
10. Pray with others	83 (55.3%)	75 (44.7%)
11. Other practices	24 (16.0%)	124 (82.7%)
12. Meditation	33 (22.1%)	116 (77.9%)
13. Yoga	14 (9.3%)	132 (88.0%)

tendency to participate in social activities held at the community centers is a contributing factor for better self-perceived health and health outcomes in Taiwanese elders may need further investigation. However, this study provides preliminary support for investing in community infrastructure and creating age-friendly environments that allow and enhance elders' social interactions and engagements that may help promote healthy ageing.

The percentage (25.3%) of depressed (CES-D score ≥ 16) elderly in this study is slightly higher than that was reported in the literature. A meta-analysis reported that the prevalence of depressive symptoms in Chinese older adults who were 65 was 23.6% (Li, Zhang, Shao, Qi, & Tian, 2014). The CES-D scale is a commonly used valid screening tool for depression with reliable sensitivity and specificity. Using a clinical diagnostic tool with assistance from psychiatrists could more accurately identify individuals with depression. However, this study was not focusing on making a clinical diagnosis of depression of the participants.

Consistent with the literature, this study found that elders who were depressed (CES-D score ≥ 16) were more likely to perceive poor health and lower level of spiritual well-being. The findings provide additional support to existing evidences that mental health is one important domain of health (WHO, 2017b) and an influential factor of self-perceived health among elders (Helvik et al., 2012; Machón et al., 2016; Ocampo, 2010). As hypothesized, depression and spiritual well-being were found to be significant predictors of self-perceived health. Moreover, one's sense of coherence as one of personal coping characteristics is a significant contributor to one's perceived health (Helvik et al., 2012). This study also found that the relationship between depression and self-perceived health was mediated by spiritual well-being. The findings from the study add to our knowledge and provide support to the literature that spiritual well-being may function as a coping mechanism helping people deal with stressful events in life and illness (Dalmida et al., 2011; Diaz, Horton, McIlveen, Weiner, & Williams, 2011; Mok, Wong, & Wong, 2010; Peselow et al., 2014).

The mediating effect of spiritual well-being found in this study also highlights the importance of providing spiritual interventions and care to elders and especially to those who suffer from depression. Literature showed that spiritual well-being is a significant indicator of elder's positive health outcomes and could be a mediator buffers the destructive effects of depressive symptoms on health-related quality of life among elders (Bai & Lazenby, 2015; Lee & Salman, 2018). Therefore, interventions aim at increasing spiritual well-being could be vital for elders to promote better heath and successfully cope with stress in their life. Providing spiritual care to satisfy patients' spiritual needs as well as to promote their spiritual well-being is an important task of nursing care as nursing is a profession concerning about holistic care that could improve individual's overall well-being (Cockell & Mcsherry, 2012; Ramezani et al., 2014). Hence, promoting self-perceived health and spiritual well-being in older people, especially among those who are depressed, and providing culturally competent spiritual care, are important and should be taken into account when planning care.

This is the first research report that provides preliminary understanding regarding spiritual practices commonly used by Taiwanese elders. Given the growing importance of evidence based practice (EBP) in health care, the definitions and EBP models found in the existing literature highlight the significances of considering patient's preferences when implementing EBP projects (Goode, Fink, Krugman, Oman, & Traditi, 2011; Hodge, 2011; Melnyk, Fineout, Giggleman, & Choy, 2017). In order to develop and provide effective and culturally competent spiritual care and interventions to clients, patients' preferences regarding spiritual practices must be assessed and considered. This study found that the most commonly used spiritual practice among Taiwanese elders were relaxation and exercise. The relaxation strategies used as spiritual practices by elders in this study could be different among individuals. Data regarding what specific relaxation strategy was used by each participant was not collected in this study and may be further investigated in future studies.

Following relaxation, exercise (e.g. walking) was the second most commonly used spiritual practice among the Taiwanese elders. There is compelling evidence indicating that physical activity plays a major role in shaping healthy ageing (WHO, 2017). Evidences showed that physical activity and exercise could improve health outcomes, increase individual's quality of life, prevent or delay disease or disability, increase mental health and reduce emotional distress (CDC, 2015; Leimanis & Fitzpatrick, 2014; McPhee et al., 2016; National Institutes of Health, 2015b; WHO, 2017c). Physical activity is especially important for older adults to improve health, prevent diseases, maintain independence and promote quality of life (McPhee et al., 2016; NIH, 2015b; Sun, Norman, & While, 2013; WHO, 2017). The findings of this study suggested that health care providers may include relaxation techniques and physical activities as part of interventions when providing care to help Taiwanese elders maintain functional capacities. To develop and provide effective and culturally competent spiritual care to older people, conducting spiritual assessment to identify each older individual's spiritual needs may be necessary.

In this study, the Spiritual Practice Checklist only identified the types of spiritual practices used by the participants to promote their own spiritual well-being; frequencies of practicing of each spiritual activity were not assessed. This measurement limited the capability of this study to further investigate the association of each spiritual practice with self-perceived health. Future research may assess the magnitude of using each spiritual practice and examine their relationships and effects to health outcomes. Identifying spiritual practices that are most frequently used and most effective for enhancing and maintaining good health perceived by elders is needed and would be helpful for future development of spiritual care for elders.

Several limitations and weaknesses of the study should be acknowledged. First, the convenience, non-random sample limits the generalizability of the results of the study. The study recruited Taiwanese elders from only one city at Southern Taiwan, and the participants attended the seniors' activity centers at the communities. The personal and social-demographic characteristics of elders participated in this study could be different from those who were living in other areas of Taiwan and/or not presenting and attending activities or events held at the seniors' activity centers. Future studies should include a larger sample size from various settings and more representative samples are suggested. Second, the cross-sectional design of the study has limited capability for establishing the cause-effect relationships between variables and drawing the causal paths of the mediation model. This study utilized a series of linear regression models to analyze the mediating effect based on the causal steps approach developed by Baron and Kenny (1986). However, using this approach may have its limits in drawing conclusion regarding mediation effects (Fritz & MacKinnon, 2007; MacKinnon & Pirlott, 2015). Although the median

sample size for the studies using the causal steps approach was about 159 (Fritz & MacKinnon, 2007; MacKinnon & Pirlott, 2015), a lager sample size for optimal statistical power is recommended for the future studies that are to detect mediating effects. Moreover, other factors (such as whether having chronic disease or not) may also play significant roles in the relationship between depression and self-perceived health in elders. Using path analysis or Structural Equation Modeling (SEM) analysis to examine and clarify the roles and effects of multiple factors on the relationships between depression and self-perceived health may be useful for providing evidences to healthcare practitioners and helping on filling our knowledge gap. Mental well-being is one important domain of health as defined by WHO (2017b), and psychological well-being such as spirituality is an indicator of mental health (CDC, 2013). Conducting longitudinal studies in the future may be useful for understanding the effects of depression and spiritual well-being on elders' health as well as the interrelated and dynamic changes between depression, spiritual well-being, and self-perceived health.

6. Conclusion

Understanding factors associated with self-perceived health among older people in different cultures could inform the delivery of appropriate and culturally competent interventions to promote older people's health. Spiritual well-being has a mediating effect on the relationship between depression and self-perceived health status. This study provides support to the evidence that spiritual well-being plays a significant role that has positive impacts on health and may help elders who experience illness and health problems to deal with distress. Spiritual care that includes relaxation techniques or physical activity programs could be considered in the designs of spiritual interventions for Taiwanese elders. Information provided in this study may be useful for our future efforts on establishing best practices, designing and developing effective spiritual care to help elders remain in good health as well as for training and educating health care providers to reach the goal of providing culturally competent care to all.

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