

A Path Analysis of Spiritual and Religious Coping on the Depressive Symptoms, Role Stress, and Self-Efficacy of Surrogate Decision Makers of ICU Patients

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Abstract

Background: Under heightened states of high uncertain and emotional distress, surrogate decision makers (SDMs) are often expected to make informed medical decisions that align with the critically patient's preferences for life-sustaining care. Under these circumstances, some SDMs use spiritual and religious coping (SRC) to mitigate the negative influence of situational and role-related stressors. However, there is a relative dearth of evidence that has explored the relationships among SRC and other determinants of surrogate decision making, such as SDM's depressive symptoms, role stress and decision making self-efficacy, on the perceived care preference of the critically ill patient.

Purpose: To evaluate the direct and indirect influence of SRC on key determinants of surrogate decision making and care preference.

Methods: This is a cross-sectional, correlational study consisting of a convenience sample of 281 SDMs of critically ill adults. A battery of measures were administered to capture the SDMs' sociodemographic data, SRC, depressive symptoms, role stress, decision making self-efficacy, and the perceived care preferences of patients. Data were analyzed using descriptive statistics and a path analysis.

Results: Our sample was predominantly, middle-aged ($M = 54.4$, $SD = 13.6$), white (76%), female (73%), and identified as being a relative (94%) of the critically ill patient. The path model had excellent fit to the data ($\chi^2 = 26.7$, $p = .37$; $TLI = .99$; $CFI = .98$, $RMSEA = .02$). Depressive symptoms ($\beta = -.14$, $p < .05$) and decision making self-efficacy ($\beta = .16$, $p < .05$) was directly associated with spiritual and religious coping. However, the only direct predictor of care preference was decision making self-efficacy ($\beta = -.21$, $p < .05$).

Conclusion: These data clearly provide evidence that SRC influences depressive symptom severity and the decision making self-efficacy of SDMs. Based on our findings, we recommend that future research explore how to incorporate SRC into decision support interventions to improve SDMs' decision making self-efficacy and delivery of preference concordant care to the critically ill.

Keywords: *Spiritual and Religious Coping; Surrogate Decision Makers; Critically Ill; Decision Making Self-Efficacy*

Introduction

Under heightened states of psychological stress and uncertainty, family members, fictive kin serve, or legal proxies serve as surrogate decision makers (SDMs) for cognitively impaired critically ill patients. Within 48 hours of a patient's hospitalization, it is estimated that

44.4 - 50.4% of medical decisions about life-sustaining care and procedures are made by SDMs [1]. A substantial proportion of these SDMs will rely on spiritual and religious coping (SRC) to help them manage the burdens of their new role. The synergistic demands of assuming this role while making life-sustaining choices for the patient while facing prognostic uncertainty amplifies negative psychological symptoms commonly reported by those in the SDM role, such as depression, stress, and decision-making self-efficacy. These symptoms are posited to adversely affect the decision making of SDMs sense of agency and reduce their ability to make decisions that are concordant with the patient's values. Despite mounting attention on the positive influence of SRC on psychological health of persons experiencing stressful life events, there is a relative dearth of quantitative evidence linking SRC to determinants of surrogate decision making, as well as on how SRC either directly or indirectly influences the perceived care preferences of the critically ill.

Review of the Literature

Spiritual and religious coping

It is not uncommon for individuals in stressful life situations to employ SRC to preserve their psychological well-being. A recent national survey of 1,025 Americans indicated that 89% of these Americans reported believing in God or a universal spirit [2]. Additionally, more three-quarters (78%) of Americans surveyed responded that they prayed either sometimes or often outside of religious services, or in times crisis [2]. A substantial proportion of Americans turn to spiritual and religious practices, behaviors, and thinking to manage stressful situations or roles. With consideration to the importance of SRC in the general public, a multisociety taskforce has prioritized and called for assessment and support for the spiritual and religious needs of the critically ill and their SDMs as essential to the provision of high-quality critical care [3].

A dimension of general coping, SRC, is a dynamic, conservational process that distinctively focuses on the spiritual and religious practices, behaviors, and thought processes used by individuals to manage a stressful life event [4]. It is posited by Pargament, *et al.* [4] that an individual's use of religious beliefs and practices reflect SRC, which is presumed to mediate the relationship spiritual and religious orientation and the outcomes of a major life event. SRC has been shown to preserve the psychological well-being of individuals, informal caregivers and SDMs who have experienced a stressful life event [5-8]. As such, SRC has been shown to be inversely related to indicators of emotional distress (e.g. depressive symptoms) and situational stressors among those serving in roles, such as caregivers or SDMs for community-dwelling adults with a chronic illness.

SRC in surrogate decision makers of the critically ill

SDMs of critically ill patients routinely employ SRC to manage the stress associated with the patient's uncertain hospital course and responsibility of making medical decisions. In a recent multicenter study involving 457 SDMs, Ernecoff, Curlin, Buddadhumaruk and White [9] found that 78% of their participants rated religion or spirituality as fairly or very important and 16% (40 out of 249) of their recorded conversations were spiritual or religious considerations. Furthermore, of the 40 conversations that spiritual or religious considerations were raised, nearly two-thirds of these conversations (65%) were first raised by SDMs. These findings highlight that SDMs often reflect on their spiritual and religious beliefs when considering medical decisions and having goals-of-care conversations.

Although there is a relative dearth of research focused on SRC in SDMs of the critically ill, Schenker, *et al.* [10] provide additional evidence that SDMs make use of SRC. In their qualitative study, Schenker, *et al.* [10] interviewed 30 SDMs from five intensive care units (ICUs) at two hospitals to characterize the coping strategies of SDMs of the critically ill. In their study, Schenker, *et al.* [10] identify that SDMs struggle with emotional discomfort related to the responsibility of making decisions for their loved ones and identified five coping strategies and of these strategies, spiritual and religious practices were identified 'prayer as a source of hope, solace, and community when facing difficult decisions (p.1663). Schenker, *et al.* [10] found that a belief in God or a universal spirit alleviated the burden or weightiness associated with the SDMs' responsibility of making medical decisions. Similarly, Geros-Willfond, Ivy, Montz, Bohan and Torke

[11] conducted qualitative interviews with 46 SDMs of hospitalized older adults and identified spirituality and religion were used to guide decision making, perceptions of the controllability of the situation, and the acceptance of death and dying process.

Adding to the qualitative evidence base focused on SRC in SDMs, Alexia M Torke., *et al.* [12] quantitatively examined the relationship between religion and spirituality in 291 patient and SDMs dyads and found that higher SDM religiosity was associated with a lower receipt of life-sustaining treatments within the last 30 days of the patient’s life. Also, lower hospice utilization was associated with SDMs with higher states of SRC or intrinsic Altogether, the studies of Schenker., *et al.* [10], Geros-Willfond., *et al.* [11] and Torke., *et al.* [12], underscore the utilization of SRC among SDMs. Still, the aforementioned studies do not provide clear insights on how SRC influences the psychosocial determinants of surrogate decision making that influence the SDM’s ability to make informed decisions and ensure the patient’s receipt of preference concordant care.

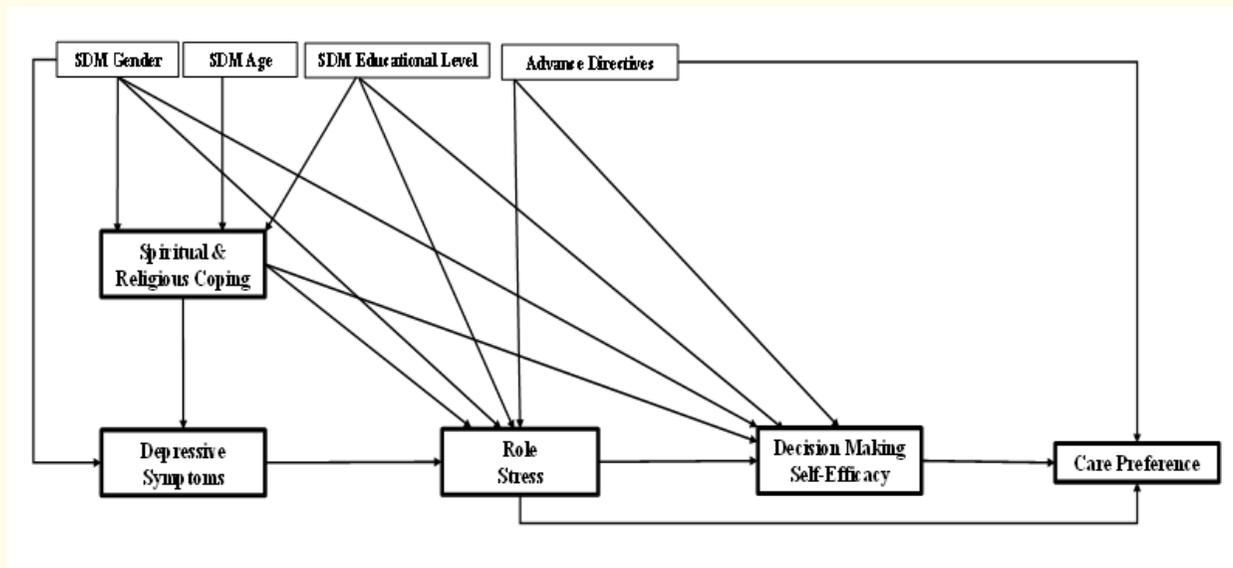


Figure 1: Hypothesized path analytic model.

Posited model of SRC on determinants of surrogate decision making and care preference

The relationships among SRC, determinants of surrogate decision making (e.g. depressive symptoms anxiety, roles stress, and decision making self-efficacy) and care preference have not been explored in SDMs of the critically ill. Guided by the Pargament’s theory of religious coping [13], stress and coping process [14], Ottawa decision support framework [15] and the extant literature on surrogate decision making in the context of critical illness, we have conceptualized a hypothesized model that accounts for the direct and indirect associations among SRC, depressive symptoms, role stress, and decision making self-efficacy on the SDM’s perception of the patient’s care preference or orientation towards life-extending or quality of life-preserving care (Figure 1). In our model, we have hypothesized that SRC directly affects the determinants of surrogate decision making (e.g. depressive symptoms, role stress, and decision making self-efficacy) and three variables that operationalize the determinants of surrogate decision making are posited mediators that indirectly influence preference concordant care. As noted in figure 1, we have also accounted for potential confounders (e.g. SDM’s age and gender, education level, and

advance directive status) that have known associations with SRC, the determinants of surrogate decision making, and the outcome of interest, the patient's perceived care preference [16].

Purpose of the Study

The purpose of this cross-sectional, correlational study is three-fold. First, we aim to describe the direct effects of SRC on depressive symptoms, role stress, decision making self-efficacy and care preference. Secondly, we will examine three hypothesized mediated relationships: (1) if depressive symptoms mediate the relationship between SRC and role stress; (2) if role stress mediates the relationship between SRC and decision making self-efficacy and (3) if depressive symptoms mediate the relationship between SRC and role stress. Lastly, we will describe the direct effects of the study variables on the perceived care preference of the critically ill.

Methods

Research design

This is a cross-sectional, correlational study of baseline data generated as part of a randomized controlled trial. The primary purpose of the parent randomized controlled trial (RCT) was to examine the efficacy of an electronic decision support intervention for SDMs contemplating medical decisions in an intensive care unit (ICU). Before initiating study procedures for the parent RCT, the authors obtained approval from the study site's institutional review board.

Setting and sample

Using convenience sampling methods, SDMs of critically ill patients were recruited from four (e.g. cardiac, medical, neuroscience, and surgical) ICUs at a 1,000-bed academic medical center in Northeast Ohio.

There were two sets of eligibility criteria used to identify eligible critically ill patients and their SDMs. Patients were first screened for eligibility. Eligible critically ill patients met the following criteria: Eligibility criteria for critically ill patients: (1) aged > 18 years; (2) required mechanical ventilation and ICU stay > 3 days; (3) not expected to be transferred out of the ICU within 48 hours; (4) lacked decisional capacity and (5) had an identified SDM (next-of-kin or legal representative for healthcare decision making) in their medical records. For patients who met these criteria, they SDMs were subsequently screened. SDMs were included in this study if they were: (1) aged > 18 years; (2) identified by the healthcare team as the patient's next of kin or legal representative for healthcare decision making; and (3) able to speak and understand English.

Instruments

Demographic characteristics were collected by an investigator developed questionnaire. Items included: SDM's age, gender and racial identity, relationship to the patient, socioeconomic status, education level, prior SDM experience and advance directives status.

Spiritual and religious coping of SDMs was captured by the brief Santa Clara Strength of Religious Faith Questionnaire (SCSOFQ). The SCSOFQ is a five-item short version of the original SCSORFQ, which consists of 10-items. Both the original and short-form versions of the SCSORFQ measures the strength of an individual's religious faith regardless of denomination. The short form version of the SCSOFQ consists of items scored on a 4-point scale and a total score is calculated by summing the items. The SCSOFQ is a reliable and valid measure used in a variety of culturally diverse populations [17-19]. In the present study, the internal consistency reliability coefficient of the short form SCSOFQ was .92.

Decision making self-efficacy was operationalized by the Family Decision Maker Self-Efficacy Scale (FDMSE). This scale consists of 13 items that measure the SDM's confidence in making healthcare decisions for a cognitively impaired patient. A total score is summed and

higher scores are indicative greater states of decision making self-efficacy. It has established reliability and validity [20] and the internal consistency reliability of the scale was .85 in the present study.

Role stress is a single item indicator that describes the SDM's appraisal of the psychological stress related to the SDM role. This single item, "How stressful is making healthcare decisions for your loved one?" will measure the stress related to SDM role. Each subject will endorse their perceived stress level by using sliding a marker on a visual analog scale anchored by "0-not at all stressful" and "10-extremely stressful". Higher scores will indicate the subject's appraisal of increased states of stress related to the SDM role. This single-item measure has established divergent and convergent validity with depressive symptoms, information satisfaction, and threat appraisal in SDMs of the critically ill [21].

Depressive symptoms were measured using the depression subscale of the Hospital Anxiety Depression Scale (HADS). The HADS is conceptualized as bi-factor scale capturing symptoms of generalized anxiety and depression. Items are scored on a 4-point scale. The anxiety subscale is consists of seven items and a total score is calculated. The HADS and its anxiety subscale is a reliable and valid measure of psychological distress and discrete symptoms of anxiety and depression. The measure has been previously administered in samples of SDMs [22,23] and in the present sample, the internal reliability consistency of the depression subscale was .86.

Care preference was operationalized by a single item indicator. This single item prompts respondents to consider if the patient would prefer: (1) life-extending course of treatment focused on extending life as much as possible or (2) a course of treatment focused on relieving pain or discomfort. Respondents endorse one of two care preferences.

Data collection

After the SDMs provided written informed consent, baseline data were collected through structured, vis-à-vis interviews. A research assistant read aloud the survey items and subjects' responses were directly entered into the Research Electronic Database Capture (REDCap) system. Upon the subjects' request a hardcopy of the surveys was left behind for completion and a double entry process was used to transfer the subjects' responses from the hardcopies of the surveys to the REDCap database. Subjects took 30 - 40 minutes to complete the baseline interview and no incentive was provided.

Statistical analyses

To address the objectives of this report, data were analyzed using the Statistical Package for Social Sciences (SPSS, version 27) and Analysis of Moment Structures (AMOS, version 27). Using SPSS, descriptive statistics were conducted to characterize the sample characteristics and describe the distributions of the main study variables. To describe the indirect and direct associations among the study variables, a path analysis using maximum likelihood estimation was conducted in AMOS. Although there are varied methods to estimate adequate sample size to achieve sufficient statistical power for path analysis, the authors used the 10 case per variable criterion established by Bentler and Chou (1987) to verify that the path model had sufficient statistical power and adequacy of the sample size. In addition, recommended best practices to evaluate the model's fit to the data and systematically trimmed the model for parsimony as outlined below.

Evaluation of model fit: To evaluate the fit of the path analysis model to these data, standard goodness-of-fit indices were examined and used to guide the model trimming procedures. The following goodness-of-fit indices were used to establish the validity of the path model in this sample of adult with hypertension: chi-square [$c^2, p > .05$], Tucker Lewis Index [TLI; $> .90$ acceptable, $> .95$ excellent], the Comparative Fit Index [CFI; $> .90$ acceptable, $> .95$ excellent], and Root Mean Square Error of Approximation [RMSEA; $< .08$ acceptable, $< .05$ excellent] [24].

Model trimming: Standardized indirect and direct path coefficients and the explained variance for each endogenous variable were calculated and reviewed. Model trimming was done by individually removing all statistically insignificant paths ($p > .05$) and examining changes in the model fit indices. This systematic process of model trimming was employed to achieve the most parsimonious path analysis model.

Results

Sample characteristics

A sample of 281 SDMs provided data that were included in the statistical analyses. The sample consisted mostly of SDMs who identified as being female (73%), white (76%), and almost three-quarters (74%) identified as a spouse or an adult child of a critically ill patient. Participants were middle-aged and older ($M = 54.4, SD = 13.6$) and majority (59%) were considered to be middle-class or higher. In terms of prior experience with making medical decisions for the patient or others, 57% of participants reported that they were new to the SDM role. Additional sample characteristics are presented in table 1.

Variable	n (%)
Gender:	
Female	205 (73)
Male	76 (27)
Racial identity (n = 280)	
White	214 (77)
African American	57 (20)
Hispanic	2 (1)
Asian	3 (1)
Bi or Multiracial	4 (1)
Relationship to patient	
Spouse	112 (40)
Adult child	94 (33)
Other relative	55 (20)
Legal proxy	18 (7)
Educational level	
Less than high school	5 (2)
High school diploma	78 (28)
Associates degree/technical training	103 (37)
Bachelors degree	48 (17)
Graduate or professional degree	47 (16)

Annual household income (n = 277)	
\$20,000 or less	26 (9)
\$21,000 to \$49,000	88 (32)
\$50,000 and more	163 (59)
Prior SDM experience: No	159 (57)
Advance directives (n = 234): No	130 (56)
Critical care service	
Cardiac ICU	21 (8)
Medical ICU	86 (31)
Neurosciences ICU	75 (27)
Surgical ICU	99 (35)

Table 1: Sociodemographic and clinical characteristics of surrogate decision makers.
 Note: SDM: Surrogate Decision Maker; ICU: Intensive Care Unit.

Path analysis

The final path model yield an excellent fit to these data ($\chi^2 = 26.7, p = .37; TLI = .99; CFI = .98, RMSEA = .02$). As shown in figure 2, there were six paths were not statistically significant and each path was sequentially removed to improve the fit and parsimony of the final model. A total of 10 statistically significant paths retained in the final path model. The final model included five endogenous variables. The proportion of the explained variance (R^2) for the endogenous variables were 11% of SRC, 3% of depressive symptoms, 15% of role stress, 9% of decision making self-efficacy, and 7% of care preference.

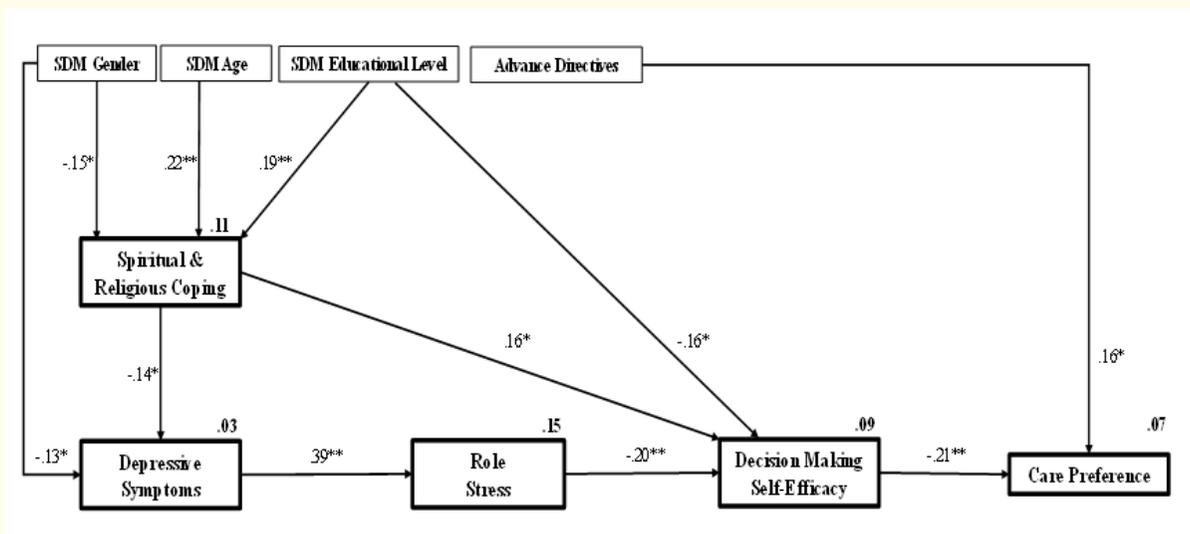


Figure 2: HFinal Path Model. Model fit statistics: ($\chi^2 = 26.7, p = .37; Tucker Lewis Index (TLI) = .99; Comparative Fit Index (CFI) = .98, Root Mean Square Error of Approximation (RMSEA) = .02$). Standardized path coefficients (β) are provided above or alongside each path, and the explained variance of each endogenous variable is provided in bold.
 Note: * $p < .05, **p < .001$.

Predictors of spiritual and religious coping: Three predictors, the gender, age, and educational level, accounted for 11% of the explained variance in the SDM's level of SRC. Of these three predictors, age was most influential predictor ($\beta = .22, p < .001$) and as expected an increase in age was positively associated with SRC. SDMs who reported their gender identity as male used less SRC ($\beta = -.15, p < .05$) compared SDMs who identified as female. Additionally, increasing levels of education attainment is positively associated with SRC ($\beta = .19, p < .001$).

Direct effects of spiritual and religious coping: Spiritual and religious coping had direct effects on two endogenous variables, depressive symptoms and decision making self-efficacy. SRC had an inverse association with depressive symptoms ($\beta = -.14, p < .05$) while adjusting for the influence of gender ($\beta = -.13, p < .05$). In addition, SRC was positively associated with decision making self-efficacy ($\beta = .16, p < .05$) while adjusting for the SDM's educational level ($\beta = -.16, p < .05$).

Evaluating mediated relationships: In the hypothesized path model, three mediators were posited, depressive symptoms, role stress, and decision making self-efficacy. The first hypothesized mediator, depressive symptoms, was posited to mediate the relationship between SRC and role stress. Based on the results of our final path model, it was determined that the relationship between SRC and role stress is fully mediated by depressive symptoms, which was confirmed by a statistically insignificant path between SRC and role stress ($\beta = -.14, p = .11$).

The second proposed mediator, role stress, was conceptualized to mediate the relationship between depressive symptoms and decision making self-efficacy. Given the lack of a statistically significant relationship between depressive symptoms and decision making self-efficacy ($\beta = -.05, p = .48$), it was determined that role stress fully mediated the relationship between depressive symptoms and decision making self-efficacy as expected.

The third posited mediator, decision making self-efficacy, was postulated to mediate the relationship between role stress and preference concordant care. Our final path model confirmed that decision making self-efficacy mediated the relationship between role stress and preference concordant care while adjusting for the established advance directives ($\beta = .16, p < .05$). There was not a statistically significant relationship noted between role stress and care preference ($\beta = -.01, p = .85$) while adjusting for advance directives.

Predictors of care preference: In an effort to understand how the variables influenced the delivery of care preference, there were two statistically significant predictors of care preference were identified. The most influential predictor was decision making self-efficacy ($\beta = -.21, p < .001$). The second predictor of care preference was advance directives ($\beta = .16, p < .05$). Altogether, these two statistically significant predictors accounted for 7% of the explained variance in care preference.

Discussion

Surrogate decision makers experience a variety of psychological stressors that can predispose them to heightened states of emotional burden that can erode their decision making self-efficacy and agency for ensuring a critically ill patient's receipt of preference concordant care. Although there is an emerging body of literature recognizing the significance of SRC among SDMs of the critically ill, the preponderance of the existing literature has largely explored SRC qualitatively. To the best of our knowledge, the present study is one of the first to quantitatively validate a conceptual framework that explains how SRC can influence psychosocial determinants of surrogate decision making and perceived care preferences of the critically ill.

As hypothesized, we found that the age, gender, and educational level of the SDM was associated with intensity of SRC employed by SDMs. In community dwelling populations of adults facing a variety of stressful life events, increasing age has been correlated with higher states of SRC and psychological well-being [8,25]. Similar to the SDM role, family or informal caregivers' age has been positively associated with SRC [8]. The association between gender and SRC, where SDMs who identify as male, have lower states of positive SRC is also

consistent with studies examining differences in SRC by gender identity [26-28]. The third predictor of SRC was the SDM's educational level; where higher levels of formal education was associated with greater SRC coping is contrary to most of the literature in the field [29,30]. Although our finding positive finding is contrary to most of the literature in the field, there is evidence that higher education may not always be secularizing as demonstrated in our sample. Yet, in context of a patient's critical illness individuals regardless of their levels of educational attainment may engage in SRC out of a profound sense of desperation. Age, gender and educational level influence SRC in SDMs experiencing a patient's critical illness.

In order to address the second objective of our study, we evaluated the effects of three hypothesized mediators, depressive symptoms, role stress and decision making self-efficacy. Our results provide evidence that depressive symptoms, role stress and decision making self-efficacy mediated their respective relationships. Conceptually, SRC is posited to facilitate adjustment and resilience to psychological stressors. In the present study, we argue that depressive symptoms mediating effect on the relationship between SRC and role stress is consistent with Pargament's theory of spiritual and religious coping exploring the SRC as a mediator between spiritual and religious belief and practices that can enhance adjustment to a stressful life event, such as the SDM role.

The second hypothesized mediator, role stress, was confirmed to mediate the relationship between depressive symptoms and decision making self-efficacy. Among SDMs of the critically, Hickman, *et al.* [21] identified an association between depressive symptoms and role stress, but did not evaluate the mediating effects of role stress. Additional comparative studies exploring the mediating effects of role stress were not identified. However, social cognitive theory, transactional stress and coping theory, and a general body of literature further substantiate role stress as a mediator of the relationship between depressive symptoms and decision making self-efficacy.

In our path model, decision making self-efficacy was determined to mediate the third relationship between role stress and preference concordant care. Additionally, decision making self-efficacy was the only statistically significant predictor of the preference concordant, which further denotes the significance of decision making self-efficacy. Although the primary orientation of this study was to explore the associations among the SRC and other study variables, decision making self-efficacy was confirmed to be indirectly and directly associated with SRC and perceptions of preference concordant care. The current research underscores the influential effect of SRC has on decision making self-efficacy, the only concept that proved to predict preference concordant care.

Self-efficacy, in particular decision making self-efficacy, is attributed to promoting a greater sense of agency among SDMs that, in turn, affects the critically ill patient's receipt of preference concordant care. From an agentic socio-cognitive perspective, it theorized that an individual's sociodemographics, beliefs and self-regulatory processes, like SRC, collectively influence self-efficacy. It is self-efficacy, in this instance, specifically decision making self-efficacy that motivates human agency or goal-directed action towards patient's receipt of preference concordant care [31-33]. As demonstrated by our path model, decision making self-efficacy is a contributing factor to the SDM's sense of agency and correlates with the patient's preference concordant care. In our study, SDMs demonstrated a modestly lower state of decision making efficacy if they presumed that patient would prefer care oriented on palliation of bothersome symptoms, which may have manifested another source of psychological stress and lowered their self-efficacy and sense of agency.

Limitations of the Study

The results of our study should be interpreted with caution due to its exploratory nature and several noted limitations. Since this is a cross-sectional, correlational study, the path analysis only establishes predictive associations and does not confirm causality. Another limitation of the present study is the relatively lack of gender and racial diversity of the sample, and inability to characterize the SDMs' religious orientations and affiliations. Additionally, potential confounders, such as clinical and interpersonal relationships with critical care clinicians, were not included in the path model because they were not collected as part of the parent study. We also recognize that communication with healthcare providers and support from spiritual advisers could be conceived as potential confounders affecting the strength of the associations among the study variables; however, these variables were not captured.

Despite the noted study limitations, there are several strengths of the current research. This current research provides new evidence of how SRC affects depressive symptoms and decision making self-efficacy, and the importance of decision making self-efficacy on preference concordant care. Another strength is validity of path model, which a new conceptual framework for future interventional research that focuses on key determinants of surrogate decision making, including SRC, among SDMs of the critically ill.

Conclusion

These data clearly provide evidence that SRC influences depressive symptom severity and decision making self-efficacy of SDMs. Based on our findings, we recommend decision support interventions that incorporate informational support and strategies to enhance SRC. We suspect that decision support interventions targeting SDMs should address the decisional needs with resources to support SRC are likely to prove effective in ensuring preference concordant for cognitively impaired critical ill patients. The results of the current research provide clinicians and scientists a new direction for decision support targeting SRC to promote agency and goal-directed, surrogate decision making to ensure critically ill patients receive preference concordant care.

Conflicts of Interest

The authors have no conflicts of interest to disclose.

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