Article

The Influence of Spiritual Transcendence on a Centering Meditation: A Growth Curve Analysis of Resilience

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Abstract: The authors longitudinally examined a spiritual meditation based on centering prayer. The study consisted of two primary aims: (1) to determine the effectiveness of centering meditation on increasing resilience and (2) to examine the temporal dynamics of spiritual transcendence on resilience during the meditation. Participants (n = 150) engaged in a 4-week randomized controlled trial, in which the treatment group practiced the centering meditation twice a day. The growth curve model includes a three-way interaction to determine if there were group effects in the relationship between spiritual transcendence and time. The interaction between treatment group, time, and spiritual transcendence was statistically significant in explaining the trajectory of resilience, $p < 0.05$. Based on the findings, the centering meditation was effective in statistically significantly increasing resilience in the treatment group compared to the waitlist control group. In addition, spiritual transcendence significantly potentiated the effect of centering meditation on improving resilience over time, $p < 0.05$. The authors discuss limitations and implications for research and practice of centering meditation.

Keywords: centering prayer; meditation; spiritual transcendence; resilience; growth curve modeling; randomized controlled trial

1. Introduction

A prevailing question in religion, philosophy, and psychotherapy is: Does spirituality strengthen people? If so, the next questions are: How does it work and how can we use it to help people grow in resilience? An unknown process occurs in meditation or prayer that appears to help people overcome adversity—bolstering not only spiritual connection but also psychological resilience. For years mental health professionals acknowledged spirituality as a protective factor in mental health (Oxhandler et al. 2021), but we know little about the underlying mechanisms or explanatory variables in this relationship. In other words, how does spirituality helps explain the change in positive clinical outcomes from meditation. Nevertheless, spiritual integration has catapulted an extensive amount of research and become increasingly popular in counseling interventions in recent decades (Cashwell and Young 2020; Oxhandler et al. 2021). Many clients seek some form of integration with their spirituality in counseling but prefer their counselors to initiate or integrate their spiritual beliefs into treatment (Oxhandler et al. 2021). A widely established therapeutic intervention rooted in spirituality is meditation (Gutierrez et al. 2016). The extensive amount of research on its therapeutic outcomes is nearly unmatched, with its known outcomes ranging from reduced stress to increased emotional intelligence (Fox et al. 2016; Alexander 1931; Wallace et al. 1971; Walsh and Shapiro 2006). Nevertheless, researchers are still asking what explanatory variables are present when interventions like meditation confer their positive outcomes (Sedlmeier et al. 2012; Vieten et al. 2018; Walsh and Shapiro 2006). Specifically, researchers still have much to learn about how spirituality influences change in people through meditation.

A meditation with a significant spiritual and religious foundation is centering prayer, a contemplative practice that stems from Christian mysticism in the 4th century. Centering

prayer has grown in both religious and therapeutic practice after Trappist monks Keating, Menninger, and Pennington popularized it in the late 20th century (Fox et al. 2015, 2016; Keating 2002). Reports of its positive effects on mood and spiritual connection grew its popularity, but empirical evidence of its effectiveness and mechanisms of change are still sparse (Fox et al. 2016). In the first experimental trial on a centering meditation based on centering prayer, the authors tested its longitudinal effects on resilience. This study's twofold purposes are to determine the effectiveness of a centering meditation on increasing resilience and examine the underlying dynamics of spiritual transcendence on resilience. To meet both objectives, we examined the relationship among centering meditation, resilience, and spiritual transcendence through a randomized controlled trial and growth curve modeling.

1.1. Centering Meditation

Centering prayer is a spiritual meditation rooted in early Christian traditions of the Desert Fathers and Mothers in the 4th century (Plante et al. 2010). Although the function of centering prayer is stillness, the purpose is to engage in contemplative prayer—inner transformation through connecting the inner self with the divine (Keating 2002). During practice, meditators bring to mind a sacred word that helps them come to a place of stillness. The sacred word in centering prayer serves as an elevator shaft that slowly brings the meditator down to their center, which is a transcendent state of consciousness. Recall centering prayer was developed by Christian mystics, who believed the center of the Self is spiritual consciousness connected to the Divine. It is a prayer because it an act "of just being there, quietly gathered in God's presence" (Bourgeault 2004, p. 3). Its way of being there invites one to meditation. Like any meditation, centering meditation is a unique meditation that is difficult to categorize. Goleman (1988) describes a category called concentration meditations, which aptly describes a function of centering prayer. Through intentional focus, concentration meditation redirects wandering modes of consciousness to a single element (Sedlmeier et al. 2012). The element varies by the meditative practice. However, common foci include the breath, a visible object, or, in this case, a sacred word. However, it also aptly belongs to the category of the devotional meditation (Carlson et al. 1988). In a devotional meditation, practitioners typically engage in a form of contemplative prayer, seeking spiritual union with the divine. Lastly, a binary taxonomy describes meditation in two forms: 'be here now' and 'be there now' meditations (Gutierrez et al. 2016). In other words, certain meditations will focus on present awareness ('be here now') while others may focus on transcendent, spiritual connection ('be there now'). In this sense, centering prayer is both a devotional and concentration meditation that allows people to 'be here now' and 'be there now' simultaneously. Its complexity is part of the reason why it could benefit from further study, compared to other forms of meditations that have received a large amount of empirical examination.

Although based in the Christian tradition, Centering Prayer can incorporate pluralistic spirituality or nonsectarian practice, similar to other religion-affiliated meditation such as Transcendental Meditation (arguably rooted in Hinduism), Vipassana meditation (rooted in Buddhism; Center for Contemplative Mind in Society 2021), or "prayer of the spirit" in Sufi mysticism (Bourgeault 2004). During practice, while bringing awareness to what they hold sacred, meditators develop an awareness of their true self and compassionately recognize the interconnectedness of all life. We based the centering meditation off of centering prayer to include meditators without a belief system in a higher power. Regardless of the belief system of participants, we could still measure the dynamics of spiritual processes such as spiritual transcendence throughout the 4-week meditation. A phenomenon called the faith factor occurs when individuals who incorporate their spirituality into their meditation practice exhibit more positive physiological responses to meditation (e.g., decreased cortisol, lower heart rate) compared to those who separate their spirituality entirely (Benson and Stark 1996). Subsequent research has provided further evidence that incorporating one's personal spirituality into their meditative practice can lead to improved therapeutic

outcomes (Benson 1985; Wachholtz and Pargament 2005). The purpose was to examine how the changes in spiritual transcendence potentially led to improved resilience through practice.

1.2. Spiritual Transcendence

In a devotional meditation like centering meditation, practitioners can engage in a form of contemplative prayer, seeking spiritual union with the divine. A common reported outcome of devotional meditation is an activated state of spirituality or transcendence sometimes known as spiritual transcendence (Piedmont 2001). Spiritual transcendence refers to the human capacity to shift their awareness into this other larger paradigm, and the concept is nearly universal across any religion (Piedmont 1999). Outside of religion, transcendence depicts the ability "to rise above suffering and hardship through larger values, spiritual beliefs and practices, and experiencing transformations in new priorities, a sense of purpose, and deeper bonds (Walsh 2020, p. 905). Described as a spiritual factor of resilience (Walsh 2020), transcendence is considered a critical coping mechanism in face of adversity (Hanfstingl 2013). Although the theoretical idea of a relationship between transcendence and resilience is not new (Walsh 1998, 2020), the empirical evidence on the connection is sparse (Hanfstingl 2013). Fox et al. (2016) found a significant correlation between centering prayer and increased levels of spiritual transcendence, which offers preliminary evidence for this experimental trial regarding its extending connection to resilience. The research on the connection between spiritual transcendence and resilience is in its early stages, offering preliminary and mixed results. In a cross-sectional study, Hashemi and Jowkar (2011) found a statistically significant correlation between spiritual transcendence and resilience in a sample of Iranian adults, r > 0.32, *p* < 0.000. However, in 2013, Hanfstingl (2013) found a non-significant relationship between resilience and constructs related to spiritual transcendence (e.g., spiritual insight, mystical orientation). Both of these studies were cross-sectional and correlational and demonstrate that we have still much to learn of how spiritual transcendence potentially contributes to resilience.

1.3. Resilience

As a psychosocial construct, resilience is one's cognitive, behavioral, and spiritual ability to adapt to stressful changes and surmount the challenges before them (Johnson et al. 2011; Southwick et al. 2014). Mental health professionals use a number of interventions to improve various aspects of the human condition (e.g., mood, trauma). However, they generally seek to harness an undercurrent of these stress responses. They seek to help the human capacity to resilire or 'to bounce back' in the face of adversity (Reghezza-Zitt and Rufat 2015). Research from the fields of psychology, neuroscience, and philosophy examine the various angles of resilience, each revealing its complexity and significance to mental health. However, the underlying dynamic processes of resilience over time has been a long prevailing question in the literature (Southwick et al. 2014). The need to examine the underlying processes of resilience was apparent from the early years of psychology research on resilience in the 1970s (Garmezy 1974). Pioneering psychologist Norman Garmezy argued that the future of resilience research "require[ed] a methodologically rigorous approach to its data analysis," stressing the need for longitudinal approaches that could examine "multi-factorial causal pathways" (Rutter 2012, p. 335). Garmezy describes how resilience is not a fixed state but rather changes continually over time. He also implied that resilience depends on various explanatory variables, which required further scrutiny. Subsequent research has explored and confirmed several of these factors such a sense of meaning and spiritual practice, but the factors and dynamics are still largely unknown (Rutter 2012; Southwick et al. 2014; Werner 2000).

1.3.1. Factors of Resilience

According to Richardson's (2016) Metatheory of Resilience and Resiliency model, resilience as transactional response to stress depends on protective factors (e.g., social

support, economic stability). Richardson highlighted the role that spiritual factors can play in resilience by following direction from the positive psychology movement. Protective factors are a large part of MRR theory, but empirical support could still benefit from a wider investigation (Southwick et al. 2014). Known factors of resilience include genetic factors, lifestyle factors (e.g., healthy diet), individual characteristics (e.g., attachment style), social factors (e.g., social support), coping factors (e.g., mindfulness practice) to name a few (Laird et al. 2019).

Extending beyond psychobiological factors, positive psychologists examine spiritual principles that strengthen and sustain humans (e.g., hope, courage, transcendence; Templeton 2002). Templeton described the positive psychology movement as the restoration of the science of psychology to its original tenet—"understanding the power of the human spirit to benefit from life's challenges" (Templeton 2002, "Foreword", para. 3). As the science of the human spirit, positive psychology operationalizes and examines spiritual principles and subjects them to scientific scrutiny by examining the dynamic roles played by them in human psychology. Not only did we measure the relationship between resilience and a spiritual intervention but also specifically examined spiritual transcendence as a factor of resilience.

1.3.2. Dynamics of Resilience

The research on the direct connection between resilience and meditation is very much in its early stages (Waechter and Wekerle 2015). The purpose of this study is to continue the work that Garmezy invoked researchers to fulfill, concerning using intensive methodology to examine underlying dynamics of resilience during centering meditation. According to the Metatheory of Resilience and Resiliency (MRR; Richardson 2016), resilience is teachable, transactional, and dynamic. It is teachable because people have learned to increase it through various methods, such as meditation. It is transactional because it depends on a balance between stress and coping mechanisms (Lazarus and Folkman 1984; Richardson 2016). It is dynamic because it can fluctuate in a nonlinear manner over time (Southwick et al. 2014). The dynamics a psychosocial construct refers to how its patterns and trajectories fluctuate over time (Fortes et al. 2005; Kuppens and Verduyn 2017). The dynamics of resilience refers to how people can respond with varying levels of resilience at different points in time an in different situations (Rutter 2012). Fluctuation in resilience is expected and natural, yet a deeper understanding its fluctuating dynamics are still missing in the research literature. Theoretically, researchers agree that resilience depends on protective factors and environmental stress, which can change continually over time. However, much of the fluctuations of resilience have yet to be examined. Specifically, the effect of an intervention such as centering prayer on promoting an upwards trajectory and stable increase of resilience is still unknown in the literature. To fill this research gap, we constructed the following research questions to guide our study:

Research Question 1: Is there a significant difference in levels of resilience between individuals who participate in a bi-daily centering meditation and a waitlist control group?
Research Question 2: Does spiritual transcendence potentiate the effect of centering meditation on resilience over time?

2. Method
2.1. Participants

Participants were 150 adults (126 female, 19 male, 3 nonbinary, 2 undisclosed) enrolled in universities across the nation in either undergraduate or graduate programs. We had various contacts at universities and graduate programs across the country and reached out to professors and department chairs initially. With their permission and contacts, we recruited students through e-mail with brief information of the study and a web link to the survey platform Qualtrics. The web link redirected recruited individuals to a survey where they could provide informed consent and complete a baseline protocol. After completing the baseline protocol, 190 participants enrolled in the study. In keeping with Intention-

to-Treat (ITT) procedure, our final sample consists of participants who completed at least one follow-up assessment after the study began (McCoy 2017). Of the 190 randomized participants, 155 participants sufficiently followed protocol through to complete the entire study. We removed 5 participants who were outliers in the preliminary data analysis.

Participants in the final sample identified as White (*n* = 97, 65%), multiracial (*n* = 19, 13%), Hispanic/Latinx (*n* = 16, 11%), Black/African American (*n* = 12, 8%), Asian (*n* = 3, 2%), and Other (*n* = 2, 2%). Their ages ranged from 18 to 61 (M = 27.12, SD = 7.69). Concerning religious or spiritual identity, 50 (33%) participants identified as spiritual, 45 (30%) as no spiritual identity, 27 (18%) as spiritual and religious, 18 (12%) as religious, and 10 (7%) as other. When asked about religious affiliation, 43% of participants chose to disclose their religious affiliation, which included Protestant (*n* = 20), Catholic (16), Atheist/Agnostic (*n* = 11), Jewish (*n* = 4), Mormon (*n* = 2), Buddhist (*n* = 1), and other faith tradition (*n* = 11).

2.2. Procedure

We distributed the study by e-mailing various institutions such as universities or professional organizations. The e-mails described basic information of the study as well as a link to a survey on the Qualtrics. Qualtrics housed the entire study protocol including descriptions of the study, informed consent, eligibility screener, meditation guides, and assessments. After clicking the link, 249 individuals provided informed consent and began the baseline assessment protocol. We removed 50 participants for either not meeting eligibility criteria or not completing the baseline assessment. Qualtrics used a randomizing generator to separate the half of the participants into a treatment group and other half into a waitlist control group. The treatment group received a video demonstration of a guided centering meditation along with basic instructions. For the next four weeks, the treatment group received an e-mail reminder to practice the meditation every morning and evening. The email included a link to the guided meditation the authors developed, a 10-minute timer, and a brief assessment. The control group received the brief assessment every morning and evening. Each group completed a protocol of assessments at the midpoint and end of the study. They were compensated weekly ($5 per week) for their daily participation in the study and after each completion of assessments ($5 per protocol). If they participated in full, participants could earn up to a maximum of $35.

Further, we used Intention-to-Treat (ITT) analysis, so we used the data from participants who left the study prematurely or missed any steps. In a longitudinal RCT, participants may often provide incomplete data or fail to comply at all times in the study (Gupta 2011). Attrition of this kind can create "overoptimistic estimates of the efficacy of an intervention" because compliance can suggest a type of motivation which is a potentially confounding variable (Gupta 2011, p. 110). One method of generating an unbiased effect of the intervention is ITT analysis. Part of the analysis is using the last recorded observation throughout the rest of the analysis (Gupta 2011). Thus, all participants who dropped out are still included the analysis. However, this refers to participants who confirmed they completed at least some part of the treatment beyond the baseline point (*n* = 155).

2.3. Measures

2.3.1. Resilience

To measure resilience among participants, we administered the Response to Stressful Experiences Scale (RSES; Johnson et al. 2011) is a 5-factor scale that measures the following dimensions: (a) meaning-making and restoration, (b) active coping, (c) cognitive flexibility, (d) spirituality, and (e) self-efficacy. We selected this scale because it encompasses the multidimensionality of resilience compared to other established scales such as the Brief Resilience Scale (BRS; Smith et al. 2008), which measures the bounce back aspect of resilience or the Connor-Davidson Resilience Scale (CD-RISC; Connor and Davidson 2003), which assesses one's ability to thrive in the face of adversity (Ahern et al. 2006). It consists of 22 items that lie on a 5-point Likert scale (0 = "Not at all like me", 4 = "Exactly like

me"). Participants respond to each item indicating what they "tend to" do "during and after life's most stressful events" (Johnson et al. 2011, p. 168). Johnson and colleagues (2011) originally validated the RSES on the military population, but they also developed it for the use of clinical settings to identify cognitive and emotional changes to coping mechanisms for stress. Through multiple samples, it has provided evidence of convergent validity with established resilience scales such as the CD-RISC (r = 0.61–0.81) and discriminant validity with varying levels of combat exposure in military samples (r = 0.02–0.18; Johnson et al. 2011). Its established psychometrics properties extend to reliability as well. Over a one-week period, the RSES demonstrated a high level of test-retest reliability of 0.87 (Johnson et al. 2011). Cronbach's alpha demonstrates an excellent internal consistency (α = 0.91–0.93; Johnson et al. 2011) in a military a population. The sample from the present study demonstrated inner consistency through Cronbach's alpha (α = 0.84).

2.3.2. Spiritual Transcendence

To measure spiritual transcendence among participants, we administered the Spiritual Transcendence Scale (STS), a subscale within the Assessment of Spirituality and Religious Sentiments (ASPIRES; Piedmont 2010). It contains three smaller subscales: (a) Prayer Fulfillment, (b) Universality, and (c) Connectedness. Together, they comprise a total spiritual transcendence score. A high score indicates a person who can sit in the tension of uncertainty and yet still feel satisfaction through personal meaning. Prayer fulfillment is operationalized as the sense of meaning that one receives from connecting with a higher power (e.g., "In the quiet of my prayers and/or meditations, I find a sense of wholeness"). Universality refers to the belief in the unity of life—areas of connection between oneself and a larger whole. An example would be "I feel that on a higher level all of us share a common bond." Lastly, connectedness refers to the importance a respondent places on relationships (e.g., "The praise of others gives deep satisfaction to my accomplishments").

The STS demonstrated a three-factor structure based on principal components analysis (Piedmont 2012), and it has demonstrated a consistent factor structure among samples with varying religions and cultures (Cho 2004; Goodman et al. 2005). Further, it has been validated and translated with several languages including Korean (Kim et al. 2012) and Chinese (Lau et al. 2016). In a sample of Christian adults, it demonstrated an internal consistency of (α = 0.77–0.85; Fox et al. 2016). In our sample, it demonstrated high internal consistency through Cronbach's alpha (α = 0.89).

2.4. Growth Curve Modeling

Growth curve modeling (GCM) measures the trajectory of how a variable develops over the course of a time (Curran and Muthén 1999). We selected GCM as our method of data analysis because we hypothesized that spiritual transcendence is a time-varying covariate of resilience. GCM can determine not only the outcome of treatment but also the development towards the outcome. It estimates this development through measuring fixed effects (inter-individual) and random effects (intra-individual variance) over time (Curran and Muthén 1999; Grace-Martin 2013). In this study, we used GCM to (a) measure the differences in outcomes of resilience between the treatment and control groups and (b) examine how spiritual transcendence influences the trajectory of change in the treatment group compared to the control group.

We utilized linear mixed modeling to estimate the growth curve model (McNeish and Matta 2017). We used a two-level model in which the participants themselves serve as the level-2 units. The time of assessment (i.e., Time 1, Time 2, Time 3) serve as level-one units, which are nested within each participant. With this model, we can examine the variance between participants (level 2) as well as within a participant over time (level one). We chose this model because we wanted to examine how participants in the treatment group would change over time compare to themselves at a previous time point (intra-individual variance), and this dynamic would hypothetically differ significantly from the changes of participants in the control group (inter-individual variance). In this analysis,

the outcome variable is the resilience of participants, as measured by their scores on the RSES. We explored the variances by using spiritual transcendence as measured by the STS as a time-varying covariate.

3. Results

3.1. Preliminary Analysis

Before data analysis, we downloaded the survey data from Qualtrics onto MS Excel to clean the data and examine the preliminary descriptive statistics. We had previously set up the survey for Qualtrics to require participants to respond to each item; thus our dataset had no missing items. We removed data from 5 participants who were outliers or demonstrated high influence statistics. With a final sample of 150 participants, the data of resilience and spiritual transcendence were normally distributed based on the Shapiro-Wilks test, $p > 0.05$. Table 1 presents the descriptive statistics on resilience and spiritual transcendence divided by group at each time point. Johnson and colleagues (2011) validated the assessment on a military population in which the mean scores was 60. The clinical changes in Table 1 demonstrate how the treatment group rises above this mean while the control group does not. We uploaded the data on to Statistical Analysis System (SAS) and used PROC MIXED with an unconditional covariance structure to analyze the data. As a sequence of steps, we conducted an (a) unconditional growth model, (b) a growth curve model on treatment, and (c) a treatment growth curve model with spiritual transcendence as a time-varying covariate.

Table 1. Univariate Descriptive Statistics for Response to Stressful Events Scale (RSES) total scores and Spiritual Transcendence Scale (STS) broken out by group.

			Treatment Group (*n* = 61)		Control Group (*n* = 89)	
			Mean [1]	SD	Mean [1]	SD
Resilience		T_1	59.25	9.57	58.24	10.70
		T_2	61.47	11.83	59.25	12.60
		T_3	64.46	12.06	60.44	12.70
Spiritual Transcendence [2]	Total Spiritual Transcendence	T_1	50.04	9.76	47.93	10.37
		T_2	51.16	10.33	48.08	10.33
		T_3	52.60	10.11	48.24	10.11
	Prayer Fullfillment	T_1	43.00	11.10	41.80	11.20
		T_2	45.17	10.10	42.11	11.65
		T_3	46.35	9.95	42.11	11.01
	Universality	T_1	55.12	7.45	52.02	10.12
		T_2	55.65	8.03	52.26	8.98
		T_3	56.42	8.02	52.82	9.96
	Connectedness	T_1	51.35	10.03	50.20	9.82
		T_2	49.78	9.09	49.97	10.54
		T_3	51.30	9.37	50.08	10.33

[1] The initial sample on which the RSES was validated had a mean score of 60. [2] The Spiritual Transcendence scores are the standardized T-scores controlling for age and gender.

3.2. Unconditional Growth Model

In growth curve modeling, a recommended preliminary step is to conduct an unconditional growth model to determine if a GCM is appropriate for this dataset (Singer and Willett 2003). The unconditional growth model estimates the variance in resilience over time without accounting for any other explanatory factors (e.g., group differences, spiritual transcendence). In a growth curve model, time is nested within participants, so we input time as a random effect to estimate variance within a person. Using a variance components covariance matrix on PROC MIXED, we were able to calculate an intraclass correlation (ICC) of $(94.83)/(94.83+27.89) = 77.27\%$. The ICC gives a proportion of how much variation

in resilience lies between people (Grace-Martin 2013), so we could conclude that up to 22.73% of the variance is accounted for by the changes within a person over time. Thus, we concluded that a growth curve model, which estimates individual differences as random effects, was an appropriate analysis for this dataset.

3.3. Conditional Growth Models

3.3.1. GCM Accounting for Group Differences

We conducted the first GCM (Model B) to address the first research question on effectiveness of a centering meditation on resilience. After a four-week treatment of centering meditation, the interaction between group and time was statistically significant in explaining the trajectory of resilience, ($\beta = 1.67$, SE = 0.75, df = 126, $p < 0.05$, $CI_{95} = 0.20$, 3.14). Table 2 presents details of the model. The fixed effect of 1.67 is the difference in mean slopes between the treatment and control groups (Bolger and Laurenceau 2013). In other words, in two weeks, the treatment group had a rate of change in resilience that was 1.67 units greater than the control group. To elaborate on the other fixed effects, time had a statistically significant fixed effect on resilience, ($\beta = 1.08$, SE = 0.47, $df = 148$, $p < 0.05$, $CI_{95} = 0.16$, 2.00). As expected, the group did not have a statistically significant fixed effect on the change of resilience over time, $p = 0.58$. Without accounting for time, there were no distinguishable group differences in resilience levels.

Table 2. Parameter estimates for growth curve models A–C predicting the trajectory of resilience.

	Model A Unconditional Growth Model	Model B Treatment Growth Model	Model C Spiritual Transcendence Growth Model
	Fixed Effects (SE)		
β_{00} Intercept	58.50 *** −0.89	58.09 *** −1.16	38.42 *** −3.43
Time [1]	1.75 *** −0.75	1.08 * −0.47	0.68 −0.46
Group [2]		1 −1.81	−1.83 −1.84
Spiritual Transcendence			0.40 *** −0.07
Time * Group		1.67 * −0.75	
Time * Group * Spiritual Transcendence			0.03 * −0.01
	Random Effects (Variance Components) (SE)		
Intercept τ^2 (Between-person)	94.84 *** −12.84	95.41 *** −12.92	62.50 *** −10.8
Time	5.61 ** −2.41	4.87 * −2.35	3.78 * −1.63
Residual σ^2 (Within-person)	27.89 *** −2.92	27.96 *** −2.93	28.19 *** −2.73

[1] Time refers to three time points T1 = Day 1, T2 = Day 14, T3 = Day 28. The slope indicates the increase resilience per 14-day time period.
[2] Group refers to the treatment group and control group. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.000$.

We calculated the effect size through a classical approach of Cohen's d, using the difference in pre- and post-test means of resilience over their pooled standard deviation (Cohen 1988). The treatment group generated a within-group effect size of $d = 0.48$, which

approximately reaches a medium effect (Cohen 1988). The means in resilience also grew slightly in the control group, but the effect was smaller than Cohen's cut-off for a small effect (d = 0.19). Another method to estimate effect compares the unconditional growth model results with the treatment growth model. Based on the parameter estimates from Table 2, it is clear that the intervention over time had a statistically significant effect on estimating the trajectory of resilience, $p < 0.05$. It also reduced the variance in random effects. The conditional component for variance within people (σ^2=) remains about the same between the unconditional model (27.89) and the treatment model (27.96). However, the variance component that reflects the random intercept ($\tau2$) diminishes, (5.61–4.87)/(4.87) = 15%. Thus, we could deduce that adding centering meditation explains a 15% of the person-to-person variance in resilience (Singer 1998).

3.3.2. GCM Accounting for Spiritual Transcendence

To address the second research question, we conducted a three-way interaction within a growth curve model determine the effects of group differences, spiritual transcendence, and time on resilience. After a four-week treatment of centering meditation, the three-way interaction between group, time, and spiritual transcendence was statistically significant in explaining the trajectory of resilience, (β = 0.03, SE = 0.01, df = 209, $p < 0.05$, CI$_{95}$ = 0.007, 0.06). Model C in Table 2 presents details of the model. The statistically significant three-way interaction means that the interaction between practicing centering meditation and levels of spiritual transcendence is statistically significant different between the treatment and control groups. Furthermore, this difference contributes significantly to outcomes of resilience. It is important to note that we also calculated the effects of each subscale from the STS (Prayer Fulfillment, Universality, and Connectedness) on the trajectory of resilience over time. Only Prayer Fulfillment was statistically significant in estimating the trajectory of resilience. The effects of Universality and Connectedness were non-significant. This means the STS scores above actually reflect the effects of prayer fulfillment.

To further interpret the model, the fixed effects in Table 2 describe a traditional regression model predicting resilience, and the random effects represent the covariances in the mixed model. Comparing the variance components in both models shows that spiritual transcendence dramatically reduces the variance in random effects (Grace-Martin 2013; Singer 1998). The variance in random intercept decreases by approximately (95.41–62.50)/(95.41) = 34%. This tells us that adding spiritual transcendence explains 34% of the person-to-person variance in resilience over time. Further, individuals change at different rates (slope) over time. The variance in random slope decreases by approximately (4.87–3.78)/(4.87) = 22%.

4. Discussion

Our findings describe the nonlinear journey towards resilience that occurs when individuals connect to their spirituality through centering meditation. Further, they present the results of the first experimental trial of a centering prayer meditation. The research literature shows a known a connection between centering prayer and depression, anxiety, stress, and spiritual transcendence (Fox et al. 2016), but our findings offer the first experiment-based evidence to support this early research. Further, though researchers have measured the effects of different meditations to resilience (Waechter and Wekerle 2015), other researchers generally infer resilience by measuring indirect variables, such as stress adaptation, compassion, or various mental health measures. Kwak et al. (2019) examined resilience through fMRI measures from after to a four-day intensive meditation intervention through a sample of Korean adults (n = 47). One group of participants (n = 30) participated in meditation, whereas a control group (n = 17) participated in a relaxation intervention. Although participants in both groups showed significant increases at T1, the meditation group showed sustained outcomes at T2, meditation group: t = −3.57, $p < 0.005$, and t = −2.91, $p < 0.001$, respectively; control group: t = −0.96, $p = 0.35$, and t = −1.000, $p = 0.33$, respectively). These authors did not use a centering prayer meditation in their

study, and they also provided the meditation group more sessions than the relaxation control group. Thus, their findings support our results only to a degree.

While we tested the effectiveness of a centering meditation on improving resilience, we also estimated the trajectory of spiritual transcendence that changes over 4 weeks of meditative practice. The findings indicate that spiritual transcendence potentiates the influence of centering meditation on resilience. Model B shows that participants who practice centering meditation will have an expected increase of 1.67 points (slope) in the RSES (resilience) every two weeks compared to the control group. The comparison with Model C is complex because three-way interactions occur on a 4D plane. However, another way to consider it is that spiritual transcendence moderates the effect of centering on resilience by a slope of 0.02 (Preacher et al. 2006). The magnitude of the upward slope in resilience during centering meditation significantly depends on the spiritual transcendence the practitioner experiences (Hayes 2017). These findings help answer the prevailing questions of how spiritual practice psychologically strengthens people. It also helps answer the research gaps of the underlying dynamic factors of resilience. Based on the findings, people can learn resilience through centering meditation and grow in resilience through the moderating influence of spiritual transcendence that occur during practice.

As noted earlier, the empirical literature on the relationship between spiritual transcendence and resilience is sparse (Hanfstingl 2013). In one cross-sectional study with a sample of German adults, spiritual constructs such as mystical orientation (e.g., spiritual insight) did not predict resilience with statistical significance, $p = 0.635$ (Hanfstingl 2013). In this multiple regression analysis, variables such as self-motivation and determination predicted resilience, $p < 0.000$. The author's use of their Mystical Orientation Scale instead of the Spiritual Transcendence Scale (STS) could contribute to the divergent findings with our study. Mysticism is a similar but theoretically different construct from spiritual transcendence. Similar to our results, correlational studies have shown a significant relationship between spiritual transcendence as measured by the STS and resilience (Hashemi and Jowkar 2011). In a sample of Iranian adults, each subscale of the STS positively correlated to resilience, $r > 0.32$, $p < 0.000$ (Hashemi and Jowkar 2011). Further, a multiple regression indicated that the subscales of connectedness ($B = 0.30$, $p < 0.000$) and Universality ($B = 0.19$, $p < 0.01$) predict resilience. Since this study and related studies are all cross-sectional, our findings extend the literature to show how levels of spiritual transcendence explain the trajectory of resilience in a centering meditation.

In the events of COVID-19, researchers have been emphasizing the importance of spiritual transcendence to foster resilience more than ever before (Walsh 2020). Resilience appears to have a nonlinear relationship with subjective experiences of spiritual transcendence, especially in the face of high levels of stress or trauma (Eriksson et al. 2015) demonstrated that deployed humanitarian workers exhibited various trajectories of change in spiritual transcendence over six months. The stability of spiritual transcendence varied depending on their initial values of spiritual transcendence. Further, the class of participants with higher spiritual transcendence had the trajectory with the sharpest decrease in spiritual transcendence (Intercept = 20.46, $p < 0.001$; Slope = -0.069, $p < 0.001$) as compared with the class of initial lower spiritual transcendence (Intercept = 8.37, $p < 0.001$; Slope = -0.09, $p = 0.051$). Although the findings show a similar dynamic to our study, it is important to note the measured constructs of spiritual transcendence were disparate. Eriksson et al. (2015) used the Spiritual Transcendence Index (Seidlitz et al. 2002), which measures subjective experiences of spiritual transcendence. The construct of spiritual transcendence we used reflects more of a trait-like disposition—how one typically connects to God as part of their current lifestyle (Piedmont 2012). In other words, it is expected for Eriksson and colleagues' (2014) findings to demonstrate a nonlinear relationship. However, our findings extend their research to show that even stable levels of spiritual transcendence can shift upward during centering meditation and increase resilience. Further, our study did not analyze spiritual transcendence based on early spiritual transcendence levels in a latent class growth analysis like Eriksson et al. (2015). Instead, it estimated resilience

with spiritual transcendence as a time-varying covariate in a growth curve model. Based on the results, the more spiritual transcendence a person experienced over time, the more resilience would improve.

4.1. Limitations

Although our study followed robust guidelines set forth for randomized controlled trials (Shadish et al. 2002) and growth curve modeling for interventions (Curran and Muthén 1999), the study is not without its limitations. First, we chose to provide the meditation through a purely online format. Online therapeutic interventions tend to reflect similar results as in-person therapeutic interventions (Andersson and Titov 2014), but there are still several limitations to consider, particularly surrounding treatment dosage. The trial examines the dose-response relationship between centering and resilience, so the dose of treatment is a critical component in an RCT (Shadish et al. 2002). In a self-report online study, there is no way the authors could ensure that meditators were accurately reporting dosage. However, participants received compensation equally whether they reported low or high levels of meditation. Thus, they did not have a coerced reason to misreport a high dosage.

Secondly, we compared the outcomes of a treatment group to a control group with no treatment. In general, there is speculation on the comparisons between treatment vs. no treatment (Berg and Høie 2010). Many psychotherapists would say any intervention is better than no intervention at all (Goldberg and Goodyer 2005). It would be helpful to examine if a comparison group using a non-sense mantra instead of a spiritual symbol would have similar results as the control group in this study. In addition, the factors of other instruments including the STS are not included. Using analysis that takes into account each factor would offer a more comprehensive view of the effect of centering. Lastly, this study did not control for other potentially predictive variables (e.g., personality or depression). Thus, without the measurement, we are unable to determine the incremental effects of spiritual transcendence on resilience (Piedmont 2004)

4.2. Recommendations for Future Research

Because of the limitations and the implications of the study, the subject area of the study could benefit from further research. One recommendation is to replicate this randomized controlled trial on another population besides college students. A replicated study would expand the generalizability of the findings to new populations, and many populations could also benefit from Complementary and Alternative Medicine (CAM) interventions like centering meditation. The results from this study are about the efficacy of centering prayer and its effectiveness as an online intervention. Many populations could currently benefit from an online CAM intervention, such as patients with chronic illness or geriatric population. The events of COVID-19 below alone have informed the counseling field of the need for effective online CAM interventions. Thus, the generalizability of this study could benefit from future research with various populations in need of an online intervention that bolsters resilience.

In this first experimental trial on centering meditation, we used a convenience sample in which a third of the participants did not affiliate with any spirituality. Further, we analyzed the dynamics and outcomes of these participants alongside participants who identified as spiritual. Based on the findings, the participants who did not identify with spirituality continued with the centering meditation and still exhibited the benefits of it. As a next step in research, we recommend replicating the study with a stratified sampling method, recruiting equal numbers of individuals who identify as spiritual in one group and those who do not identify as spiritual in another group. Further, this study relies entirely on self-report measure and does not benefit from the additional validity of observer-rated data. Since we present centering meditation as an evidence-based intervention for counselors, we recommend replicating this study with the use clinicians observing changes in participants.

Lastly, we saw positive outcomes of resilience in this study, but we recommend further examining the effects of centering meditation on other positive or desired outcomes.

4.3. Implications for Counseling and Psychotherapy Section

The purpose of this study was not only to increase our understanding of meditation and resilience but to provide practical and effective treatment for counselors to apply. The empirical evidence for centering prayer in this study offers an applicable resource for integrating spirituality into counseling. The spiritual quality of centering makes it an appealing treatment choice for those who seek spiritual integration in counseling. For instance, clients with religious or spiritual struggles often desire to pair spirituality with their counseling (Exline and Rose 2005), and their resilience to these these struggles may benefit specifically form centering prayer. Further, there is an identified gap in spiritually integrated, multicultural counseling (Magaldi-Dopman 2014). Many practitioners state they value spiritual integration but struggle to implement it (Magaldi-Dopman 2014). Thus, attempts to integrate spirituality in session is often met with anxiety or self-doubt. This gap could stem from limited training in the spiritual domain. In general, counseling models that integrate spirituality with counseling treatment are sparse (Stewart-Sicking et al. 2017). After all, spirituality was historically not a part of counseling theory or practice. Since counselors are rapidly catching up with the need to provide holistic care that incorporates spirituality, they could benefit from a broader range of evidence-based techniques that incorporate spirituality. As shown in the study, centering meditation is mainly self-guided. In this study, its evidence was presented from a home-based online intervention. Thus, it requires little training for counselors and is a useful resource to give to clients. As a result, it offers a practical tool for clients and a trainable technique for counselors.

5. Conclusions

The authors established that a centering meditation can increase resilience over four weeks, and it does so with a statistically significant interaction with spiritual transcendence. When participants connected to their sense of spirituality through bi-daily meditation, they showed higher levels of resilience and spiritual transcendence than participants in the control group. Further, by examining spiritual transcendence as a time-varying covariate, we can see that spiritual transcendence not only predicts resilience but grows alongside the mediation itself. Thus, our findings provide evidence for the therapeutic efficacy of a centering meditation to bolster people's resilience by activating their spiritual natures. Overall, the study offers one more step into understanding the intricate role spiritual transcendence plays in improving the outcome and growth among people.

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