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Does Spirituality Moderate the Relationship between Child Maltreatment and Adult Men and Women's Social Anxiety, Depression and Loneliness

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ABSTRACT

Adults who were maltreated in childhood are at increased risk for depression, social anxiety, and loneliness in adulthood and spirituality may be a protective factor. The current study will extend research by examining spirituality as a moderator of childhood maltreatment severity and adult depressive symptoms, social anxiety symptoms, and loneliness. Further, men and women were examined separately to discern if spirituality has similar or dissimilar effects across gender. Data are from the biomarker study within the study of Midlife Development in the United States (MIDUS) refresher cohort. The study was cross-sectional and included 853 adults (52.2% female). Using hierarchical regression, we found that spirituality moderated the relationship between women's reports of maltreatment severity and depression, social anxiety, and loneliness. Contrastingly, spirituality did not moderate the relationship between childhood maltreatment and any of the mental health outcomes in men; however, spirituality was directly associated with lower levels of loneliness for men. Spirituality was associated with fewer symptoms of depression and social anxiety as well as less loneliness in women who were maltreated in childhood and could be a source of resilience.

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Introduction

In the United States, more than one in three adults experienced childhood maltreatment, which consists of childhood abuse (e.g., emotional abuse, physical abuse, and sexual abuse) and neglect (e.g., physical and emotional neglect) (Center for Disease Control, 2016). Further, experiencing one form of childhood maltreatment dramatically increases the likelihood of experiencing another form (Finkelhor et al., 2007) because children are often embedded in dysfunctional family contexts (Stith et al., 2009). Childhood maltreatment has been associated with several mental health problems in adulthood including depression (Nelson et al., 2017), social anxiety (Simon et al., 2009), loneliness, and social isolation (Wilson et al., 2006), and

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posttraumatic stress (Cougle et al., 2010). The relationship between childhood maltreatment and adult mental health outcomes can be understood as a dose-response relationship, such that more severe childhood maltreatment is linked to more adverse mental health outcomes in adulthood (see Scott-Storey, 2011 for review). Thus, it is crucial to understand trauma-informed interventions and practices that can ameliorate mental health problems in adults who were maltreated in childhood, and spirituality may be one such protective factor (Joss et al., 2019; Willis et al., 2015).

In the context of childhood maltreatment, spirituality has been suggested to a protective factor buffering against adult mental health problems. Spirituality is a vital dimension of the human condition and is an integral part of adult life for most individuals (Walsh, 2019). There are numerous ways adults engage in spirituality including prayer, chanting, tai chi, mindfulness, meditation, and yoga among others (Willis et al., 2015). These various spiritual practices have been shown to decrease mental health problems and may protect against mental health problems associated with childhood maltreatment (Joss et al., 2020; Thompson et al., 2011).

Despite the possible protective effect of spirituality on adult mental health, research in the context of childhood maltreatment remains somewhat limited. One limitation is that research has seldom focused on how the severity of childhood maltreatment is linked to spirituality (Walker et al., 2009) and, instead, research has focused on discrete types of childhood maltreatment including family violence, physical abuse, and sexual abuse (e.g., Earley et al., 2014; Gallegos et al., 2015). Secondly, while an abundance of research has documented a relationship between childhood maltreatment and spirituality in adulthood (e.g., Bierman, 2005; Willis et al., 2015), few studies have investigated the potential the buffering effects spirituality may have on adult mental health. The protective effects of spirituality may be particularly important for midlife men and women who experienced childhood maltreatment, because mental health outcomes have significant implications for the increasingly salient physical health issues midlife adults commonly face (Luo et al., 2012; Wulsin et al., 1999).

Another limitation is that there is a paucity of research considering the similarities or differences between men and women. More specifically, it remains unclear whether spirituality buffers the effects of childhood maltreatment on adult mental health for both men and women. Numerous studies have demonstrated that women tend to be more spiritual, engage in spiritual behavior (e.g., prayer) more frequently, and experience greater psychological benefits from their spiritual practices in comparison to men (Chen et al., 2010; Katz & Toner, 2013; Upchurch & Johnson, 2019). Examination of spirituality across gender can provide a greater understanding for whom spirituality may serve as a protective factor. To address these gaps in the literature, the current study considered the potential modifying effect of spirituality, defined by the

frequency of adults either pray or meditate, linking childhood maltreatment severity to adult depression, social anxiety, and loneliness. Further, men and women were examined separately.

It is well documented that childhood maltreatment is associated with adult mental health problems. For example, childhood maltreatment is linked to greater depressive symptoms (see Nanni et al., 2012; Nelson et al., 2017 for meta-analyses) as well as generalized anxiety, social anxiety, and post-traumatic stress (Cougle et al., 2010). Additionally, adults who were maltreated in childhood report more emotionally distant relationships, greater social isolation, and more loneliness (Salva et al., 2013; Wilson et al., 2006). It should be noted that loneliness differs from a small social network. Social networks encompass romantic partners, coworkers, family members, friends, and children. Adults may have a substantive social network yet feel disconnected from them. On the other hand, a small social network is reflective of having a small number of people with whom one may interact with.

Evidence has demonstrated that gender may be a factor in understanding the relationship between childhood maltreatment and adult mental health. Research has found that women are more likely to report depressive episodes, and be diagnosed with major depressive disorder, as well as report higher rates of anxiety disorders (e.g., panic, generalized anxiety, social phobia) (Kessler et al., 2012). One explanation for gender differences in adult mental health may be childhood maltreatment. In comparison to men, women have been found to report more severe childhood maltreatment (Fitzgerald et al., 2020). As such, the dose-response perspective could be used to understand the heightened relationship between childhood maltreatment and adult mental health among women compared to men.

Studies of gender differences in loneliness, however, have produced inconsistent results. Some studies suggest that midlife men report similar levels of loneliness compared to women, while other studies have reported that men and women differ (Barreto et al., 2020; Luhmann & Hawkley, 2016). A possible explanation for the absence of consistent findings regarding gender differences in loneliness could be that subgroups of adults who experienced childhood maltreatment were not identified in previous analyses. Identifying groups of adults who experienced childhood maltreatment may help explain the inconsistent findings in published work. Childhood maltreatment can create a sense of feeling unsupported, disconnected, or worthless which may have a significant influence on how adults perceive and experience relationships with family, friends, and romantic partners (Author Citation). Additionally, adults who are maltreated often perceive that they do not matter to members of their social network (Flett et al., 2016).

Spirituality is a central component of life for a large proportion of adults. Not surprisingly, research has devoted a considerable amount of attention to understanding spirituality. According to the Pew Research Center (2015), 76%

of adults pray on a monthly basis or more, and 52% of adults meditate. Due, in part, to the central nature of spirituality in adults' lives, the relationship between spirituality and mental health has been of keen interest to clinicians and researchers alike. In a review, Koenig (2009) found that spirituality was negatively associated with depression, anxiety, and substance use. Indeed, studies published following the Keonig's review have also documented that more spiritual adults tended to report lower levels of depression, social anxiety, and loneliness (Brown et al., 2013; Creswell et al., 2012; Goldin & Gross, 2010).

Research suggests women and men differ on several aspects of spirituality, including the frequency in which men and women engage in spiritual behavior (i.e. praying) as well as the mental health benefits. Findings have consistently shown that, compared to men, women pray more (Levin & Taylor, 1997; Pew Research Center, 2015). Additionally, women are also more likely to use spiritual behaviors such as yoga, meditation, tai chi, and chanting (Luna et al., 2019), and perceive greater benefit of such practices compared to men (Upchurch & Johnson, 2019). In addition to the more frequent use of spiritual behaviors, women are also more likely to use spirituality to cope with distress and are less likely to hold negative spiritual beliefs such as feeling punished by the divine (Krentzman, 2017). In addition to women being more spiritual than men, they are more likely to report greater benefit compared to men. Prayer and meditation have been found to protect against depressive symptoms, psychological distress, and substance abuse cravings, as well as increased self-compassion among women (Chen et al., 2010; Rojiani et al., 2017). Because women are more likely to engage in spiritual practices, have more positive spiritual beliefs, and perceive greater mental health benefit, they are likely to experience fewer mental health problems and feel more connected to others.

Childhood maltreatment, spirituality, and adult mental health

For adults who were maltreated in childhood, spirituality can either be a source of resilience and coping or an area of contention. Spirituality may help adults who experienced childhood maltreatment connect to a higher power, express gratitude, gain perspective, find courage, and cultivate a spiritual home that offers comfort and solace (Walsh, 2019). In a qualitative study examining spiritually among adults who were maltreated in childhood, Willis et al. (2015) found five themes, one of which was cultivating spiritual consciousness. The theme of cultivating spiritual consciousness was described as engaging in spiritual practices, such as meditation, prayer, yoga, being in nature, and scripture and was helpful in healing from the psychological wounds of childhood maltreatment (Willis et al., 2015). On the other hand, adults who were maltreated may struggle with their spirituality and may not reap the psychological benefits. Adults who were maltreated

during childhood may move away from their spirituality because they feel abandoned by their spiritual figures or evaluate themselves as unworthy of the divine (Walker et al., 2009). Additionally, perpetrators may have used spirituality as justification for maltreatment (Bierman, 2005).

Spirituality may reduce adult mental health problems stemming from childhood maltreatment through several different mechanisms. First, spirituality can help adults increase psychological awareness, create behavioral flexibility, as well as promote meaning making, courage, and attachment to a higher power (Willis et al., 2015). Secondly, adults can use the divine as a source of emotional support and strength. The divine may enable adults to approach their internal thoughts, feelings, and past experiences with compassion, curiosity, and acceptance (Follette et al., 2006; Thompson et al., 2011). Spiritual practices may also enact positive changes in varying brain structures assocaited with adult mental health. Scholars have suggested spirituality activates the prefrontal and parietal regions of the brain (Shonin & Van Gordon, 2016) and survivors of childhood maltreatment tend to show deficits in the same structures (Teicher et al., 2003). Thus, engaging in spiritual practices may improve neurobiological functioning, thereby reducing mental health problems (Hart & Rubia, 2012).

In the context of childhood maltreatment, research has primarily relied on intervention studies to advance understanding of the potential moderating role of spirituality on adult mental health. Specifically, empirical evidence has demonstrated that adults who are more spiritual report lower levels depression, posttraumatic stress, and anxiety (Earley et al., 2014; Joss et al., 2020). Although these studies provide strong evidence that spirituality may protect against mental health outcomes in adults who were maltreated during childhood, there is limited generalizability. Continued investigation into spirituality, particularly in the context of gender, can create greater generalizability of findings.

The current study investigated spirituality as a moderator of the association between childhood maltreatment and adult mental health. This study examined the association between childhood maltreatment severity, depressive symptoms, social anxiety symptoms, and loneliness, and examined whether these associations were moderated by how frequently adults pray or meditate. Further, the current study examined men and women separately to determine if spirituality operates similarly or differently across gender. Based on prior research noting gender differences in the benefits of spirituality, it is hypothesized that spirituality will moderate the association between childhood maltreatment severity, depressive symptoms, social anxiety symptoms, and loneliness for women but not men.

In accordance with previous research, the current study included numerous covariates that have been previously associated with childhood maltreatment, spirituality, and adult mental health outcomes. Sociodemographic variables

(Bierman, 2005) and conscientiousness (Keyes et al., 2002) have been linked to both spirituality and adult mental health. In the current study sociodemographic covariates included age, education, race, and household income. We also controlled for the adult's general disposition to be spiritual (i.e., character trait) (Rudaz et al., 2020). Childhood maltreatment tends to occur in households characterized by parental depression and substance abuse (Stith et al., 2009). Thus, maternal and paternal depression, as well as living with an alcoholic in childhood, were used as covariates.

Methods

Data used in the current study are from the study of Midlife Development in the United States (MIDUS) refresher cohort. The MIDUS refresher study consisted of 3,577 adults recruited from 2012– 2015. The MIDUS refresher study consisted of a telephone interview and mailed self-administered questionnaire (SAQ). In addition, the refresher study also consisted of a biomarker project. The biomarker project was a longitudinal follow-up to the SAQ and telephone interview that was completed by a subset of participants (n = 853). The biomarker project was completed between 6 to 53 months later. To be included in the biomarker project, adults must have completed both the telephone interview and SAQ. In addition to collection of biological samples (i.e. fasting glucose), the biomarker project included additional self-reported assessments. All independent and dependent variables for the current study are from the biomarker study; some control variables were extracted from the telephone interview and SAQ, including maternal and paternal depression, age, education, race, living with an alcoholic during childhood, household income, dispositional mindfulness, and conscientiousness.

Participants

Participants in the current study reported an average age of 51 years (SD = 13.73), were fairly balanced in terms of gender (52.2% female), and the average household income was 90,807 USD (SD = 77,750 USD). Racial demographics of the sample consisted of 69.6% White adults, 20.6% African American, 1.9% were Native American, 1.4% were Asian, .2% were Pacific Islander, and 6.2% reported being "Other." Regarding familial characteristics, 22.7% of adults reported that their mother was depressed in childhood, 12.8% reported that their father was depressed in childhood, and 23.4% reported living with an alcoholic during childhood.

Measures

Childhood maltreatment

Participant's history of childhood maltreatment was assessed using the Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998). The CTQ is a 25-item scale assessing childhood maltreatment prior to the age of 18. Items were scored on a five-point Likert scale, ranging from "*Never*" (1) to "*Very Frequently*" (5). Seven positively worded items were reverse coded. Childhood maltreatment was operationalized for this study by summing the 25 items together for a total severity score of childhood maltreatment. Higher scores are reflective of more severe maltreatment. Cronbach's α was .90 for men and .94 for women.

Spirituality

Spirituality was assessed with one item rated item on a frequency scale: "Over the past month how often did you spend time praying or meditating?" Possible answers included 1) *Never*, 2) = *1–6 times*, 3) = *7+ times*.

Depressive symptoms

The Center for Epidemiologic Studies – Depression (CES-D; Radloff, 1977) assessed frequency of depressive symptoms over the past week. The CES-D is a 20-item scale rated on a four-point Likert type scale ranging from *Rarely or None of the Time* (0) to *Most or All of the Time* (3). The four positive affect items were reverse-coded. The twenty items were summed together, and greater scores reflect greater depressive symptoms. Cronbach α = .84 for men and .83 for women.

Social anxiety

Social anxiety symptoms were assessed using the Liebowitz Social Anxiety Scale (Fresco et al., 2001). The scale includes nine items asking about anxiety provoking situations. The items were rated on a four-point Likert type scale ranging from *None* (1) to *Severe* (4). Items were averaged together to create a severity score with higher scores reflecting more severe social anxiety. Cronbach's α was .85 for both men and women.

Loneliness

UCLA Loneliness Scale (Russell, 1996) was used to assess loneliness. The measure included 7 items rated on a four-point Likert type scale with scores ranging from *Never* (1) to *Always* (4). Three items were positively worded and reverse coded. Items were summed together and greater scores reflect greater loneliness. Cronbach's α 86 for both men and women.

Covariates

The current study included several sociodemographic and historical control variables. Dichotomous items (yes/no) were used to assess maternal and paternal depression as well as living with an alcoholic in childhood. Race was entered as a dichotomous covariate (0 = Racial or ethnic minority, 1 = White). Age and household income were entered as continuous variables and finally, education was measured as an ordinal variable ranging from *No Formal Schooling* (1) to *Doctorate* (12).

Spiritual mindfulness

To measure adult's general disposition to be spiritually mindful, a nine-item scale based on Langer and Moldoveanu (2000) conceptualization was used. The measure was assessed on a Likert scale with items ranging from *Strongly Agree* (1) to *Strongly Disagree* (5). Items were reverse coded and summed together such that greater scores are reflective of higher levels of spiritual mindfulness.

Conscientiousness

Conscientiousness was measured using four items. Respondents rated on how organized, responsible, hardworking, careless they are. The items were assessed on a Likert type scale ranging from *A Lot* (1) to *Not at All* (4). Negatively worded items were reverse coded, and a mean score was taken. Higher scores are reflective of greater conscientiousness.

Statistical analysis

Prior to testing the moderating effect of spirituality on childhood maltreatment and men's and women's mental health outcomes, correlations and *t*-tests were conducted. Following bivariate analysis, hierarchical regression was used to examine the moderating role of spirituality. All analyses were conducted in IBM SPSS 25.0. A stepwise procedure was used where control variables were entered into the first step of the regression equation. In the second step childhood maltreatment and spirituality were entered, which provides a test to discern the unique variance accounted for by maltreatment and spirituality above and beyond what is accounted for by the control variables. Per the recommendations of Cohen et al. (2014), childhood maltreatment and spirituality variables were mean-centered (i.e. the sample mean was zero). In the third step, the childhood maltreatment by spirituality interaction term was entered, which again provides a test to determine if there is a significant amount of unique variance accounted for above and beyond what is accounted for in steps one and two. Only unstandardized coefficients are reported for ease of interpretation (Cohen et al., 2014).

Results

Preliminary results

Correlations, means, standard deviations, and mean differences of study variables across men and women are displayed in Table 1. For both men and women, childhood maltreatment was positively correlated with higher levels of depressive and social anxiety symptoms; however, childhood maltreatment was not associated with women's loneliness, but was associated with men's loneliness. Spirituality was associated with loneliness for both men and women but was not associated with childhood maltreatment or symptoms of depression and social anxiety for either. For both men and women, depressive and social anxiety symptoms were associated with each other. For men, loneliness was significantly associated with depressive and social anxiety symptoms, whereas, for women, loneliness was significantly associated with depressive but not social anxiety symptoms. Examination of gender differences among the study variables was examined using a series of one-way ANOVAs. Results suggest that women reported more severe maltreatment, more depressive symptoms, more severe social anxiety symptoms, and were more spiritual compared to men. No gender differences were found for loneliness.

Results of hierarchical regression analysis

Depressive symptoms

Results of hierarchical regression for women are displayed in Table 2 and results for men are displayed in Table 3. First, depressive symptoms were examined. For men, among the covariates entered into step one of the regression, age ($b = -.10$ $p < .05$), education ($b = -.65$, $p < .05$), maternal depression ($b = -2.56$, $p < .05$), and conscientiousness ($b = -4.77$, $p < .001$) were significant predictors, where older men, more educated men, men who had a mother without a history of depression, and men who were more conscientious, reported fewer depressive symptoms. Step one accounted for 31.1% of the variance in depressive symptoms. In step two, childhood maltreatment ($b = .25$, $p = .001$) was associated with higher levels of depressive symptoms

Table 1. Correlations, means, and standard deviations for study variables among men and women.

	1	2	3	4	5
1. Maltreatment	-	−.01	.29**	.16**	.03
2. Spirituality	.02	-	.03	−.07	−.39**
3. CESD	.28**	.01	-	.33*	.57**
4. Social Anxiety	.10**	.04	.43**	-	.07
5. Loneliness	.31**	−.11**	.62**	.39**	-
M (*SD*) Males	36.54 (11.05)	2.10 (.827)	8.54 (7.75)	1.80 (.54)	12.94 (4.40)
M (*SD*) Females	40.97 (17.10)	2.41 (.753)	9.98 (8.01)	1.98 (.55)	12.46 (4.55)
F (*df*)	19.79 (850)	32.27 (850)	7.07 (851)	5.69 (851)	2.552 (850)
p	< .001	< .001	.008	< .001	.111

Women are presented above the diagonal and men are presented below the diagonal * p <.05, ** p <.01

Table 2. The moderating effect of spirituality on child maltreatment and women's mental health outcomes.

	Depression			Social Anxiety			Loneliness		
	B	*SE*	R^2	*B*	*SE*	R^2	*B*	*SE*	R^2
Step 1			.13**			.09			.10
Intercept	27.40***	6.27		3.27***	.45		23.17***	3.68	
Dispositional Mindfulness	−.14	.09		−.00	.01		−.10*	.05	
Age	−.10*	.04		−.01*	.00		−.03	.03	
Education	−.24	.23		−.02	.017		.03	.14	
Mother Depression	−.84	1.05		−.04	.076		−.53	.62	
Father Depression	−.83	1.15		−.04	.08		.03	.68	
Income	.00	.00		.00	.00		.00	.00	
Lived with Alcoholic	1.15	1.17		.135	.09		.35	.69	
Race	−1.85	1.42		−.08	.10		−.98	.83	
Conscientiousness	−.80	1.10		−.19*	.08		−1.53*	.65	
Step 2			Δ.06**			.02			Δ.13***
Spirituality	−.19	.71		.00	.05		.13	.42	
Maltreatment	.12***	.03		.01*	.00		.11***	.02	
Step 3			Δ.02*			.04**			Δ.03**
Maltreatment X Spirituality	−.08*	.04		−.01**	.00		−.06**	.02	
Total Variance Explained			.21			.14			.26

Mother Depression, Father Depression, and Living with Alcoholic are reports based on childhood * $p < .05$, ** $p < .01$, *** $p < .001$

Table 3. The moderating effect of spirituality on child maltreatment and men's mental health outcomes.

	Depression			Social Anxiety			Loneliness		
	B	*SE*	R^2	*B*	*SE*	R^2	*B*	*SE*	R^2
Step 1			.31***			.07			.16***
Intercept	44.15***	6.53		2.68***	.49		24.38***	4.22	
Dispositional Mindfulness	−.12	.08		.00	.01		−.04	.05	
Age	−.10*	.04		−.01*	.00		.01	.03	
Education	−.65*	.28		−.00	.02		−.41*	.18	
Mother Depression	2.56*	1.24		−.01	.09		−1.10	.80	
Father Depression	−.16	1.24		.00	.09		.42	.08	
Income	.00	.00		.00	.00		.00	.00	
Lived with Alcoholic	−.24	1.27		−.03	.10		−.267	−.82	
Race	.16	1.70		.04	.13		−1.99	1.10	
Conscientiousness	−4.77***	1.21		−.13	.09		−1.53	.78	
Step 2			Δ.09***			Δ.03			Δ.12
Spirituality	.34	.78		.07	.06		−1.27*	.50	
Maltreatment	.25***	.07		.01	.01		.12**	.04	
Step 3			Δ.00			Δ.00			Δ.00
Maltreatment X Spirituality	.01	.08		.00	.01		−.02	.05	
Total Variance Explained			.40			.10			.28

Mother Depression, Father Depression, and Living with Alcoholic are reports based on childhood * $p < .05$, $p < .01$, $p < .001$

whereas spirituality was not ($b = .34$, $p > .05$); step two accounted for an additional 8.6% of the variance. In step three, the interaction term of maltreatment by spirituality was not significant ($b = -.01$, $p > .05$) and accounted for no additional variance in depressive symptoms. The model accounted for 39.7% of the variance in men's depressive symptoms.

For women, a somewhat different pattern of results emerged regarding depression. Age was the only significant covariate ($b = .10$, $p < .05$), such that older women reported fewer depressive symptoms. Step one accounted

for 12.8% of the variance in depressive symptoms. In step two, greater childhood maltreatment was associated with higher levels of depressive symptoms (b = .12, p < .001) whereas spirituality was not (b = −.19, p > .05). Step two accounted for an additional 5.9% of the variance. Finally, in step three, the maltreatment by spirituality interaction term was significant (b = −.08, p < .05) and the negative slope of the interaction term indicates that spirituality buffers the effect of childhood maltreatment on women's depressive symptoms. Interaction plots can be seen in Figure 1. Step three accounted for an additional 2.2% of the variance in women's depressive symptoms and the overall model accounted for 20.9% of the variance.

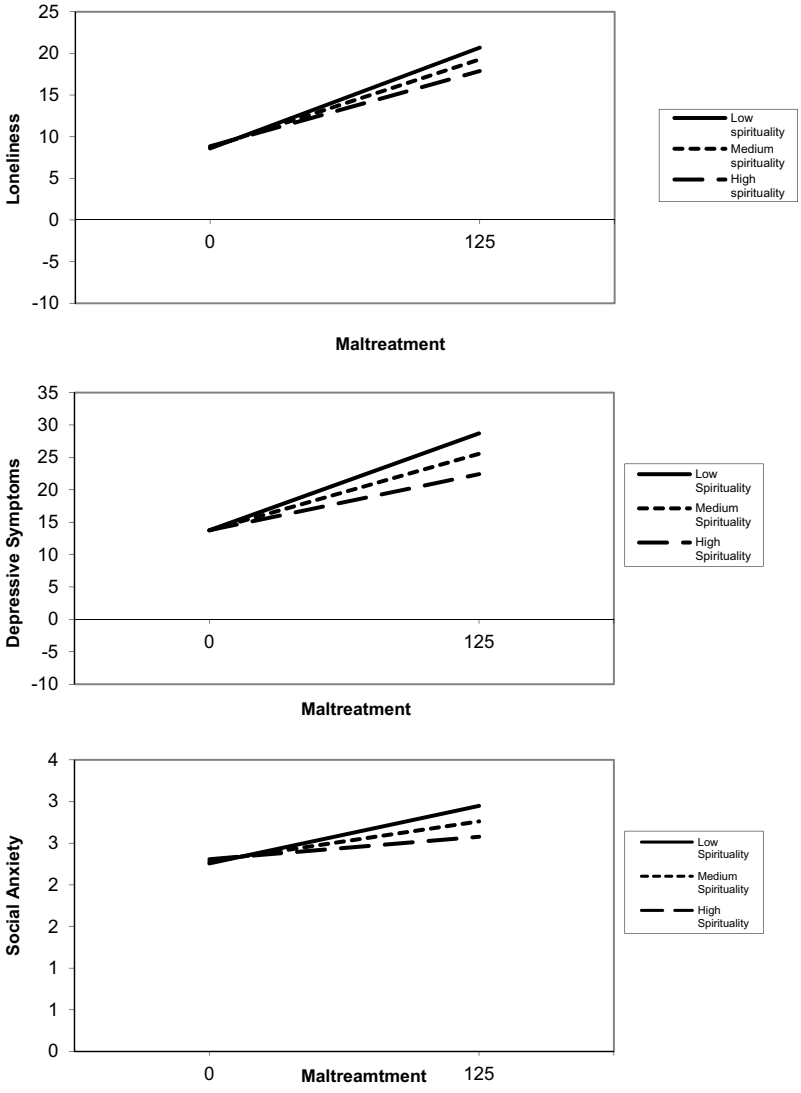

Figure 1. Interaction Plots for maltreatment, spirituality, and depression, social anxiety, and loneliness in women.

Social anxiety symptoms

Regarding social anxiety symptoms for men, in step one, only age ($b = -.01$, $p < .05$) was a significant control variable associated with social anxiety symptoms. Overall, step one accounted for 7.2% of the variance in men's social anxiety symptoms. In step two, neither childhood maltreatment ($b = .01$, $p > .05$) nor spirituality ($b = .05$, $p > .05$) were associated with men's social anxiety symptoms; step two accounted for an additional 2.7% of the variance. In step three the maltreatment by spirituality interaction term was not significant ($b = .00$, $p > .05$). Step three accounted for an additional .2% of the variance and the overall model accounted for 10% of the variance in men's social anxiety symptoms.

Regarding women's social anxiety symptoms, age ($b = -.01$, $p < .05$) and conscientiousness ($b = -.19$, $p < .05$) were significant predictors such that the older and more conscientious women reported less severe social anxiety symptoms. Step one accounted for 8.7% of the variance in women's social anxiety symptoms. Findings from step two indicate that childhood maltreatment ($b = -.01$, $p < .05$) but not spirituality ($b = .00$, $p > .05$), was associated with social anxiety symptoms. Step two accounted for an additional 1.7% of the variance in social anxiety symptoms. Unlike men, the maltreatment by spirituality interaction term was significant for women ($b = -.01$, $p < .01$). Interpretation of the interaction term indicates that spirituality buffered the severity of social anxiety symptoms in women with a history of maltreatment. Step three accounted for 3.9% of the variance in women's social anxiety symptoms and overall the model accounted for 14.3% of the variance in social anxiety.

Loneliness

Regarding men's loneliness, only education emerged as a significant control variable ($b = -.01$, $p < .05$) where more educated men reported lower levels of loneliness. The first step accounted for 15.9% of the variance in men's loneliness. In step two, both childhood maltreatment ($b = .12$, $p < .05$) and spirituality ($b = -1.27$, $p < .01$) were associated with loneliness, such that more severe childhood maltreatment was associated with greater loneliness, and greater spirituality was associated with less loneliness. Step two accounted for an additional 11.5% of the variance. In step three, an insignificant interaction term ($b = -.02$, $p > .05$) indicates that that spirituality did not moderate the relationship between maltreatment and loneliness in men. The third step accounted for .2% of the variance in men's loneliness. Overall, the model accounted for 27.5% of the variance.

Regarding women's loneliness, two control variables were significant including spiritual mindfulness ($b = -.10$, $p < .05$) and conscientiousness ($b = -1.53$, $p < .05$). Women who reported greater dispositional spiritual mindfulness and more conscientious reported less loneliness. The first step

accounted for 10.1% of the variance in women's loneliness. In step two, higher levels of childhood maltreatment were associated with greater loneliness (b = .11, $p < .001$). On the other hand, spirituality was not associated with women's reports of loneliness (b = .13, $p > .05$); the second step explained an additional 12.8% of the variance in women's loneliness. Finally, in step three, the maltreatment by spirituality interaction term was significant (b = −.06, $p < .01$) indicating that spirituality buffered the relationship between maltreatment and loneliness. Step three accounted for an additional 3.3% of the variance and the overall model accounted for 26.1% of the variance in women's loneliness.

Discussion

The present study investigated whether spirituality, specifically how often adult men and women prayed and meditated, buffered the effects of childhood maltreatment severity on symptoms of depression social anxiety, and loneliness. Further, the study examined men and women separately to determine if there are similar or dissimilar patterns across gender. Results indicated that spirituality was a protective factor for women's mental health, but not men's mental health. Specifically, spirituality buffered the relationship between childhood maltreatment and depressive symptoms, social anxiety symptoms, and loneliness in women, whereas spirituality did not buffer the relationship between childhood maltreatment and any of the mental health outcomes for men. However, spirituality was associated with lower levels of loneliness for men.

Adults who were maltreated in childhood often use numerous avoidant coping strategies such as dissociation, thought suppression, and emotional avoidance (Follette et al., 2006). These strategies are initially helpful in managing overwhelming stress and emotion; however, in the long term they can create and maintain mental health problems (Bolduc et al., 2018). Spiritualty may be a healthier coping strategy that can ameliorate mental health problems because it helps adults turn toward their experiences without being overwhelmed, increase internal awareness, create a sense of inner peace, and cultivate a supportive relationship with the divine (Willis et al., 2015). Further, spirituality has been suggested to increase emotional regulation (Aldwin et al., 2014), change how one views themselves and others, increase self-compassion, promote courage and hope, and allow one to turn to the divine as a source of attachment and comfort (Beck, 2006; Follette et al., 2006; Gallegos et al., 2015; Joss et al., 2020). Prior research has noted that more spiritual adults report better mental and physical health, less trauma related distress, fewer PTSD symptoms, and more positive emotions (Conner et al., 2003; Early et al., 2014; Peres et al., 2007).

The primary contribution of the current study is documenting that spirituality appears to buffer mental health problems in midlife women, but not

men, who were maltreated in childhood. Spirituality was found to buffer maltreatment severity on women's depressive symptoms, social anxious symptoms, and loneliness. Prior research, which has focused mostly on mindfulness and meditation interventions, has focused on discrete types of childhood maltreatment (Earley et al., 2014; Gallegos et al., 2015) without considering the additive impact experiencing multiple forms of maltreatment can have (Scott-Storey, 2011). Childhood abuse and neglect rarely occur in isolation and experiencing one form of maltreatment dramatically increases the likelihood of experiencing another form (Finkelhor et al., 2007). Our findings address this limitation and suggest the spirituality may buffer adult's total experiences of child maltreatment on adult mental health.

Regarding the buffering effect of spirituality across gender, consistent with prior research we found that women were more spiritual than men (Levin & Taylor, 1997; Luna et al., 2019; Mirola, 1999) and experience greater benefits from their spirituality (Joss et al., 2020). One explanation is that because women pray or meditate more often, they experience greater psychological benefit. A related explanation is that greater spirituality may contribute to neurobiological changes that may improve adult mental health. Rojiani et al. (2017) proposed there are gender-based physiological reactions that occurring during spiritual practices. They suggest that men tend to have increased activation in areas of the brain associated with cognition (i.e. superior parietal regions) while women have increased activation in the emotional centers of the brain (i.e. amygdala and pre-frontal cortex). Increased activation in the emotional centers of the brain may foster emotional regulation and address mood issues, while activation of brain areas associated with cognition may be less impactful in addressing these issues (Rojiani et al., 2017). Another reason spirituality may be a better predictor of women's depression and social anxiety outcomes is that, for men, a substantially greater proportion of variance was explained by control variables. Thus, sociodemographic and personality variables may play a more important role in understanding men's mental health.

In relation to loneliness, the present study also found that spirituality buffers the effects of maltreatment severity on loneliness in women. Greater spirituality may help adult women feel more connected to the divine, which may isomorphically create increased connection within their interpersonal relationships. Scholars have proposed that spiritual figures serve as attachment figures (Beck, 2006) which may then enable adults to feel more connected with members of their social network (Carson et al., 2004). A competing explanation for these results is that the effects of spirituality on loneliness are secondary to reductions in depressive symptoms. Adults who are depressed commonly have poorer interpersonal relationships (Fitzgerald & Gallus, 2020; Zlotnick et al., 2000) so its plausible that spirituality may decrease adult's

depressive symptoms and as a result they have a more positive view of relationships and feel more connected to others.

Limitations and future directions

Despite several strengths of the current study, including a large sample of midlife adults, a comprehensive assessment of child maltreatment, inquiry into several common mental health problems, and inclusion of socio-demographic, personality, and historical covariates,

the study is not without limitations. The first limitation is that the study is cross-sectional, which doesn't allow us to make inferences over time; future research should address the longitudinal contributions of spirituality in non-clinical samples. Second, measurement of adult's spirituality was based on frequency within past month. Spirituality is a multidimensional construct and differentiating between different spiritual behaviors (i.e. meditation vs prayer) could provide a more precise understanding of the protective effects. Third, reports of maltreatment were retrospective in nature and may be subject to recall bias. Prospective research into childhood maltreatment can further substantiate the findings from the current study.

Conclusion

The current study provides support for spirituality as a buffer for the effect of childhood maltreatment on mental health symptoms in women. Although this evidence did not emerge for men, a relationship between spirituality and lower levels of loneliness was found amongst men in midlife. Despite the current study using a sample of adults in the general population, the protective effects of spirituality on adult mental health may also be helpful to clinical populations. Clinicians may want to consider introducing spirituality as an adjunctive treatment to trauma-informed therapy.

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Ethical standards and informed consent

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation and with the Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained from all patients for being included in the study.

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