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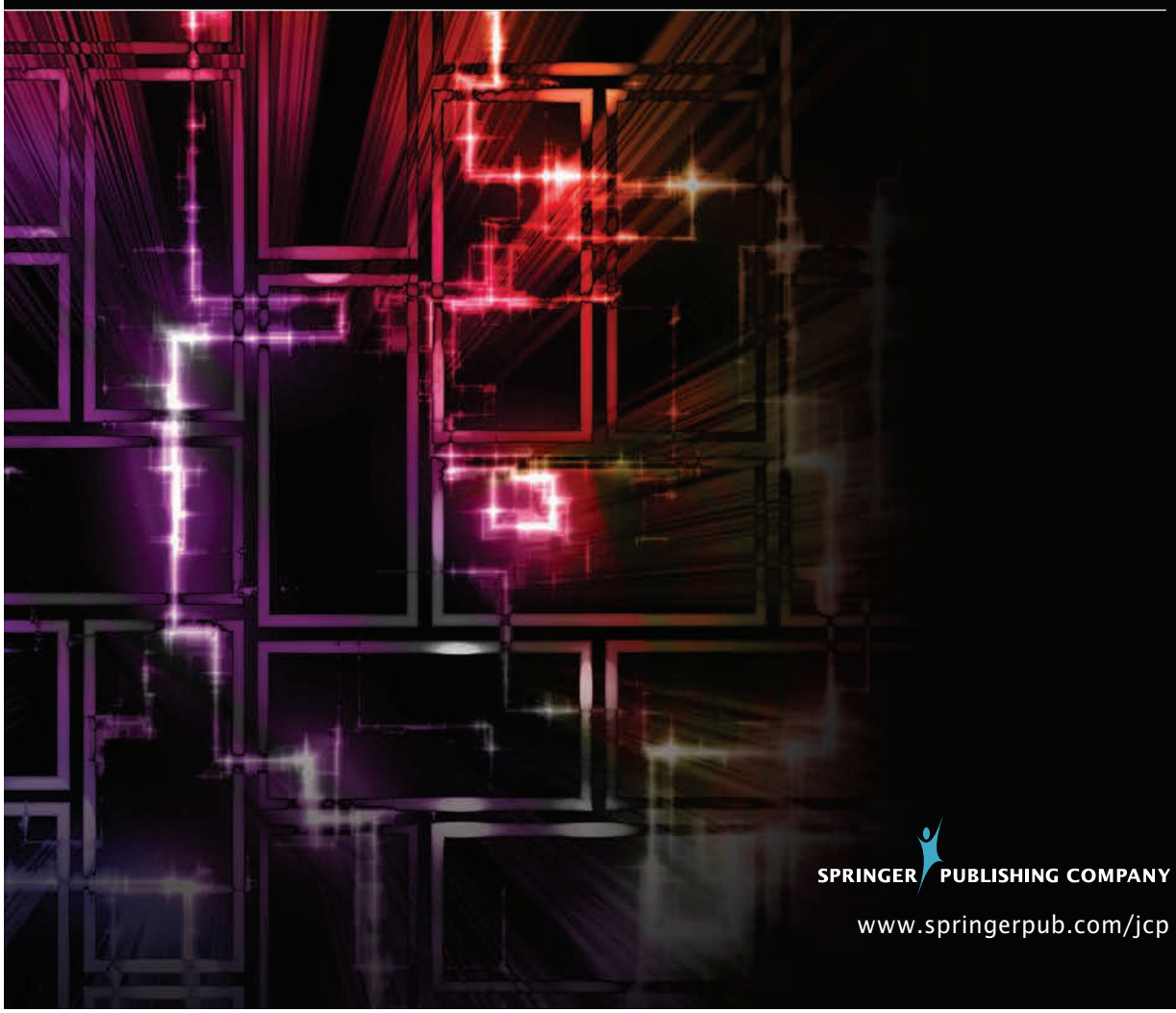

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Prayer in Response to Negative Intrusive Thoughts: Closer Examination of a Religious Neutralizing Strategy

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Few studies have systematically examined the covert neutralizing strategies that serve to maintain and exacerbate the frequency and distress related to intrusive thoughts. Given the lack of research in this area, this study aimed to highlight development and maintenance factors for one such strategy, compensatory prayer, to inform assessment and treatment of related obsessional phenomena. We used a multimethod approach to examine the predictors and function of prayer when it is used in response to negative intrusive thoughts. Participants were 85 undergraduate students (ages 18–55 years) who self-identified with a branch of Christianity. In addition to self-report measures, participants were administered an in vivo negative thought induction and were subsequently asked about their use of compensatory prayer behaviors. Results indicated that religiosity, intrinsic religious motivation, and moral thought–action fusion (TAF) positively predicted the use of prayer, with moral TAF emerging as a unique predictor and a complete mediator between religiosity and the use of prayer. Regarding the function of prayer, results indicated that when prayer is used maladaptively (i.e., negative coping style), it is associated with higher scores on religious measures and moral TAF, as well as more frequent engagement in prayer, and a greater reduction in anxiety postprayer. Surprisingly, likelihood TAF was not found to be related to the use or function of prayer. Results are discussed in terms of certain religious teachings and TAF-related beliefs, neurobiological explanations for our pattern of findings, and clinical implications for religious-related intrusive thoughts. Future directions and limitations are also discussed.

Keywords: prayer; scrupulosity; thought–action fusion; religiosity; OCD

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Intrusive, unwanted thoughts (e.g., images of harm befalling a loved one) are natural and common occurrences experienced by a majority of the population (Rachman, 1997, 1998; Rachman & de Silva, 1978; Rassin, Cougle, & Muris, 2007; Rassin & Muris, 2007; Salkovskis, 1985). Individuals who interpret these thoughts as threatening consequently experience distress and engage in overt rituals (e.g., hand washing, checking, repeating simple behaviors) or covert neutralizing strategies (e.g., thought suppression, thought replacement, mental analyzing, prayer) to reduce their discomfort and prevent or undo the feared consequences of the thought (e.g., Freeston & Ladouceur, 1997; Rachman, 1997; Salkovskis, Thorpe, Wahl, Wroe, & Forrester, 2003).

Whereas studying overt rituals and targeting such responses in cognitive behavioral treatments (i.e., response prevention) is somewhat straightforward, covert neutralizing strategies are inherently more conspicuous and therefore more challenging to empirically examine and target in treatment (de Silva, Menzies, & Shafran, 2003; Newth & Rachman, 2001; Rachman, Shafran, Mitchell, Trant, & Teachman, 1996). Given that covert neutralizing contributes to the maintenance of obsessional problems (e.g., de Silva et al., 2003), there is a need to further examine such behaviors. This study focuses on one common neutralizing strategy: compensatory prayer.

To our knowledge, no studies have specifically examined the use of prayer in response to distressing intrusive thoughts. Two studies, however, found that religiosity predicted neutralizing behaviors in response to an experimentally induced negative thought (Berman, Abramowitz, Pardue, & Wheaton, 2010; Williams, Lau, & Grisham, 2013), and clinical observations suggest that the use of prayer as one such strategy would be associated with religiosity. Thus, we hypothesize that stronger religiosity would predict the use of *prayer* per se as a neutralizing strategy and, moreover, that the degree of religiosity would predict the frequency with which prayer is used in response to intrusive thoughts.

Another factor that might predict prayer is *motivation* for religion, which has two components: intrinsic and extrinsic motivation (Allport & Ross, 1967). The intrinsic component captures an individual's internal incentive for being religious; that is, belief in religion for its moral principles and as a life influence. The extrinsic component describes social motivation for religion, or the idea that religion can be used as a means to an end (e.g., attending church to maintain social status in a community). Researchers have investigated how religious motivation can influence both obsessional phenomena and neutralizing behaviors. Berman, Wheaton, and Abramowitz (2013) found that intrinsic motivation for religion fully mediated the relationship between strength of religiosity and moral thought–action fusion (moral TAF; the belief that thinking of something immoral is equivalent to an immoral action; e.g., "thinking of committing adultery is the same as being an adulterer"). Thus, internalizing religious codes and perceiving religion to be a guiding factor in one's life explained the relationship between Christian religiosity and moral TAF beliefs. In addition, Berman, Wheaton, Fabricant, and Abramowitz (2012) found that an extrinsic motivation for religion uniquely predicted overt ritualistic behaviors (e.g., washing behaviors) in response to intrusive thoughts. Although these results suggest different predictive patterns for intrinsic and extrinsic religiosity, a broader conceptualization implies that motivation for religion is a significant factor in the evaluation of one's thoughts and the corresponding actions. Therefore, we hypothesize that higher levels of intrinsic and extrinsic motivation for religion would predict more frequent engagement in prayer as a compensatory behavior.

Another possible predictor of prayer is the misinterpretation of intrusive thoughts as dangerous or indicative of one's moral standards (i.e., TAF; Shafran, Thordarson, Rachman, 1996). Such beliefs about thoughts would seem to motivate one to engage in a compensatory behavior in an attempt to reduce emotional arousal and the intrusive thought itself. TAF is a well-studied cognitive bias that is composed of two subtypes: (a) moral TAF (as described previously) and

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(b) likelihood TAF, the belief that a thought increases the likelihood of a corresponding action occurring (e.g., having an incestuous thought increases the probability of experiencing a sexual encounter with a family member; Shafran et al., 1996). Although no research has specifically examined TAF as a predictor of the use of prayer, there is ample evidence of a relationship between TAF and other religious-related variables (i.e., religious affiliation, strength of religiosity, and personal involvement in religion; Abramowitz, Deacon, Woods, & Tolin, 2004; Berman et al., 2010; Rassin & Koster, 2003; Siev, Chambless, & Huppert, 2010; Siev & Cohen, 2007; Williams et al., 2013). Therefore, given past research, it is hypothesized that moral and likelihood TAF would be associated with more frequent engagement in prayer as a response to intrusive thoughts.

In addition to identifying the predictors of prayer, understanding its function when it is used as a neutralizing strategy might further elucidate how this behavior relates to obsessional phenomena. Past research has coded the function of prayer and examined its differential properties when it is used as a maladaptive/negative (e.g., expressing anger toward God) or adaptive/positive coping strategy (e.g., seeking a supportive relationship with God; Bade & Cook, 2008; Freeston & Ladouceur 1997; Harris et al., 2008; Harris et al., 2010; Pargament, Smith, Koenig, & Perez, 1998; Pirutinsky, Rosmarin, & Holt, 2012). In fact, past factor and meta-analyses support the binary division of positive and negative religious coping strategies (Ano & Vasconcelles, 2005; Pargament et al., 1998; Smith, McCullough, & Poll, 2003). Broadly speaking, meta-analytic results indicate that positive coping fosters adaptive psychological adjustment and improved emotional functioning, whereas negative coping increases distress (Ano & Vasconcelles, 2005; Harris, Schoneman, & Carrera, 2005; Pargament et al., 1998; Pirutinsky et al., 2012; Smith et al., 2003). By extending these findings and applying them to intrusive thoughts, results suggest that some forms of prayer in response to intrusions might paradoxically exacerbate the distress associated with the intrusions. Given that no research has applied the consistently used positive/adaptive and negative/maladaptive coding scheme to prayer when it is used as a neutralizing strategy, this study aimed to examine how the function or "adaptiveness" of prayer is related to the (a) frequency with which one prays in response to negative intrusive thoughts, (b) the effectiveness of prayer when used as a neutralizing strategy, (c) cognitive biases such as TAF, and (d) other religious-related variables.

In summary, this study used a multimethod approach by incorporating self-report questionnaires, interview measures, and behavioral observation (i.e., an in vivo negative thought induction) to examine the predictors and function of prayer when it is used as a neutralizing strategy. We had two main hypotheses. First, that stronger religiosity, greater levels of intrinsic and extrinsic motivation for religion, and greater TAF-Moral and TAF-Likelihood would be associated with greater likelihood of engaging in prayer in response to negative intrusive thoughts. Second, we predicted that among those using prayer as a neutralizing strategy, religious strength, intrinsic and extrinsic motivation for religion, and TAF-Moral and TAF-Likelihood would significantly and positively predict the frequency of praying behaviors and the degree to which prayer reduces anxiety. Finally, we also explored the relationship between our predictor variables and engagement in adaptive versus maladaptive prayer.

Method

Participants

Participants were 85 undergraduate students at a large university in the southeastern United States who completed an online "screening" questionnaire battery, self-identified as Christian, and subsequently attended an experimental session in our laboratory. Demographic characteristics are presented in Table 1.

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TABLE 1. Demographic Characteristics of the Sample ($N = 85$)

Gender	
Male	11 (12.90%)
Female	74 (87.10%)
Ethnicity	
White	68 (80.00%)
African American	6 (7.10%)
Hispanic	6 (7.10%)
Asian	1 (1.20%)
Other	4 (4.70%)
Age (years)	
Mean (*SD*)	21.85 (4.38)
Range	18–55

Design and Procedure

After signing up via an Internet-based software program and providing consent, participants were directed to a secure project website where they completed a demographic questionnaire and study measures (see "Measures" section). Upon accessing the website, participants were presented with an "instructions page." The study questionnaires appeared on the following pages. Participants received course credit for completing these measures. At the end of the last questionnaire, a debriefing statement was presented and participants were asked to provide their contact information if they were interested in being invited to participate in the laboratory portion of this study for further course credit.

Participants who completed the online measures and provided their contact information were invited to participate in a psychology lab experiment about "thoughts and feelings." Upon the participant's arrival at the lab, the experimenter obtained informed consent. The experimenter then conducted the negative thought induction and prayer assessment described in the following text.

Measures

The following measures were completed by study participants:

Demographics. As part of the online questionnaire, participants were asked to report their gender, age, and identified racial or ethnic group.

Depression, Anxiety, and Stress Scale (DASS; Lovibond & Lovibond, 1995). The DASS is a 21-item reliable and valid self-report measure of general depression, hyperarousal, and tension (Antony, Bieling, Cox, Enns, & Swinson, 1998). The DASS includes three 7-item subscales. The Depression subscale measures dysphoric mood (e.g., sadness); the Anxiety subscale measures symptoms of physical arousal and fear (e.g., trembling); and the Stress subscale measures symptoms such as tension, irritability, and overreaction to stressful events.

Intrinsic/Extrinsic—Revised (I/E–R; Gorsuch & McPherson, 1989). The I/E–R is a 14-item self-report scale that measures one's intrinsic (e.g., "I try hard to live all my life according to my religious beliefs"; $\alpha = .83$) and extrinsic religious motivation ("I go to religious services mostly to spend time with my friends"; $\alpha = .65$). Each item is rated on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). It is recognized that the reliability of the extrinsic scale is not strong, but this measure of religious motivation best assesses the constructs of interest.

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Santa Clara Religious Faith Scale (SCRFS; Plante & Boccaccini, 1997). The SCRFS is a 10-item self-report scale that provides a reliable and valid measure of one's strength of religiosity (e.g., "I pray daily"). Total scores range from 10 to 40, with higher scores indicating greater religiosity. Psychometric research demonstrates that scoring at or higher than 33 indicates "high religiosity" (Plante & Boccaccini, 1997). The SCRFS has good reliability (α = .92–.95) and converges with other valid measures of religiosity (Plante & Boccaccini, 1997).

Thought–Action Fusion Scale (TAFS; Shafran et al., 1996). The TAFS is a 19-item self-report questionnaire that assesses beliefs about the importance of thoughts. The TAFS contains three subscales: *Moral* (e.g., "Having a blasphemous thought is almost as sinful to me as a blasphemous action," α = .90), *Likelihood-other* (e.g., "If I think of a relative/friend losing their job, this increases the risk that they will lose their job," α = .92), and *Likelihood-self* (e.g., "If I think of myself having an accident, it increases the risk that I will have an accident," α = .84). Each item is rated on a scale from 0 (*disagree strongly*) to 4 (*agree strongly*). Items on the TAFS have good face validity, and the measure shows good internal consistency (Shafran et al., 1996).

Negative Thought Induction. In the laboratory, participants were individually administered a negative thought induction to prime the participants for the in vivo prayer assessment. This measure was adapted from Berman et al.'s (2010) paradigm. Participants were asked to think of a close, beloved relative such as a parent or sibling and write this person's full name on a note card that was provided. The experimenter then presented the participant with the following sentence: "I hope _____ goes blind soon," and participants were asked to copy the sentence onto another note card and insert the close relative's name. After writing the sentence, the participant was asked to close his or her eyes and think about the event occurring.

Functional Assessment of Prayer. Following the thought induction, participants answered questions related to their use of prayer "in response to having negative intrusive thoughts similar to the one just presented." Participants were asked the following:

1. Do you pray in response to negative unwanted thoughts, similar to the one you were presented with moments ago? (Yes/No)

If participants responded "Yes," they were then asked three prayer assessment items to better understand how and why prayer is used in response to negative unwanted thoughts:

1. How often do you pray in response to having negative unwanted thoughts? (1 = *never*, 2 = *less than once a month*, 3 = *once a month*, 4 = *two to three times a month*, 5 = *once a week*, 6 = *two to three times a week*, 7 = *daily*)
2. When you pray about having negative unwanted thoughts, how much does your level of anxiety go down? (0 = *anxiety level stays the same*, 100 = *anxiety is completely gone*)
3. Please explain why you pray in response to negative unwanted thoughts [text entry].

Data Analytic Strategy

We first conducted descriptive analyses of all study variables. We then computed zero-order correlations to examine relationships among predictor variables (SCRFS, I/E–R, TAFS subscales) and prayer functional assessment items (frequency of prayer and anxiety reduction postprayer). Third, we conducted hierarchical regressions and mediational analyses to better understand the relationship between the SCRFS, I/E-R, and TAFS and the frequency of prayer and reduction in anxiety postprayer. Lastly, using a binary scheme to code the function of participants' praying behaviors (adaptive vs. maladaptive), we conducted one-way ANOVAs to determine how the function of compensatory praying behaviors was related to the predictor variables and the prayer variables.

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Results

Sample Characteristics

Table 2 presents the mean, standard deviation, and range for each study measure. The group's mean scores on all three DASS subscales fell within the nonclinical range (Lovibond & Lovibond, 1995), as did the means for all TAFS subscales (Rassin, Merkelbach, Muris, & Schmidt, 2001). In terms of the SCRFS, participants demonstrated moderate to strong levels of religiosity. The strength of participants' religiosity and their motivational orientation scores (both intrinsic and extrinsic) are comparable with other studies of Christian college-age samples (Berman et al., 2013; Berman et al., 2012). Finally, more than two thirds of the participants ($n = 59$) reported engaging in prayer in response to negative intrusive thoughts, and less than one third ($n = 26$) did not. As can be seen in Table 2, the average participant in this study prayed more than once per month in response to a negative intrusive thought and reported that his or her anxiety declined at least moderately after doing so.

Use of Prayer as a Compensatory Behavior

To examine whether participants who reported engaging and not engaging in prayer in response to negative intrusive thoughts differed on measures of religious-related constructs and TAF, a one-way ANOVA was conducted. Table 3 presents the means, standard deviations, and results of significance tests for each study measure and subscale. As can be seen in the table, participants who reported that they pray in response to negative intrusive thoughts scored significantly higher than those who do not use prayer in this way on measures of religiosity, intrinsic and extrinsic motivation for religion, and the TAFS-Moral subscale. On the other hand, neither TAFS-Likelihood subscale differentiated between individuals who use and do not use prayer in response to intrusions.

TABLE 2. Descriptive Statistics for Predictor and Prayer-Related Variables

Measure	*M*	*SD*	Range
DASS-21			
Depression	8.13	7.34	0–42
Anxiety	6.79	7.23	0–42
Stress	13.09	9.07	0–40
Thought–action fusion scale			
TAFS-Moral	19.53	12.35	0–48
TAFS-Likelihood Self	2.21	2.54	0–9
TAFS-Likelihood Other	1.98	2.71	0–12
Religion variables			
Strength of religiosity (SCRFS)	29.69	8.30	10–40
Intrinsic motivation	26.32	6.61	13–38
Extrinsic motivation	16.51	3.86	6–26
Prayer measures			
Frequency of prayer	3.28	2.09	1–7
Anxiety reduction	56.24	31.27	0–100

Note. DASS = Depression, Anxiety, and Stress Scale; TAFS = Thought–Action Fusion Scale; SCRFS = Santa Clara Religious Faith Scale.

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TABLE 3. Differences on Study Measures by Use of Prayer in Response to Negative Intrusive Thoughts

	Use of Prayer *M* (*SD*); *n* = 59	Does *Not* Use Prayer *M* (*SD*); *n* = 26	*F*	*p*
SCRFS	33.35 (5.33)	21.38 (7.88)	67.09	> .001
Intrinsic	29.03 (5.45)	20.26 (4.68)	50.33	> .001
Extrinsic	17.44 (3.07)	14.38 (4.64)	12.85	> .001
TAFS-M	23.17 (11.54)	10.96 (9.83)	21.35	> .001
TAFS-L-O	2.15 (2.75)	1.58 (2.65)	00.81	.37
TAFS-L-S	2.32 (2.45)	1.96 (2.73)	00.36	.55

Note. SCRFS = Santa Clara Religious Faith Scale; TAFS-M = Thought–Action Fusion Scale Moral; TAFS-L-O = Thought–Action Fusion Scale Likelihood Other; TAFS-L-S = Thought–Action Fusion Scale Likelihood Self.

Correlations Among Study Measures

Zero-order correlations among the study variables are presented in Table 4 for those individuals (*n* = 59) who reported praying in response to negative intrusive thoughts. As can be seen, the frequency of prayer was rather strongly and positively associated with the I/E–R intrinsic subscale, SCRFS, and the TAFS-Moral subscale. Similarly, scores on the SCRFS and I/E–R intrinsic subscale were positively, although somewhat weakly, related with the amount of anxiety reduction that participants reported postprayer. The frequency of prayer and amount of anxiety reduction postprayer were significantly positively related with one another, albeit weakly.

Regression Analyses

Given that the I/E–R extrinsic subscale and the TAFS-Likelihood subscales were not significantly correlated with either of the dependent prayer variables, we excluded these measures from the regression analyses reported here. Two simultaneous regression analyses were completed to better

TABLE 4. Zero-Order Correlations Among Predictor and Prayer Variables

	Extrinsic	SCRFS	TAFS-M	TAFS-L-O	TAFS-L-S	Prayer—Frequency	Prayer—Anxiety Reduction
Intrinsic	.21	.86**	.53**	−.05	−.07	.64**	.27*
Extrinsic	—	.41**	.34**	.20	.07	.22	.06
SCRFS	—	—	.48**	−.03	−.11	.61**	.30*
TAFS-M	—	—	—	.26*	.21	.57**	.16
TAFS-L-O	—	—	—	—	.72**	.09	.19
TAFS-L-S	—	—	—	—	—	.08	.04
Prayer frequency	—	—	—	—	—	—	.23*

Note. SCRFS = Santa Clara Religious Faith Scale; TAFS-M = Thought–Action Fusion Scale Moral; TAFS-L-O = Thought–Action Fusion Scale Likelihood Other; TAFS-L-S = Thought–Action Fusion Scale Likelihood Self.
*$p < .05$. **$p < .01$.

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understand the relationship among the remaining study variables. In these analyses, the SCRFS, I/E–R intrinsic subscale, and TAFS-Moral subscale were included as predictors of the frequency of prayer and the reduction in anxiety postprayer.

In the first regression predicting prayer frequency, the three predictor variables together explained a significant amount of variance in the frequency of prayer, $F(3, 54) = 6.15, p < .001$, $R^2 = .26$. Of the independent variables, only TAFS-Moral emerged as a significant individual predictor of the frequency of prayer ($\beta = .29$, $t(56) = 2.15$, $p < .05$). In the second regression predicting anxiety reduction following prayer, the three predictor variables did not explain a significant amount of variance in the decrease of anxiety postprayer, $F(3, 54) = 1.12, p > .05$, $R^2 = .06$, and none of the independent variables emerged as significant predictors.

Mediation Analyses

Given the results of the first regression analysis (i.e., only TAFS-Moral emerged as a significant predictor), we tested whether TAFS-Moral could explain the relationship between religiosity and engagement in prayer as a compensatory behavior. Two mediation analyses were conducted. The first tested whether the relationship between religiosity and use of prayer was mediated by TAFS-Moral. The Sobel test indicated that TAFS-Moral fully mediated the relationship between religiosity and use of prayer in response to negative intrusive thoughts (Sobel $t = -2.07, p < .05$). The second mediation analysis tested whether the relationship between religiosity and the frequency of prayer was mediated by TAFS-Moral. The Sobel test again demonstrated that TAFS-Moral fully mediated the relationship between religiosity and the frequency of prayer in response to negative intrusive thoughts (Sobel $t = 3.11, p < .001$).

Coding of Prayer Function

A binary coding scheme modeled after Pargament and colleagues (1998) was used to code the adaptiveness of participant's reported praying behaviors. Specifically, based on Pargament et al.'s concept of positive (i.e., adaptive) versus negative (i.e., maladaptive) religious coping strategies, an adaptive prayer response included strengthening one's relationship with God (e.g., "I pray to disclose my thoughts to God, which helps me feel closer to Him"), religious reappraisals (e.g., "By praying, it helps me realize that these thoughts are probably part of God's plan for me"), and seeking religious support (e.g., "Praying helps me know that God is there for me"). A maladaptive prayer response included anger with God (e.g., "I pray because I am mad at God for making me have these gross thoughts"), religious deferral (e.g., "I pray for God to stop these negative thoughts and for him to make them go away in the future"), and religious doubt (e.g., "After I have thoughts like this, I try praying for forgiveness, but if there was really a God he wouldn't force me to have these thoughts in the first place"). Two research assistants, along with the first author (NB), separately coded the prayer behaviors into adaptive or maladaptive. To determine the reliability of categorical ratings between the three coders, we computed the intraclass correlation coefficient. Our high interrater reliability (Cronbach's $\alpha = .91$) demonstrates that the three coders were in nearly perfect agreement regarding the binary classification of the function of prayer.

This binary coding scheme captured all but one vague response ("it's relief") and two participants did not provide any response. Therefore, the function of 56 participants' prayer behaviors was coded into these adaptive and maladaptive categories. To examine the relationship between the function of prayer and the predictor and prayer assessment variables, two separate one-way ANOVAs were conducted. Table 5 presents the mean, standard deviation, and significance test for each study measure. Results from the first ANOVA indicated that scores on the SCRFS, I/E–R intrinsic subscale, and TAFS-Moral were significantly higher among those

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TABLE 5. Differences on Study Measures Regarding Function of Prayer

	Maladaptive Prayer *M* (*SD*); *n* = 41	Adaptive Prayer *M* (*SD*); *n* = 15	*F*	*p*
Predictor variables				
SCRFS	33.73 (5.65)	30.33 (7.10)	3.45	.05
Intrinsic	29.90 (5.40)	25.93 (5.87)	5.61	.02
Extrinsic	17.48 (3.22)	16.2 (3.83)	1.58	.21
TAFS-M	24.85 (10.90)	17.27 (11.17)	5.25	.02
TAFS-L-O	2.04 (2.69)	2.26 (3.15)	.07	.80
TAFS-L-S	2.21 (2.44)	2.66 (2.71)	.35	.56
Prayer assessment items				
Frequency	4.56 (1.96)	3.40 (1.12)	4.65	.03
Anxiety reduction	66.17 (26.69)	41.26 (29.40)	9.06	.004

Note. SCRFS = Santa Clara Religious Faith Scale; TAFS-M = Thought–Action Fusion Scale Moral; TAFS-L-O = Thought–Action Fusion Scale Likelihood Other; TAFS-L-S = Thought–Action Fusion Scale Likelihood Self.

participants who engaged in maladaptive prayer, compared to those who engaged in adaptive prayer. No significant differences on the I/E–R extrinsic subscale and likelihood subscales of the TAFS were found between groups. Results from the second ANOVA indicated that each prayer assessment item significantly differed between the groups. More specifically, participants who engaged in maladaptive prayer prayed more frequently and reported a greater reduction in anxiety postprayer.

Discussion

This study is the first to examine prayer as a specific covert neutralizing behavior in response to negative intrusive thoughts. Contemporary conceptual models view prayer, when used in this way, as playing a role in the maintenance of obsessional problems. Moreover, given its conspicuous nature, this type of prayer is a potential stumbling block for clinicians treating obsessional phenomena who might not be aware that a patient is using such a strategy to escape from obsessional distress. Accordingly, it is important to better understand both the experiences that predict this compensatory behavior, as well as its function when it is performed in response to intrusive thoughts. The present investigation examined the relationship between prayer-related variables (e.g., frequency and reported anxiety reduction postprayer) and constructs that possess theoretical associations with this religious behavior: degree of religiosity, motivational orientation toward religion, and TAF. Given the lack of research in this area, this study aimed to highlight development and maintenance factors for compensatory prayer and inform possible considerations for assessment and treatment of related obsessional phenomena.

Our first hypothesis that our predictor variables would be positively associated with engagement in prayer was partially supported. As expected, among Christian participants, those who reported using prayer as a neutralizing strategy were significantly more religious, possessed greater motivation for religion, and reported higher moral TAF scores relative to participants who did not use prayer in this way. These findings extend broader research on religious-related obsessive–compulsive symptoms (i.e., scrupulosity; Abramowitz, Huppert, Cohen, Tolin, & Cahill,

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2002; Ciarrocchi, 1995; Deacon & Nelson, 2008; Miller & Hedges, 2008; Nelson, Abramowitz, Whiteside, & Deacon, 2006; Siev, Baer, & Minichiello, 2011) by examining a specific religious neutralizing strategy. Contrary to our prediction, likelihood TAF was not significantly associated with engagement in prayer. Given the conceptual overlap of likelihood TAF (i.e., my thoughts can increase an event's occurrence) and one essential purpose of prayer (i.e., my prayers will lead to a desired outcome, such as forgiveness), we found this result surprising. However, our results do align with previous findings that religious-related variables are more strongly associated with Moral than with likelihood TAF (Rassin & Koster, 2003; Siev & Cohen, 2007).

Our second hypothesis regarding the prediction of prayer frequency and the degree to which prayer reduces anxiety was also partially supported. For those who engaged in prayer as a neutralizing strategy, one's strength of religiosity, intrinsic motivation for religion, and moral TAF beliefs positively predicted the frequency of prayer. Extending these findings, moral TAF beliefs were found to significantly mediate the relationship between one's strength of religiosity and engagement in prayer and the frequency of prayer behaviors. The complete mediation indicates that considering immoral thoughts to be equivalent to immoral actions, rather than one's religion or strength of religiosity, promotes prayer usage in response to intrusions. These findings are consistent with previous investigations reporting relationships between religiosity and TAF (Abramowitz et al., 2004; Berman et al., 2010, 2013; Rassin & Koster, 2003; Siev et al., 2010; Siev & Cohen, 2007), particularly Siev et al.'s (2010) and Berman et al.'s (2013) work, which demonstrated a positive relationship between religiosity and moral TAF in a Christian sample.

Although the cross-sectional and correlational nature of our data preclude conclusions regarding causation, our mediational model is consistent with the idea that exposure to religious doctrine containing codes of conduct for thinking and acting fosters the development of moral TAF beliefs, which consequently promote the use of religious compensatory behaviors (Berman et al., 2013; Salkovskis, Shafran, Rachman, & Freeston, 1999). Future experimental research might examine aspects of this hypothesis more carefully. Contrary to our second hypothesis, but aligning with the results discussed previously, likelihood TAF beliefs were not associated with prayer-related variables. Again, these findings indicate that beliefs regarding the powerfulness of one's thoughts (e.g., praying will increase the likelihood of external events occurring) are not predictive of the frequency of prayer behaviors or the reduction in anxiety postprayer.

From our data, as well as results from previous studies, it appears that compensatory prayer functions to "right" the wrong of immoral intrusive thoughts rather than to reduce the likelihood of a feared outcome occurring (e.g., going to hell for having sinful thoughts). Interestingly, these findings are consistent with neuroimaging results that might address why moral TAF, rather than likelihood TAF, is associated with prayer. Harrison and colleagues (2013) found that religious-related obsessional phenomena, such as moral TAF, are associated with greater connectivity between the ventral caudate and the mid- and antero-basal insular cortex, which are regions associated with more advanced socioemotional processing (e.g., experience and management of guilt; Basile et al., 2011; Harrison et al., 2013; Kurth, Zilles, Fox, Laird, & Eickhoff, 2010; Shin et al., 2000). Other obsessional symptoms associated with likelihood TAF (e.g., doubting and checking compulsions; Shafran et al., 1996) are associated with dysfunction within the amygdala (i.e., fear center; Harrison et al., 2013). The activation of different areas of the brain supports the conjecture that two different neurological processes are associated with these cognitive biases. Moreover, these findings suggest that when religious intrusions activate moral TAF beliefs, the resultant emotional processes are associated with higher order emotions, such as guilt. Prayer, then, serves to neutralize the uncomfortable feelings of *guilt* associated with the intrusion rather than serving to reduce *fear*, an emotional process seemingly more tied to the likelihood bias of TAF (Shafran et al., 1996).

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Our exploratory aim, to examine the relationship between the function of prayer and other study variables, indicated that participants' strength of religiosity, intrinsic motivation for religion, and moral TAF scores were significantly higher among participants who engaged in maladaptive prayer, when compared to those who engaged in adaptive prayer. In addition, maladaptive prayer was associated with a greater frequency of praying behaviors and a greater reduction in anxiety postprayer. The latter findings can best be explained by a negative reinforcement schedule. An individual experiences a negative intrusive thought (i.e., aversive stimuli), which he or she then removes (or neutralizes) through the use of maladaptive prayer strategies. Subsequently, the individual experiences a dramatic reduction in uncomfortable feelings of anxiety. This significant decrease in emotional arousal is therefore reinforcing for the individual and will increase the likelihood of the maladaptive behavior occurring in the future. In accordance with this behavioral theory, results indicated that maladaptive prayer was performed more frequently than adaptive prayer. These findings align well with past findings, which indicated that the maladaptive use of prayer was associated with negative emotional coping (Ano & Vasconcelles, 2005; Harris et al., 2005; Pargament et al., 1998; Pirutinsky et al., 2012; Smith et al., 2003).

Although this study used a nonclinical sample, the findings can inform therapeutic practice for patients presenting with obsessional problems focusing on religion. As the results demonstrated, moral TAF plays an important role in predicting who will turn to prayer as a compensatory behavior. In fact, moral TAF fully explained the relationship between religious strength and engagement in prayer, and this cognitive bias was significantly higher in those who engaged in maladaptive prayer. For clinicians, these findings can influence assessment in two ways. First, clinicians might consider administering the TAFS to patients with religious-related obsessions and pay particular attention to responses on the moral TAF subscale. Second, it appears important to assess the function of patient's prayer and the extent to which he or she engages in maladaptive religious compensatory behaviors. Both of these recommendations can direct the clinician to psychoeducational material (e.g., the consequences of engaging in maladaptive vs. adaptive prayer) and relevant behavioral experiments to test the validity of one's moral TAF beliefs. By targeting the patient's moral TAF beliefs (e.g., Wilhelm & Steketee, 2006), his or her urges to engage in compensatory prayer may diminish, given that the function might have been to reduce anxiety provoked by the dysfunctional beliefs.

For several reasons, the conclusions from this study should be considered with some measure of caution. First, although prayer is an essential component of nearly all religions (Poloma & Pendleton, 1989) and often functions as a response to dealing with stressors (Bennett & Elliott, 2013; Harris et al., 2010; Pirutinsky et al., 2012), this study's undergraduate sample limits the generalizability to clinical populations. Additional studies that examine these prayer-related variables in those with clinical levels of scrupulosity or other religious-based obsessive–compulsive disorder symptoms are recommended. A second limitation is that study participation was limited to Christians. Although the purpose of doing so was to maximize the internal validity of our findings, Christians might use prayer differently than members of other religions. To the extent that this is so, our findings might not generalize to non-Christians (i.e., they might not be externally valid). Consequently, broad conclusions about the properties of prayer as a neutralizing strategy cannot be drawn with confidence. To better understand the specificity of these relationships to Christianity, future studies should evaluate the predictors and adaptiveness of prayer in other religious faiths. Third, the amount of variance explained in prayer-related variables by the predictors in our regression analyses indicates that other important variables contribute to these constructs. Therefore, future research should examine other psychological, biological, and cultural factors that might contribute to the use of prayer as a compensatory variable.

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