

New Insights for “What Works”? Religiosity and the Risk-Needs-Responsivity Model

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Abstract

The existing literature has devoted relatively little attention to the responsivity principle and, in particular, religiosity as a type of specific responsivity. Using a sample of nearly 2,000 people incarcerated in Minnesota’s prison system, this study examined the relationship between religiosity and measures of risk, needs, and responsivity. The results showed that religiosity was positively associated with childhood trauma, pro-social identities, and perceived social support, while it was negatively associated with criminal thinking and employment needs. Findings further revealed that religiosity was associated with less prison misconduct and reduced recidivism risk, but only for people with positive self-identities, according to Paternoster and Bushway’s Fear of Self scale, and lower levels of perceived social support. We discuss the implications of these results for theory and practice.

Keywords

religiosity, responsivity, prison misconduct, risk assessment

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The infamous “nothing works” claim during the 1970s was the catalyst for the growth of the “what works” literature within corrections, which eventually gave rise to the development of the risk-needs-responsivity (RNR) model (Andrews et al., 1990, 2006; Lowenkamp et al., 2006). The RNR model maintains that programming should be matched to a person’s risk of reoffending, criminogenic needs, and responsivity issues (Cullen et al., 2013). The risk principle holds that interventions should be targeted toward higher-risk individuals, with the most intensive programs being reserved for those with the highest recidivism risk (Sperber et al., 2013). The needs principle suggests that programs must address individual characteristics that are related to criminal behavior (i.e., criminogenic needs).

Under the RNR framework, one distinction made among risk factors is whether they are static or dynamic. Although a static risk factor like criminal history anchors a person’s recidivism risk (Caudy et al., 2013), dynamic risk factors such as education and substance abuse can be targeted through interventions because changes can be made in these factors. Prior research has further categorized risk factors as major, moderate, and minor (Andrews et al., 2006). Included among the four major risk factors (i.e., the “Big Four”) are history of antisocial behavior, antisocial personality pattern, antisocial cognition, and antisocial associates (Andrews & Bonta, 2010; Andrews et al., 2006; Bonta et al., 1998; Bonta & Andrews, 2007; Gendreau et al., 1996). Of the “Big Four,” history of antisocial behavior (i.e., criminal history) is static, whereas the others are dynamic needs areas. Moderate risk factors include family/marital, education/employment, leisure/recreation, and substance abuse, while areas such as major mental disorder, low IQ, and social class are considered minor risk factors that have a modest, indirect effect on reoffending (Andrews et al., 2006).

The responsivity principle indicates that programs must account for factors that might influence the effectiveness of programming. Whereas general responsivity refers to types of programming that are most effective in reducing recidivism, such as cognitive-behavioral interventions, specific responsivity includes individual barriers that may limit the likelihood for program participation and successful completion (Bonta & Andrews, 2007). Examples of specific responsivity include motivation, anxiety, different forms of learning styles, language, transportation, gender, and culture (Cullen, 2002).

Because specific responsivity emphasizes that programs should match their services to an individual’s preferences, Mowen et al. (2018) suggest that religious faith and spirituality should be considered as a type of specific responsivity. After all, individuals who identify in religious or spiritual ways have been found to experience the positive effects of prosocial support offered by the faith community (Hallett et al., 2016; Jang et al., 2017, Jang

et al., 2022; Johnson, 2011; Johnson et al., 2021; Mowen et al., 2018). To date, however, existing research has not empirically examined the role of religiosity within the context of the RNR model. By doing so, this study attempts to clarify the relationship between religiosity, criminogenic needs, and measures of risk. Because the RNR model is designed to guide the delivery of programming, developing a better understanding of this relationship may help improve program delivery and, ultimately, yield better outcomes for correctional populations.

Religiosity and the Specific Responsibility Principle

Existing research has shown that religious involvement yields a number of benefits (Koenig et al., 2012). Religiosity is positively associated with educational attainment (Jeynes, 2003; Regnerus, 2003); employment outcomes (Bal & Kokalan, 2021); pro-social self-identities (Hallett et al., 2016) and levels of hope (Ciarrochi & Heaven, 2012; Hood et al., 2009; King et al., 2020), purpose (Froese, 2015), and sense of overall flourishing and well-being (VanderWeele, 2017; Makridis et al., 2020); social support (Lim & Putnam, 2010); mental health (Ellison et al., 2009; Li et al., 2016; Rosmarin & Koenig, 2020; VanderWeele et al., 2016), forgiveness (McCullough et al., 2005), voluntary activities (Lam, 2002), crime reduction (Johnson, 2011), prisoner rehabilitation (Hallett et al., 2016), family relations (Edgell, 2013; Mahoney et al., 2003), substance use/abuse (Bahr & Hoffmann, 2014), sobriety (Lee et al., 2017), coping strategies for stressful conditions (Ellison & Henderson, 2011; Makridis et al., 2020), and even longevity/mortality (Shanshan et al., 2016). On the other hand, the evidence suggests religiosity is negatively associated with rates of divorce; drug and alcohol use and abuse; mental disorders such as depression; and the likelihood of suicide (George, et al., 2000; Johnson et al., 2002; McCullough & Willoughby, 2009; Mowen et al., 2018). Overall, the literature suggests that religious involvement not only promotes pro-social behavior, but it also serves as a protective factor that buffers individuals from harmful outcomes.

Existing research has generally found that victims of childhood abuse report lower levels of spirituality and religious involvement as adults (Bierman, 2005). Nevertheless, a few studies have reported exceptions to the negative association typically observed between childhood trauma and religiosity. While victims abused by their fathers had lower levels of religious involvement, Bierman (2005) found that maternal and nonparental abuse did not have a negative impact on religiosity. In a more recent study, Kosarkova et al. (2020) found that non-religious respondents who experienced childhood trauma reported higher levels of spirituality.

Based on the findings from the literature, we hypothesize that people who report greater religiosity in this study will have lower levels of need for education, employment, substance use disorders, mental health, and family-domestic relationships. Likewise, we anticipate that religiosity will have a negative association with childhood trauma and abuse. On the other hand, we hypothesize that religiosity will be positively associated with social support and pro-social self-identities. Existing research has yet to examine the relationship between religiosity and criminal thinking, anti-social peers, and housing/homelessness. Yet, if these relationships are consistent with the available literature, we anticipate that religiosity will be negatively associated with each one.

Prior research has generally found that religiosity is negatively associated with crime and delinquency (Johnson et al., 2000). In their meta-analysis of the literature, Baier and Wright (2001) found that religious behavior and beliefs exert a significant, albeit moderate, deterrent effect on crime. Other studies have found that religious involvement is linked with lower levels of domestic violence (Ellison et al., 2007) and decreased crime among African-American individuals (Entner Wright & Younts, 2009).

Religion has long been central to the American prison experience. The advent of the prison reform movement near the turn of the nineteenth century, for example, was heavily influenced by religious faith (O'Connor, 2002). The influence of religiosity on the behavior of those in prison has been somewhat mixed. Although a few studies have not found an association between religiosity and prison misconduct (Johnson, 1987; Pass, 1999), others have shown that increased religious involvement decreases disciplinary infractions (Kerley et al., 2011; O'Connor & Perreyclear, 2002). In their evaluation of the faith-based Life Connections Program delivered within the Federal Bureau of Prisons, Camp et al. (2008) found that participation significantly decreased more serious forms of misconduct but had no impact on minor infractions. In addition, Duwe et al. (2015) found that participation in a Bible College program significantly improved participant behavior, resulting in reduced misconduct.

While religious involvement and participation in faith-based prison programming has generally been associated with better recidivism outcomes, the evidence has been somewhat mixed. In their study of a Prison Fellowship (PF) program that operated in the federal prison system, Young, Gartner et al. (1995) found lower recidivism rates among individuals who were trained as volunteer prison ministers. In addition, Sumter (1999) and O'Connor (2003) both found that inmates who were frequently involved in prison religious activities were significantly less likely to be rearrested than those with little or no involvement while incarcerated.

Other research has shown that while religious programming has a beneficial effect for the most active participants, it does not have a significant effect for all participants. In an evaluation of PF programming in four New York prisons, Johnson et al. (1997) found no significant difference in reoffending between PF participants and a group of inmates who did not participate in PF programming. Johnson et al. (1997) observed lower recidivism rates, however, for inmates who were the most active participants in Bible studies. In a second study of the same program, Johnson (2004) used a longer follow-up period to analyze recidivism outcomes. Again, the results showed that PF programming did not have a significant overall effect on recidivism. Individuals with greater levels of Bible study participation, however, were rearrested at a slower pace during the first three years following release from prison. Similar to the findings from these evaluations, Johnson and Larson (2003) found that participants who graduated from the InnerChange Freedom Initiative (InnerChange), a faith-based program run by PF Ministries, had lower recidivism rates, although the program did not significantly reduce recidivism overall.

In an evaluation of an IFI program in Minnesota's prison system, Duwe and King (2013) found that program participation significantly reduced reoffending. As Duwe and King (2013) explain, the beneficial recidivism outcomes for program participants may have been due, in part, to the continuum of mentoring support some individuals received in both the institution and the community. Likewise, in a more recent study, Mowen et al. (2018) found that religiosity was associated with reduced recidivism, but only for individuals who reported receiving religious support during their imprisonment and in the community following their release from prison.

Given the findings that program completion is associated with reduced recidivism, a few studies have examined the factors that predict completion of faith-based programs. In the preliminary evaluation of the Ridge House residential program in Reno, Nevada, Roman et al. (2006) found that an increased sense of a higher power significantly increased the odds of program completion. In their evaluation of the Life Connections Program (LCP), a faith-based program provided in five federal correctional facilities, Daggett et al. (2008) found that scripture reading, perception of self-worth, and degree of desire for community integration significantly increased the odds that participants completed LCP.

Aside from the somewhat mixed evidence on the association between religiosity and risk-related outcomes, the existing literature has not offered clear-cut guidance for determining, especially empirically, what distinguishes a criminogenic need from a responsivity factor. Consider, for example, what the literature has indicated about mental health. Andrews et al. (2006)

acknowledged that while mental illness is a minor risk factor for recidivism, they emphasized it has only a modest, indirect impact on reoffending. Whatever effect mental illness has on recidivism, Andrews et al. (2006) argue, likely reflects the impact of substance abuse (one of the “central eight” risk factors) along with criminal thinking and antisocial personality pattern (two of the “Big Four”). Other scholars, however, have identified mental health as a responsivity factor (McCormick et al., 2017; Pinals et al., 2021). In particular, McCormick et al. (2017) suggest that mental health is a responsivity factor that may moderate the success of interventions targeted to criminogenic needs.

If we extend this discussion about mental health to the RNR model in general, a key distinction between criminogenic needs and responsivity factors lies in the impact each one has on recidivism. A criminogenic need will not only have a significant, direct impact on reoffending, but interventions that successfully target this need will reduce recidivism. For example, substance abuse is a criminogenic need with a significant, direct impact on recidivism (Gendreau et al., 1996), and substance use disorder treatment has been shown to reduce reoffending (Mitchell et al., 2007). Specific responsivity factors, on the other hand, will have a more modest, indirect impact on reoffending that is moderated by other factors. To paraphrase Andrews et al. (2006), whatever impact a responsivity factor may have on recidivism would be moderated by other risk and responsivity factors. Moreover, as McCormick et al. (2017) indicate, responsivity factors may influence whether individuals are able to successfully complete programming that targets criminogenic needs.

According to this framework, we hypothesize that religiosity will not have a significant, direct effect on either prison misconduct or recidivism risk because it is not considered a criminogenic need. Yet, because it is a specific responsivity factor, we hypothesize that it will have an indirect effect on prison misconduct and recidivism risk that is moderated by other factors. Examining the association between religiosity and the completion of effective programming is outside the scope of this study. Nevertheless, consistent with what prior research has found (Daggett et al., 2008; Roman et al., 2006), we anticipate that religiosity would be positively associated with the completion of programming.

Present Study

In March 2021, more than 2,000 people confined in Minnesota’s prison system completed a survey that was designed by Minnesota Department of Corrections (MnDOC) staff to assess their needs and responsivity. We leverage this dataset to examine the association between religiosity and measures

of risk, needs, and responsivity. In addition to containing a scale for religiosity, the survey included measures for criminal thinking, anti-social peers, social support, employment, childhood trauma, self-identity, housing and homelessness, and family/domestic relationships. We combined these survey data with existing assessment data for education, mental health and substance use disorders along with administrative data for prison misconduct and recidivism risk. Using this dataset, we first analyzed the relationship between religiosity and the need and responsivity measures noted above with an ordinary least squares (OLS) regression model. We then used Cox regression and ordinal regression to examine the effect of religiosity on two measures of risk—prison misconduct and assessed recidivism risk.

Data and Method

The dataset we used to examine the relationship between religiosity and measures of risk, needs and responsivity contains both survey data and administrative data. The survey was designed to assess needs and responsivity areas that are not currently assessed by the MnDOC. More specifically, the MnDOC currently collects assessment data relating to substance use disorders (SUD), education, and mental health. Based on the SUD assessment, individuals receive a rating (“High,” “Medium,” or “Low”) that signifies the need to address that area. For education, individuals were given a need rating based on their level of achievement, with “High” assigned to those with less than a secondary degree, “Medium” given to those with a secondary degree, and “Low” assigned to those with a post-secondary degree or certificate. Based on a mental health screening administered at intake, individuals receive a mental health score, ranging from 0 to 8, in which points are assigned for the presence of mental health disorders (e.g., mood disorder) and psychological concerns such as suicidal tendencies and a history of self-injury.

Participants

The survey was self-administered on desktop computers using Snap computer-assisted survey software. Incarcerated individuals selected to participate in the survey were notified in writing by their case manager about one week prior to survey administration. Individuals were advised that their participation in the survey was completely voluntary and they could refuse to participate or skip any questions that they did not want to answer. Incarcerated individuals signed a consent form prior to beginning the survey, and respondents were offered a small incentive in exchange for their participation.

The survey was administered to 2,100 incarcerated individuals at all 11 adult prisons in Minnesota in the spring of 2021. These facilities include a range of custody levels from minimum to maximum throughout the state. All but one of the facilities house men, while the remaining facility houses women. In an effort to achieve the largest sample possible without unduly burdening staff at the men's facilities, half of the approximately 6,700 men who were incarcerated at the time of the survey were randomly selected. Given the relatively small number of incarcerated women (400), all individuals housed in Minnesota's lone women's facility were invited to participate. Of the 3,335 men and 400 women who were invited to participate, 1,763 men and 337 women completed the survey, resulting in a total participation rate of 56% (53% for men, and 84% for women). Our final sample size, however, consisted of 1,957 individuals due to missing responses to some survey items.

Measures

The survey, which was reviewed and approved by the MnDOC's Human Subjects Review Board, included items that measured the following areas or domains: (1) criminal thinking, (2) criminal associates, (3) social support, (4) self-identity, (5) childhood trauma, (6) employment, (7) housing and homelessness, (8) family/domestic, and (9) religiosity. To the extent possible, the survey relied on scales that have been validated or used in prior research. Accordingly, the Texas Christian University-Criminal Thinking Scales (TCU-CTS) were used to measure criminal thinking (Knight et al., 2006), the Attitudes toward Associates scale within the Measures of Criminal Attitudes and Associates (MCAA) was used to measure anti-social peers (Mills et al., 2002), the multi-dimensional scale of perceived social support was used to measure social support (Zimet et al., 1988), and the adverse childhood experiences (ACEs) scale was used to measure childhood trauma and abuse (Felitti et al., 1998).

To measure self-identity, the survey included four measures derived from the literature. The first, adapted from Rocque et al. (2016) and Na et al. (2015) includes six items such as "I am a good person" and "I am satisfied with myself." Because this measure was constructed by scholars involved in the Gang Reduction Initiative of Denver (Pyrooz et al., 2019), it is labeled GRID identity. Second, drawing on Paternoster and Bushway's (2009) feared self-concept, the survey used a six-item measure, asking individuals questions such as "All in all I feel like I am a failure" and "I have hit rock bottom in my life." Third, to capture Giordano et al.'s (2002) concept of cognitive transformation, the survey included six items related to how open individuals are to change and whether they want to choose a different path. The cognitive

change measure includes items such as “I am open to a new way of life” and “I want to avoid criminal behaviors.” Finally, the survey included a general identity scale, which consists of items about how individuals see themselves and how they believe others would view them if they continued to get into trouble. Examples for this measure include “I believe I am a troublemaker at heart” and “My friends would still respect me if I was arrested.” Lower scores for each of these four measures reflect more prosocial views of the self.

The religiosity scale drew from three items that have been used in prior research with correctional populations (Jang et al., 2017). Questions for this scale included: (1) In general, how important is religion to you?, (2) How often do you prefer to attend religious services?, and (3) “About how often do you spend time alone praying or reading the Bible, Koran, Torah, or other sacred book?” As shown in the Appendix, the scale ranges from 3 to 18 points, with higher scores reflecting greater religiosity.

Due to the lack of existing employment and housing/homelessness assessments for correctional populations, MnDOC staff created measures for each domain. The employment scale asked individuals about work history, career planning, and job search skills. A higher score for this domain suggests it is a high need due to limited employment experience and job skills. The housing/homelessness scale asked respondents about prior experiences with homelessness, the frequency and duration of prior homeless episodes in the past, and the anticipated living situation upon release. Again, a higher score for this measure reflects a history of homelessness and anticipated housing instability following release from prison.

Analytic Strategy

To examine the relationship between religiosity and measures of risk, need, and responsiveness, we conducted three sets of analyses. In the first analysis, we examined the association between religiosity and the 11 needs and responsiveness areas captured either on the survey or within the Correctional Operations Management System (COMS), the management information system maintained by the MnDOC. To this end, we estimated an OLS regression model in which the religiosity scale was the dependent variable while the independent variables were the 11 other needs and responsiveness measures. The OLS regression model also contained control variables for age, gender, and race/ethnicity.

For the other two sets of analyses, we analyzed the effect of religiosity on two measures of risk. Our first risk measure was prison misconduct that occurred from the time the survey was administered (March 2021) until June 30, 2022, or the date of release for those released from prison prior to July

2022. Misconduct includes a wide array of behaviors, ranging from very minor rule infractions (e.g., disorderly conduct) to serious offenses (e.g., assaults on staff or other incarcerated persons). We operationalized misconduct as a rule infraction that resulted in a conviction.

Because both time and event information were available for prison misconduct, we used survival analysis (Cox regression) to analyze the association between religiosity and prison misconduct, controlling for measures of risk, needs, and responsiveness. This analytical method not only determines whether a misconduct conviction occurred, but also how quickly it happened after individuals completed the survey. For these analyses, misconduct is a binary measure (1 = misconduct conviction and 0 = no misconduct conviction). Time is measured in days from the date the survey was completed to (1) the date of the first misconduct conviction, (2) June 30, 2022 for individuals who were not convicted of misconduct and were in prison until that date, or (3) the release date from prison for individuals who were not convicted of misconduct and were released from prison prior to July 1, 2022. In addition to estimating a main effects model, we tested for statistically significant interactions between religiosity and the remaining 11 domains.

We included a number of control variables that have been shown to be associated with infractions (Clark & Duwe, 2019; Duwe & McNeeley, 2020). Along with custody level, we included classification score, which measures risk of misconduct. We also included the number of prior misconduct convictions between the most recent prison admission date and the survey administration date. While the classification score includes an item for age, we included control variables for gender, race/ethnicity, and the amount of time between their most recent admission to prison and the administration of the survey. Table 1 describes the variables used in this study, and it provides Cronbach's alpha values for the 10 domains that were based on scale items.

Our second risk measure was the risk level assigned by the Minnesota Screening Tool Assessing Recidivism Risk 2.0 (MnSTARR), the recidivism risk assessment instrument used by the MnDOC. Using recidivism as the dependent variable would have greatly reduced the size of our sample because most of the respondents in our sample are still in prison. Moreover, the follow-up periods are relatively brief among those who have been released from prison, resulting in a small number of recidivism events. Because the MnSTARR 2.0 is a fully-automated instrument, recidivism risk levels were available for every individual in our sample. Just as important, the MnSTARR 2.0 is a gender-specific instrument that has demonstrated it can accurately predict recidivism for Minnesota's prison population. Indeed, in a recent revalidation study, the instrument attained an overall area under the curve (AUC) of 0.74 for females and 0.73 for males (Duwe, 2021).

Table 1. Sample Descriptive Statistics.

Predictors	Predictor description	M	SD	α	N
Religiosity	Religiosity scale	9.39	5.73	.813	
Identity scales	Self-identity scales				
GRID	Gang Reduction Initiative of Denver Scale	8.565	2.557	.664	
Fear of self	Feared self-scale	15.963	3.997	.671	
Cognitive change	Cognitive change scale	9.598	3.519	.773	
General identity	General identity scale	10.815	3.260	.507	
Criminal associates	Attitudes toward associates scale	26.746	9.090	.913	
Perceived social support	Scale measuring perceived social support	47.417	10.442	.935	
TCU-CTS avg. score	Average overall TCU-CTS score	22.274	5.244	.903	
Employment scale	Employment scale	2.279	0.558	.729	
Family/domestic	Family/domestic score	1.715	1.387	.462	
Housing/homelessness	Housing/homelessness scale	1.978	1.973	.527	
Childhood trauma	Adverse childhood experiences (ACE) score	3.763	2.939	.801	
Mental health	Mental health score	0.439	0.682		
Education	Education need level				
High	Less than a secondary degree	0.189			369
Medium	Secondary degree or diploma	0.639			1,250
Low	Post-secondary degree or certificate	0.173			338
Substance use disorder	Substance use disorder (SUD) need level				
High	High need	0.702			1,374
Medium	Medium need	0.046			90
Low	Low need	0.251			493

(continued)

Table 1. (continued)

Predictors	Predictor description	M	SD	α	N
Gender	Men = 1; women = 0	0.839	0.367		
Age	Age at Survey	38.397	10.717		
Race/ethnicity	Race/ethnicity (White is the reference category)				
White	White	0.473	0.499		
Black	Black	0.291	0.455		
Hispanic or Latino/a	Hispanic or Latino/a	0.089	0.284		
American Indian	American Indian	0.126	0.332		
Asian/Native Hawaiian	Asian or Native Hawaiian	0.030	0.171		
Pre-survey prison time	Length of stay in prison before survey (months)	47.428	71.309		
Custody level	1 and 2 = minimum; 3 = medium; 4 = close; and 5 = maximum	3.180	0.787		
Classification score	Classification score	12.500	10.768		
Pre-survey misconduct	Discipline convictions prior to survey	7.570	17.930		
Post-survey misconduct	Discipline convictions after survey	0.345	0.476		
MnSTARR 2.0	MnSTARR 2.0 risk levels				
Very High	Very high	0.217			423
High	High	0.218			426
Medium	Medium	0.194			379
Low	Low	0.370			729
N		1,957			

Note. r = correlation; SD = standard deviation; GRID = Gang Reduction Initiative of Denver; TCU = Texas Christian University; CTS = criminal thinking scales; MnSTARR = Minnesota Screening Tool Assessing Recidivism Risk; ACE = adverse childhood experience.

The MnSTARR 2.0 contains nearly 50 items to predict multiple types of recidivism, which are then used to assign individuals to one of four risk levels: (1) Low, (2) Medium, (3) High, and (4) Very High. The Very High category contains the top 20% of the highest risk individuals, the High category the next 20%, the Medium category the next 20%, and the Low category the bottom 40%. Due to the ordinal structure of the MnSTARR 2.0 risk levels, we used ordinal regression to evaluate the association between religiosity and recidivism risk, net of the effects from the other needs and responsivity measures as well as control variables such as gender and race/ethnicity. As with the prison misconduct analyses, we estimated main effects and interaction models in which the latter tested for statistically significant interactions between religiosity and the other 11 domains.

Results

In Table 2, we present results from the OLS regression model that analyzed the association between religiosity and 11 other needs and responsivity domains. The results showed statistically significant associations between religiosity and five of these domains. Consistent with prior research, religiosity was positively associated with perceived social support; that is, as religiosity increased, so did the amount of perceived social support. Religiosity was also positively associated with the ACEs score, which indicates that people with more childhood trauma reported greater levels of religiosity.

Religiosity was negatively related to the average TCU-CTS score. As religiosity increased for respondents, the amount of criminal thinking decreased. Of the four identity scales, religiosity had a negative association with general identity. Because lower scores on the identity scales reflect more pro-social identities, this finding indicates that greater religiosity was related to pro-social identity for this scale. Religiosity was also negatively associated with employment, which suggests that people with more job skills and experience reported greater levels of religious faith and spirituality. The results also showed that older respondents reported greater levels of religiosity.

The Relationship Between Religiosity and Prison Misconduct

As shown in Table 3, we estimated Cox regression models to evaluate the relationship between religiosity and time to first misconduct. To determine model fit, we tested the assumption that the hazards are proportional and for nonlinearity in the relationships between the log hazard and covariates. Our inspection of the residuals revealed that all of the Cox regression models adequately fit the data.

Table 2. OLS Regression: Predictors of Religiosity.

	Religiosity	
	B	SE
Gender	-0.556	0.354
Age	0.041**	0.013
Race/ethnicity (White is the reference)		
Black	-0.248	0.302
Hispanic or Latino/a	0.753	0.452
American Indian	0.508	0.395
Asian/Native Hawaiian	-0.576	0.720
Education	0.127	0.215
Substance use disorder	-0.054	0.151
Employment	-0.539*	0.250
Housing/homelessness	0.111	0.067
Family/domestic	-0.026	0.106
Mental health	0.273	0.192
Criminal thinking	-0.134**	0.030
Childhood trauma	0.125**	0.049
Perceived social support	0.047**	0.015
Anti-Social peers	-0.010	0.017
Identity		
GRID	-0.035	0.068
Feared self	-0.023	0.042
Cognitive change	-0.055	0.044
General identity	-0.098*	0.043
Constant	12.041**	1.275
Adjusted R ²	.066	
N	1,957	

Note. B = coefficient; SE = standard error; GRID = Gang Reduction Initiative of Denver.

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

The results from two Cox regression models are presented in Table 3. The first model focused only on the main effects, whereas the second model included statistically significant interaction terms. The results from the main effects model showed that religiosity did not have a statistically significant impact on prison misconduct. The findings from the interaction model, however, suggest that religiosity's effect on prison misconduct was moderated by fear of self and perceived social support. That is, religiosity significantly reduced prison misconduct, but only for people with lower scores on the fear of self scale; that is, individuals with more pro-social identities. Likewise,

Table 3. Cox Regression Models Predicting Prison Misconduct.

Predictors	Prison misconduct			
	HR	SE	HR	SE
Religiosity	0.992	0.007	0.866**	0.048
Religiosity × feared self			1.004*	0.002
Religiosity × social support			1.002*	0.001
Education	0.977	0.069	0.983	0.069
Substance use disorder	1.190**	0.053	1.183**	0.053
Employment	1.084	0.076	1.085	0.076
Housing/homelessness	1.016	0.020	1.021	0.020
Family/domestic	0.998	0.033	0.996	0.033
Mental health	1.020	0.057	1.018	0.057
Criminal thinking	1.024**	0.009	1.024**	0.009
Childhood trauma	1.028	0.015	1.026	0.015
Perceived social support	0.997	0.005	0.985*	0.007
Anti-social peers	1.002	0.005	1.002	0.005
Identity				
GRID	0.971	0.021	0.974	0.021
Feared self	1.002	0.013	0.968	0.020
Cognitive change	1.032*	0.013	1.030*	0.013
General identity	1.006	0.014	1.007	0.014
Male	0.834	0.112	0.842	0.112
Race/ethnicity (White = reference)				
Black	1.670**	0.092	1.647**	0.093
Hispanic or Latino/a	1.073	0.143	1.070	0.143
American Indian	1.212	0.118	1.202	0.118
Asian/Native Hawaiian	1.250	0.234	1.242	0.234
Pre-survey prison time	0.990**	0.001	0.990**	0.001
Custody level	1.173	0.098	1.181	0.099
Classification score	1.014*	0.006	1.014*	0.006
Pre-survey misconduct	1.019**	0.002	1.019**	0.002
N	1,957		1,957	

Note. HR = hazard ratio; SE = standard error; GRID = Gang Reduction Initiative of Denver.
 * $p < .05$. ** $p < .01$.

religiosity significantly decreased misconduct, but only for those who reported having less social support.

The results in Table 3 further show that criminal thinking and SUD need level were positively related with increased misconduct. As expected, the classification score was positively associated with misconduct. The results

also indicated that Black and American Indian individuals had significantly more misconduct. Further, as time in prison before taking the survey increased, the risk of time to first misconduct decreased.

The Relationship Between Religiosity and Recidivism Risk

As with the prison misconduct analyses, we estimated one main effects model and one interaction model to examine the relationship between religiosity and MnSTARR 2.0 recidivism risk level. As shown in Table 4, religiosity was not significantly associated with recidivism risk level in the main effects model. Yet, similar to the prison misconduct results, we found statistically significant interactions for religiosity, feared self, and perceived social support. Religiosity was associated with lower levels of recidivism risk, but only for those with lower scores for feared self (i.e., more pro-social identities) and perceived social support.

Consistent with the notion that criminogenic needs have a significant, direct effect on recidivism, the results showed positive associations between risk level and the education, SUD, housing/homelessness, family/domestic, criminal thinking, and criminal associates domains. The results also showed higher risk levels for males and American Indian individuals. Conversely, lower risk levels were associated with individuals identifying as either Hispanic or Asian.

Discussion

Consistent with our hypotheses, the findings presented here suggest that greater religiosity was associated with a stronger pro-social identity, more perceived social support, less criminal thinking, and lower employment needs. Contrary to much of the existing research (Bierman, 2005; Finkelhor et al., 1989), we found that incarcerated people reporting greater levels of religiosity were more likely to have experienced childhood trauma. Despite hypothesizing that religiosity would be positively associated with education and negatively associated with substance use, housing/homelessness, family/domestic, mental health, and anti-social peers, we found it did not have a significant effect on any of these domains. Although religiosity did not have a significant, direct effect on either measure of risk—prison misconduct and assessed recidivism risk—we found that its influence on these measures was moderated by identity and social support. That is, the results showed that greater religiosity was associated with less misconduct and lower recidivism risk, but only for people with lower scores on the Fear of Self scale and perceived social support.

Table 4. Ordinal Regression Models Predicting Recidivism Risk.

Predictors	Recidivism risk			
	Estimate	SE	Estimate	SE
Religiosity	-0.002	0.008	-0.173**	0.056
Religiosity × feared self			0.005**	0.002
Religiosity × social support			0.002**	0.001
Education	0.281**	0.072	0.289**	0.073
Substance use disorder	0.242**	0.052	0.237**	0.052
Employment	0.011	0.084	0.005	0.084
Housing/homelessness	0.137**	0.023	0.140**	0.023
Family/domestic	0.113**	0.036	0.114**	0.036
Mental health	0.101	0.065	0.106	0.065
Criminal thinking	0.024*	0.01	0.024*	0.010
Childhood trauma	-0.015	0.017	-0.017	0.017
Perceived social support	0.011	0.005	-0.006	0.009
Anti-social peers	0.035**	0.006	0.035**	0.006
Identity				
GRID	-0.027	0.023	-0.023	0.023
Feared self	0.044**	0.014	-0.007	0.023
Cognitive change	-0.011	0.015	-0.012	0.015
General Identity	-0.009	0.014	-0.010	0.014
Male	0.306*	0.121	0.311*	0.121
Race/ethnicity (White = reference)				
Black	0.132	0.101	0.119	0.101
Hispanic or Latino/a	-0.387*	0.156	-0.393*	0.157
American Indian	0.326*	0.132	0.326*	0.132
Asian/Native Hawaiian	-0.542*	0.253	-0.537*	0.254
MnSTARR low	3.563**	0.533	1.960**	0.729
MnSTARR medium	4.454**	0.536	2.854**	0.730
MnSTARR high	5.588**	0.541	3.989**	0.733
N	1,957		1,957	

Note. SE = standard error; GRID = Gang Reduction Initiative of Denver.
 *p < .05. **p < .01.

These findings have several implications for theory and practice. First, the positive associations between religiosity and how individuals see themselves and perceive how much support they have is consistent with the literature (Hallett et al., 2016; Lim & Putnam, 2010). Likewise, although this study is the first—to our knowledge—to examine the relationship between religiosity and criminal thinking, the negative association observed between the two is

consistent with our hypothesis. The major religious faiths generally promote a pro-social, crime-free lifestyle. The negative association we found here likely reflects the fact that as religious faith and involvement increases, the attitudes and beliefs that comprise criminal thinking decrease.

Second, as noted above, the positive association found for religiosity and childhood trauma runs counter to much of what the literature has reported. But this body of research has yet to focus on a correctional population, which is—as reflected here—much more likely to include males as well as individuals identifying as Black, Indigenous, and people of color (BIPOC) than the general population. While it is unclear why this finding does not align with much of the existing research, we suspect that it may reflect the use of religious faith to help deal with, and perhaps make sense of, a traumatic personal experience.

Third, while the observed interactions for religiosity and feared self were consistent with expectations, those for religiosity and perceived social support were not. More specifically, religious faith and involvement generally provides people with a positive outlook, giving them a sense of purpose and meaning in their lives. As such, we would anticipate that greater levels of religiosity would be associated with reduced misconduct and recidivism risk for people transformed by their religious faith who have a stronger pro-social identity, as measured by the feared self-scale. Put another way, if religious faith and involvement did not change self-identities and people maintained a negative, anti-social view of themselves, we would not expect a reduction in misconduct or recidivism risk.

Although we would anticipate the negative association between religiosity and the two measures of risk would be more likely for those with more perceived social support, we found the opposite to be true. It may be that the beneficial effects of greater religiosity, at least for these two risk measures, are more pronounced for those who have less perceived social support. That is, people with more social support may be more likely to have better outcomes regardless of how religious they are. For those with less perceived support, however, greater religiosity may have a greater transformative effect on behavior.

Finally, the results suggest that assessing for religiosity may yield some benefits not only for the individuals on probation or in prison but also for correctional agencies. Even though the results presented here support the notion that religiosity is a specific responsivity factor that warrants attention, we are not aware of any commonly-used RNR instruments that assess for religious faith and spirituality or, for that matter, identity, and social support. While future research is needed to better understand the association between religiosity and program participation, assessing for religiosity could help

identify individuals who may have an interest in faith-based interventions. More important, our results further suggest that assessing for religiosity could, when paired with identity and social support assessments, potentially yield better risk-related outcomes. For example, compared to people scoring high on religiosity who have shed their old identities in favor of ones that are more pro-social, individuals scoring high on religiosity who still have an anti-social identity will likely need more resources, including a great dosage of programming, to desist from crime.

While this study has extended the literature in several ways, it is worth noting its limitations. First, because the survey was administered one time, we cannot determine whether higher levels of religiosity produced less criminal thinking, stronger pro-social identities, and greater perceived social support or vice versa. Second, at a little more than a year, the average follow-up period to measure post-survey misconduct was relatively brief. Finally, given that this study focused on prisoners from Minnesota, it is unclear the extent to which the results are generalizable to correctional populations in other states.

As more individuals in our sample are released from prison and spend longer periods of time in the community, it will be important to examine the relationship between religiosity and reoffending. As noted earlier, one of the defining features of a responsivity factor is that it can influence the completion of programming, and prior research has found that religious practices are positively associated with completing a faith-based program (Daggett et al., 2008). To this end, follow-up research to this study should also investigate whether religious faith and involvement has an impact on whether individuals participate in any type of programming (faith-based or otherwise) and, if so, the rate at which they complete programs. More generally, future research should examine the relationship between religiosity and the RNR model outside of Minnesota to determine whether the findings reported here are applicable to other correctional populations.

Appendix

Religiosity Scale

- (1) In general, how important is religion to you?
 - Not at all important (1 points)
 - Somewhat important (2 points)
 - Fairly important (3 points)
 - Very important (4 points)
 - Extremely important (5 points)

- (2) How often do you prefer to attend religious services?
- Never (1 point)
 - Once or twice a year (2 points)
 - Several times a year (3 points)
 - Once a month (4 points)
 - Two to three times a month (5 points)
 - About weekly (6 points)
 - Several times a week (7 points)
- (3) About how often do you spend time alone praying or reading the Bible, Koran, Torah, or other sacred book?
- Never (1 point)
 - Only on certain occasions (2 points)
 - Once a week or less (3 points)
 - A few times a week (4 points)
 - Once a day (5 points)
 - Several times a day (6 points)

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