Validating Responsivity Assessments for Correctional Populations: Evaluating the Association with Program Participation, Dosage and Completion

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Research Summary

While specific responsivity factors are believed to either inhibit or facilitate successful involvement in programming, relatively little attention has been given to the validation of responsivity assessments used for correctional populations. Based on a sample of nearly 2,100 individuals confined in Minnesota prisons, this study examines the relationship between a needs and responsivity assessment system and multiple measures of program participation, dosage and completion. The responsivity domains—childhood trauma, mental health, religiosity, motivation and learning style—were significantly associated with at least one measure of programming. All but two of the needs domains also had a significant association with programming involvement. We discuss the implications of the findings for correctional research and practice.

Over the last several decades, the risk-needs-responsivity (RNR) model has gained traction as the guiding framework for the delivery of programming to correctional populations. The risk principle holds that programming should be calibrated to a person's risk of reoffending, with greater dosages reserved for higher-risk individuals. The needs principle indicates that programming should target a person's criminogenic needs, which are dynamic recidivism risk factors that are susceptible to change. The responsivity principle maintains that programming should be tailored to an individual's learning style, strengths, and abilities (Andrews et al., 2006; Bonta & Andrews, 2017).

To help determine who, what, and how programming should be delivered, the RNR model relies on assessments. Some tools have been designed to focus only on predicting a risk-related outcome (e.g., recidivism, prison misconduct, failure to appear, etc.) or assessing specific domains for criminogenic needs (e.g., substance use, anti-social thinking, anti-social peers, etc.) or responsivity (e.g., childhood trauma). Other instruments, however, have been created to simultaneously assess for risk, needs and, less frequently, responsivity. Even when there has been an attempt to account for responsivity within an RNR assessment instrument, it has seldom been more than a checklist of items such as language, gender, and culture.

Irrespective of whether an instrument was created to assess a specific domain or all three areas of the RNR model, it is imperative to evaluate its validity. Perhaps because responsivity has attracted the least amount of attention among the three principles within the RNR model, validations of responsivity assessments have, to our knowledge, been virtually non-existent. Instead, given that existing validations of assessment tools for correctional populations have focused mostly on their ability to predict recidivism, prior validation research has been confined to risk and, to a lesser extent, need assessments.

When evaluating the predictive validity of instruments that have been designed to assess recidivism risk, observed recidivism is the measure that should be used. Moreover, a criminogenic need is, by definition, expected to not only have a significant, direct impact on reoffending, but interventions that successfully target this need will lower recidivism. For instance, substance use is a criminogenic need with a significant, direct impact on recidivism (Gendreau et al., 1996), and substance use disorder (SUD) treatment has been shown to reduce reoffending (Mitchell et al., 2007). On the other hand, when needs are not effectively addressed, the likelihood for recidivism increases (Krushas et al., 2024). Thus, as with risk assessments, recidivism is the outcome measure that should be used to determine the predictive validity of instruments designed to assess criminogenic needs.

Specific responsivity factors, on the other hand, are not expected to have a significant, direct impact on criminal behavior. 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 and Andrews, 2017). Examples of specific responsivity factors include motivation, anxiety, learning style, mental health, religiosity, language, gender, and culture (Cullen, 2002; Duwe & Johnson, 2023; McCormick et al., 2017; Mowen et al., 2018; Pinals et al., 2021; Sachs & Miller, 2018).

The association between specific responsivity factors and recidivism, if it exists, likely reflects the influence of criminogenic needs. For example, in their discussion of mental illness, Andrews and colleagues (2006) point out that it has only a modest, indirect impact on reoffending. Whatever effect mental illness has on recidivism, Andrews et al. (2006)

continued, is likely due to the impact of criminogenic needs such as substance use, criminal thinking and antisocial personality pattern.

Rather than having a significant, direct association with recidivism, specific responsivity factors are believed to affect whether individuals are able to successfully complete programming that targets criminogenic needs (McCormick et al., 2017; Pinals et al., 2021). For example, the presence of mental illness can interfere with the ability to complete SUD treatment. Because specific responsivity factors are expected to predict involvement in, and completion of, programming, validating a responsivity assessment should involve examining whether an empirical relationship exists with program involvement and completion. To date, there has been very little, if any, prior research that has validated responsivity assessments by evaluating their association with measures of program participation and completion.

Present Study

In 2021, the Minnesota Department of Corrections (MnDOC) piloted a needs and responsivity assessment that was designed to be used in tandem with the Minnesota Screening Tool Assessing Recidivism Risk (MnSTARR) 2.0, a recidivism risk assessment instrument that has been validated on Minnesota's prison population (Duwe, 2021). The needs and responsivity components consist of assessments for eight criminogenic needs domains (anti-social thinking, anti-social peers, SUD, education, employment, housing stability, family/domestic relationships, and self-identity) and five responsivity domains (religious faith and spirituality, mental health, childhood trauma, self-identity, motivation and learning style). Of the 13 needs and responsivity domains, the MnDOC has existing assessment processes for SUD, education, and mental health. For the remaining 10 domains,

we developed a self-reported assessment that was administered in March 2021 to individuals confined in Minnesota prisons.

Our sample for this study consists of nearly 2,100 people who completed the self-reported assessment. We evaluate the validity of the needs and responsivity domains by examining their empirical relationship with multiple measures of program participation, dosage and completion following the administration of the self-reported assessment (SRA). Because the SRA was a pilot, the results were not used to influence any decisions relating to program assignment. In addition to controlling for gender and race/ethnicity, we account for length of stay in prison and prior program participation in the statistical analyses.

The Development of the MnDOC Risk-Needs-Responsivity Assessment System

The MnDOC developed a needs and responsivity assessment to supplement existing RNR assessments used by the agency. Prior to 2021, the MnDOC used the Level of Service/Case Management Inventory (LS/CMI) to assess for criminogenic needs, and the MnSTARR 2.0 to assess for recidivism risk. Separately, individuals admitted to the MnDOC were also assessed for SUDs, level of education, and physical and mental health issues.

Since 2016, the MnSTARR 2.0 has been fully automated and can be administered on everyone who enters Minnesota's prison system (Duwe & Rocque, 2017). This gender-specific tool draws data from multiple databases to assign individuals to one of four risk levels: 1) Low, 2) Medium, 3) High, and 4) Very High. Twenty percent of individuals fall in the highest risk category (Very High), followed by the next highest 20 percent (High), the middle 20 percent (Medium), and the bottom 40 percent (Low). A recent revalidation study of the MnSTARR 2.0 found that it accurately predicts recidivism for Minnesota's prison

population, with an overall area under the curve (AUC) of 0.74 for females and 0.73 for males (Duwe, 2021).

In addition to the MnSTARR 2.0, nearly all individuals who enter Minnesota prisons are screened for mental or physical health issues as well as level of education. Behavioral health staff screen individuals for intellectual disabilities, mental illness, mood disorders, traumatic brain injuries, suicide and self-harm potential, potential for causing harm to others, and whether the person is likely to be disruptive, among other issues. Education staff verify earned secondary and post-secondary credentials, and most individuals are tested for adult basic education skills.

Due to limited resources, the SUD and LS/CMI assessments have been administered more selectively. The SUD assessments are limited to individuals who will be confined for at least 150 days. Because the LS/CMI requires lengthy interviews and file reviews to complete, only those individuals who were confined for six months or more and fell in the High or Very High risk categories on the MnSTARR 2.0 were assessed. Even with these limitations, a review of releases over 2016 and 2017 found that only a little more than half of the individuals who should have been assessed with the LS/CMI were assessed (Duwe, 2021).

To ensure that most individuals admitted to Minnesota prisons receive a comprehensive RNR assessment, the MnDOC developed an assessment to be used in combination with the MnSTARR 2.0 and existing SUD, education, and mental and physical health assessments. To create this new assessment, MnDOC staff assembled a series of smaller existing validated assessments or created new assessments based on relevant

literature. This new supplemental assessment can be self-administered by incarcerated persons in less than one hour.

The new self-reported assessment includes six criminogenic needs domains: Anti-Social Cognition, Anti-Social Associates, Family/Domestic, Self-Identity, Employment, and Housing/Homelessness. The second iteration of the Texas Christian University-Criminal Thinking Scales (TCU-CTS) were used to measure Anti-Social Thinking (Knight et al., 2006), and the Attitudes towards Associates scale within the Measures of Criminal Attitudes and Associates (MCAA) was used to measure Anti-Social Peers (Mills, Kroner, & Forth, 2002).

To measure relationships with family, significant others, and friends, the self-reported assessment includes the Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet et al., 1988). To supplement measures of support received from family and significant others included in the MSPSS, a four-item scale that measures relations with children was also included. This scale includes questions about whether children lived with the respondent prior to incarceration, the quality of relationships with children, whether the respondent has active child support orders, and whether the respondent's parental rights have been terminated.

Self-identity is measured using two scales derived from the literature that measure both how an individual sees his or herself and the individual's openness to change. The first scale, adapted from Paternoster and Bushway's (2009) "feared self" concept, includes six-items. These items include, for example, "I like the person I have become" and "I have hit rock bottom in my life." The second scale is based on Giordano and colleagues' (2002) concept of cognitive transformation and includes six items related to how open individuals

are to change and the desire to pursue a new way of life. This second measure includes items such as “I am open to a new way of life” and “I want to avoid criminal behaviors.” Higher scores on the Self-Identity domain reflect more entrenched antisocial identities.

Because there were no existing validated assessments for employment or housing issues, MnDOC staff created measures for each domain. The Employment domain is measured using questions about work history, career planning, and job search skills. A higher score for this domain indicates poor work history, a lack of job search or interview skills, and/or uncertainty about employment prospects. The Housing/Homelessness domain is measured with a series of questions about where individuals lived prior to incarceration, where they expect to live after incarceration, and past experiences with housing instability. A higher score in this domain indicates past experiences with housing instability and/or a higher likelihood of homelessness upon release from incarceration.

The self-reported assessment also measures four responsivity domains, including Childhood Trauma, Religiosity, Motivation, and Learning Style. The Childhood Trauma domain is measured using the Adverse Childhood Experiences (ACEs) index adapted from the Family Health History questionnaire developed by Felitti and colleagues (1998). Using 18 questions, the ACEs questionnaire measures 10 forms of trauma. Individuals receive a score of 0 to 10 based on the number of forms of trauma they reported.

The Religiosity domain was measured using three questions about religious involvement previously administered to correctional populations (Jang et al., 2017). The questions used for this index include: 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?." Higher scores on this domain indicate that religion is a salient factor in the respondent's life.

The Motivation domain is based on a series of questions that ask incarcerated persons to first identify a change they want to make to avoid future involvement in the criminal justice system, and then how confident they are in making that change. Individuals could choose from eight possible changes (e.g., quit using drugs or alcohol, find stable housing, complete more education) or insert their own answer.[1] Confidence levels ranged from 0 to 10, with values closer to 10 indicating greater levels of confidence. Individuals could choose two changes and corresponding confidence levels.

Finally, the Visual, Auditory, Reading, Kinesthetic (VARK) instrument was used to assess Learning Style (Fleming & Mills, 1992). The VARK presents respondents with real-life scenarios and four ways to respond to each scenario that align with the four learning styles. Higher scores with one learning preference over all others reveals the individual's preferred learning style.

Assessing Construct Validity

Because needs and responsivity domains are latent constructs, it was necessary to analyze the self-reported assessment for validity. Two separate studies have tested the convergent, discriminate, internal, concurrent, and predictive validity of the self-reported assessment using a sample of approximately 2,100 incarcerated persons who took the assessment in spring of 2021. [Anonymous, 2023a] conducted exploratory and confirmatory factor analyses (EFA and CFA, respectively) on eight of the ten domains included in the self-reported assessment in addition to the Mental Health domain. Results from the EFA and CFA

[1] Of the 2,095 respondents, there were 173 (8%) who provided their own response.

of the TCU-CTS were consistent with prior research (Taxman et al., 2011), revealing weak discriminate validity for three of the six sub-scales. However, the CFA found overall acceptable psychometrics with a six-factor solution, consistent with the TCU-CTS's six sub-scales.

The ten items included in the Attitudes towards Associates scale loaded strongly on to one factor with acceptable fit statistics, and the 12 items included in the MSPSS loaded strongly on three factors, which in turn loaded on a higher-level construct representing social support. The four items that measure any discord between respondents and their children loaded on to one factor with acceptable fit statistics.

To measure the Employment domain, the self-reported assessment originally included 16 employment-related items. However, the EFA found that only half of these items loaded on to two factors. The first factor includes questions pertaining to the respondent's career history, including whether they were employed in the year prior to incarceration, they have a lot of work experience, they liked the jobs they had in the past, and their employers would give them a favorable job reference. The second factor is geared towards the respondent's career future, including the respondent's ability to search and apply for jobs and whether they know what they want to do for work when they are released from custody. The two-factor solution had acceptable fit statistics, however, there were some significant cross-loadings and the correlation between the two factors exceeds conventional standards.

The Self-Identity domain originally included four scales derived from the literature on identity, crime, and desistance. The EFA found that only the feared self scale (Paternoster and Bushway, 2009) had acceptable psychometric properties with a two-factor solution. Three items on the scale relating to realization of the consequences of deviant behavior

loaded on to one factor. These items include (1) “I worry that I will eventually burn out if I stay on the same path.”, (2) “I have hit rock bottom in my life.”, and (3) “I need to make a change for the better to become more satisfied in my life.” The second factor includes items that measure whether the respondent is satisfied with the direction of his or her life, including: (1) “I am headed in the right direction in life.”, (2) “I like the person I have become.”, and (3) “I am becoming a better person.” Additionally, only three of the original six items included in the cognitive transformation scale (Giordano et al., 2002) loaded on to one factor: (1) “It is important to me that family and friends think of me as a good person.”, (2) “I am open to a new way of life.”, and (3) “I can envision a new life for myself.” Ultimately, the CFA found that the first factor of the feared self scale had optimal fit statistics as a stand-alone construct, and the second factor of the feared self scale along with three-item cognitive change scale fit well on a two-factor solution.

The Mental Health domain originally included eight indicators derived from standard mental and physical health screenings conducted on all new prison admissions. The EFA and CFA found that only four of these items loaded well together on a single factor. These items include whether the respondent has general mental illness, has been diagnosed with a mood disorder, is at heightened risk of suicide, and may engage in self-injurious behaviors. The remaining two domains that were analyzed in [Anonymous, 2023a]’s study—Religiosity, and Housing/Homelessness—demonstrated optimal psychometric properties, with each domain loading on a single factor.

Four needs and responsivity domains included in the prison admission process—SUD, Education, Motivation, and Learning Style—were not included in [Anonymous, 2023a]’s study. The SUD domain was not included because the authors did not have access

to the original assessments used to make SUD treatment decisions. The limited number of indicators used to determine need level for the Education and Motivation domains made these domains ineligible for EFA and CFA. Finally, the Learning Style domain (the VARK assessment) was not included because it is not used to inform programming decisions and it has been validated in previous research (Leite et al., 2010).

In the second validity study, [Anonymous, 2023b] analyzed the concurrent and predictive validity of all 13 need and responsivity domains included in the MnDOC's new intake process. Concurrent validity was assessed by measuring the extent to which these thirteen domains were correlated with MnSTARR 2.0 risk levels. Predictive validity was based on the association between the domains and observed recidivism patterns for a sub-sample of incarcerated persons who were released from custody by the end of 2022.

As expected, eight of the domains previously identified as criminogenic needs had at least one significant, positive association with the MnSTARR 2.0 risk level and actual recidivism. Among these criminogenic needs, Anti-Social Peers had the strongest association with both outcomes. Childhood Trauma, which was identified as a responsivity issue and thus would not be expected to have a direct effect on recidivism risk or observed recidivism, had a small significant relationship with the MnSTARR 2.0. However, the remaining four domains initially identified as specific responsivity factors—Mental Health, Religiosity, Motivation, and Learning Style—did not have significant, positive associations with assessed and observed recidivism, which is consistent with what was hypothesized. With few exceptions, the results from both studies (Anonymous, 2023a; 2023b) were consistent for both males and females and across racial and ethnic groups.

The above studies have generally supported the construct validity of the needs and responsivity domains included in the MnDOC's assessment process, particularly the needs domains. Given that specific responsivity factors are not expected to directly impact assessed or actual recidivism, additional tests are required to assess the influence of these domains on program participation. In the ensuing sections of this paper, we first describe the data used for this research and how program participation was operationalized. Next, we present analyses that test the impact of all thirteen domains on program participation, followed by a discussion of the implications of these results.

Data and Method

The needs and responsivity assessment was self-administered on desktop computers using Snap computer-assisted survey software. Incarcerated individuals selected to participate in the pilot were notified in writing by their case manager about one week prior to taking the assessment. Individuals were advised that their participation in the pilot 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 pilot, and respondents were offered a small incentive in exchange for their participation.

The SRA was administered to incarcerated individuals at all 11 adult prisons in Minnesota in the spring of 2021 (please see the appendix for the SRA). 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 the lone women's facility were invited to participate. Of the 3,335 men and 400 women who were invited to participate, 1,758 men and 337 women completed the assessment, resulting in a total participation rate of 56 percent (53 percent for men, and 84 percent for women).

Measures and Analytic Strategy

To further validate the needs and responsivity assessment system, we created multiple measures of program participation, dosage and completion. The program outcome variables were measured from the time the SRA was administered in March 2021 to the point at which individuals were released from prison or December 31, 2022, for those yet to be released from prison. As shown later in Table 1, the average post-SRA follow-up period for the 2,095 individuals in our sample was 423 days.

Given that Learning Style is one of the responsivity domains, we included several variables specific to education programming. The number of education classes measures participation in education programming from the time the SRA was administered to the end of the follow-up period. The number of education awards, on the other hand, quantifies completing classes and earning degrees, certificates, or credentials.

For a broader measure of program participation, we created two additional outcome variables. The first, Work/Program Days, counts the number of post-SRA days in which individuals were either working a job in prison and/or participating in programming. The second, Work/Program Percent, measures the percentage of post-SRA days in which people were working a prison job and/or participating in programming. We also measured program completion more broadly by creating a variable that counts the number of interventions completed from the time the SRA was administered to the end of the follow-up period. The

interventions include SUD treatment, a correctional boot camp, and employment, cognitive-behavioral, and faith-based programming.

Participation in the education classes, treatment, programming and work measured in this study was, for the most part, voluntary. Nevertheless, there are incentives for participation in many of these structured activities. For example, securing a prison labor assignment is usually contingent on having at least a secondary degree, which may encourage some individuals to take adult basic education classes in pursuit of this educational requirement. Similarly, individuals who complete the first phase of the correctional boot camp are eligible for early release from prison, which can be a strong motivation for program participation. In general, however, individuals can refuse to participate in programming if that is their prerogative.

To control for participation in work/programming prior to the SRA, we created a pre-SRA Work/Program Percent variable that measured the percentage of pre-SRA days in prison in which individuals were working and/or participating in programming. We further controlled for the amount of time in prison from the administration of the SRA to the end of the follow-up period. We also included control variables for gender and race/ethnicity. While gender was measured as a binary variable (1 = male; 0 = female), race/ethnicity had five categories: 1) White, 2) Black, 3) Native American, 4) Hispanic, and 5) Asian. Individuals who identified as Hispanic were placed in that category, while those identifying as Non-Hispanic were assigned to one of the four remaining categories.

Because both of the education programming measures were count variables, we used a negative binomial regression model for these analyses. We did not use Poisson regression considering that the mean and variance for both outcomes were not equal. Given that the

work/programming variables were ratio-level measures, we used Ordinary Least Squares (OLS) regression for these analyses. The errors for both outcome measures were normally distributed, and the OLS model minimized all four measures of fit—deviance, Pearson, Akaike information criterion (AIC), and Bayesian information criterion (BIC)—better than generalized linear models with non-normal distributions. Due to the ordinal structure of the interventions variable, we used ordinal regression to evaluate the association between the needs and responsivity domains and this outcome measure, net of the effects from the control variables.

Results

As shown in Table 1, which provides the descriptive statistics for our sample, 84% were male and the remaining 16% were female. Similar to the racial/ethnic breakdown for the MnDOC prison population in general, nearly half of the respondents were Non-Hispanic White individuals while the other half were Black, Indigenous, People of Color. The median number of days in prison prior to taking the SRA was 663, with 65 percent of the time spent in work/programming. After taking the SRA, the amount of time in work/programming was 80 percent. For education programming, 43 percent of the sample participated in classes after the SRA while 37 percent earned at least one award. A little more than one-third (35%) of the sample completed an intervention after the SRA, with 10 percent completing multiple programs.

In Table 2, we present results that analyzed the association between the 13 needs and responsivity domains and education programming. Not surprisingly, the Education domain was positively associated with the number of education classes and awards; that is, following the completion of the SRA, people with a higher need for this domain were enrolled in more

education classes and earned more education awards. The Housing/Homelessness domain was positively associated with education classes, while Religious Faith/Spirituality was negatively associated; in other words, as religiosity increased, so did subsequent involvement in education programming.

Table 1. Sample Descriptive Statistics

Variables	*Variable Description*	*Mean/%*	*SD*	*N*
Substance Use Disorder	Substance Use Disorder (SUD) Need Level			
High	High Need	0.696		1,458
Medium	Medium Need	0.044		93
Low	Low Need	0.260		544
Education	Education Need Level			
High	Less than a secondary degree	0.161		337
Medium	Secondary degree or diploma	0.644		1,350
Low	Post-secondary degree or certificate	0.195		408
Anti-Social Thinking	Average overall TCU-CTS score	22.265	5.237	
Self-Identity	Self-identity scales	9.248	1.896	
Employment Scale	Employment scale	33.590	8.773	
Housing/Homelessness	Housing/homelessness scale	1.978	1.973	
Family/Domestic	Family/domestic score	5.897	1.885	
Anti-Social Peers	Attitudes towards Associates scale	35.737	10.469	
Childhood Trauma	Adverse Childhood Experiences (ACE) score	3.796	2.943	
Mental Health	Mental health score	0.543	0.858	
Religiosity	Religious Faith/Spirituality Scale	9.39	5.73	
Motivation	Motivation score	8.445	1.971	
Learning Style	Preferred learning style			
Kinesthetic	Kinesthetic learning style score	2.517	1.412	
Audio	Audio learning style score	1.997	1.394	
Read	Read learning style score	2.471	1.342	
Visual	Visual learning style score	0.947	0.947	
Gender	Men = 1; Women = 0	0.839	0.367	
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	
Post-Assessment Days	Post-Assessment Days in Prison	422.70	243.99	
Pre-Assessment W/P	Pre-Assessment Work/Programming	0.645	0.298	
Work/Program Percent	Percentage of time in work/programming	0.804	0.285	
Work/Program Time	Days in work/programming	342.67	232.34	
Education Classes	Number of education classes	1.870	3.866	
Education Awards	Number of education awards	0.710	1.343	
Number of Programs	Number of programs	0.472	0.741	
N		2,095		

Notes: SD = Standard Deviation; TCU = Texas Christian University; CTS = Criminal Thinking Scales

Table 2. Negative Binomial Regression Models for Education Classes and Awards

Measures	*Education Classes*		*Education Awards*	
	B	SE	B	SE
Substance Use Disorder	0.057	0.053	0.182**	0.052
Education	0.529**	0.070	0.528**	0.067
Anti-Social Thinking	0.002	0.010	-0.004	0.010
Self-Identity	0.029	0.027	0.037	0.026
Employment	0.012	0.009	-0.005	0.008
Housing/Homelessness	0.078**	0.024	-0.003	0.022
Family/Domestic	0.017	0.027	-0.073**	0.025
Anti-Social Peers	-0.005	0.005	0.009	0.005
Childhood Trauma	0.003	0.017	-0.011	0.015
Mental Health	-0.040	0.056	-0.145**	0.052
Religiosity	-0.028**	0.008	0.001	0.007
Motivation	-0.026	0.027	0.011	0.024
Learning Style				
Kinesthetic	0.100	0.121	0.222*	0.107
Audio	0.135	0.138	-0.103	0.128
Read	0.172	0.125	-0.035	0.116
Visual	0.055	0.288	0.207	0.256
Pre-Assessment W/P Percent	-0.562**	0.161	-0.110	0.144
Post-Assessment Days	0.003**	0.000	0.000	0.000
Male	-0.188	0.128	-0.266*	0.112
Race/Ethnicity				
Black	0.245*	0.108	-0.281**	0.101
Hispanic	0.281	0.159	0.181	0.140
Native American	0.080	0.139	-0.033	0.124
Asian	0.009	0.254	-0.402	0.245
Constant	-1.851**	0.515	-1.512**	0.474
N	2,095		2,095	

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

The SUD, Family/Domestic, and Childhood Trauma domains were negatively associated with earning education awards. People rated higher for these domains had significantly fewer education awards. The results also show that individuals with a Kinesthetic preferred Learning Style were, compared to multi-style learners, more likely to obtain education awards. Further, greater involvement in work and/or programming prior to the SRA was negatively associated with education classes, while longer post-SRA follow-up

periods were positively associated. Compared to women, men were significantly less likely to earn education awards. While Black individuals were significantly more likely to participate in education classes compared to Non-Hispanic White people, they were significantly less likely to earn education awards.

Table 3. OLS Regression Models for Work/Programming Participation

Measures	*Days*		*Percent*	
	B	SE	B	SE
Substance Use Disorder	-8.148**	2.935	-0.013*	0.007
Education	-0.562	4.319	0.006	0.010
Anti-Social Thinking	-2.841**	0.569	-0.006**	0.001
Self-Identity	0.714	1.466	0.006	0.003
Employment	-0.733	0.481	-0.002	0.001
Housing/Homelessness	0.756	1.320	0.000	0.003
Family/Domestic	-0.097	1.486	-0.004	0.003
Anti-Social Peers	-0.331	0.299	0.000	0.001
Childhood Trauma	-7.740*	3.055	-0.013	0.007
Mental Health	-0.835	0.911	-0.002	0.002
Religiosity	0.008	0.441	0.000	0.001
Motivation	2.909*	1.394	0.005	0.003
Learning Style				
Kinesthetic	0.684	6.605	-0.003	0.015
Audio	-1.977	7.577	-0.002	0.017
Read	-3.847	6.862	-0.007	0.016
Visual	-6.059	15.528	0.001	0.035
Pre-Assessment W/P Percent	137.635**	8.735	0.416**	0.020
Post-Assessment Days	0.791**	0.010	0.000	0.000
Male	-1.952	7.050	-0.029	0.016
Race/Ethnicity				
Black	-30.189**	5.925	-0.059**	0.013
Hispanic	0.922	8.925	-0.010	0.020
Native American	-9.509	7.624	-0.024	0.017
Asian	2.173	14.254	0.017	0.032
Constant	12.674	27.868	0.715	0.063
N		2,095		2,095

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

In Table 3, we present the findings from the work/programming participation analyses. The results show that Motivation was positively associated with the number of

post-SRA days that individuals were involved in work/programming. On the other hand, the ratings for Anti-Social Thinking, Childhood Trauma and SUD were negatively associated; that is, people scoring higher for Anti-Social Thinking, Childhood Trauma and SUD had significantly fewer days of involvement in work/programming. Anti-Social Thinking and SUD were also the only domains that were significantly and negatively associated with the percentage of prison time involved in work/programming.

Table 4. Ordinal Regression Model for Programs Completed

Measures		
Programs Completed	Estimate	SE
Programs Completed = 0	0.230	0.543
Programs Completed = 1	2.134**	0.544
Programs Completed = 2	5.283**	0.584
Substance Use Disorder	0.844**	0.066
Education	-0.253**	0.083
Anti-Social Thinking	-0.032**	0.011
Self-Identity	-0.022	0.028
Employment	-0.017	0.009
Housing/Homelessness	-0.010	0.025
Family/Domestic	-0.065*	0.029
Anti-Social Peers	0.026**	0.006
Childhood Trauma	-0.037*	0.017
Mental Health	-0.203**	0.062
Religiosity	-0.006	0.008
Motivation	0.025	0.028
Learning Style		
Kinesthetic	0.031	0.125
Audio	-0.068	0.145
Read	-0.326*	0.134
Visual	0.219	0.293
Pre-Assessment W/P Percent	1.435**	0.177
Post-Assessment Days	-0.003**	0.000
Male	-0.534**	0.132
Race/Ethnicity		
Black	-0.249*	0.116
Hispanic	-0.378*	0.177
Native American	-0.096	0.143
Asian	-0.263	0.282
N	2,095	

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

The extent to which people were involved in work/programming prior to the SRA was positively associated with both measures of post-SRA work/programming participation. Not surprisingly, longer post-SRA follow-up periods were positively associated with the number of days in which individuals were involved in work/programming. Compared to Non-Hispanic White individuals, participation in work/programming was significantly lower for people identifying as Black for both outcome measures.

As shown in Table 4, a number of the domains were negatively associated with program completions. Among the responsivity domains, completing programs was less likely for people rated higher for Mental Health and Childhood Trauma. In addition, compared to multi-style learners, individuals with a Read preferred Learning Style were less likely to complete programs. For the needs domains, individuals rated higher for SUD, Education, Anti-Social Thinking, and Family/Domestic completed significantly fewer programs. Conversely, people scoring higher for Anti-Social Peers were significantly more likely to complete programs.

While pre-SRA involvement in work/programming was positively associated with program completion, the length of the post-SRA follow-up period was negatively associated, which likely reflects the MnDOC's preference for backloading programming closer to an individual's release date; that is, the people in our sample with shorter post-SRA follow-up periods had been released from prison, which also means they were more likely to have been prioritized for programming in comparison to individuals released after 2022. Men were less likely to complete programs compared to women, whereas the same was true for Black and Hispanic individuals relative to Non-Hispanic White people.

Discussion

Given that the assessment results did not influence program placement decisions, the findings reported above provide a rigorous validation of the needs and responsivity assessment system. Except for Self-Identity and Employment, the needs and responsivity domains were significantly associated with at least one measure of program participation, dosage or completion. Among the responsivity domains, the associations observed between Religiosity and Motivation and at least one measure of programming were in the expected positive direction. Likewise, as we hypothesized, Childhood Trauma and Mental Health were negatively associated with at least one programming measure. Aside from the finding that people with a hands-on learning style preference were more likely to obtain education awards, Learning Style did not have a strong association with program participation, dosage and completion.

These results generally dovetail with the recent academic literature on learning style. For example, research on students from the United States (Dobson, 2010), Iran (Mozaffari et al., 2020), Saudi Arabia (Almigdal, 2015) and Jamaica (Mlambo, 2011) have found that learning style does not have a significant relationship with academic achievement. Although learning style has often been assumed to be a specific responsivity factor since the introduction of the RNR model more than 30 years ago, the findings from this study and the recent literature suggest that it may be worth reconsidering this assumption.

Among the needs domains, Education, Anti-Social Thinking, and SUD were significantly associated with at least three program measures. While Education was, as expected, positively associated with education classes and awards, it was negatively associated with the number of programs completed. People with a higher need level for Anti-Social Thinking had less participation in work/programming and completed fewer programs.

Individuals with a greater need for SUD treatment were more likely to participate in education classes and earn education awards but less likely to participate in work/programming.

Conclusion

The results from this study illustrate the potential value of using program measures to validate responsivity assessments, although the extent to which they are generalizable to other correctional populations is unclear given that our sample consisted of individuals from one state's prison system. Nevertheless, the findings hold several implications for correctional research and practice. First, because mental disorders and childhood trauma impede program participation and completion, these specific responsivity factors may need to be addressed before individuals enter programming that targets their criminogenic needs. Thus, in terms of program sequencing, individuals with a high rating in these domains would be prioritized for mental health treatment and trauma-informed programming. Although effective treatment would help mitigate the severity of mental disorders, childhood trauma is a static factor for an adult correctional population. Even though trauma-informed interventions would not be able to alter the presence of adverse childhood experiences, it may be able to help individuals successfully participate in programming that targets criminogenic needs.

Second, whereas people scoring higher in the Mental Health and Childhood Trauma domains may not be ready for criminogenic need programming, the opposite may be true for those rated higher for Religiosity and Motivation. As expected, people are more likely to be involved in programming when they are more motivated and confident in their ability to change their lives. Moreover, religious involvement has been shown to be positively associated with optimism and hope (Ciarrochi & Heaven, 2012; Hood et al., 2009; King et

al., 2020), and it is has been linked with greater educational attainment (Jeynes, 2003; Regnerus, 2003). Thus, people scoring higher for Religiosity may have a greater willingness to participate in programming, especially education classes.

Third, Learning Style is believed to be important but there is not strong empirical support that it influences educational achievement. We did not find that it has a strong association with program participation and completion. As noted above, it could be that Learning Style may not be as important as originally thought. Or it could be the assessment we used does not adequately tap into preferred learning styles that matter for correctional populations.

Fourth, when using program participation and completion as the validation measures, the results can also be used to help determine whether programming aligns with the RNR model. In theory, program participation and dosage should be greater for individuals scoring high in needs domains. People with a high need for Education were more likely to be enrolled in classes and earn awards. In addition, positive associations were observed for Substance Use and Housing/Homelessness for education programming. Otherwise, the results suggest that higher-need individuals did not have increased involvement in programming. Granted, the MnDOC piloted the self-reported assessment, and the assessment results were not used to help influence program assignment decisions. Still, the findings shown here suggest the agency may need to focus on better aligning its programming with assessed criminogenic needs.

Finally, this study may offer a template for how responsivity assessments can be validated. To be sure, some specific responsivity factors, such as gender or language, do not require the use of a validated assessment. As shown here, however, assessments designed to

measure constructs such as motivation, religiosity, learning style, mental health and childhood trauma should be subjected to validation research. We believe that program participation, dosage and completion provide the outcome measures that should be used to validate responsivity assessments for correctional populations. Responsivity has been the overlooked principle within the RNR model, but more validation research could eventually lead to a better understanding of this principle and, ultimately, improved program outcomes.

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Appendix: Self-Reported Assessment (SRA)

Anti-Social Thinking

The Texas Christian University Criminal Thinking Scales (Knight et al., 2006)

Answer options include: Strongly Disagree, Disagree, Uncertain, Agree, Strongly Agree

1. You get upset when you hear about someone who has lost everything in a natural disaster.
2. You are locked-up because you had a run of bad luck.
3. When people tell you what to do, you become aggressive.
4. Anything can be fixed in court if you have the right connections.
5. Seeing someone cry makes you sad.
6. You rationalize your actions with statements like "Everyone else is doing it, so why shouldn't I?"
7. Bankers, lawyers, and politicians get away with breaking the law every day.
8. You have paid your dues in life and are justified in taking what you want.
9. When not in control of a situation, you feel the need to exert power over others.
10. When being asked about the motives for engaging in crime, you point out how hard your life has been.
11. You are sometimes so moved by an experience that you feel emotions you cannot describe.
12. You argue with others over trivial matters.
13. If someone disrespects you then you have to straighten them out, even if you have to get physical.
14. You like to be in control.
15. You find yourself blaming the victims of some of your crimes.
16. You feel people are important to you.
17. You think you have to pay back people who mess with you.
18. What you do here is going to make a difference in the way you are treated.
19. You feel you are above the law.
20. It is okay to commit crime to pay for the things you need.
21. Society owes you a better life.
22. Breaking the law is a big deal, even if no one is harmed.
23. You find yourself blaming society and external circumstances for the problems in your life.
24. You worry when a friend is having problems.
25. The only way to protect yourself is to be ready to fight.
26. You are to blame for the things you have done.
27. It is unfair that you are locked-up when bankers, lawyers, and politicians get away with their crimes.
28. Laws are just a way to keep poor people down.
29. Your good behavior should allow you to be irresponsible sometimes.
30. It is okay to commit crime to live the life you deserve.
31. Prosecutors often tell witnesses to lie in court.
32. You justify the crime you commit by telling yourself that if you had not done it, someone else would have.
33. You may be a criminal, but your environment made you that way.

Self-Identity

The Feared Self Scale (Paternoster and Bushway, 2009)

Answer options include: Never, Almost Never, Sometimes, Almost Always, Always

1. I worry that I will eventually burn out if I stay on the same path in life.
2. I have hit rock bottom in my life.
3. I need to make a change for the better to become more satisfied in my life.
4. I am headed in the right direction in life.
5. I like the person I have become.
6. I am becoming a better person.

The Cognitive Transformation Scale (Giordano et al., 2002)

Answer options include: Never, Almost Never, Sometimes, Almost Always, Always

1. It is important to me that family and friends think of me as a good person.
2. I am open to a new way of life.
3. I can envision a new life for myself.

Employment

Answer options for questions 2 through 8 include: Strongly Disagree, Disagree, Uncertain, Agree, Strongly Agree

1. Were you employed at any time in the last year before you entered prison? (Mark all that apply)
    a. Yes, full-time.
    b. Yes, part-time.
    c. No.
    d. I don't know.
2. I have a lot of work experience.
3. I like the jobs I had in the past.
4. My former employers would probably give me a good reference.
5. I know about jobs in the community I normally live in.
6. I know what kind of job I want when I am released.
7. I know what the future looks like for my job or career.
8. I know how to explain gaps in my work history.

Housing/Homelessness

1. In the year prior to your incarceration, where did you live for most of that year? (check one)
    a. On my own in a house that I owned or a place that I rented.
    b. With my spouse or partner.
    c. With a family member (not including a spouse or partner).
    d. A shelter or transitional housing program.
    e. Outside, in a car or vacant building, or some other place not intended for housing.
    f. Don't know or unsure.
2. In the year before you were incarcerated, how long had you been without a regular or permanent place to live?

a. I had a regular or permanent place to live the entire year.
b. One week or less.
c. More than 1 week, but less than a month.
d. At least 1 month, but less than 4 months.
e. At least 4 months, but less than 7 months.
f. 7 months to a full year.
g. Don't know or unsure.

3. How many times have you been without a regular or permanent place to live in your entire life?
    a. Never
    b. 1
    c. 2
    d. 3
    e. 4
    f. 5
    g. 6
    h. 7
    i. 8 or more
    j. Don't know or unsure
4. Where do you plan on living when you are released? (check one)
    a. On my own in a house that I owned or a place that I rented.
    b. With my spouse or partner.
    c. With a family member (not including a spouse or partner).
    d. A shelter or transitional housing program.
    e. Outside, in a car or vacant building, or some other place not intended for housing.
    f. Don't know or unsure.

Family/Domestic

The Multidimensional Scale of Perceived Social Support (Zimet et al., 1988)
Answer options include: Strongly Disagree, Disagree, Uncertain, Agree, Strongly Agree

1. There is a special person who is around when I am in need.
2. There is a special person with whom I can share joys and sorrows.
3. My family tries to help me.
4. I get the emotional help and support I need from my family.
5. I have a special person who is a real source of comfort to me.
6. My friends try to help me.
7. I can count on my friends when things go wrong.
8. I can talk about my problems with my family.
9. I have friends with whom I can share my joys and sorrows.
10. There is a special person in my life who cares about my feelings.
11. My family is willing to help me make decisions.
12. I can talk about my problems with my friends.

Relationship with Child(ren)

1. Before you came to prison, did any of your children live with you?

a. All of my children lived with me.
b. Some of my children lived with me.
c. None of my children lived with me.
d. Not applicable (I have no children).

2. How would you describe the quality of your relationship with your child or children now?
    a. Poor
    b. Fair
    c. Good
    d. Very good
    e. Excellent
    f. Not applicable (I have no children).
3. Do you currently have an active order to pay child support? (Mark all that apply)
    a. Yes, I have an active order to pay in Minnesota.
    b. Yes, I have an active order to pay in a different state.
    c. No, I do not have an active child support order.
    d. Don't know or unsure.
    e. Not applicable (I have no children).
4. Have your parental rights to any of your children been terminated by a court order?
    a. Yes
    b. No
    c. Don't know or unsure
    d. Not applicable (I have no children).

Anti-Social Peers

The Attitudes Towards Associates Subscale, derived from the Measures of Criminal Attitudes and Associates (Mills et al., 2002)

Answer options include: Strongly Disagree, Disagree, Uncertain, Agree, Strongly Agree

1. I have a lot in common with people who break the law.
2. Most of my friends have committed crimes.
3. I know several people who have committed crimes.
4. I am okay with stealing, and I am okay with other people who steal.
5. I always feel welcome around criminal friends.
6. Most of my friends have criminal records.
7. I have friends who have been to jail.
8. Most of my friends want to commit crimes.
9. I have committed a crime with friends.
10. I have friends who are well known to the police.

Childhood Trauma

The Adverse Childhood Experiences Scale (Felitti et al., 1998)

Answer options include: Yes, No

1. Did a parent or other adult in the household often or very often swear at you, insult you, put you down, or humiliate you?

2. Did a parent or other adult in the household often or very often act in a way that made you afraid that you might be physically hurt?
3. Did a parent or other adult in the household often or very often push, grab, slap, or throw something at you?
4. Did a parent or other adult in the household often or very often ever hit you so hard that you had marks or were injured?
5. Did an adult or person at least 5 year older than you ever touch or fondle you or have you touch their body in a sexual way?
6. Did an adult or person at least 5 year older than you ever attempt or actually have oral, anal, or vaginal intercourse with you?
7. Did you often or very often feel that no one in your family loved you or thought you were important or special?
8. Did you often or very often feel that your family didn't look out for each other, feel close to each other, or support each other?
9. Did you often or very often feel that you didn't have enough to eat, had to wear dirty clothes, and had no one to protect you?
10. Did you often or very often feel that your parents were too drunk or high to take care of you or take you to a doctor if you needed it?
11. Were your parents ever separated or divorced?
12. Was your mother or stepmother often or very often pushed, grabbed, slapped, or had something thrown at her?
13. Was your mother or stepmother sometimes, often or very often kicked, bitten, hit with a fist, or hit with something hard?
14. Was your mother or stepmother every repeatedly hit at least a few minutes or threatened with a gun or knife?
15. Did you live with anyone who was a problem drinker or alcoholic or who used street drugs?
16. Was a household member depressed or mentally ill?
17. Did a household member attempt suicide?
18. Did a household member go to prison?

Religiosity (Jang et al., 2017)

1. In general, how important is religion to you?
    a. Not at all important
    b. Somewhat important
    c. Fairly important
    d. Very important
    e. Extremely important
    f. Don’t know
    g. Don’t want to answer
2. How often do you prefer to attend religious services?
    a. Never
    b. Once or twice a year
    c. Several times a year
    d. Once a month
    e. 2-3 times a month

    f. About weekly
    g. Several times a week
    h. Don't want to answer
3. About how often do you spend time along praying or reading the Bible, Koran, Torah, or other sacred book?
    a. Never
    b. Only on certain occasions
    c. Once a week or less
    d. A few times a week
    e. Once a day
    f. Several times a day

Motivation

1. What is the biggest change that you need to make to avoid involvement in the criminal justice system? (select one)
    a. Find stable housing
    b. Quit using drugs and/or alcohol
    c. Improve relationship with family (e.g., partner, spouse, and/or children)
    d. Avoid negative influences in my life
    e. Complete more education
    f. Improve employment skills
    g. Improve decision-making skills
    h. Improve mental health
    i. Other: [open-ended]
2. What is your level of confidence in making that change? A score of 0 indicates no confidence, and a score of 10 indicates the highest level of confidence.
    a. [0 to 10]
3. What is the second biggest change that you need to make to avoid involvement in the criminal justice system? (select one)
    a. Find stable housing
    b. Quit using drugs and/or alcohol
    c. Improve relationship with family (e.g., partner, spouse, and/or children)
    d. Avoid negative influences in my life
    e. Complete more education
    f. Improve employment skills
    g. Improve decision-making skills
    h. Improve mental health
    i. Other: [open-ended]
4. What is your level of confidence in making that change? A score of 0 indicates no confidence, and a score of 10 indicates the highest level of confidence.
    a. [0 to 10]

Learning Style

The Visual, Auditory, Reading, Kinesthetic Assessment (Fleming & Mills, 1992)

1. You are helping someone who wants to go to the airport, bus station, or railway station. You would:

a. Go with him or her.
b. Tell him/her the directions.
c. Write down the directions.
d. Draw, or give him/her a map.

2. You are not sure whether a word should be spelled ‘dependent’ or ‘dependant’. You would:
    a. See the words in your mind and choose by the way they look.
    b. Think about how each word sounds and choose one.
    c. Find it in a dictionary.
    d. Write both words on paper and choose one.
3. You are about to buy a digital camera or mobile phone. Other than price, what would most influence your decision?
    a. Trying it or testing it.
    b. Reading the details about its features.
    c. It is a modern design and looks good.
    d. The salesperson telling me about the features.
4. Remember a time when you learned how to do something new. Try to avoid choosing a physical skill, e.g. riding a bike. You learned best by:
    a. Watching a demonstration.
    b. Listening to somebody explaining it and asking questions.
    c. Diagrams and charts – visual clues.
    d. Written instructions – e.g., a manual or a textbook.
5. You have a problem with your knee. You would prefer that the doctor:
    a. Gave you a web address or something to read about it.
    b. Used a plastic model of a knee to show what was wrong.
    c. Described what was wrong.
    d. Showed you a diagram of what was wrong.
6. You want to learn a new program, skill or game on a computer. You would:
    a. Read the written instructions that came with the program.
    b. Talk with people who know about the program.
    c. Use the controls or keyboard.
    d. Follow the diagrams in the book that came with it.
7. Do you prefer a trainer or a presenter who uses:
    a. Demonstrations, models or practical sessions.
    b. Question and answer, talk, group discussion, or guest speakers.
    c. Handouts, books, or readings.
    d. Diagrams, charts, or graphs.
8. You are going to choose food at a restaurant. You would:
    a. Choose something that you have had there before.
    b. Listen to the waiter or ask friends to recommend choices.
    c. Choose from the descriptions in the menu.
    d. Look at what others are eating or look at pictures of each dish.