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An Investigation of the Impact of Functional Impairment and Risk Level on Adolescent Recidivism

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One hundred and sixteen male adolescent offenders were followed two years post-release to investigate the role of functional impairment and risk level on recidivism. Functional impairment had a significant impact on recidivism. Implications for future research are discussed. *Keywords: Juvenile justice, Functional impairment, Risk assessment, Recidivism*

Risk assessment continues to occupy a prominent place in juvenile justice today, and is increasingly used to make decisions related to disposition, placement, and release—each of which can have an enormous impact on the life of an adolescent. Assessment of functional impairment has also begun to be used in juvenile justice—most often to direct initial placement and treatment needs. Both assessment measures are used with the intent of assessing perceived risk and needs and can result in significant short- and long-term consequences for youthful offenders despite a need for much more research supporting such use. In fact, while there is an emerging body of research on risk assessment, there is a dearth of research on functional impairment and recidivism, and an absence of literature on the effects of both measures when used concurrently.

This original exploratory study was designed specifically to address this gap, and to determine what, if any effect, functional impairment and risk level have on the prediction of recidivism of adolescent offenders. Two of the most widely used standardized assessment instruments, the Youth Level of Service, Case Management Inventory 2.0 (Hoge & Andrews, 2011) and the Child and Adolescent Functional Assessment Scale (Hodges, 2000) were used to assess risk and functional impairment respectively among adolescents with serious offending behaviors in secure residential placement. Both risk and functional impairment levels were assessed prior to release from residential placement. Recidivism was evaluated at two years post-release.

REVIEW OF THE LITERATURE

Risk Assessment

Assessing risk in adolescent offenders through the use of standardized instruments is increasingly common in juvenile justice. A number of instruments have been developed precisely to accomplish this, such as the Juvenile Forensic Profile, (Brand & van Heerde, 2004), the Child Psychopathy Scale (Lynam, et al., 2005), the Psychopathy Checklist: Youth Version (Hare, 2003), and the Youth Level of Service/Case Management Inventory 2.0 (Hoge & Andrews, 2011).

Risk assessment tools typically are comprised of both static and dynamic factors, with the intent of providing comprehensive information thought to be useful in predicting future offending behaviors. The use of standardized, actuarial assessment instruments within juvenile justice is part of a larger cultural shift in the criminal justice system to rely less on clinician prediction-making and more on the results of standardized tools (Schmidt, Sinclair, & Thomasdottir, 2016). This shift has been largely reinforced by the significant body of research demonstrating poorer predictive validity of unstructured clinical judgment when compared to empirically-designed standardized assessment instruments (e.g., Grove, Zald, Lebow, Snitz, & Nelson, 2000).

Unlike clinical judgment, actuarial risk assessment instruments have to some degree been informed by the substantial body of research on risk factors for recidivism, hence, these instruments are often characterized as empirically-guided. Risk assessment tools have also been referenced as an essential component of evidence-based practice (Vincent, Guy, & Grisso, 2012). Identified risks most commonly contained in standardized risk assessment include but are not limited to static factors such as: history of abuse and/or neglect (Minor, Wells, & Angel, 2008), offense history (Caldwell & Dickinson, 2009; Hendriks & Bijlevel, 2008; Mulder, Brand, Bullens, & van Marle, 2010), and parental criminal history (Smith & Farrington, 2004; Van de Rakt, Nieuwbeerta, & Apel, 2009; Van de Rakt, Nieuwbeerta, & de Graaf, 2008), and dynamic factors such as substance use (Douglass, Epstein, & Poythress, 2008; Minor, et al., 2008), family involvement (Mulder, et al., 2010), and treatment completion (Best, et al., 2008; Forgays, 2008; Hollin & Palmer, 2009).

One of the most widely used risk assessments for adolescents in the juvenile justice system today is the Youth Level of Service/Case Management Inventory 2.0 (YLS/CMI; Hoge & Andrews, 2011). The YLS/CMI has been used in the United States, as well as, in Spain (Hilterman, Nicholls, & Nieuwenhuizen, 2014) and Japan (Takahashi, Mori, & Kroner, 2013). The YLS/CMI is a 42 item standardized risk assessment tool designed to assess risk and needs of adolescent offenders ages 12 – 18 years. The predictive validity of the YLS/CMI has ranged from .20 for sexual recidivism to .32 for general recidivism (Olver, et al., 2009) and it has been found to significantly predict recidivism among non-maltreated adolescent offenders (Li, Chu, Goh, Ng, & Zeng, 2015). Further, the results of a meta-analysis found the YLS/CMI to perform well with both female and minority youth (Olver, Stockdale, & Wormith, 2014).

Assessment of Functional Impairment

Whereas actuarial risk assessment tools have become standard practice in juvenile justice, assessment of functional impairment has only recently begun to be more widely used within juvenile justice (e.g., August, Piehler, Bloomquist, 2016). Functional impairment refers to the degree to which one's ability to function in major aspects of life such as school, work, and interpersonal relationships may be compromised. Historically, the Global Assessment of Functioning (GAF) has been a standard part of the diagnostic process in mental health treatment, and increasingly, changes in functional impairment have been used as a metric to direct treatment and to measure treatment outcomes (Winters, Collett, & Meyers, 2005). Further, because minimizing functional impairment is a goal of mental health treatment, assessing such impairment has become much more essential to clinical decision-making and service allocation (Francis, Ebestutani, & Chorpita, 2012).

The Child and Adolescent Functional Assessment Scale (CAFAS; Hodges & Wong, 1996) is one of the most widely used standardized measures of functional impairment with adolescents (August, et al., 2016; Francis, Ebesutani, & Chorpita, 2012). The CAFAS was initially developed for children and adolescents with Serious Emotional Disorders in the public mental health system (Hodges, Doucette-Gates, Liao, 1999). However, it has become much more widely used in the public mental health system and also in the child welfare system (e.g., Vernberg, Roberts, & Nyre, 2008) and has only recently begun to be used in the juvenile justice system (August et al., 2016).

The use of the CAFAS in the juvenile justice system may be an important development, particularly as the prominence of mental health issues among juvenile offenders has long been well-established. In fact, estimates of co-occurring mental health disorders among juvenile offenders have ranged from 60-75% (Burke, Mulvey, & Schubert, 2015; Hogdon, 2008; Skowrya & Coccozza, 2006). Moreover, because of the dire long-term life outcomes associated with adolescents with a juvenile justice history (Mallett, 2013; Seigle, Walsh, & Weber, 2014), assessing and treating functional ability related to mental health issues, may be transformative. Indeed, with recidivism rates following residential placement historically ranging between 40 – 85% (Taylor, Kemper, Loney, & Kistner, 2009; Trulson, Marquart, Mullings, & Caeti, 2005) and significant negative life outcomes (e.g., substance abuse, homelessness, premature death) (Schubert & Mulvey, 2014), efforts must continue to be made to promote the long-term success of juvenile offenders.

Unlike the Global Assessment of Functioning (GAF) that allows for raters to identify a score within a broad range, the CAFAS assesses functional impairment in eight concrete behavioral domains (i.e., moods and emotions, substance use), providing more targeted information for use in treatment planning, as well as, a total score. Research on the predictive validity of the CAFAS has been limited, however, one study conducted by the developers found the CAFAS correlated significantly and positively with psychiatric diagnosis and service utilization (Hodges & Wong, 1996) while another study found evidence of reliability, concurrent validity, predictive validity, and sensitivity to change (Hodges, 2005). An independent study found the total score of the CAFAS was able to differentiate between the presence and absence of psychopathology (Ezpeleta et al., 2006), and notably, the CAFAS was found to predict recidivism among juvenile offenders (Quist & Matshazi, 2000).

In a comparison between the GAF to the CAFAS, the CAFAS identified significantly higher rates of Serious Emotional Disturbances (SED) among youth with externalizing disorders than those with internalizing disorders whereas the GAF identified comparable rates of SED between groups (Francis, Ebeutani, & Chorpita, 2012). In addition, a study evaluating reliability of CAFAS administrators over time found high reliability among those trained by both internal and external trainers (Barwick, Urajnik, & Moore, 2014).

Despite the emerging use of the CAFAS in juvenile justice, there is an absence of research on its use in assessing functional ability, and its relationship to recidivism. In addition, the interaction of functional ability and risk assessment on recidivism has not yet been explored. This is particularly troublesome given the significantly high prevalence of co-occurring mental health

issues among adolescent offenders and the associated functional impairment that could play a pivotal role in recidivism. The current study was designed specifically to address this gap, and evaluate the relationships between functional impairment, risk level, and recidivism. The research questions guiding this study included: a) is there a relationship between functional ability and recidivism? b) is there a relationship between risk level and recidivism? and c) is there an interaction between functional ability, risk level, and recidivism?

METHOD

Participants

A total of 116 male adolescent offenders in two secure residential treatment facilities participated in this study. One hundred and thirty-five adolescent offenders were originally enrolled in the study, however, nineteen cases were removed from the analysis due to incomplete assessment data (n = 9), AWOL and death (n = 5), and inability to acquire precise follow-up data (n = 5).

Multiple types of demographic data were collected, including race and age at release. Participant race data was as follows: 2% (n = 2) Bi-Racial, 69% (n = 80) Black and 29% (n = 34) White. The age of offenders at release from residential treatment was between 14 and 21 years of age with following breakdown: 3% (n = 3) at 14 years, 12% (n = 14) at 15 years, 30% (n = 35) at 16 years, 26% (n = 30) at 17 years, 22% (n = 25) at 18 years, 6% (n = 7) at 19 years, and 3% (n = 2) at 20 years of age. The mean length of residential treatment was 10.2 months while stays ranged from 182 days to 682 days. Offense histories included offenses against property and persons and those related to illegal use of substances and firearms. Specifically, offense histories were broken down as follows: 12% (n = 14) Assault, 18% (n = 21) armed robbery, 1% (n = 1) arson, 5% (n = 6) carjacking, 3% (n = 4) breaking and entering, 1% (n = 2) firearm possession (n = 8) concealing stolen property, 1% (n = 1) controlled substance, 6% (n = 7) sexual offenses, 9% (n = 11) home invasion, 27% (n = 31) larceny, and 9% (n = 10) ordinance violations.

Setting

The study settings included two locked (i.e., secure) residential treatment facilities for adolescent male offenders located in an urban city in the Midwestern United States. The facilities are the only secure residential treatment programs in the region for male youthful offenders. The facilities were selected exclusively because of their unique role in the region. Both facilities were designed to treat the most serious juvenile offenders based upon severity of offense type (e.g., attempted murder, forcible rape), offense history, and/or prior record of failed placements. Both treatment programs utilize a developmentally-informed, cognitive behaviorally-based model that has been previously described in the literature (see Calley, 2007).

Measures

YLS/CMI 2.0 (Hoge & Andrews, 2011). The YLS/CMI 2.0 is a structured assessment instrument designed to assess the risks, strengths, and criminogenic needs of female and male youth ages 12 – 18 years who have committed a crime. The instrument is based on the Risk-Need-Responsivity framework (Andrews & Bonta, 2010) that suggests effective rehabilitation of justice system-involved individuals is dependent upon accurate assessment of needs and risk. Further, the

framework is based upon the notion that interventions be responsive to individuals' needs and learning styles.

The YLS/CMI 2.0 consists of 42 items grouped into eight subscales that include Prior and Current Offenses/Dispositions, Family Circumstances/Parenting, Education/Employment, Peer Relations, Substance Abuse, Leisure/Recreation, Personality/Behavior, and Attitudes/Orientation. Levels of risk and need are assessed within each subscale as low, moderate, high, or very high. Total risk and need levels are scored based upon gender and placement including custodial male, custodial female, community male, and community female and range from low to very high. Because all of the participants involved in this study were in residential placement during the time of assessment, each was scored as custodial male with the associated scoring system: Low (0-19), Moderate (20-29), High (30-36), and very high (37-42). Master's level clinicians were trained to administer the YLS/CMI 2.0 and completed the assessment on each assigned youth on their caseload as part of the investigation.

CAFAS (Hodges, 1994; 2003). The CAFAS is designed to assess functional impairment in female and male youth ages 7 – 17 years of age. The CAFAS consists of eight scales that include: School/Work Role Performance, Home Role Performance, Community Role Performance, Behavior Towards Others, Moods/Emotions, Self-Harmful Behavior, Substance Use, and Thinking. Each subscale consists of four levels of impairment that include severe, moderate, mild, and minimal or no impairment. Total scores on the CAFAS range from 0 – 240 and are computed by summing the scores across all eight scales. For this investigation, traditional scoring of the CAFAS was used and included four levels of impairment: no impairment (0-10), mild impairment (20-40), moderate impairment (50-90), and severe impairment (100 above). Master's level clinicians were trained to administer the CAFAS and completed the assessment on each assigned youth on their caseload as part of the investigation.

Recidivism. For the purpose of this investigation, recidivism was defined as a new criminal offense that resulted in disposition in either the juvenile or adult criminal justice system. Recidivism data were collected through a search of the statewide juvenile and criminal justice databases for a period of up to two years following release from residential placement. In preparation for the investigation, a data collection specialist was trained to conduct the database searches, and record recidivism data on a data tracking form.

PROCEDURE

Three variables were identified for investigation in the current study, including the two independent variables of level of risk/need and level of functional impairment and the dependent variable, recidivism. The following data was collected at two intervals during the evaluation: 1) Demographic data and assessment data was collected within 30 days prior to each adolescent's release from residential treatment; and 2) recidivism data was collected as part of the follow-up procedures within two years of release from residential treatment. Two data forms were developed and used to collect these data, the *Residential Release Data Summary Form* and the *Follow-Up Tracking Form*. Data collection specialists consisting of Master's level clinicians were trained in collection procedures prior to beginning the study, and were responsible for gathering all data

from: official documents contained in the case record, regional and state juvenile justice databases, and the adolescent and/or parent/legal guardian.

All youth residing in the facilities during the time of the study were asked if they would like to voluntarily participate in the study, and if so, assent was obtained from all youth 14 years and over, while consent was also obtained from the parents/legal guardians of assenting youth under 18 years of age. No incentives were provided for participation in the study. Of the 152 youth originally requested to participate in the study, assent and consent was obtained from 135 participants or 88% of the population. Of the 135 participants originally enrolled in the study, nineteen cases were removed from the analysis due to incomplete information.

Statistical Analyses

As a preliminary step, inferential goodness of fit was assessed using the Hosmer–Lemeshow (H–L) test. The results of the goodness of fit test yielded a chi square statistic that was not significant ($p > 0.01$), suggesting that the model was fit to the data well. In other words, the null hypothesis of a good model fit to data was tenable. Logistic regression with stepwise and backward variable selection methods was subsequently used to determine the effects of risk level and functional impairment level on recidivism and the interaction effects of risk and impairment level on recidivism. Alpha was set to 0.05.

RESULTS

The overall recidivism rate was 12% with fifteen of the 116 participating adolescents having recidivated within two years following release. In terms of frequency data on risk/need level, 66.3% of youth ($n = 77$) were rated as low risk, 26.7% of youth ($n = 31$) were rated as moderate risk, and 6.8% of youth ($n = 8$) were rated as high risk on the YLS/CMI 2.0. With regard to level of functional impairment, frequency analyses included the following: 6.8% of youth ($n = 8$) were rated as having no impairment, 34.4% of youth ($n = 40$) were rated with mild impairment, 29.3% of youth ($n = 34$) were rated with moderate impairment, and 29.3% of youth ($n = 34$) were rated with severe impairment on the CAFAS.

Functional impairment level was the only variable that had a significant predictive relationship to recidivism as illustrated in Table 1. Specifically, no impairment was related to greater recidivism than any impairment level while the B coefficients for the three impairment levels (Mild, Moderate and Severe Impairment) were also significant, indicating that increased levels of impairment are also associated with increased odds of recidivism.

The value of $\text{Exp}(B)$, the odds ratio, was 0.111 which implies a decrease in the odds of 88.9% ($0.111 - 1.0 = -0.889$). As such, adolescent offenders with mild impairment were 88% less likely to recidivate while adolescent offenders with moderate impairment were 87% less likely to recidivate ($\text{Exp}(B)$ of 0.133; $0.133 - 1.0 = -0.867$) and adolescent offenders with severe impairment were 74% less likely to recidivate ($\text{Exp}(B)$ of 0.259; $0.259 - 1.0 = -0.741$).

Risk level was not significantly related to recidivism. Further, the interaction effect of level of functional impairment and risk and needs level was not significantly related to recidivism.

Table 1 Impairment Level and Recidivism

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1	Impairment Level			41.839	3	.000			
	Impairment Level(1)	-2.197	.527	17.380	1	.000	.111	.040	.312
	Impairment Level(2)	-2.015	.532	14.329	1	.000	.133	.047	.378
	Impairment Level(3)	-1.350	.424	10.130	1	.001	.259	.113	.595

DISCUSSION

First, it should be noted that the recidivism rate of twelve percent for adolescents who had previously committed a serious offense is among the lowest to date. In addition, the findings related to the primary aims of the current study—examining the relationship between functional ability and recidivism, risk level and recidivism, and the interaction of functional ability and risk on recidivism—were also notable. In fact, the only significant finding was the relationship between functional impairment and recidivism—with no impairment related to greatest risk of recidivism. More importantly, despite the widespread use of risk assessment in juvenile justice, risk level was not found to be a significant predictor of recidivism in this study. And interestingly, whereas both the YLS/CMI 2.0 and CAFAS had previously been found to significantly predict recidivism independently, no interaction was found between the two assessment measures (i.e., risk and impairment level) and recidivism.

Despite the small sample size, these findings may be important for several reasons, not least of which that they provide further evidence questioning the widespread use of risk assessment in juvenile justice. Practices and policies of the juvenile justice system continue to be largely influenced by the adult criminal justice system, and the adoption of standardized risk assessment tools within juvenile justice is another reflection of this. Further, speculation about the reliability and validity of risk assessment with adolescents continues to mount (e.g., Kennealy, et al., 2017), and the predictive validity of standardized risk assessment tools continues to be questioned (e.g., Calley, 2012; Onifade et al., 2008; Schmidt et al., 2016).

The inherent problem in assessing risk is most likely due to the significant differences between the adolescent and adult brain, and the subsequent difficulties evaluating specific factors in two organs at such different developmental stages. Unlike the adult brain that is fully mature, the adolescent brain is very much in process or in progress, and as such, behaviors, thoughts, and emotions are constantly changing and nonconductive to predicting future behaviors. Unfortunately, despite all

that we now know about the developmental process of the adolescent brain (e.g., Chen & Jacobson, 2012; Kelly, DiMartino, & Uddin, 2009; Supekar, Mussem, & Menon, 2009), little to no action has been taken to effectively consider brain development in risk assessment protocols.

Secondly, the findings related to functional impairment and recidivism are quite interesting, since no impairment was found to be associated with greater recidivism than was any impairment. Conversely, increased levels of impairment (i.e., mild, moderate, severe) were associated with increased levels of recidivism, further complicating our understanding of the relationship between impairment and recidivism. Whereas this finding prompts the need for further research into the relationship between impairment and recidivism, it also reinforces the need for assessment-driven treatment that is specifically designed to target and effectively address mental health treatment needs. As an instrument designed to assess functional ability, the CAFAS and/or a similarly reliable and valid mental health assessment instruments should be more fully incorporated into the juvenile justice system to guide treatment planning and coordinate care.

The recidivism rate of twelve percent is also highly noteworthy. Whereas the sample size may be a limitation of this study, the homogeneity of the sample is a strength of the study, and should be considered in the low recidivism rate. This is because the sample was derived from the region's only two residential facilities serving the state's most serious adolescent offenders. As such, it represents a fairly homogenous group of adolescents with serious offending behaviors, and those with greatest needs. However, the results related to functional impairment and recidivism must be considered in the context of the low recidivism rate, and as such, the results may not be as robust as they could otherwise have been had there been a higher rate of recidivists in the study.

Finally, the degree to which the clinical assessment of functional ability may have had on treatment and subsequently, on recidivism, is unknown but must also be considered. The CAFAS has been in use within the region's juvenile justice system for some time, and as such, the initial assessment of functional ability may have driven more effective and/or targeted treatment by the treating clinicians, each of whom are mental health professionals.

LIMITATIONS OF THE STUDY

Specific limitations could have impacted the findings of this study, not least of which is the small sample size. While participating adolescents were from two different residential facilities, thereby strengthening the sample itself, the size ($n = 116$) may not be generalizable to the broader population. As a result, caution must be exercised when interpreting any meaning the results may have beyond the sample and the region.

In addition, while the follow-up timeframe of two years post-release from residential treatment is within the established parameters of long-term follow-up in juvenile justice, a longer follow-up timeframe may have resulted in increased recidivism. However, because most re-offenses occur during the first two years following treatment, while worthy of noting as a possible limitation, the two year follow up period is also a strength of the current study.

Finally, the findings, and particularly, the low recidivism rate could have been due in part to the type of treatment delivered within the region as well as to the manner in which some clinicians may have provided treatment directly based on functional ability. As such, treatment could have targeted the most significant treatment needs, thus, effectively lowering adolescents' impairment levels before release.

IMPLICATIONS

The findings of this study provide several implications for clinicians, juvenile justice professionals, and administrators. Chief among them is the need to more critically evaluate the use of actuarial risk assessments with adolescent offenders. Secondly, is the need to continue efforts to more clearly differentiate juvenile justice practices from criminal justice practices. This includes both reconsidering the use of risk assessment and fully incorporating assessment of functional impairment and mental health treatment needs across juvenile justice settings (e.g., probation, community-based treatment, residential treatment), as justified. There is also a need for much more research about the manner in which assessment tools may be used across juvenile justice settings to direct treatment interventions and ultimately, to better understand the effect of assessment on treatment outcomes. Consistent with best practice in clinical assessment, assessment should be used to guide treatment and assess treatment outcomes—ensuring that this is indeed how assessment is used in juvenile justice may only continue to strengthen the system's integrity and commitment to rehabilitation.

Finally, further research is needed to better understand and further clarify the relationship between functional ability and recidivism and to better understand if, in fact, there is any interaction between functional ability, risk, and recidivism among adolescent offenders. Whereas this study was among the first to investigate the interactions among these three variables and justice-involved youth, attention should be given to examining these interactions among other detained youth as well as those in community-based placements. Moreover, investigating the relationships between functional ability, risk, and recidivism among adult offenders is also warranted, especially as it may, in fact, yield different results.

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