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A Comprehensive Analysis of Determinants of Risk Assessment Among Youths Adjudicated to Indiana Juvenile Correctional Facilities

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Risk factors (or criminogenic needs) have been broadly defined as individual traits or environmental conditions, if present, that increase the youth's likelihood of engaging in delinquent or criminal behaviors. This study was consisted of 2,335 youths who were adjudicated to Indiana juvenile correctional facilities during the period of January 1, 2012-February, 2015. Indiana Department of Correction (IDOC) Division of Youth Services (DYS) has employed the Indiana Youth Assessment System (IYAS) to determine the youth's risk level during the in-take process, which contains thirty-three (33) survey questions across seven (7) risk factor domains. This study found that all seven (7) assessment domains were influential predictors to the overall risk assessment and the "substance abuse, mental health, and personality" risk domain exerted the most influential effect on the youth's overall risk assessment. Key Words: Risk Assessment, Risk Factor, Indiana Youth Assessment System

INTRODUCTION

The risk assessment has gradually become an essential screening tool to determine the potential risks of reoffending and adequate accommodations in the facility when the youth has contacted with the juvenile justice system at various stages, including diversion, adjudication, and disposition. Specifically, the risk assessment is generally based on the framework of the "risk-need-responsivity" model in an attempt to classifying the risk level, providing needed treatment, or implementing appropriate supervision for incarcerated juvenile or adult offenders (McGrath and Thompson, 2012; Polaschek, 2012; Willishauser, Jordan, and Jenkins, 2015). In the "risk-need-responsivity" model, the "risk" principle indicates that the level of services (e.g., treatment or supervision) should match the risk level of the offender to prevent or reduce the likelihood of reoffending. The "need" principle emphasizes the importance of providing individualized treatment or programming to adequately reduce criminogenic needs that are associated with criminal or delinquent behavior. The "responsivity" principle illustrates that the level of

intervention or support needs to parallel with characteristics of the offender in order to motivate the offender to change. For example, with respect to juveniles with substance use problems, the juvenile facility needs to provide adequate drug treatment and counselling programs to prevent any drug use after the juveniles have been released from the facilities.

RISK ASSESSMENTS AND JUVENILE OFFENDERS

The risk assessment for the youths, who have been contacted with the criminal justice system, usually contains two components: risk assessment and need assessment. The risk assessment component serves as the mechanism to estimate the odds likelihood of the youth who may be at risk to reoffend or continue involvement in delinquent behavior. On the other hand, the need assessment component functions as the baseline measurement for individualized treatment or programming to reduce risk factors to reoffending. The criminogenic risk factors, such as, drug abuse or lacking parental support, are usually employed as predictors to measure the final risk score, then it will subsequently convert into the risk level classification (Assink et al., 2015; Baglivio and Jackowski, 2013; Cox, Kochol, and Hedlund, 2018; Newsome and Cullen, 2017; Yesberg and Polaschek, 2015).

Risk factors and criminogenic needs are usually interchangeable, which are perceived as root causes of delinquent behaviors among adolescents. Risk factors (or criminogenic needs) have been broadly defined as individual traits or environmental conditions, if present, that will increase the youth's likelihood of engaging in delinquent or criminal behaviors (Basanta, Farina, and Arce, 2018; Clarke, Peterson-Badali, and Skilling, 2017; Farrington, Gaffney, and Ttofi, 2017; Mulvey, et al., 2016; Murray and Farrington, 2010; Shader, 2001). Meanwhile, risk factors (or criminogenic needs) are generally categorized into five different domains: (1) individual, (2) peer, (3) family, (4) school, and (5) community. Risk factors in each of the domains can directly influence the likelihood of juvenile delinquency or problem behavior (Barnes et al., 2016; Pusch and Holtfreter, 2018). Researchers indicate that individual factors (e.g., hyperactivity) and family factors (e.g., parenting) may be linked to the youth's problem behaviors in early childhood (Baglivio et al., 2018; Campbell et al., 2018; Wasserman et al., 2003). As the youth enters into the developmental stage of adolescence, risk factors associated with peers (e.g., pro-gang attitudes), the school (e.g., truancy), and the community (e.g., gang activities) gradually interact with the youth's traits; which, in turn, elevate the risk that the youth may engage in a variety of delinquent or criminal behaviors. Nonetheless, most of risk factors (or criminogenic needs) are generally regarded as dynamic, which can be changed over time during the course of the youth's development. Theoretically and practically, risk to juvenile delinquency can be effectively reduced or possibly eliminated, if adequate interventions have been implemented to address the youth's criminogenic needs.

Undoubtedly, identifying risk factor indicators in each domain is challenging and sometimes very complex. Risk factors for the juveniles are generally focused on domains such as individual, family, peer, school, or community in the risk assessment instrument. Risk assessments have become a practical tool to predict the likelihood of reoffending and to provide individualized intervention programs to needed youths in the juvenile correctional facility. For juvenile correctional administrators and practitioners, the youth's risk level could also serve as

the benchmark for follow-up community supervision and aftercare programs for released youths. In this study, we intend to examine the risk assessment instrument from Indiana Youth Assessment System (IYAS) in terms of its correlation between risk factors and the overall risk assessment among the youths who have been adjudicated to the juvenile correctional facility. Furthermore, this study will analyze the distinctive effect of risk factors on the youth's overall risk level in order to understand which risk factors are the most influential factors in the risk assessment instrument.

METHODS

Sample

This study is consisted of 2,335 youths who have been adjudicated to Indiana juvenile correctional facilities during the period of January 1, 2012 to February, 2015. In the juvenile in-take unit, youths complete a series of tests and assessments in an attempt to determine the youth's intellectual ability, academic achievement, vocational interest, learning style, and risk level. Regarding the risk assessment, Indiana Department of Correction (IDOC) Division of Youth Services (DYS) has employed the Indiana Youth Assessment System (IYAS) to determine the youth's risk level during the in-take process. Meanwhile, IDOC Division of Youth Services has also used testing and assessment results as the baseline data for appropriate education program and/or adequate behavioral intervention once the youth has transferred from the in-take unit to the juvenile correctional facility.

Assessment Instrument –IYAS Residential Tool

The *Indiana Youth Assessment System-Residential Tool* (IYAS-RES) comprises 33 survey questions across seven domains: (1) *juvenile justice history*, (2) *family and living arrangements*, (3) *peers and social support network*, (4) *education and employment*, (5) *pro-social skills*, (6) *substance abuse, mental health, and personality*, (7) *values, beliefs, and attitudes*. In the domain of *juvenile justice history*, assessment items focus on whether or not the youth has previously contact with the juvenile justice system, has previous adjudications, or has received any formal probation violations. In the domain of *family and living arrangements*, assessment items intend to determine the youth's perceptions on his/her family, parental support, or the effectiveness of the communication between the youth and his/her family. In the domain of *peers and social support network*, assessment items primarily focus on peer influence associated with fighting, drug use, gang activity, or legal consequences due to association with the youth's friends. In the domain of *education and employment*, assessment items intend to the youth's history of being expelled from school, truancy, or the relationship between the youth and school personnel or employer, and employment history. In the domain of *pro-social skills*, assessment items focus on the youth's pro-social decision-making, ability in identifying high-risk situations, or skills in managing his/her frustration. In the domain of *substance abuse, mental health, and personality*, assessment items generally focus on the youth's drug and alcohol use, drug-related or alcohol-related problems, level of self-esteem, level of risk-taking behavior, or any experience of head injury. In the domain of *values, beliefs, and attitudes*, assessment items intend to determine the youth's pro-criminal sentiment, attitudes toward community supervision, pro-drug values or beliefs, level of empathy toward others, or beliefs about gang activity.

The administration of the IYAS-RES instrument is consisted of a structured interview, file review, and a self-report questionnaire. All the youth's risk assessment was completed by trained and certified staffs at IDOC's intake unit for juvenile offenders. In order to obtain complete and honest responses to all questions in each domain, *Indiana Youth Assessment System* (IYAS) has provided an interview guide to assist the evaluators in gathering the information necessary to accurately assess the youth's risk level. The evaluators are encouraged to use follow-up questions, develop some clear examples, and avoid double-barreled questions. For example, if the youth might not remember when s/he got in trouble with the law (one of questions in the domain of *juvenile justice history*), the evaluator could use several follow-up questions—"How old were you?" "What did you do?" "What happened?"—in an attempt to obtain accurate information from the youth.

Outcome Measures

The primary outcome measure is focused on the youth's risk level and the contributing factors to the overall risk assessment. IDOC Division of Youth Services did not conduct the "need" assessment; therefore, the "need" score was not available in the present analysis. The IYAS-RES risk assessment employs a score of "0" or "1" to be assigned to each of assessment items in all seven domains noted above. For example, one of the IYAS-RES assessment items is related to the youth's previous contact with juvenile justice system in the domain of *Juvenile Justice History*. The purpose of this item is to determine whether the youth has engaged in delinquent behavior early in his/her life. This item is scored as "0," if the youth's first contact with the juvenile justice system was at age 14 or older. If a youth had an official contact with the juvenile justice system prior to the age of 14, then this item is scored as "1." In the domain of *Pro-Social Skills*, the assessment item—"Can Identify Triggers/High Risk Situations"—is scored as "0" if youth responded that s/he could identify high risk situations; the assessment item is scored as "1" if the youth indicated that s/he could not identify high risk situations. The same logic of risk rating system has applied to all assessment items in the IYAS-RES assessment instrument.

The total score in each domain is a summed score of the individual items, which has been employed to determine the risk level of each youth. Additionally, the risk level in each domain can be classified as "low," "moderate," or "high," on the basis of a defined range of the total risk score in each domain. The final score is a summed product of each of the individual items in all seven domains creating a range from 0 to 33. The score the youth receives in the range of 0-11 is rated as "low risk," the score in the range of 12-18 is rated as "moderate risk," and the score in the range of 19-33 is rated as "high risk."

Data Analysis

Data analyses in this study would examine offender's characteristics (i.e., race, gender, and age) in relative to the risk assessment among 2,335 youths who had been adjudicated to Indiana juvenile correctional facility. One specific focus of data analysis in this study was centered on identifying which domain in the *Indiana Youth Assessment System-Residential Tool* (IYAS-RES) had the most influential impact on assessing the youth's risk level. Due to distinctive characteristics of each of the seven domains in the IYAS-RES risk assessment instrument, the current study also analyzes the distinctive effect of IYAS-RES risk assessment domains on the youth's overall risk level. Such analyses would provide crucial information to develop adequate behavioral or educational programs

at the facility in order to effectively reduce the risk in recidivism prior to release from the juvenile correctional facility.

In this study, a univariate analysis would be conducted in order to understand demographical characteristics of the youths who had been adjudicated to Indiana juvenile correctional facility and the risk level in each of seven assessment domains in the IYAS-RES instrument. Meanwhile, the effects of offender's characteristics (e.g., gender or race) and the risk assessment in each domain in the IYAS-RES instrument on the youth's overall risk level would be carefully examined. In addition to bivariate analysis of the correlation between the youth's characteristics and each assessment domain and the overall risk level, the current study also employs ordinary least squares (OLS) regression to examine the effect of the youth's demographical characteristics and the risk level in each assessment domain in the IYAS-RES instrument on the overall risk level. Such multiple regression analysis would provide a clear indication which IYAS-RES assessment domain or the youth's characteristics had exerted the most influential impact on assessing the youth's overall risk level.

RESULTS

Table 1 illustrates descriptive statistics of the youth's demographical characteristics, risk level in each domain of the IYAS-RES instrument, and the overall risk level. Results of this study revealed that the majority of all 2,335 youths, who had been adjudicated to Indiana juvenile correctional facility, were Caucasian males in the age range of 15-17 years old. This study's results also revealed that 15.2 percent (n=355) of all 2,335 adjudicated youths were assessed as "low risk," 62.4 percent (n=1,458) of youths were assessed as "moderate risk," and 22.4 percent (n=522) of youths were assessed as "high risk." Such overall risk assessments were based on a summed score of individual score from each of seven domains in the IYAS-RES assessment.

As Table 1 indicates, the results of this study revealed that approximately 52 percent (n=1,211) of youths were assessed as "high risk" in regard to youth's previous contact with the juvenile justice system or legal adjudications (Domain #1). A majority of adjudicated youths (76.1 percent of 2,335 youths) were assessed as "low risk" in regard to youth's perceptions on parental support and the effectiveness of communication between the youth and his/her family (Domain #2). More than 66 percent of 2,335 adjudicated youths were assessed as "moderate risk" in regard to peer influence on criminal or delinquent behaviors or drug use (Domain #3). This study also showed that 72.1 percent (n=1,683) of 2,335 youths were assessed as "low risk" in regard to youth's experience of truancy, being expelled from school, or employment (Domain #4). Approximately 54 percent (n=1,259) of 2,335 adjudicated youths were assessed as "high risk" in regard to youth's pro-social decision-making and ability in managing his/her frustration (Domain #5). This study also found that 70.8 percent (n=1,653) of adjudicated youths were assessed as "moderate risk" and 12.5 percent (n=293) of adjudicated youths were assessed as "high risk" in regard to youth's drug and alcohol use, self-esteem, or risk-taking behavior (Domain #6). More than 51 percent (n=1,207) of adjudicated youths were assessed as "moderate risk" in regard to youth's pro-criminal sentiment, attitude toward community supervision, or empathy toward others (Domain #7).

Table 1: Descriptive statistics of demographical characteristics and risk level among 2,335 youths who had adjudicated to Indiana juvenile correctional facility

| Variable | Coding | Frequency | Percentage |
|---|---------------------------------|-----------|------------|
| Gender of the Youth | 0=female | 379 | 16.2% |
| | 1=male | 1956 | 83.8 |
| Race of the Youth | 1=Caucasian | 1325 | 56.7% |
| | 2=African American | 794 | 34.0 |
| | 3=Hispanic | 205 | 8.8 |
| | 4=Asian | 7 | 0.3 |
| | 5=American Indian/Alaska Native | 4 | 0.2 |
| Age of the Youth | 1=12 years old | 3 | 0.1% |
| | 2=13 years old | 28 | 1.2 |
| | 3=14 years old | 140 | 6.0 |
| | 4=15 years old | 413 | 17.7 |
| | 5=16 years old | 700 | 30.0 |
| | 6=17 years old | 1014 | 43.4 |
| | 7=18 years old | 35 | 1.5 |
| | 8=19 years old | 2 | 0.1 |
| Juvenile Justice History (Domain #1) | 1=low risk | 568 | 24.3% |
| | 2=moderate risk | 556 | 23.8 |
| | 3=high risk | 1211 | 51.9 |
| Family and Living Arrangements (Domain #2) | 1=low risk | 1776 | 76.1% |
| | 2=moderate risk | 349 | 14.9 |
| | 3=high risk | 210 | 9.0 |
| Peers and Social Support Network (Domain #3) | 1=low risk | 362 | 15.5% |
| | 2=moderate risk | 1548 | 66.3 |
| | 3=high risk | 425 | 18.2 |
| Education and Employment (Domain #4) | 1=low risk | 1683 | 72.1% |
| | 2=moderate risk | 586 | 25.1 |
| | 3=high risk | 66 | 2.8 |
| Pro-Social Skills (Domain #5) | 1=low risk | 50 | 2.1% |
| | 2=moderate risk | 1026 | 43.9 |
| | 3=high risk | 1259 | 53.9 |
| Substance Abuse, Mental Health, and Personality (Domain #6) | 1=low risk | 389 | 16.7% |
| | 2=moderate risk | 1653 | 70.8 |
| | 3=high risk | 293 | 12.5 |

| | | | |
|---|-----------------|------|-------|
| Values, Beliefs, and Attitudes (Domain #7) | 1=low risk | 859 | 36.8% |
| | 2=moderate risk | 1207 | 51.7 |
| | 3=high risk | 269 | 11.5 |
| Overall Risk Level (A summed score of Domain #1-#7) | 1=low risk | 355 | 15.2% |
| | 2=moderate risk | 1458 | 62.4 |
| | 3=high risk | 522 | 22.4 |

Table 2 demonstrates a correlation matrix of a results of a variety of risk assessments in the IYAS-RES assessment instrument and the youth's demographical characteristics (i.e., gender, race, and age). This bivariate correlation matrix provided a measurement of the relationship between two identified variables in this study. For example, the correlation ($r=.186$) between the youth's gender and Domain #1 (*Juvenile Justice History*) was found as statistically significant ($p<.001$). In other words, the male youths, rather than female youths, were likely to be assessed as "high risk" due to their previous contact with the juvenile justice system or legal adjudications. The correlation matrix clearly revealed that a vast majority of IYAS-RES assessment domains were statistically and significantly correlated with each other. Taking an example of the correlation ($r=.071$, $p<.001$) between Domain #1 (*Juvenile Justice History*) and Domain #7 (*Values, Beliefs, and Attitudes*), results of this study indicated that the youths had previous contact with the juvenile justice system were likely possessed pro-criminal sentiment and had a negative attitude toward community supervision. Another interesting finding was that the correlation ($r=.335$, $p<.001$) between Domain #3 (*Peers and Social Support Network*) and Domain #6 (*Substance Abuse, Mental Health, and Personality*) indicated that the youths were assessed as "high risk" in regard to peer influence on criminal or delinquent behaviors were likely involved in drug and alcohol use risk-taking behavior. Most importantly, this study's results clearly showed that youth's characteristics (i.e., gender, race, age) were largely correlated with the overall risk assessment and its risk factor domains.

Table 3 illustrates ordinary least squares (OLS) regression analysis of the overall risk assessment among 2,335 youths who had been adjudicated to Indiana juvenile correctional facility. Results of the regression analysis indicated that, except for the youth's age, youth's gender and race and all seven IYAS-RES assessment domains were statistically and significantly correlated with the youth's overall risk assessment. In other words, this study revealed that male and African American youths were likely to be assessed as "high risk" from IYAS-RES instrument at the in-take process. Most importantly, results of the regression analysis consistently showed that all seven IYAS-RES assessment domains were statistically and positively correlated with the overall risk assessment among youths who were admitted to the juvenile correctional facility. Specifically, this study found that all seven assessment domains were influential predictors to the overall risk assessment. For example, this study revealed that the youths were likely to be assessed as "high risk," if they perceived that parental support and their communication with the parent were ineffective. Furthermore, the youths, who had pro-criminal sentiment, drug or alcohol abuse, negative peer influence, or previously contacted with juvenile justice system, were likely evaluated as "high risk" at the in-take process.

Table 2: Correlation matrix of the youth’s demographical characteristics and risk level among 2,335 youths

| Variable | Gender | Race | Age | Domain1 | Domain2 | Domain3 | Domain4 | Domain5 | Domain6 | Domain7 | Overall Risk |
|--------------|--------|----------------|-----------------|-------------------|--------------------|-------------------|-------------------|--------------------|--------------------|--------------------|-------------------|
| Gender | ---- | .016 (.437) | .052* (.011) | .186*** (.000) | -.189*** (.000) | .145*** (.000) | -.023 (.258) | -.300*** (.000) | .255*** (.000) | .060** (.004) | .218*** (.000) |
| Race | | --- | -.014 (.492) | -.002 (.920) | -.025 (.235) | .077*** (.000) | -.052* (.013) | -.013 (.516) | -.024 (.037) | .037 (.078) | .034 (.097) |
| Age | | | --- | .054** (.010) | .025 (.350) | .022 (.278) | .030 (.152) | -.100*** (.000) | .081*** (.000) | -.075*** (.000) | .016 (.452) |
| Domain1 | | | | --- | -.031 (.136) | .153*** (.000) | .087*** (.000) | -.039 (.059) | .129*** (.000) | .071*** (.001) | .365*** (.000) |
| Domain2 | | | | | --- | .110*** (.000) | .127*** (.000) | .112*** (.000) | -.038 (.065) | .124*** (.000) | .253*** (.000) |
| Domain3 | | | | | | --- | .100*** (.000) | -.004 (.863) | .335*** (.000) | .326*** (.000) | .585*** (.000) |
| Domain4 | | | | | | | --- | .034 (.101) | .080*** (.000) | .066** (.002) | .265*** (.000) |
| Domain5 | | | | | | | | --- | -.114*** (.000) | .095*** (.000) | .157*** (.000) |
| Domain6 | | | | | | | | | --- | .210*** (.000) | .497*** (.000) |
| Doamin7 | | | | | | | | | | --- | .486*** (.000) |
| Overall Risk | | | | | | | | | | | --- |

Note: Statistic in parenthesis is the level of significance test, and “***” denotes that correction is statistically significant at 0.001 level, “**” at 0.01 level, and “*” at 0.05 level.

Most importantly, the OLS multiple regression analysis (i.e., *Beta* coefficients) in this study also revealed a differentiated effect of IYAS-RES assessment domains on the overall risk assessment among 2,335 youths who were admitted to Indiana juvenile correctional facility. Results of this study clearly revealed that “*Substance Abuse, Mental Health, and Personality*” (Domain #6) exerted the most influential effect on the youth’s overall risk assessment. Subsequently, the differentiated effect of IYAS-RES domains on the youth’s overall risk assessment, in order, were: “*Peers and Social Support Network*” (Domain #3), “*Values, Beliefs, and Attitudes*” (Domain #7), “*Juvenile Justice History*” (Domain #1), “*Pro-Social Skills*” (Domain #5), “*Family and Living Arrangements*” (Domain #2), and “*Education and Employment*” (Domain #4). Such findings from this study would provide crucial information for juvenile administrators and practitioners to adequately implement behavioral or treatment programs in order to effectively reduce those risk factors to re-offending among those incarcerated youths while staying in the juvenile correctional facility.

Table 3: OLS multiple regression analysis of the youth’s overall risk assessment

| Variable | Coefficient | Beta | t-ratio | significance |
|---|-------------|-------|---------|--------------|
| Gender of the youth | .144*** | .087 | 7.350 | .000 |
| Race of the youth | .029* | .023 | 2.178 | .030 |
| Age of the youth | -.009 | -.015 | -1.422 | .155 |
| Juvenile Justice History (Domain #1) | .116*** | .228 | 20.567 | .000 |
| Family & Living Arrangement (Domain #2) | .153*** | .183 | 16.467 | .000 |
| Peers & Social Support Network (Domain #3) | .127*** | .310 | 24.384 | .000 |
| Education & Employment (Domain #4) | .133*** | .162 | 14.823 | .000 |
| Pro-Social Skills (Domain #5) | .117*** | .195 | 17.276 | .000 |
| Substance Abuse/Mental Health/Personality (Domain #6) | .109*** | .332 | 26.757 | .000 |
| Values, Beliefs, & Attitudes (Domain #7) | .118*** | .233 | 19.453 | .000 |
| Constant | .140 | | 1.277 | .202 |
| R Square | .764 | | | |
| Adjusted R Square | .763 | | | |

Note #1: Only Caucasian and African American youths were included in the regression analysis.

Note #2: Risk score for each domain was employed in the regression analysis.

Note #3: “***” denotes that regression coefficient was statistically significant at .001 level, “**”

at .01 level, and “*” at .05 level.

DISCUSSION

One of important findings from this study was that all seven (7) domains from IYAS-RES assessment instrument were relatively influential predictors to the youth’s overall risk assessment. Regardless of the youth’s demographical characteristics (gender, race, and age), this study’s results revealed that the youth’s attributes in “*substance abuse, mental health, and personality*” (Domain #6), which assessment items are related to drug and alcohol use and its associated problems, level of self-esteem, level of risk-taking behavior, or any experience of head injury, had a greater impact on the youth’s overall risk assessment. Drug abuse has become a prevailing issue among adolescents and most of juvenile correctional facilities have provided substance abuse treatment or services to incarcerated youths (DeLisi et al., 2013; Joyce et al., 2015; Willishauser et al., 2015; Wilson et al., 2001).

This study also revealed that the youth’s characteristics in “*substance abuse, mental health, and personality*” (e.g., drug and alcohol use or risk-taking behavior) were statistically and significantly correlated with “*peers and social support network,*” which were primarily related to peer influence on fighting, drug use, or gang activity. Results of this study clearly showed that the youths were most likely assessed as “high risk” if they had exposed themselves to such crime-prone environments embedded with risk factors, such as, drug and alcohol use or gang activity, to delinquent or criminal behaviors. Other risk factors in the *Indiana Youth Assessment System-Residential Tool* (IYAS-RES) had also exerted a significant impact on the youth’s overall risk assessment, such as, the youth’s family and living arrangements or his/her pro-criminal sentiment or beliefs about gang activity. Sharkey et al. (2015) indicated that the youth’s family, school, and neighborhood environment had a significant impact on the youth’s involvement in gang activities.

Results of this study also revealed that the youth’s gender was correlated with the overall risk assessment. In other words, males, rather than females, who had been adjudicated to the juvenile correctional facility, were likely to be assessed as “high risk” from IYAS-RES assessment instrument, while controlling of other factors. A further examination revealed that the youth’s gender and the overall risk level was statistically and significantly correlated (Chi-Squares=199.570, $p < .001$). Specifically, this bivariate analysis showed that 39.1 percent ($n=148$) of in a total of 379 females, but only 10.6 percent ($n=207$) of in a total of 1,956 males, were assessed as “low risk.” On the other hand, there were 23.6 percent ($n=461$) of 1,956 males, while comparing with only 16.1 percent ($n=61$) of 379 females, were assessed as “high risk.” In addition to those risk factors as employed in the IYAS-RES assessment instrument, researchers (Green, et al., 2008; Murray and Farrington, 2010; Thompson and Morris, 2013) indicated that other risk factors, such as, emotional disabilities or conduct disorder, were regarded as influential predictors to recidivism among the incarcerated youths after release from the juvenile correctional facility. Gender difference or similarity in risk assessment and its relationship with post-release recidivism among the incarcerated youths will need to be further examined.

Another important finding from this study was that racial disparity in risk assessment was significant. A further examination revealed that race and the overall risk level was statistically

and significantly correlated (Chi-Squares=24.724, $p < .01$). In other words, non-White youths, rather than Caucasian youths, were likely to be assessed as “high risk” at the in-take process when they had been adjudicated to the juvenile correctional facility. There were 19.5 percent ($n=258$) of 1,325 Caucasian youths, 27.3 percent ($n=217$) of 794 African American youths, and 22.9 percent ($n=47$) of 205 Hispanic youths, were assessed as “high risk.” Racial differences in juvenile reoffending or recidivism have been extensively studied in the criminal justice arena (Anderson 2015; Felson and Kreager 2015; Hawkins et al., 2000; Leiber and Mack 2003; Leiber et al., 2016; Thomas et al., 2013). Nonetheless, racial disparities in risk assessment and post-release recidivism among the incarcerated youths will need to be further explored in terms of the interrelationship of youth’s race, risk level and recidivism.

One interesting finding from OLS multiple regression analysis in this study, as Table 3 indicates, was that the youth’s age was not a significant predictor to the overall risk assessment, while controlling of other variables. This study’s results revealed that a majority of the youths, who had been adjudicated to the juvenile correctional facility, were likely assessed as “moderate risk” across all age groups. However, this study’s results indicated that the prevalence of high-risk youths was increasing from the beginning of teenage (i.e., 13 years old) to the peak in the age group of 14 years old, then gradually declining in the late teenage years (age group of 16-18 years old). It is important to further examine whether or not the decreasing in high-risk assessment will result in a lower recidivism rate among different age groups.

CONCLUSION

The use of validated risk assessment instruments has numerous practical values for juvenile correctional practitioners and administrators in terms of identifying the youth’s criminogenic needs, risk of reoffending, responsivity to treatment in the facility, and an appropriate community supervision after release from the juvenile correctional facility. Due to the constraint of state budget and increasing cost of juvenile detention and supervision, juvenile correctional administration, across the nation, has employed the risk assessment instrument to prioritize post-release supervision and services for high-risk youths who are generally regarded as having a high likelihood of reoffending.

The average length of stay for the youth who have been adjudicated to Indiana Juvenile Correctional Facilities is about 6 months. IDOC Division of Youth Services (DYS) has established a standardized policy and procedure to use assessment results as the primary basis for supervision and service decisions, which are directed to high-risk youths adjudicated to the juvenile correctional facility. The juvenile staffs have utilized the risk assessment results to establish an individualized intervention plan. Such intervention plan will be also employed to address the youth’s academic and behavioral concerns in the facility. The juvenile correctional staffs have constantly monitor the youth’s behavioral problems, high-risk youth, in particular. By appropriately targeting the identified criminogenic needs through individualized case plans, it is anticipated that recidivism will be reduced.

It is also important to mention that all youth are adequately assessed their academic competencies for community school placement prior to release from the juvenile correctional

facilities. Each juvenile correctional facility has a transition coordinator to facilitate the youth's transition to the community school from the juvenile facility. The transition coordinator helps each youth to develop the transition plan at the time of admission to the juvenile facility. Most importantly, the transition coordinator has effectively developed the transition plan to meet with the youth's needs and risk level on the basis of *IYAS* risk assessment.

The primary focus of this study was to examine the contributing factors to risk assessment among the youths who had been adjudicated to the juvenile correctional facility. Limitations to such risk assessments are present. In the future, it is important to include the needs assessment in the risk assessment equation when evaluating the youth's overall risk level. Furthermore, future assessments should also examine any possible "joint" or "cumulative" effects from a variety of risk factors from the assessment instruments. Undoubtedly, the context of risk factors to juvenile delinquency is complex and the validity and reliability of the risk assessment instruments for incarcerated youths shall be carefully examined in the future research.

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