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**Prairie View A&M University
College of Juvenile Justice & Psychology
Texas Juvenile Crime Prevention Center**

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Influence of Responsibility-Based Physical Activity within a Secured Juvenile Correctional Facility

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Texas Woman's University

The purpose of this study was to determine the influence of responsibility-based physical activity instruction on postadjudicated youths' personal and social responsibility perception, physical fitness levels, as well as juvenile correctional officers' attitudes toward its implementation. An embedded mixed-method design was used. Based on the results, responsibility-based physical activity instruction had no statistically significant effect on youth's personal and social responsibility perception. However, it positively influenced intervention groups' personal and social responsibility perception at a rate of 1.19 times per session and did not negatively impact their fitness levels. Furthermore, responsibility-based physical activity may influence juvenile correctional officers' attitudes toward importance of physical activity for rehabilitation.

Keywords: adjudicated, juvenile, correctional officers, mixed-method, personal and social responsibility, social ecological model

Youth who have been adjudicated to long term residential facilities are entitled to the same quality physical education as their non incarcerated peers (NASPE, 2009). Quality physical education and/or activity programs may have rehabilitative implications for this population. For example, quality physical education should be used to positively influence responsible social and personal behavioral development by providing students with opportunities to assume leadership, cooperate with others, and accept responsibility for their own behavior (CDC, 2011; National Association for Sport and Physical Education, 2009).

The central importance of discipline maintenance by correctional facilities may conflict with the educational needs of post adjudicated youth (Lewis, Schwartz, & Ianacone, 1988). Particularly within the context of physical education or activity, a disciplinary priority may influence the instructional style during physical activity. For example, a military or command style of instruction (Mosston & Ashworth, 2002) may be emphasized in a physical training paradigm for control rather than more developmentally appropriate student-centered physical education or activity instruction.

To date, there have been just a few researchers who have investigated the effects of physical activity on health-related measures and affective dispositions of post adjudicated youth (Munson, 1988; Munson, Baker, & Lundegren, 1985). However, the investigation of physical education and/or activity in-

structional models that have been developed to provide youth with opportunities to assume leadership, cooperate with others, and accept responsibility for their behavior is non-existent. There is a need to investigate the influence of physical education and/or activity models that place more emphasis on the affective domain, as opposed to the psychomotor or cognitive domains, for youth who have been adjudicated to long term residential facilities.

Furthermore, Silliman-French, Yun, French, Goode, Hilgenbrinck, and Nichols (2007) conducted a physical activity programming needs assessment of pre adjudication and post adjudication secure correctional facility center administrators. Based on the results of this study, administrators suggested that there was a need for very close collaboration with school-based administrators. Specifically, correctional facility administrators felt that physical education programs that focused on individual and cooperative-based activities should be mandatory. However, they did not feel that a highly qualified professional was needed to provide these activities, thus collaboration with the school-based administrators who could possibly provide curriculum resources was preferred.

The disproportionately limited research addressing physical activity intervention, especially in the area of instructional models developed to positively influence the affective domain of adjudicated youth, leaves a "gap" in the literature that needs to be addressed. Furthermore, the perceived need by juvenile correctional staff to increase the variety of activities (e.g., affective-focused physical activity that focuses on individual and cooperative-based activities) for post adjudicated youth also needs to be addressed in the literature. A possible step toward addressing these areas of limitation in the physical activity lit-

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erature for post adjudicated youth may be to determine if implementing an affective-focused physical education and/or activity instructional model can positively influence the physical activity behavior of post adjudicated youth. In addition, to determine if providing an example of how to implement an affective-focused physical education and/or activity instructional model to staff (i.e., juvenile correctional officers) at a secured facility can influence their attitude towards its implementation feasibility for incarcerated youth.

Based from a systematic review, the affective-focused physical education and/or activity instructional model *Teaching Personal and Social Responsibility* (TPSR) has been demonstrated within the literature as an influential model for underserved or at-risk youth (Debusk & Hellison, 1989; Hammond-Diedrich & Walsh, 2006; Hellison, 2003; Watson, Newton, & Kim, 2003; and Wright, White, & Gaebler-Spria, 2004). It provides opportunities for participants to assume leadership, cooperate with others, and accept personal and social responsibility. Although this model has been used as a physical education and/or activity instructional model for underserved youth, it has not been investigated as a physical education and/or activity instructional model for youth whom have progressed from at-risk to adjudicated.

The TPSR instructional approach was designed for cultivating the decision-making process of participants by implementing specific strategies within the physical activity environment (Hellison, 2010). In general, these strategies effectively shift responsibility from the instructor to the participants. The instructional approach uses four themes and five progressive program goals (i.e., responsibilities) to teach participants to take responsibility for the well-being of themselves and others. These include: (a) respect, (b) participation and effort, (c) self-direction, (d) caring and compassion, and (e) applying the previous four levels outside of the physical activity environment.

The primary purpose of this study was to determine the influence of a 6-week physical education and/or activity program based on the TPSR model on the physical activity behavior of post adjudicated youth. The secondary purpose was to determine the influence of implementing the 6-week responsibility-based program for post adjudicated youth on the attitude of juvenile correctional officers (JCOs) overseeing these youth.

The hypotheses and research question were as follows: (a) post adjudicated youth involved in a 6-week *Taking Personal and Social Responsibility* physical activity instructional approach will have personal and social responsibility perception scores significantly higher than their post adjudicated peers involved in a traditional physical training-based physical activity instructional approach, and (b) post adjudicated youth involved in a 6-week TPSR physical activity instructional approach will not significantly differ in physical fitness levels from their post adjudicated peers involved in the traditional physical training-based physical activity instructional approach. The following research question guided the secondary, and qualitative, purpose of this study: What influence does implementing responsibility-based instruction for post adjudicated youth have on the attitude of juvenile correctional officers toward its implementation within a post adjudication secure juvenile correctional facility?

Theoretical Framework

The *Social-Ecological Model* (SEM) was used to frame this study (Bronfenbrenner, 1977). The model was based on the concept that a person's development is affected by their interaction with the environment, specifically their perception of the environment and the way in which they deal with it. For example, a person's development is affected by the formed relations across immediate settings, as well as larger informal and formal social contexts that embed the immediate settings.

The SEM includes four nested structures of a person's ecological environment. These structures are progressively complex regarding the interaction between a developing person and their environment and include: (a) microsystem; (b) mesosystem, or interpersonal; (c) exosystem, or institutional; and (d) macrosystem (Bronfenbrenner, 1977; Bronfenbrenner, 1979; Gregson, Foerster, Orr, Jones, Benedict, Clarke, 2001). The Social-Ecological Model is a theory based on the concept that a relationship between individual and contextual factors exist and are interconnected. The rationale for using this theory to guide this study was to identify whether responsibility-based physical activity instruction could influence physical activity behavior. The SEM levels of the interpersonal (i.e., residents' group behavior) and institutional (i.e., behavior of juvenile correctional officers' (JCOs') attitude toward responsibility-based physical activity instruction) structures and their relationship were the focus areas of this study.

Method

An embedded mixed-method design was used in this investigation. The use of a pretest-post test control group design was used to examine the influence of responsibility-based physical activity instruction on personal and social responsibility perception, and health-related fitness levels (i.e., aerobic capacity, muscle strength, and endurance) of post adjudicated youth who were residents within a secure juvenile correctional facility. The research design involved collecting qualitative data after the intervention phase for the secondary purpose. With the focus of understanding JCOs' attitude toward responsibility-based instruction for post adjudicated youth, a descriptive case study approach was used to frame the qualitative supportive role in this study (Patton, 2002). The research protocol was approved by the Institutional Review Board Committee of Texas Woman's University.

Setting and Participants

This study was conducted at a County Juvenile Detention Center (CJDC) that provided care for adolescents aged 13 to 17. The facility provided short-term care for alleged delinquent juveniles or adjudicated delinquent juveniles awaiting court disposition. In addition, the County Juvenile Detention Center (CJDC) also provided long-term care for adjudicated youth (i.e., residents) in a post adjudicated program entitled Individualized Comprehensive and Rehabilitative Engagement (ICARE). The total population of youth (i.e., alleged delinquent juveniles, adjudicated delinquent juveniles awaiting court disposition, post adjudicated juveniles) at this facility was 35 at the

time of this study. The total population of residents (i.e., post adjudicated juveniles) completing the ICARE program was 23 and included 7 female and 16 male adolescents. All youth at the facility were either alleged or adjudicated delinquents for substance abuse or mental health-related offenses.

Two sample populations were used in this study to investigate either the primary or secondary purposes. Participants for the primary purpose of this study were 16 post adjudicated male youths. Participants ranged from age 15 to 17 years (*M* age = 15.75 years, *SD* = 0.83). The ethnicities of these participants were five Hispanic, two African American, and nine Caucasian. All male adolescent participants had been previously adjudicated and placed at the CJDC. Participants' length of stay prior to this study ranged from 3 to 16 weeks. Specifically, these 16 adolescents were the total male resident population for the ICARE program. Participants for the secondary purpose of this study were six male Juvenile Correctional Officers. These male JCOs were John, Jack, Charles, Michael, George, and William (pseudonyms). The ethnicities of these participants were three Hispanic and three Caucasian. All six JCOs were members of the secure juvenile correctional facility staff at the CJDC. Specifically, these six officers were the total JCO population for the male adolescents in the ICARE program.

Physical activity for the residents occurred in a designated physical activity area which was the following: (a) gymnasium/cafeteria space, (b) recreation yard, and/or (c) section room.

The areas used mostly throughout the study were the gymnasium/cafeteria and outdoor recreation field. The section room was used twice during the study because of inclement weather days.

Procedure

The procedure for the primary purpose of the study involved randomly assigning male residents (*N* = 16) at the County Juvenile Detention Center (CJDC) completing a long-term behaviorally-based Individualized Comprehensive and Rehabilitative Engagement (ICARE) program to either the Teaching Personal and Social Responsibility (TPSR) instructional intervention group (*n* = 8), or the traditional physical training-based instructional control group (*n* = 8).

Both groups received their physical activity instruction three times per week for 18 sessions during the time allotted by the secure juvenile correctional facility from 7:45 am to 8:45 am. Each group received their physical activity instruction separately during the 60 minute time frame (i.e., gymnasium/cafeteria space, recreation yard, section room). The intervention group (*n* = 8) received responsibility-based instruction (i.e., TPSR) with the sport of soccer infused as the physical activity content (Pill, 2009). The control group (*n* = 8) received the usual physical training-based physical activity instruction. TPSR, with soccer infused, unit and lesson plans were developed and administered to the intervention group by the principal investigator (PI). The traditional physical training-based physical activity instructional lesson plans were developed and administered to the control group by one of the six juvenile correctional officers overseeing the group for that particular day.

TPSR cumulative progression levels of responsibility were slightly modified to use the already established color system of

the ICARE program, but remained defined by TPSR. According to Hellison (2010) regarding the levels of Teaching Personal and Social Responsibility, "the levels are 'social constructions,' which simply means that you can modify them in all kinds of ways as long as you remain true to the underlying principles of Teaching Personal and Social Responsibility, including less is more" (2010, p. 32). The control group received the usual physical training-based physical activity instruction by a juvenile correctional officer (JCO) which heavily emphasized calisthenics and sprint intervals.

Eighteen individual lesson plans were developed with the TPSR strategies infused to remain consistent to its approach. As stated by Hellison (2010), "Day-to-day consistency in the use of the four themes and levels of responsibility is an essential feature of TPSR" (p. 41). A daily (e.g., lesson plan) format was developed to achieve consistency in the use of TPSR (see Figure 1).

Lesson Segment	Time	Description
Relational Time	5 - min	Brief individual interaction between instructor and student.
Awareness Talk	5 - min	Iterate, and reiterate, responsibilities to the group: <ul style="list-style-type: none"> • Respectful to the environment and those within it. • Participate up to capabilities. • Can sustain self-direction during physical activities. • Positively support peers.
Lesson Plan	30 - min	Individual activity: <ul style="list-style-type: none"> • Running and kicking • Moving toward a loose ball • Attacking • Defending Small group activity: <ul style="list-style-type: none"> • Kick in or throw into play • Team offense • Team defense Large group activity: Steal the bacon (Key word - Sportsmanship) <ul style="list-style-type: none"> • Two teams start outside boundaries • Players are assigned numbers • When player's number is called, they go in and get ball which is served by coach and try to score • 2 vs. 2 • 3 vs. 3
Group Meeting	5 - min	Residents' opportunity to discuss the days lesson, behaviors, instruction, etc.
Reflection Time	5 - min	Residents self-reflect on paper their behavior in accordance to the TPSR levels.

Figure 1. Example of a lesson during implemented during intervention utilizing the daily lesson format based from the Teaching Personal and Social Responsibility model. The daily lesson format included relational time, awareness talk, physical activity lesson, group meeting time, and reflection time.

The daily lesson plan format consisted of: (a) A *relational time*, which allowed brief one-to-one interaction between the principal investigator and the residents prior to the lesson; (b) An *awareness talk*, which was used to set the stage prior to the lesson and consisted of the PI reviewing the responsibility levels with the residents; (c) The *physical activity lesson*, which allowed residents the opportunity to practice responsibility during physical activity; (d) A *group meeting time*, which allowed time for residents to express ideas regarding the day's lesson with each other and the PI, and (e) A *reflection time*, which allowed time for residents to self-reflect and evaluate

their responsibility level attained during that day's lesson Helli-son (2010).

During the lesson implementation, the PI placed a poster with TPSR levels integrated with the Individualized Comprehensive and Rehabilitative Engagement program terminology in plain view for the residents to refer to throughout the lesson (see Figure 2).

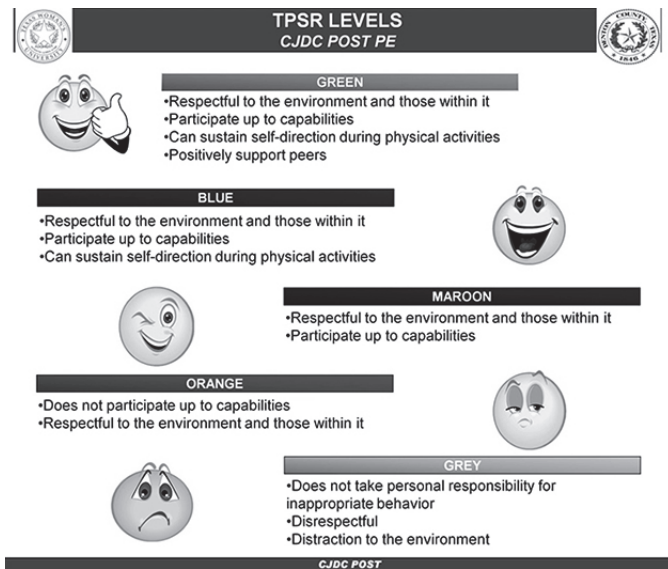


Figure 2. Poster with TPSR themes and strategies infused. TPSR terminology and responsibility levels were represented by the long-term residential program's behavioral color system and placed in clear view for residents to refer to during the intervention sessions.

During the awareness talk portion of the lesson plan format, the instructor discussed the level progression while using the poster as a visual aid for the residents. After each session, participants self-evaluated their responsibility level during the lesson by completing a self-evaluation form developed by the researcher (see Figure 3). Participants circled the appropriate color corresponding with their perceived performance (i.e., grey, orange, maroon, blue, green), as well as, provided a short description as to why they felt their behavior warranted their choice in color.

The procedure for the secondary purpose of this study, involved the principal investigator (PI) interviewing the juvenile correctional officers (N = 6) that observed the 6-week Teaching Personal and Social Responsibility intervention in action. The interviews were conducted one-on-one by the PI at a local coffee shop, as well as, within a classroom with sessions lasting approximately 30 minutes each. The interviews consisted of approximately 13 open-ended questions based from an interview guide.

Dependent Measures. The data sources for the primary purpose of this study were collected pre and post intervention and used to collect measures on post adjudicated youths' perception of personal and social responsibility, as well as health-related physical fitness. Personal and social responsibility perception measures were collected using a questionnaire

developed by Li, Wright, Rukavina, and Pickering (2008). The *Personal and Social Responsibility Questionnaire* (PSRQ; Li et al., 2008) was designed to assess students' perceptions of personal and social responsibility in physical education.

Name: _____ Date: _____

I think my behavior in PE today was at the color:

Please circle one: Grey Orange Maroon Blue Green

I think my behavior in PE today was at that level because: _____

Figure 3. Perceived personal and social responsibility behavior self-evaluation form. Residents completed this form within their reflection time during the last 5 min of the responsibility-based instructional sessions by choosing their responsibility level (i.e., color) and explaining the rationale for their choice.

The Personal and Social Responsibility Questionnaire (PSRQ) is a self-administered 14-item questionnaire that takes approximately 10 minutes to complete. The PSRQ has been determined to have appropriate construct and content validity and was validated by a panel of experts, including the developer, in the Teaching Personal and Social Responsibility (TPSR) model (Li et al., 2008). Health-related physical fitness measures, specifically aerobic cardiovascular, upper body strength, and abdominal strength and endurance, were collected using the related FITNESSGRAM 8 physical fitness test items (Mer-edith & Welk, 1999).

The data sources for the secondary purpose of this study were semi-structured, face-to-face interviews of juvenile correctional officers (JCOs), as well as the self-evaluation form completed by each intervention group participant at the conclusion of responsibility-based session lessons. The JCO interviews were conducted by the PI with sessions lasting approximately 30 minutes. The interviews consisted of approximately 13 open-ended questions based from an interview guide. The interview guide was used to increase consistency across individual cases (i.e., JCOs). However, elaboration probes and follow-up questions were used (Patton, 2002). The residents randomly assigned to the intervention group completed self-evaluation forms after each session which consisted of a multiple choice and short answer section (see Figure 2). For example, participants were asked to choose the appropriate color corresponding with their perceived performance (i.e., grey, orange, maroon, blue, green), as well as to provide a short de-

scription as to why they felt their behavior warranted their chosen color.

Reliability and Quality. To establish intra-rater reliability, two trials of the specified health-related physical fitness test items used for the primary purpose of the study (i.e., Progressive Aerobic Cardiovascular Endurance Run; PACER, curl-up, push-up) were administered to a sample of seven ($N = 7$) female youth who were post adjudicated. The female youth were also residents of the County Juvenile Detention Center (CJDC) and were completing the Individualized Comprehensive and Rehabilitative Engagement (ICARE) program. However, they were assigned to separate sections and had no interaction with the male youth. The trials to establish intra-rater reliability were conducted with this population because of their post adjudication long-term status. The principal investigator (PI) wanted to establish intra-rater reliability prior to testing the intervention and control group participants. An Intraclass Correlation Coefficient (ICC; Portney & Watkins, 2009) was used for testing intra-rater reliability with multiple scores from the same rater (i.e., researcher). An ICC for the PACER, push-up, and curl-up of .96, .84, and .68 were obtained, respectively.

Six juvenile correctional officers' attitudes on responsibility-based physical education and/or activity instruction (i.e., method used during intervention) were analyzed as individual cases. Furthermore, the self-evaluation form for residents' perceived behavior served as a source for data triangulation (Patton, 2002). A peer researcher was also used during the data analysis. The peer researcher had an in-depth understanding of qualitative inquiry as demonstrated by their numerous publications, of which several were qualitative. An external auditor was also used during the data analysis procedure and had numerous publications, as well as led numerous doctoral dissertations and theses. The researcher was trained in qualitative interviewing methods during his doctoral academic tenure at his university.

Data Analysis

A two-way mixed ANOVA with one repeated factor on the second factor (i.e., time) was used to analyze the data collected with the pretest-post test control group design for the quantitative portion of the study. The outcome data were taken from the personal and social responsibility questionnaire (PSRQ) and health-related fitness scores that were measured both before and after the 6-week intervention.

The constant comparative method was used to systematically examine and refine variations in emergent and grounded concepts from juvenile correctional officers' interview data collected in the qualitative approach and portion of the study (Patton, 2002). Data were prepared by transcribing the interviews verbatim, organized by identifying key terms, reduced by developing phrases, codes, and categories, and generalized into themes (Miles & Huberman, 1994).

The visual analysis method was used to systematically examine the trend from self-evaluation data collected from the residents' perceived personal and social responsibility form for data triangulation during the qualitative portion of the study

(Portney & Watkins, 2000). Data were assessed by computing a celeration and split-middle line (see Figure 3). The slope of the data was also determined to demonstrate the rate of change.

Results

A factorial repeated measures ANOVA was used to analyze outcome measures. There were two independent variables (IV) with two levels for group (i.e., between subjects factor) and two levels for time (i.e., within subjects factor). Analyses of the factorial ANOVA for each outcome measure (i.e., Personal and Social Responsibility Questionnaire, Progressive Aerobic Cardiovascular Endurance Run, curl-up, pushup) are reported here.

Primary

There was no significant effect of group for the Personal and Social Responsibility Questionnaire (PSRQ), PACER, or curl-up, indicating that scores from the intervention and control group participants were similar. However, there was a significant interaction effect between time and group, $F(1, 14) = 10.23, p < .05, r = .65$. This indicated that the amount of change in scores differed across time between the intervention and control group. To further understand this interaction, a simple effects analysis of the two-way interaction was performed. For the measure of pushups there was a significant difference among time on the control group pretest and post test scores. Based from the analysis, it is suggested that the intervention and the control group were similar for post pushups scores, but the control group changed at a faster rate than the intervention group.

Secondary

For the secondary purpose of this study and based on the analyses of the data, juvenile correctional officers' attitudes about responsibility-based physical education and/or activity instruction for post adjudicated youth was influenced by their observations of the implementation of the Teaching Personal and Social Responsibility (TPSR) model. Their attitudes regarding the use of TPSR for post adjudicated youth were captured in the following emergent themes: (a) responsibility-based program was an unanticipated success, (b) responsibility-based program facilitated residents' rehabilitation process, (c) traditional physical activity philosophy change needed, and (d) things needed to facilitate the traditional physical activity program change. In addition, the self-evaluation form completed by the residents directly after each intervention session displayed data that triangulated the influence of the Teaching Personal and Social Responsibility intervention on the JCOs' attitudes.

Responsibility-based program was an unanticipated success. This theme captured the essence of what most JCOs thought about responsibility-based instruction. They reported that their perspective changed from their initial less supportive response. The JCOs observed displays of positive social skills (e.g., participation, teamwork, encouragement) by the residents

which led them to believe that the residents accepted the responsibility-based instructional program.

Juvenile Correctional Officer's changed perspectives. Regarding impressions of the responsibility-based instructional program, William said that the staff had a hard time figuring out the Teaching Personal and Social Responsibility (TPSR) model of instruction at first. Charles provided an example of this initial response when he said, "I was very apprehensive at first." However, with the positive responses to the program by the residents, his initial impression was changed. He explained, "At first I was like there's no way this is going to fit. But, I was very much wrong. I was so wrong. I think the kids responded real well."

The JCO's reported they had a positive impression of the responsibility-based instructional program. As opposed to their traditional physical activity program that was limited in breadth, George thought the responsibility-based instructional program "was excellent for these kids" and that "it was positive for the [Individualized Comprehensive and Rehabilitative Engagement] program." In addition, John felt like the program was received positively by all involved. He said "the fact that it [responsibility-based instructional program] hit well... it really, like from staff and supervisors view of it and the kids' view of it, it was overall a success..."

Residents' social skills positively influenced. Many of the JCOs thought that residents' behavior became increasingly more social. William said the biggest change was "the way they worked together as a team." Charles offered a similar opinion and recognized the salience of teamwork with this population. He said, "They really were happy with putting forth their best effort...this difference between a gang and a team. And they were working together to do one common thing." With regard to residents' behavior prior to responsibility-based instructional program implementation, Jack said that there was a lot of "showboating and trash talking." He further explained that "now, they are so encouraging to each other." In support of this statement William explained how despite resistance from JCOs at times, the residents still insisted on displaying encouraging behavior. William stated:

The kids get on to me asking if they can encourage other kids a lot more. And my answer is usually no because I like total silence, that's the way I run my section. But these kids actually always request 'can I encourage him to do this, can encourage him to do that,' and the majority of the time I say no, so I am at fault as well.

With regard to the team sport infused into the responsibility-based instructional program, John recognized that the residents grew in respect for one another "a little bit more." This was evident through their increased ability to resolve a conflict. Michael recalled an example of the residents' increased conflict resolution behavior. He stated that, "they were actually able to put their minds together and work it out." In addition, the importance for residents to develop social skills in order to resolve conflict was explained in the following way by Charles:

It really helps these guys with conflict resolution. It's huge. They are used to thinking like 'the only way we can resolve this is with my hands, or my fists.' But now...they're like 'hey, it's just soccer. It's no big deal.' If they continue to learn these skills, I think they would be much more successful.

Perceived program embracement by residents. A vested affective interest by the residents influenced the attitude of the JCOs toward the perception that the residents embraced the responsibility-based instructional program. The residents started to generalize positive social behavior outside of the physical activity environment. This behavior became apparent when observing the intervention group compared with the control group.

Charles said "what I did see was more bonding outside of PE. Some of these kids actually started forming friendships and bonds. They saw how their peers were helping them succeed." In addition, the residents' affective behavior also caught the attention of the JCOs. William explained this observation:

The things that they were taught working as a team carried with them into the section. One thing they did learn was encouraging others. In the section they could be crocheting, there could be a dominoes tournament, there could be a homework assignment, and you can see that they're encouraging more to each other. They are trying to be more helpful.

The difference in behavior, with regard to personal and social responsibility, displayed between the intervention and control group was noticeable by the JCOs. This difference contributed to influencing the JCOs' attitude that the implementation of responsibility-based instructional program was successful. William said that "you could see the difference."

Responsibility-based program facilitated residents' rehabilitation process. This theme captured the essence of why the JCOs thought responsibility-based instructional program was generally a success. The social focus of the program empowered the residents to take ownership in their rehabilitation. Responsibility-based instructional models, such as TPSR, that have an affective-focus can be conducive to the overall rehabilitation program.

"They are an active participant in their own rehabilitation." The integration of empowerment within a highly structured environment was a concern for some JCOs. Charles addressed this attitude by explaining, "...your [responsibility-based instructor] program allows them to be themselves and say, 'I'm here to...' they are an active participant in their own rehabilitation. That's important.

Working together "...that's key. That's the real key." William was impressed with the social benefit for residents after the implementation of responsibility-based instructional program. He explained, "I think that's the biggest thing I saw that you [implementing responsibility-based instruction] bring to the table is that your teaching these kids to work as a team rather than individuals that compete against everybody, and that's key. That's the real key."

Personal and social responsibility visual cue was effective guide. John noticed that one of the biggest differences was the implementation of a color value system. With the use of the color value system, residents had the opportunity to choose, as well as reflect on their level of behavior for that session's lesson. George thought the color chart used within the program was "pretty neat, and that it was a good guide for the residents in their sections, the classroom, and how they can use what they are learning outside of just that [physical activity environment]." John said, "I guess some of the stuff, if not the whole program [Teaching Personal and Social Responsibility] that you had would be a great benefit to the facility in general."

Traditional physical activity philosophy change needed.

This theme captured the essence of JCOs' attitude toward their traditional physical activity program after being able to observe the responsibility-based instructional program. It became apparent that the traditional physical activity program more closely resembled a military style. The limited instructional experience by JCOs combined with the traditional military style may have perpetuated a behavior management focus ultimately reducing opportunity for affective skill acquisition for the residents. After comparing responsibility-based physical activity and the traditional physical activity, JCOs recognized the possibility that physical activity can serve as a medium in assisting the rehabilitation process for post adjudicated youth.

Behavior management is main focus. The traditional physical activity program focused mainly on behavior. As Jack explained, JCOs' role was "kind of maintaining any situations." In addition, William discussed a similar role for JCOs. He stated that JCOs' focus during the traditional physical activity program was to "look for behavior issues...look for contact issues...look for verbal issues."

"Rehabilitation instead of punishment." With having the opportunity to observe the responsibility-based instructional program, many JCOs changed their attitude about how their physical activity program should look, as well as the need to change their focus. George stated that, "we should lead them in the direction of teamwork or working together, sportsmanship. How to win, how to lose, developing their skills. Have fun at the same time and get something out of it...I believe that should be the main goal, rehabilitation, instead of punishment."

Things needed to facilitate the traditional physical activity program change. This theme captured the essence of JCOs' preferred facilitators on how to change their traditional program toward a responsibility-based program. JCOs reported that a professional that is not a part of the correctional staff serving in the capacity of an officer would be the most effective way to facilitate change toward a responsibility-based instructional program. In addition, they also stated that information in various forms, as well as, training would be an effective facilitator.

"Someone from the outside." JCOs felt that an outsider dynamic for facilitating change toward a responsibility-based instructional program is beneficial in several capacities. Charles discussed how residents are more likely to build trust for an individual that they feel has not come into the physical activity environment with prejudices and/or a behavior management focus. He stated that, "it was nice for them [residents] to interact with someone who is not viewed as staff or someone who is here to 'impinge upon my freedom'." In addition, JCOs felt that it would be beneficial for someone with an expertise to facilitate the program. With regard to responsibility-based instruction, William stated that, "I think it should come from someone who has an understanding...It shouldn't be someone from the inside." Similarly, John mentioned that he preferred "someone overlooking the whole thing." Charles explained that another reason for having a professional from the outside implement responsibility-based instruction was to uphold the integrity of security during physical activity.

Information and training. A less dependent facilitator for changing their traditional physical activity program toward a

responsibility-based instructional program was discussed. Jack said that "training, orientation, something" that can be addressed during their meetings would be necessary for the guards to implement Teaching Personal and Social Responsibility (TPSR). John also felt that the juvenile correctional officers (JCOs) would need information in which they can refer to in order to implement the responsibility-based instructional program. He said, "I guess to supply them [JCOs] with resources and, I guess wisdom on how it works and how it doesn't work, you know, the ins and outs."

The post adjudicated youths' personal and social responsibility behavior self-evaluation data were used to triangulate the guards' perception of the responsibility-based instructional program. These data illustrate a positive trend across time for personal and social behavior perception of post adjudicated youth, substantiating JCOs' attitudes about the responsibility-based instructional program implemented within a secure correctional facility. Analyzing the data presented in Figure 4, post adjudicated youths perceived personal and socially responsible behavior was increasing at an average rate of 1.19 times per session.

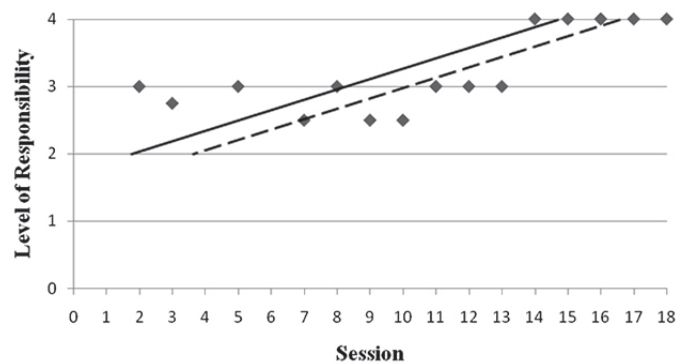


Figure 4. Celeration line adjusted to determine split-middle line. Split-middle line (diagonal dashed line) represents a middle point within the intervention phase (Portney & Watkins, 2000). Data reflects median scores based from the intervention groups' perceived personal and social responsibility behavior self-evaluation form. Data was not collected for session one, four, and six.

Discussion and Conclusion

The influence of a responsibility-based instructional program on the interpersonal, as well as, institutional structures of post adjudicated youth was the focus of this study. Results of the current study support previously reviewed qualitative studies regarding the feasibility of the Teaching Personal and Social Responsibility (TPSR) instructional model to change the attitudes of those who implement physical education and/or activity to at-risk or underserved youth (Debusk & Hellison, 1989). However, it is the first time that change in attitude of juvenile correctional officers toward its adoption as a preferred instructional model within a secured juvenile correctional facility has been demonstrated. The small sample size used within this study was not sufficient to detect significant differences among the personal and social responsibility perception mea-

asures of the intervention and control group. Nonetheless, it was demonstrated that the responsibility-based instructional program (i.e., Teaching Personal and Social Responsibility) may have influenced physical activity behavior at the institutional structure (i.e., juvenile correctional officers' attitude). Moreover, and within the framework of the social ecological model (SEM), the influence at the institutional structure holds promise for influencing physical activity behavior at the interpersonal structure. Although no statistically significant changes were detected at the interpersonal structure (i.e., resident personal and social responsibility perception), it was demonstrated through JCO observation, as well as, post session self-report forms that responsibility-based instruction may have influenced the affective behavior of the residents. The observed increase in affective behavior in the intervention group residents by the JCOs may have influenced the JCOs attitude toward expressing the need to change the traditional physical activity program to a responsibility-based physical activity program with an affective emphasis. This is concordant with the bidirectional relationship between the interpersonal and institutional structures as described within the social ecological model (SEM) framework.

Interpersonal Structure

No statistically significant difference was determined between the intervention and control group on personal and social responsibility perception scores. This finding suggests that responsibility-based instruction had no effect on residents' personal and social responsibility perception. This finding supports the literature related to physical activity for incarcerated youth and its effects on affective measures (Munson, 1988; Munson, Baker, & Lundegren, 1985).

Based from the findings of the quantitative phase of this study, there was no difference between the intervention and control group on health-related physical fitness scores. Munson et al., (1985) obtained similar results with 32 institutionalized juvenile delinquents where there were no significant difference on muscular fitness scores after a 7-week intervention that involved strength training combined with leisure counseling or informal discussion. For this study, this finding suggests that health-related physical fitness was not compromised for residents receiving physical activity instruction within the responsibility-based instructional program group. It is noteworthy that the responsibility-based instructional program was as effective as the traditional physical activity instructional program regarding physical fitness.

A significant interaction in this investigation between time and group was found. This suggests that the control group increased upper body strength at a greater rate than did the group receiving the intervention. Consequently, the upper body strength gains may have increased at a slower rate for participants in the responsibility-based group due to less emphasis on calisthenics and a greater emphasis on lower body activities. Another possible explanation for this finding was the control group's initial lower push-up score as compared to the intervention group.

Although Teaching Personal and Social Responsibility (TPSR) as an instructional approach was not superior based on the

statistical results in this study, responsibility-based instructional physical activity (i.e., TPSR) from juvenile correctional officers' perceptions, as well as formative self-report data on the residents' personal and social responsibility perception provide a contrasting view. In this study, the residents' group perception of personal and social responsibility increased in trend at a rate of 1.19 times per session. This finding was determined clinically relevant and consistent with the findings of Hellison and Walsh (2002) who reported that in both personal and social development, responsibility models affect sense of responsibility and other outcome measures in underserved and at-risk youth. The positive trend displayed in the formative data for this study may suggest that residents' perceptions of personal and social responsibility behavior were being positively influenced.

Although statistical significance of the influence of the responsibility-based instructional program was not supported by the findings, the rate of change in behavior of residents receiving TPSR instructional model was strong enough to influence the attitude of juvenile correctional officers. JCOs' observations of the responsibility-based instruction (i.e., TPSR intervention) and its effect on residents' behavior within and outside of the physical activity environment influenced their attitude toward physical activity service provision at the facility. This result is aligned with the social ecological model (SEM), in which a bidirectional relationship between individual and contextual factors occurs as a product of multiple structures of influence (Bronfenbrenner, 1977).

Institutional Structure

The need to investigate the effects of physical activity on health-related behaviors for incarcerated populations has been suggested in the literature for over 20 years (Hitchcock, 1990). To date, few researchers have addressed this need, especially with the population of incarcerated and/or post adjudicated youth (Hilgenbrinck, 2003; Hilgenbrinck, Jackson, Silliman-French, Goode, & Nichols, 2010; Hilgenbrinck, French, Pyfer, & Irons, 2003; Jackson, Yun, Nichols, & French, 2008).

As an instructional approach, responsibility models based from Teaching Personal and Social Responsibility (TPSR) have influenced the attitude and perceptions of instructors (Buchanan, 2001; Debusk & Hellison, 1989). For this study, juvenile correctional officers believed that the responsibility-based instruction (i.e., TPSR) affected the residents' social behavior positively. JCOs' perceived that the residents receiving the responsibility-based instructional program were more encouraging to their peers. This is consistent with the findings of Debusk and Hellison (1989) who reported the impact of a self-responsibility model for delinquency prone youth results in more positive responses about helping others. This result also reinforces the findings of Wright, White, and Gaebler-Spira (2004) who reported that effective implementation of personal and social responsibility model can potentially increase positive social interactions. Juvenile correctional officers also believed that increased conflict resolution skills by the residents were a result of the TPSR instructional approach. Previous researchers have indicated that a responsibility model can impact personal and social development in the area of problem

solving, interpersonal relations, and communication skills (Hellison & Walsh, 2002).

Juvenile correctional officers believed that the Teaching Personal and Social Responsibility (TPSR) instructional approach involved the use of methods that were effective in getting residents to generalize pro social behavior outside of the physical activity environment. This is consistent with the findings of Wright and Burton (2008) who reported that one of the short term outcomes of a responsibility-based physical activity program was seeing the potential for transfer. JCOs gave examples of how, outside of physical activity time and within their sections or classrooms, residents referred back to the TPSR-based color chart that was specifically designed for their rehabilitative program. This result is consistent with previous findings (Watson, Newton, & Kim, 2003).

Juvenile correctional officers (JCOs) believed that the responsibility-based physical activity instructional program was more rehabilitative than their traditional physical activity program that resembled a boot camp. They gave examples of how the boot camp or military-styled program did not provide the same opportunity for social skill development and empowerment. In addition to the perceived lack of social skill development and empowerment opportunities, boot camps have been reported to have no more success at preventing recidivism than traditional incarceration (Willing, 2005). Furthermore, they recognized its potential to promote a positive learning experience, increase sense of ability and positive social interactions, as well as, relevance as a curriculum (Debusk & Hellison, 1989; Wright & Burton, 2008; and Wright, White, & Gaebler-Spira, 2004).

The JCOs in this study expressed a need for professional development training, materials, and/or experts from outside of the secure juvenile correctional facility to be able to successfully change their traditional physical activity program to a responsibility-based instructional approach. A consistent perception held by the JCOs was the need for having an expert who is trained in physical activity instructional methods, especially responsibility-based (i.e., Teaching Personal and Social Responsibility), to facilitate the program change. Previous researchers indicated that one of the juvenile correctional facility administrative staffs' perceived needs for physical activity programs was more staff (Hilgenbrinck et al., 2003). Findings of this study support the literature related to juvenile correctional facility physical activity program perceived needs. However, in this study these needs were reported by the JCOs, or instructors, rather than the administrators (Hilgenbrinck, 2003).

In conclusion, results from this study suggest that the physical activity behavior at the institutional structure of post adjudicated youth may be influenced by a responsibility-based physical activity program that utilizes an affective-focused physical education and/or physical activity instructional model (i.e., Teaching Personal and Social Responsibility; TPSR). Although preliminary results did not demonstrate a statistically significant difference at the interpersonal structure, the TPSR instructional model is a beneficial instructional approach that can positively influence physical activity behavior within a secured juvenile correctional facility at the institutional social ecological structural level. Overall, the results from this study contribute to the evidence-base for affective-focused physical activity instruction for the post adjudicated population.

Limitations

This study had several limitations. The small sample size may have decreased the ability to detect differences. The duration in which the intervention was implemented (i.e., 6 weeks) may have been insufficient to detect changes in personal and social responsibility. The physical activity content infused in TPSR for this intervention (i.e., soccer) was a collaborative sport and may influence the facilitation of increased social interaction and perception. The principal investigator (PI) as the instructor of the intervention group was not a member of the correctional staff and the PI's pedagogical experience may have had a positive or negative influence on results. Further research on responsibility-based physical activity instruction for adjudicated youth is recommended. It is now recommended to elaborate on the Teaching Personal and Social Responsibility instructional model for adjudicated youth by developing a multiple-site randomized study with longer intervention duration, to evaluate the benefit of such evidence-based interventions amongst secured juvenile correctional facilities in order to contribute to the evidence-base and to move toward ensuring quality physical education and/or activity for adjudicated youth.

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A Propensity Score Matching Analysis of Race on the Decision to Petition a Case in the Juvenile Court

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Disproportionate minority contact is an important issue in contemporary juvenile justice. Few studies directly examine the link between race and the decision by prosecutors to formally petition a delinquency case to juvenile court. Using official data from Pennsylvania (n=30,000), this study adds to the literature in two ways. First, the study uses Focal Concerns Theory that may be relevant to prosecutorial decision-making. Second, the study uses propensity score matching to obtain a purer estimate of the influence race has on the decision to petition a delinquency case to juvenile court. The results indicate that prosecutors use perceptual shorthand in making this decision that hinges on race. Specifically, Black youth in the study were 92.46 times more likely than White youth to have their delinquency cases petitioned to juvenile court.

Keywords: disproportionate minority contact, propensity score matching, race

Researchers have shown that minorities are disproportionately represented in several decision points in the juvenile justice system. Puzzanchera and Adams (2008) found that national minority youth arrest rates (via the Relative Rate Index) are between 40% and 100% higher than White youth arrest rates. Other researchers show that the detention of Black youths is greater than the detention of White youths from the 1970s through 2008 (Krisberg et al., 1987; McGarrell, 1993; Puzzanchera & Adams, 2011; Snyder & Sickmund, 1995). Leiber and Rodriguez (2010) argue Black youth delinquency cases are petitioned to court at higher rates than White youth cases. Freiburger and Jordan (2011) show that the Black youth cases are petitioned to court at a rate 10% to 30% higher than White youth cases.

The persistent racial differences in the juvenile justice system from the 1970s to the present led Congress to enact and amend landmark legislation designed to reduce the racial differences. The Juvenile Justice Delinquency and Prevention Act requires states that receive federal funding to address this issue. The original passage of the act was in 1988 [No. 1974], and its original focus was only on confinement. When evaluating impact of this statutory requirement, several researchers note (Bishop & Frazier, 1996; DeJong & Jackson, 1988; Pope & Feyerherm, 1990a, 199b) that racial disparities in the system are due to the cumulative effects of race and contact with the juvenile justice system at different decision points. The 1992

amendment expands the scope of the requirement to disproportionate minority contact (DMC) with the juvenile justice system.

One area in which contact takes place, and a substantial amount of discretion is present, is in the prosecutor's decision to petition a delinquency case to juvenile court. Leiber and Stairs (1999) argue that most protections that are in place to reduce instances of disproportionate minority contact (DMC) take place at the adjudication and disposition stages; accordingly, most research has focused on this stage of the juvenile justice process (Kempf-Leonard, 2007; Leiber & Rodriguez, 2010; Piquero, 2008; Pope & Feyerherm, 1990a, 1990b). This focus left gaps in our understanding of the decision-making process that takes place before adjudication and disposition. Because of this gap in our understanding, additional research is needed in these earlier stages of the decision-making process. Puzzanchera and Adams (2008) show that more Black youth than White youth have their cases petitioned to juvenile court by a prosecutor. With this, the question remains, does race result in a decision to petition a case in the juvenile court?

This study seeks to contribute to the literature by examining the link between race and the prosecutor's decision to petition a delinquency case to juvenile court. The present study is important for a couple of reasons. First, it fills a theoretical gap because we use focal concerns theory to contextualize these results. Second, this study fills a methodological gap because we use propensity score matching to address Kempf-Leonard's (2007) view that studies of DMC should have Black youth and White youth in similar situations to make valid comparisons.

To make this contribution, the literature review focuses on the decision to petition a delinquency case, and the methodological deficiencies of this literature are presented. We then

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move to a presentation of the focal concerns theory, our view of propensity score matching, and our methods, analysis plan, results, and discussion.

Race and the Decision to Petition a Delinquency Case to Court

A substantial body of literature examines the link between race and juvenile court decision making. Some research shows that race influences juvenile court decision making (Kempf-Leonard, 2007; Leiber & Rodriguez, 2010; Piquero, 2008; Pope & Feyerherm, 1990a, 1990b). Further, the literature shows that Black youth were more likely than White youth to receive referrals to court than to receive diversions from the system (Bishop & Frazier, 1996; Leiber & Mack, 2003), receive detention (Leiber & Fox, 2005; Harms, 2002), adjudication (Federle & Frazier, 1996; Leiber & Fox, 2005), and to receive a home disposition (Guevara, Spohn, & Herz, 2004; Secret & Johnson, 1997; Snyder, 2005). Other research shows that White youth are more likely to receive an adjudication than Black youth (Wu, 1997; Wu & Fuentes, 1998) or receive a pretrial detention (Fagan, Slaughter, & Hartstone, 1987). Overall, the literature on the link between race and juvenile justice decision-making is mixed, and merits further research attention.

An additional decision point of the juvenile justice system that merits further research attention is the decision to petition a case to the juvenile court. Bishop and Frazier (1996) show that race has an important influence on the prosecutor's decision about petitioning. Leiber and Fox (2005) use multiple variables—race, gender, age, family status, school attendance problems, drop out, number of referrals, court authority, severity of referral, number of charges, and crime severity—to show that race interacts with gender (i.e., that Black males are more likely to have their delinquency case petitioned to court than White males). Freiburger and Jordan (2011) use multiple variables—race, age, gender, school context, family structure, offense level, type of offense, prior record, prior referrals, and contextual measures (i.e., % poverty, % Black, population density, female-headed households)—to show that contextual measures (i.e., poverty) interact with race to understand how Black youth have more of their delinquency cases petitioned to court than White youth. These results provide two implications, one theoretical, and the other methodological. These researchers use different theories, but they seem to be pointing to the same result—prosecutors use some type of shorthand to make their decisions to petition a delinquency case to juvenile court, and the shorthand include both community status and racial status.

While the researchers make important contributions, they are unable to make causal conclusion about the use of the shorthand. Kempf-Leonard (2007) argues that to compare minority and non-minority youth, they must be the same or at least similarly situated. Because the methods and theories that researchers have traditionally used do not allow for this, experiments will be necessary to make these types of causal inferences. Researchers will have to randomly assign individuals to an experimental or control group. Given that race is the chief concern in these studies, researchers are unable to randomly assign someone to a particular race. The lack of random assign-

ment may create selection bias, which is at the epicenter of DMC. When researchers cannot randomly assign individuals to a biological racial group, the risk is that one group may be overrepresented and a bias unintentionally increases. Rosenbaum and Rubin (1983, 1985) developed propensity score matching techniques to address this problem. Their development was a quasi-experimental design that uses a statistical procedure to create treatment group and a matched comparison group based on balancing independent measures (Rosenbaum & Rubin, 1983, 1985; Rubin & Thomas, 1996).

Researchers in criminology use this methodology because of its important qualities. Becker and Ichino (2002) argue that the results that came from theory driven quasi-experimental designs using propensity score matching techniques are similar to random control trials. Haviland and Nagin (2005) argue that the ability to reduce selection bias made propensity score-matching popular in criminal justice and criminology. To take advantage of the reduction of selection bias so that results rival random control trials, Rosenbaum and Rubin (1983, 1985) argue that researchers should use theory to develop their models.

Focal Concerns Theory Applied to Juvenile Justice Decision-Making

Criminology is not devoid of theory that may explain the shorthand that previous researchers suggest may be taking place. For instance, Piquero (2008) argues the differential involvement and selection bias hypotheses remains a dominant theoretical premise to understanding juvenile justice decision making. Using Tittle and Curran's (1988) symbolic threat hypothesis, Freiburger and Jordan (2011) show that an interaction between percentage in poverty with race explains differences in prosecutor(s) decision to petition a delinquency case to juvenile court. These two perspectives suggest that prosecutors may use some type of shorthand to perform their work. We add to the literature on decisions to petition a delinquency case to the juvenile court by applying the focal concerns theory.

Steffensmeier's (1980) version of focal concerns theory assists in understanding the link between judges or other court actors and sentencing. The thrust of the theory is that rational judges or court actors base their sentencing decisions on three focal concerns—blameworthiness, protection of the community, and practical constraints. Steffensmeier (1980) writes that blameworthiness is consistent with the culpability of the individual where the punishment needed to fit the crime. Protection of the community is based on the goals of incapacitation and general deterrence, and on assessments about offenders' future behavior such as dangerousness or recidivism. Practical constraints focus on the constraints and consequences about the organizational costs incurred by the criminal justice system. These three focal concerns are the most important; however, prior criminal record or current offense (Steffensmeier, Ulmer, & Kramer, 1998) and community context (Johnson, 2006) are also important.

Focal concerns theory also takes uncertainty into account. Albonetti (1991) argues that ambiguity and uncertainty are important factors in arriving at some decisions. The uncertainty in

the focal concerns theory comes from the disjuncture in sentencing goals and the prediction of risk for recidivism. To overcome uncertainty, judges tend to rely to an abundance of information that would overburden them. The overburden of information problem, in turn, forces judges to rely on perceptual shorthand. The use of perceptual shorthand is built on characteristics and attributes of the individual before them. This allows judges to make decisions about each defendant's character and expected future and move quickly through large case loads and information.

Steffensmeier (1980) argues that disparities in sentencing come from the application of these focal concerns. The perfect world scenario shows that the focal concerns are applied equally and justly regardless of race. The real world, however, has driven judges to make decisions through the perceived individual's social structure (i.e., race and location of life). A real world scenario shows that Blacks and Hispanics are much more likely to receive harsher punishments because they are more likely to recidivate. A non-exhaustive review of the literature shows that this is indeed the case (Demuth & Steffensmeier, 2004; Spohn & Beichner, 2000; Steffensmeier & Demuth, 2001, 2006; Johnson, Ulmer, & Kramer, 2008).

Steffensmeier's (1980) theory helps to understand judicial decision-making, but the premise may apply to prosecutors, especially in the context of petitioning a delinquency case to juvenile court. The field decisions that prosecutor(s) make are complex, repetitive, and under constraints (i.e., time, space, resources, and information). Prosecutors make decisions whether to prosecute a case taking limited time, resources, and information about a case. This continuum makes the prosecutor's job difficult because not enough information may be present, or because too much information may be present, making their digestion of the information difficult. To adapt to this continuum, prosecutors may develop and use a form of shorthand to make the digestion of the information manageable. The shorthand could just focus on race, creating the source of disparity to petition delinquency cases to juvenile court. Prosecutor(s) using this shorthand not once but multiple times may be successful at securing petitions of delinquent cases to juvenile court for Black and White youth. The success reinforces the use of the shorthand. For instance, a prosecutor who uses their racial shorthand to petition delinquency cases to juvenile court will continue to do so because the shorthand is successful. This view is consistent with other researchers who used the theory to understand prosecutor decision making.

From a non-exhaustive literature review, researchers conclude that prosecutors do seem to follow Steffensmeier's (1980) focal concerns theory. Researchers show that sexual assault case decisions are influenced by prosecutorial focal concerns (Beichner & Spohn, 2005; Spohn, Beichner, & Davis-Frenzel, 2001). Ulmer, Kurlycheck, and Kramer (2007) show that this theory is viable in prosecutor decisions to try a case using an application of mandatory minimum sentences. This literature showed that it is possible for prosecutors to make decisions using shorthand that can result in racial disparities.

Overall, the evidence of DMC may be present in other decision points in the juvenile justice system; we posit that it is likely to be identified in the decision to petition a delinquency

case to juvenile court. The focal concerns theory provided some context as to why prosecutors decided to petition more cases of Black youth to juvenile court than White youth. We do not believe that this theory would account for all differences in petitioning a case to juvenile court, but it will provide the context that will allow for the understanding of prosecutors' potential use of shorthand in decision making. To date, no evidence exists that this may be the case.

The Present Study

This study seeks to examine the role of race in the decision to petition a delinquency case to juvenile court. The current literature is thin in this area and does not use an adequate methodology. This study advances the literature in two ways. First, it addresses whether evidence is present that prosecutors focus on race when making a decision to petition a case in juvenile court. Second, it asks whether propensity score matching helps to better understand the connection between races and petitioning a delinquency case to juvenile court. This leads to our expectation that Black youth will have their delinquency cases petitioned to juvenile court more than White youth.

Methods

Data for this study come from all misdemeanor and felony youth in the juvenile court system in Pennsylvania in 2009. The data are obtained from the Pennsylvania Juvenile Court Management System and contain over 30,000 cases. The data contain Black youth, White youth, Hispanic youth, Asian youth, and American Indian youth. The data using other ethnicities (Hispanic youth, Asian youth, and American Indian youth) is sparse and contains a substantial amount of missing data. This means that the amount of data to use in the study only contains Black and White youth. This decision reduced the amount of data to a final sample size of 22,103.

Measures

A number of measures are used in this study. Our main dependent measure for this study is whether a petition is sought (1=yes and 0=no).

We measure several extralegal factors (i.e., school attendance, family status, living arrangements, biological sex, and race), contextual factors (i.e., concentrated disadvantage, % Black, and % residential mobility), and several legal factors (i.e., judicial hearing, public attorney, and type of offense) as independent measures. School attendance is captured as 1 for yes and 0 for no. Married family status is captured as 1 for yes and 0 for no. Living arrangements is captured using 1 for both parents and 0 for other arrangement. Gender is captured as 1 for male and 0 for female. Age at the time of referral is captured as an open-ended measure. Race is coded as 1 for Black and 0 for White.

To capture societal context, we use a measure of concentrated disadvantage, an index that contain the following measures for each county from the 2000 census: percentage of single female headed household, unemployment, poverty, lack of a high

school diploma, the percent Black individuals (adult and juvenile) in the county, and the percent of residential mobility from the 2000 census.

We also measure legal factors that include: judicial hearing, public attorney, type of offense (i.e., person offense, property offense, drug offense, and other offense). Each of these items were coded (1 = yes and 0 = no). It is not likely that everyone will make it through the system to a hearing. This creates a homogeneous sample, and a correction is necessary for this issue. In this study, we calculate the hazard rate in order to account for the possibility that some youth may not make it to a hearing.

Analysis Plan

In this study, we use the propensity score matching technique to explore the racial differences in receiving a petition. A number of independent measures are used to develop the propensity score. Heckman, Ichimura, and Todd (1997) argue that the average treatment effect of the treated is a better measure of effect than other multivariate techniques alone (e.g., logistic regression, tobit regression, or ordinary least squares). The propensity score matching technique takes place in several steps. The first step is the calculation of a logistic regression model to generate the odds ratios that determine the propensity for experiencing a treatment. For this study, the treatment is race. We recognize that it is impossible to experimentally impose race on a person; therefore, the propensity score matching technique balances the independent measures for a particular race.

We are not the first to use propensity score matching in this way. Ridgeway (2006) uses the technique to explore racial profiling in traffic stops and shows that Blacks are searched more often than Whites. Higgins, Jennings, Jordan and Gabbidon (2011) use propensity score matching in this way to explore public perceptions of racial profiling and show that Blacks are searched more than Whites. For the present study, we believe that our use of propensity score matching satisfies Kempf-Leonard's (2007) call for explanations of DMC when minority and majority youth are similarly situated. We also believe that our use of this technique, in this manner, satisfies Tracy's (2005) call for better methods to tease apart causal mechanisms that may result in DMC.

Within the propensity score matching process, the algebra helps to understand how the propensity score is calculated, and it is as follows (Rosenbaum & Rubin, 1983):

$$p(T) = \Pr\{T = 1|S\} = E\{T|S\}, (1)$$

Here, $p(T)$ is the propensity of being Black or White, T indicates that an individual is Black or White, and S is a column that contains the independent measures that go with being

Black or White, \Pr stands for probability, and E represents error. This formula for the propensity score is operationalized using PSMATCH2 via STATA 12.¹

The second step of the propensity score matching technique is the matching of individuals. We perform this matching using 1-to-1 nearest neighbor propensity score matching. Following Austin (2000), we use a caliper (i.e., standard deviation of the propensity score) of 0.20. This allows us to match Black youth with White youth who have similar exposure to the juvenile court system. Within the second step, we assess the quality of the matching process. Specifically, we use three tests to determine the quality of our matches: (a) standardized bias, (b) t-tests, and (c) Rosenbaum bounds. For standardized bias, Rosenbaum and Rubin (1985) argue that standardized biases above -10 and below 10 were acceptable (see Appendix A for more information). Further, t-tests that are not statistically significant are an additional check that no difference exists between the measures (Higgins et al., 2011; Ridgeway, 2006). Mhbounds (2002) assesses the robust nature of the logistic regression analysis that generated the propensity score. To clarify, Mhbounds allows us to determine how large an effect size a measure that was missing from our analysis would have to have to change our results. We follow Cohen's (1988) suggestions to determine the size of the effect. At this point, the data are essentially paired, and are now consider quasi-experimental data.

Following this examination, in the third step, we use McNemar's chi-square to determine the differences between the two groups via STATA 12 because of the paired nature of the data. That is, after we match the data, the observations are no longer independent. Further, this is chosen because of dichotomous nature of race and petition. McNemar's chi-square also provides the desirable quality of an odds ratio.

Results

Table 1 shows the descriptive statistics for the sample that is stratified by race (i.e., Black and White) of the juveniles. The table shows that before to propensity score matching the standardized bias ranges from -50.7 to 119.8. In other words, before matching, the standardized biases indicate that Black youth and White youth are not similarly situated based on the independent measures. The t-test results support this interpretation because they all are statistically significant at least at the 0.05 level. Overall, these results suggest that propensity score matching is necessary.

¹It is important to note in studies using propensity score matching the logistic regression model is not presented. This model is available from the last author on request.

Table 1.
Descriptive Statistics and Matching of Blacks and Whites.

Covariates	Before Propensity Score Matching				After Propensity Score Matching			
	Blacks	Whites	SB(%)	t-test	Blacks	Whites	SB(%)	t-test
Country	33.41	30.55	14.0	10.40**	28.29	26.93	6.7	1.39
Age	15.27	15.62	-20.2	-14.91**	15.46	15.42	2.2	1.13
Person	0.42	0.28	29.2	21.63**	0.34	0.36	-4.1	-1.01
Property	0.22	0.35	-29.2	-21.80**	0.30	0.29	2.5	1.21
Drug	0.14	0.21	-16.7	-12.44**	0.16	0.15	2.7	1.42
Other	0.22	0.16	14.4	10.66**	0.20	0.20	-0.6	-0.28
Concentrated	34.47	26.22	78.4	57.26**	26.35	26.19	1.5	0.91
	0.92	0.90	6.4	4.79*	0.89	0.90	-4.9	-1.32
Disadvantaged School								
Family	0.09	0.28	-50.7	-38.10**	0.16	0.15	1.9	0.97
Judge Hearing	0.80	0.74	14.2	10.57**	0.70	0.73	-7.3	-1.37
Public Attorney	0.92	0.83	28.3	21.23**	0.87	0.88	-3.7	-1.84
Male	0.22	0.19	6.2	4.62**	0.24	0.22	5.8	1.77
% Black	23.20	6.82	119.8	87.45**	10.66	10.68	-0.1	-0.08
% Residential Mobility	37.36	36.27	31.6	23.81**	37.15	37.04	3.2	1.66
Hazard Rate	0.88	0.81	7.5	5.56*	0.82	0.82	-0.1	-0.03

Note: SB = Standardized Bias, ** $p < 0.00$, * $p < 0.05$

Table 1 shows the results after propensity score matching the standardized bias ranges from -7.3 to 6.7. For each race, these results suggest that propensity score matching balances the covariates. After propensity score matching, Black youth and White youth are in similar situations as Kempf-Leonard (2007) and Tracy (2005) calls for in the literature. After propensity score matching, the t-tests are not statistically significant in supporting the idea that Black and White youth are in similar situations based on the independent measures (i.e., covariates). Further, the analysis of the Mhbounds indicates that it would take a variable that has an effect size of 3.5 to change these results. According to Cohen (1988), an effect size of 3.5 is a large effect. In these data, the matches that come from this process are robust. Overall, these results show that propensity score matching is a proper methodology to gain matched groups to understand prosecutors' decisions to petition a case in juvenile court.

Table 2 shows the final analysis of the matched groups. The table addresses the hypothesis that Black youth are more likely to have their delinquency case formally petitioned to court than White youth. The McNemar's chi-square shows that Black youth have a statistically significant higher percentage (99%) for a petition than White youth percentage (97.1%). Importantly, Black youth are 92.46 times more likely than White youth to have their case petitioned to juvenile court. This does not mean that the prosecutors do not have legitimate reasons to petition some of these cases, but it seems to suggest that prosecutors are focusing on Black youth more so than White youth when doing so.

Table 2.
McNemar's Chi-Square.

	Black	White	Total
Petition Yes	11618 (99.1%)	10078 (97.1%)	21696 (98.2%)
Petition No	109 (0.0%)	298 (2.9%)	407 (1.8%)
Total	11727 (100.0%)	10376 (100.0%)	22103 (100.0%)

McNemar's Chi-Square = 9755.67

Probability of McNemar's Chi-Square = 0.000

Odds Ratio: 92.46

Discussion and Conclusion

The purpose of this study is to examine the role of race in the decision to petition a delinquency case to juvenile court. The findings from the present study are consistent with the previous research that Blacks are more likely than Whites to have their delinquency cases petitioned to juvenile court (Bishop & Frazier, 1996; Freiburger & Jordan, 2011; Leiber & Fox, 2005). One contribution of this study is that it uses Steffensmeier's (1980) focal concerns theory. This theory relies on three main concepts to arrive at the perceptual shorthand that prosecutors use in making decisions. Within this theoretical lens, Black youth are more likely to have their delinquency

cases petitioned to juvenile court than White youth even after equating the two groups on a number of relevant independent measures. This has a number of implications. First, it appears that disproportionate minority contact does exist in Pennsylvania. At the time of these data, prosecutors have the discretion to petition delinquency cases to the juvenile court. The data suggest that prosecutors rely on negative stereotypes of Black youth, which may increase the likelihood of their delinquency cases being petitioned to juvenile court. In other words, the prosecutors are using perceptual shorthand in making their charging decisions. This could also be a product of the race of the juveniles who are present at this stage of the system. In other words, more Blacks could be in the system at this point, thereby contributing to this problem. As Leiber and Rodriguez (2010) point out, more education and training are necessary for persons that work within the court system. At this point, education and training are minimal and sometimes ineffective; thus, the development of sound training materials and processes is important to reducing the instances of DMC in this point of the court process.

The second implication is for the use of propensity score matching. This technique's clear results indicate that race is a factor in the decision to petition a delinquency case in the juvenile court. This technique allows us to work with a sample of similarly situated Black and White youth that are balanced on the independent measures that represent the focal concerns theory. In other words, we are able to develop a quasi-experimental design to test the connection between race and the decision to petition a delinquency case in the juvenile court. We believe from the outset that other researchers need to incorporate propensity score matching in their research on disproportionate minority contact.

No study is devoid of limits, and our study had numerous limits. First, our measurement of focal concerns theory measures is not extensive. These measures did, however, provide enough information for balancing during the propensity score matching process. Second, probing prosecutors about their depictions of the alleged acts is not possible with these data. While this will shed light on how stereotypes are used, the present study provides a foundation for the probing. Third, some may criticize the propensity score matching technique because all of the necessary measures may not be present. We examine this issue and determined that missing measure would have to have a large effect to change our results.

Despite the limits, the present study shows that race influences the decision whether to petition. In particular, Black youth more than White youth are likely to have their delinquency cases petitioned to court. This indicates that prosecutors are using perpetual shorthand to make these decisions. Future studies that probe prosecutors about their depictions of different acts and potential actors will extend our understanding of how focal concerns are used in the decision to petition process. For now, the present study shows that Black youth more than White youth were likely to have their delinquency cases petitioned to juvenile court.

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Appendix A: Factor-Weighted Attitude Scales

We believe that our use of propensity score matching is successful. Our belief comes from our use of two pieces of information. We use the t-test to provide an indication of statistical significance to assess the bias between the two groups. In general, this use is a supplementary piece of information because it may have biases. The reason for the biases occurs because the t-test uses sample size (Flury & Riedwyl, 1986), and the propensity score matching literature is unclear whether the t-test in this part of the analysis is a paired t-test or an independent samples t-test. Mason (1989) argues that researchers should use paired sample t-tests when dealing with matched groups. While the t-test provides supplementary piece of information, this is the one piece of information. The second piece of information comes from our use of standardized bias. Because the need is present to accurately determine if the propensity score matching process has worked properly, the t-test may not be the only information necessary because of the reliance on the sample. The standardized bias provides a means to calculate the standard distance between two means with the confounding the comes from the sample size (Flury & Riedwyl, 1986). Guo and Fraser (2009) concur with Austin (2009) that standardized biases that are above -10 and below 10 indicate satisfactory balancing in the propensity score matching process.

Policy Considerations When Applying Sight and Sound Separation

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This paper explores the application of the Juvenile Justice and Delinquency (JJDP) Act's tenet of sight and sound separation of juveniles completing juvenile sentences as adults after the age of jurisdiction. Through the use of case study analysis and interpreting the results of a small-scale pilot study, this paper provides extrapolated analysis, conclusions, and implications that pertain to the functionality of the JJDP Act. Although the basis of this article concerns Colorado juveniles, the implications are relevant in all jurisdictions. History of the JJDP Act, the effectiveness of current policy and practices, and current evidence-based practices related to this are covered. Recommendations and policy implications are also provided.

Keywords: juvenile justice, sight and sound separation, JJDP Act

Introduction

Jonathon is an 18 year-old male who is in the middle of completing his two year sentence in juvenile corrections when he assaults another resident within the facility. A court date has been set and it has not yet been determined if Jonathon will be charged as an adult or will be violated on his original juvenile adjudication (youth can be held in the juvenile justice system until age 25 in some states) (National Criminal Justice Reference Service [NCJRS], 2013). Is continuing to allow Jonathon to reside in the juvenile facility with pending charges a violation of the Juvenile Justice and Delinquency Prevention (JJDP) Act's sight and sound separation policy? What would be in the best interest of Jonathon considering his age, level of development, opportunities for rehabilitation, safety, and his educational and mental health needs. Additionally, what would be in the best interest of community safety?

The juvenile court was established in 1899 because policy practitioners regarded juvenile offenders as different from adult offenders (McCarter & Bridges, 2011). Based on their immaturity and vulnerability, juvenile offenders were considered less culpable (Bishop & Frazier, 2000; Mendel, 2000) and more amenable to rehabilitation and treatment (Griffin, Torbet, & Szymanski, 1998). In most states a juvenile is legally defined as anyone under the age of 18 (Siegel & Welsh, 2008). Children as young as 14 and sometimes younger, (in Colorado the age is 12) may be transferred and sentenced in adult court and incarcerated in adult prison (Steinberg, 2009).

Over the years, there have been varied responses to juvenile crime. In the 1960's, public policy moved treatment of juve-

niles toward the decriminalization and the application of community sanctions (NCJRS, 2013).

By the 1990's, others had expressed concern that the penalties for juveniles were not stringent enough, citing crime sprees such as Denver's "Summer of Violence" in 1993, school shootings (i.e., Columbine High School), and concern in response to public outcry that "adult crime should equal adult time." (NCJRS, 2013; Bikel, 2007). During this time, legislatures in nearly every state expanded transfer laws that allowed or required the prosecution of juveniles in adult criminal courts (NCRJS, 2013). Greater discretion was given to prosecutors and reduced the power and scope of judges (Redding, 2003). Due to these changes, the United States in particular has imposed harsher penalties on young offenders that has consequently increased rates of incarceration among youth and made it easier to transfer juveniles to the adult system (Redding, 2003; Snyder & Sickmund, 2006).

Increasingly, research illustrates the negative effects of incarceration of youth offenders, particularly in adult facilities. Such confinement fails to meet the unique developmental needs of youth, as well as offers limited ability to provide appropriate rehabilitation options (Lambie & Randell, 2013). Some advocate for the protection of people under 18, as they recognize that children warrant special attention due to their age and associated developmental needs (Independent Police Conduct Authority, 2012).

Court cases in recent years, *Roper v. Simmons* (2005), *Graham v. Florida* (2010), and *Miller v. Alabama* (2012), demonstrate measures toward limiting cruel and unusual punishment for juveniles by outlawing the death penalty, as well as sentences of life without the possibility of parole (Wood, 2012). Research has also judged the practice of transferring juveniles to criminal court as failed policy, finding that youth prosecuted and incarcerated with adults are more likely to recidivate, and do so more quickly and more seriously than their counterparts kept in the juvenile system (Center for Disease Control and Prevention, 2007). In addition, most evidence indicates that

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transferring and incarcerating juveniles in the adult system has little or no general deterrent effect and may even increase levels of engagement in criminal behavior (Gatti, Tremblay & Vitaro, 2009; Mendel, 2011; Redding, 2003).

In response to concerns about the safety of juvenile offenders and access to services, the Juvenile Justice and Delinquency Prevention (JJDP) Act was established in 1974 (JJDP Act, 2002). This legislation identified several key failing practices of the juvenile system, including exposure to psychological abuse and physical assault, high rates of suicide, and lack of access to appropriate rehabilitation programming (Wood, 2012). In response to these concerns, the JJDP Act introduced measures thought to provide innovative and rehabilitative processes to juvenile offenders.

This Act created federal standards for the treatment of juvenile offenders and provided financial incentives for state systems to comply with those standards. Under sight and sound, juveniles cannot be housed next to adult cells, share dining halls, recreation areas, or any other common areas (Office of Juvenile Justice and Delinquency Prevention [OJJDP], 2002). These standards are set at the state and local levels, providing direct funding, research, training, technical assistance and evaluation. Although the JJDP Act was established in 1974, it has been revised and amended several times to maintain its relevance to the current climate of crime and juvenile delinquency. Despite these revisions, the Act's main goals are to continue to prevent juvenile delinquency and rehabilitate juvenile offenders. The Act requires that states address four core requirements in order to receive full grant funding: (a) deinstitutionalization of status offenders, (b) removal of juveniles from adult jails, (c) disproportionate minority contact reduction, and (d) sight and sound separation of juveniles from adult detainees and inmates (JJDP Act, 2002).

This issue came to the attention of the present researchers because of observational exposure to exploring the possibility that the JJDP Act might soon be enforced in the state of Colorado. In looking into the issue of compliance for federal funding under the JJDP Act, several cases of juveniles who fall into a "middle ground" began to be scrutinized in terms of candidates for movement from juvenile facilities into adult facilities. Soon, acknowledgement of the complexity of making these moves made way for further exploration and small-scale qualitative analysis. Based upon this analysis, this paper explores the implications of applying the JJDP Act's third core requirement, sight and sound separation, by closely examining the potential strengths and consequences that could result from a literal and inflexible application of the sight and sound separation tenet. Case studies are presented, as well as a preliminary analysis of a small pilot study in Colorado. Further, this paper raises some fundamental questions about what is in the best interest of juveniles and how to balance the continued focus on juvenile rehabilitation with a vigilant awareness of community safety.

Literature Review

The JJDP Act provides guidelines for the juvenile justice system at state and local levels. This literature review will only

focus on the third core requirement of "sight and sound separation" as a state and federal compliance issue.

Sight and Sound Separation Compliance Issues

In its strictest definition, the JJDP Act's definition of sight and sound separation requires in "limited circumstances that youth under the jurisdiction of the juvenile court be placed in adult jails or lock-ups, [and those] juveniles being securely detained must be separated by 'sight and sound' from adult detainees" (OJJDP, 2002). Further, the JJDP Act states that sight and sound restrictions do not apply to youth who are processed as adults (i.e., waiver, direct file, etc.) as they are thereby considered adults in criminal court (Levitt, 2010) increasing their likelihood of being victimized, receiving inadequate education, and less rehabilitation (Bishop & Frazier, 2000; Carmichael, 2010; Fagan & Kupchik, 2011; Mulvey & Shubert, 2012; National Prison Rape Elimination Commission [NPREC], 2009).

To receive grant funding from the OJJDP, state and local detention centers must "formally" comply with sight and sound separation requirements. Requirements state that adult inmates and juvenile inmates must not be in the same cell or within talking distance of one another. However, state and federal courts have independent discretion over whether juveniles charged, convicted, and/or sentenced as adults must comply with those restrictions. The varied discretion by federal, state, and local courts allows for a host of concerns regarding compliance with the JJDP Act and continuation of funding. Currently, many states have been considered to be in limited compliance with sight and sound restrictions as long as the youthful offenders who fall in the "middle ground" are not considered part of the compliance. There is currently very little in the way of federal guidance on how to be in full compliance, allowing individual jurisdictions to continue to arbitrarily decide what constitutes compliance to sight and sound separations.

Political issues have consistently conflicted with the spirit of the JJDP Act's intent. "Get tough" policies during the late 1980s and 1990s on juvenile offenders often encouraged the courts to utilize the adult detention system as a method of behavior reform for "unruly youth." Many felt that forcing detention centers to separate juveniles from adult offenders was hypocritical, using the argument that many of these youth have family members who are felons (Richeson & Klofas, 1990). Although politically dated, this thought process still exists in many ways today in retribution-minded jurisdictions. Thus, the discretionary nature of when a juvenile offender meets the JJDP Act's criteria allows for this age-old political controversy to remain constant.

There are some obvious obstacles to complying with sight and sound separation requirements. Physical accommodations must be made to allow space for juveniles to be detained, even if for a short period. This impacts police stations, jails, and other correctional facilities that may hold both adult and juvenile offenders. Resources are invariably restrained with regards to physical space, transporting, availability of personnel, medical issues, and programming needs. Additionally, some adult offender programs may be negatively impacted to accommodate these requirements. For example, inmate workers (trustees)

may be restricted in their duties that may lead to a cutback of the use of this alternative sentencing program.

To accommodate some of these strains on resources, and appeals by opposing entities, many jurisdictions rely on the JJDP Act's exceptions that encourage a "minimal compliance" attitude by federal authorities for granting funding. For example, in a situation in which a youthful offender is awaiting an initial court appearance and is located in a rural area where no alternative placement exists, travel conditions are unsafe for transfer, and perhaps there is a delay in that initial court appearance, the youthful offender may be placed in an adult facility for a period of time (Holman & Zeidenburg, 2006).

Since the JJDP Act was enacted, most jurisdictions have made the necessary physical adjustments in their jails and detention centers to allow for short-term confinement of youth offenders that mostly comply with federal requirements. Much of the noncompliance now falls in the discretionary "middle ground" as far as charging, convicting, and sentencing youth as adults who are currently involved in the juvenile system. According to data, since the enactment of the JJDP Act, the number of sight and sound separation violations has reduced from 83,826 to 1,628 (98.1%), and jail removal violations have decreased by 94.8% from 148,442 to 7,757 current violations (Snyder & Sickmund, 2006). Despite the vast improvement in "minimal" compliance with sight and sound separation in the past 40 years, the OJJDP has begun to consider tightening enforcement for jurisdictions seeking funding. Yet, there continues to be nationwide confusion and misinformation over how to fully comply given the federal program's history of minimal enforcement.

Minimal enforcement has all but encouraged exceptions to the rule of sight and sound separation requirements. A common example would be youth who are accused of non-status offenses may be detained in an adult facility for a short period (less than 6 hours) for processing while awaiting transfer to a juvenile facility or a court appearance (Holman & Zeidenburg, 2006). However, there are violations that defy even the most relaxed spirit of the sight and sounds requirement. For example, housing a 40-year old man next to or in the same cell as a 15-year old boy is a clear violation. The "middle ground" often refers to the following scenario found in Colorado: a 19-year-old in a youth correctional facility assaults someone and is charged as an adult, found guilty and sentenced to serve the adult sentence concurrent with the completion of the juvenile sentence in a youth correctional facility (serving as an adult on an adult sentence during the "minimally enforced" sight and sound compliance grace period). It is this "middle ground" where youthful offenders may be under the current jurisdiction of juvenile corrections but may commit subsequent offenses that require that they be managed as adults. Different jurisdictions may use their discretion, and thus different sentencing outcomes may be applied to juveniles despite committing the same crime.

Defining the "Middle Ground"

The enforcement of the JJDP Act's sight and sound requirement implies a desire to shield the average youthful offender

from the potential cycle of violence that is often implicit of imprisonment in adult facilities by maintaining physical separation between adult and youth offenders. Much of the discussion about compliance centers on youthful offenders who are perceived as more violent and may require more extensive punishment than a juvenile facility may provide. This punitive approach to adjudication contributes substantially to youthful offenders being thrust into a middle ground of sight and sound compliance. Therefore, it is important to explicitly define this middle ground with regards to proper sight and sound enforcement per the JJDP Act.

Traditional youthful offenders will complete the adjudication process as a juvenile and present a fairly straightforward enforcement of sight and sound separation requirements. More complexities arise when youthful offenders push the boundaries of those enforcement criteria as they reach a majority age while still under the jurisdiction of a juvenile facility. As these "adult" youthful offenders enter into this middle ground of completing their juvenile sentence, they may still fall under the restrictions of the JJDP Act and be considered in a grace period of compliance (i.e., turning 18 in the middle of their juvenile sentence). Adding further to this complexity, while youthful offenders are in the middle ground, they may commit subsequent offenses that require adult adjudication processes because they are at the majority age. Without concrete guidelines, many courts have been exercising discretion in how to sentence these youthful offenders with regard to completing their current juvenile sentence while adding the new adult sentence. Some states have responded to this middle ground directly by embracing this dilemma with blended sentencing that accommodates both an adult conviction with a juvenile sentence (Kupchik, 2007). The middle ground reinforces the pervasiveness of society's desire to prosecute certain youthful offenders as adults while continuing to acknowledge youthful innocence in others (Singer, 1996).

The youthful offenders that are most likely to land in the middle ground are those who are perceived as potentially violent or displaying characteristics that mimic that of adult violent offenders. However, Building Blocks for Youth (2005) reported that the majority of juvenile offenses processed in adult courts are non-violent; further, prosecutorial discretion appears to drive prevalence rates by imposing a punitive stance on those majority-aged youth who are perceived as high-risk offenders. Thus, assault and escape are common adult charges for youthful offenders who are in the middle ground by age of majority.

Age of Majority

The JJDP Act (2002) defines a juvenile as someone under the age of 18, while juvenile delinquency is defined as a violation of the law by a youth which if committed by an adult would be treated as a crime. Historically, states have been given the power to establish guidelines related to juvenile delinquency including, but not limited to: *mens rea*, age of majority, and to what upper age limit (past the age of 18) individuals are permitted to complete their juvenile sentences in the juvenile system. Recently, the OJJDP began examining whether allow-

ing juvenile offenders over the age of 18 to complete their sentences in juvenile facilities past the age of 18 violates compliance with the JJDP Act's sight and sound separation requirement. Under the current JJDP Act, strict compliance would likely require that once offenders have reached their jurisdictional age of majority, they should be immediately transferred to an adult facility.

The definition regarding what constitutes a juvenile versus an adult is complicated. The upper age limit to be charged with a juvenile crime varies greatly state-to-state (two states recognize 16 as the age of majority, 10 states recognize 17 and the remaining 38 states, as well as the District of Columbia, rely on 18 as the age of majority (NCJRS, 2013). The oldest age over which the juvenile court may retain jurisdiction for disposition and rehabilitation purposes in delinquency matters ranges from ages 16 to 24 (NCJRS, 2013). Given this variability between the states, enforcing the federal rule consistently across jurisdictions is very difficult. These discretionary differences often place the courts in a difficult position of weighing the individual characteristics of the youthful offender in each case; however, if the discretion is removed and the requirement is to automatically place all offenders age 18 and above in adult facilities, this could potentially negatively impact these offenders during a vulnerable age.

Impact of Adult Incarceration on Youth

Overall, the number of adolescents offending and being incarcerated has declined (Sickmund, 2010; Workman, 2011). Adolescents comprise about 5% of all of those held in correctional facilities in developed countries (Sabol, West & Cooper, 2009). One percent of all formally processed delinquency cases in the United States are judicially transferred to criminal court (Puzzanchera, Adams, & Sickmund, 2010). Thirty-one states house juveniles transferred to criminal court in the general population with adult offenders (Bishop & Frazier, 2000). Only six states require separate housing in state prison for youth under 18 (Storm, 2000).

A growing body of evidence suggests that there are numerous negative psychological and behavioral consequences for youth who are incarcerated, particularly for those incarcerated in adult prisons with adult offenders (Lane, Lanza-Kaduce, Frazier, & Bishop, 2002; Tie & Waugh, 2001). Wolff, Shi, & Siegel (2009) found that nearly 40% of inmates reported physical or sexual victimization over a 6-month period. Younger juveniles, juveniles of small stature, youth inexperienced with the criminal justice system, and youth of color are at particular risk of victimization (Lambie & Randell, 2013).

There are countless examples all across the United States of youth detained in adult lock-ups that result in tragedy, both in and out of compliance with the JJDP Act. Juveniles are 5 times more likely to be sexually assaulted in adult facilities than in juvenile facilities (NPREC, 2009). The prison population includes 0.2% of juveniles but includes 1% of the substantiated incidents of inmate on inmate sexual violence. In jails, 1% are made up of juveniles, yet 21% of substantiated incidents. The Prison Rape Elimination Act has failed to eliminate or reduce sexual abuse in correctional facilities (Sigler, 2006). Statistics

indicate that 70-95% of detained youth offenders have at least one psychiatric diagnosis (Lader, Singleton, & Meltzer, 2003; Robertson, Dill, Husain & Undesser, 2004). Rates of substance abuse are extremely high among adolescent offenders (Aarons, Brown, Hough, Garland, & Wood, 2001; McClelland, Elkington, Teplin & Abram, 2004; Robertson, et al., 2004). Over one-third of juvenile offenders have special education needs (Cruise, Evans & Pickens, 2011; Minor, Wells & Angel, 2008). Youth offenders who were placed in adult incarceration facilities were 37 times more likely to be depressed than were serious youth offenders in juvenile placements despite having less severe psychosocial or offending backgrounds. This suggests significant negative consequences in creating and aggravating mental health problems (Ng, et al., 2011). Staff in the adult system lack knowledge and training of child and adolescent development (Soler, 2002). Juveniles incarcerated in adult facilities are 5 times more likely to commit suicide than is a juvenile in general population and 8 times more likely to commit suicide than a juvenile housed in a juvenile facility (NCJRS, 2013). Adult facilities are less equipped to meet adolescents' educational needs. In 95% of juvenile facilities, one teacher is employed for every 15 inmates, in contrast to one teacher for every 100 inmates in adult facilities (Bishop & Frazier, 2000).

When youth are tried as adults, there are varied outcomes. Some research demonstrates that juveniles will receive similar sentences whether they are processed through juvenile or criminal court (Redding, 2003). Other research indicates that youth processed through criminal court have a greater likelihood of incarceration and much harsher punishment, including victimization by other inmates and correctional officers that often starts immediately (Carmichael, 2010; Mulvey & Shubert, 2012; NPREC, 2009).

There is the notion that we "must" charge "violent" youth as adults because there is the belief that they know the difference between right and wrong. However, this perspective often does not take into account developmental issues nor the high risk of future trauma and mental health/behavioral issues. Studies conducted by the Bureau of Justice Statistics (BJS) in 2005 and 2006 found that 21% and 13% respectively of the victims of inmate-on-inmate sexual violence in jails were youth under the age of 18 (BJS, 2008). In addition, OJJDP's 2006 National Report indicates that youth have the highest suicide rates of all inmates in jails. A 2007 report from the Campaign for Youth Justice indicates that juveniles are 36 times more likely to commit suicide in an adult jail than in a juvenile detention facility. Because of these findings, despite reaching the age of majority, there should still be an inclination to divert youthful offenders from adult facilities. It is important to remember that the JJDP Act's core protection for sight and sound is the implication that there is real danger of placing youth in adult detention.

In addition to the increase in danger and contribution to the cycle of violence, juvenile facilities are considered to be more rehabilitative and reform-oriented than their adult counterparts. Kupchik (2007) found that certain rehabilitative and counseling treatment is more available in juvenile facilities than in adult facilities. Similarly, stigma and labels are even more reform-oriented toward youthful offenders to include such terms as "delinquent" instead of "criminal," and "adjudication" instead of "conviction" (Kupchik, 2007). Although secure adult

facilities are legally required to provide appropriate education to incarcerated youth, a 2003 BJS study found that only 60% of jails provided educational services, 11% provided special education services, and only 7% provided vocational training.

Finally, a critical policy issue that is not effectively addressed by the current JJDP Act is the number of youth being tried as adults and held pretrial in, or subsequently sentenced to, adult facilities (Davis, 2008). Research studies also are finding that transferring juveniles to adult facilities does not prevent violence or recidivism, and in fact increases rather than decreases rates of violence among transferred youth. The issue of sentencing juveniles as adults is further complicated by OJJDP's position requiring that juveniles sentenced as adults but sent to juvenile facilities must be removed from the juvenile facility 6 months after they reach that jurisdiction's age of majority (Davis, 2008).

Defining "Adulthood" and Brain Development

Adolescence is a dynamic period of development that usually occurs between the ages of 12 and 20 (Lerner & Steinberg, 2009). There is no one scientific definition of adolescence or set age boundary. There are key developmental changes that nearly all adolescents experience during their transition from childhood to adulthood. Many researchers and developmental specialists in the U.S. use the age span of 10 to 24 years as a working definition of adolescence (U.S. Department of Health and Human Services, 2013). Adolescent offenders lack psychosocial maturity and are vulnerable to peer influence, coercion, and provocation, making incarceration in adult facilities an inappropriate sentence (Scott & Steinberg, 2008). Juvenile development into adulthood includes several types of development including: Physical/physiological, cognitive, psychosexual, social, neurological, and emotional. Maturation of the brain's prefrontal cortex (located directly behind the forehead) is the area that governs executive functions such as planning, goal setting, problem solving, judgment, attention, and impulse control. Neurological studies have identified the prefrontal cortex as one of the last regions to fully mature (Casey, Giedd, & Thomas, 2000; Diamond, 2002; Giedd, et al., 1999; Luna & Sweeney, 2004; Rubia, et al., 2000; Sowell, Thompson, Holmes, Jernigan, & Toga, 1999a; Sowell, et al., 1999b; Sowell, Thompson, Tessner, & Toga, 2001; Sowell, Trauner, Gamst, & Jernigan, 2002; Spear, 2000). As the prefrontal cortex matures in late adolescence and early adulthood, the ability to regulate emotions, manage impulses, and think consequentially (Baird & Fugelsang, 2004) can significantly improve. It is estimated that this area of the brain is not fully mature until our mid-20s. Cognitive processing moves from concrete thinking to more logical and complex cognitions with an increase in futuristic orientation and delayed gratification. Developmental and neurological research provides strong evidence that the way adolescents think, feel, and behave will often be remarkably improved after maturation into late adolescence and early adulthood (Baird & Fugelsang, 2004). Despite implications of developmental research, it is the majority age status and the nature of the crime committed that more often determines juvenile behavior accountability.

Type of crime

In response to the increase in juvenile crime during the mid-1990s, nearly all states made it easier to try juveniles as adults. Now more than 200,000 youth are tried as adults each year (NCRJS, 2010). There is not a lot known about the number of juveniles who are retained in the juvenile system versus transferred to the adult system, as these statistics are often not kept or are collected on an inconsistent basis. Currently, only 13 states publicly report the total number of their transfers, and even fewer report offense profiles, demographic characteristics, or details regarding processing and sentencing.

Many states have one or more of the following approaches to waiving juveniles into the adult system. The "once an adult, always an adult" type of law illustrates a special form of exclusion requiring criminal prosecution of any juvenile who has been criminally prosecuted in the past in the adult system (NCRJS, 2013). These laws are usually without regard to the seriousness of the current offense, thus potentially thrusting low risk youth offenders unnecessarily into the adult system. Another approach, known as "reverse waiver laws," allows juveniles whose cases who have been waived to criminal court to petition to have their cases transferred back to juvenile court. The state of Colorado just passed such a law in 2013. Finally, there are blended sentencing laws that provide options to the court to proceed in dealing with juveniles either in the adult system, juvenile system, or both. While this approach allows flexibility in sentencing, it often results in a lot of inconsistencies among states that use this approach. These inconsistencies were acknowledged by the present researchers in an effort to assess compliance with the JJDP Act.

Methods and Analysis

In an effort to produce theory and policy recommendations based on the observed reality seen in the Colorado Division of Youth Corrections, this study focused on the steps necessary to complete comparative research, and more specifically, a qualitative comparative analysis. Comparative research is useful here due to the vast variability between juveniles, jurisdictions, and judicial decision-making (Ragin, 1987). A qualitative comparative analysis is also useful because it allows for achievement of a single outcome while still accommodating for unique and individual sets of variables (Bachman & Schutt, 2014). In this context, the single outcome is compliance with the JJDP Act, but the unique adjudication circumstances that each of the juveniles represent is precisely what makes compliance so difficult. The researchers observed, through participation in the state juvenile board, the compliance issues by identifying and analyzing inconsistencies in a handful of individual cases (such as "Jonathon's case" presented throughout this paper), which ultimately prompted the small scale pilot study, and has subsequently resulted in the findings and implications presented here. A completed analysis using this methodology requires additional, but similar data sets, which is mentioned later as a continued research recommendation.

Colorado Division of Youth Corrections: Pilot Study

A pilot study was conducted by Thome (2012) to investigate the degree to which committed and paroled youth in Colorado are charged as adults and subsequently held for a period of time in state-operated secure juvenile facilities. The target population consisted of committed and paroled Division of Youth Corrections (DYC) clients who are charged or found guilty of an offense in District, County, or Municipal Court for an act they committed after the age of 18 while subsequently being held in a state-operated or contract-secure juvenile facility. The goals of this study were: (a) to identify the approximate number of youth the current OJJDP's interpretation of the JJDP Act's standards may impact, (b) determine if detention of "adult" offenders in state operated secure juvenile facilities is regionally or locally specific, and (c) identify current consequences for those clients charged or found guilty (Thome, 2012). The data were collected from March - May 2012. Out of the 18 clients identified, three were pending a final disposition on their adult charges. Adult court sentences typically required continued supervision in a DYC facility, and at the time of arrest for an adult court charge, seven were being held in a state-operated facility, six were on parole or escape status, and two were in community-based programs. The methodology consisted of the client managers, working within the Colorado DYC, reporting incidents where committed or paroled youth were arrested or charged with offenses after their 18th birthdays. Examples of such situations included:

- Charged while under commitment status, taken to an adult jail for booking, and housed in a juvenile facility pending trial.
- Charged while under commitment status, held in adult jail through booking and trial, and released back for supervision in a DYC facility based on a suspended or concurrent adult sentence (blended sentencing).
- Arrested on parole, booked in an adult jail, held on parole hold and subsequently held in a DYC facility pending disposition of a possible parole revocation.

For the first goal, the pilot study identified 18 juveniles (in the 3 month data collection period) who could be violating OJJDP's current interpretation of the JJDP Act's sight and sound separation requirement. The implication of this finding is that on average approximately 70 youth per year in Colorado could be in violation of the JJDP Act's sight and sound requirement. An interpretation of the second goal, regarding whether these cases could be locally or regionally specific, could not be fully analyzed due to the small sample size and varied reporting methods from each jurisdiction. The third goal focused on the consequences for the offenders charged or found guilty while in this status. The implications for this finding are narrowed by the diversity of the final dispositions on such a small sample. However, only two offenders were sentenced to the more rehabilitative community-based programs, with the vast majority of the other offenders remaining under some form of DYC supervision and potentially remaining in violation of sight and sound separation requirements. Ultimately, the pilot study findings suggest that per OJJDP's interpretation of the JJDP Act's sight and sound separation requirements, Colorado would likely be considered non-compliant.

Implications, Limitations, and Conclusion

Jonathon, the case scenario at the beginning of this paper, is a classic example of a "middle ground" youthful offender. He is an 18-year-old male who, in the middle of completing a 2 year sentence in juvenile corrections, assaulted another resident within the facility. He has a pending court date but no formal disposition in his case. There are several considerations needed in Jonathon's case. An assessment of Jonathon's risk to other youth in his current facility would need to be evaluated. Taking into account the nature of Jonathon's initial and subsequent offenses is also important in determining an appropriate outcome for him. Risk factors for victimization like age, size, and experience with the criminal justice system should also be taken into account (Lambie & Randell, 2013). The court must also consider Jonathon's educational and mental health needs as well as access to rehabilitation (Bishop & Frazier, 2000; Carmichael, 2010; Fagan & Kupchik, 2011; Mulvey & Shubert, 2012; National Prison Rape Elimination Commission [NPREC], 2009; Wood, 2012).

More direction and decisiveness from the OJJDP regarding whether the original juvenile offense can be used to determine the sight and sound separation rule application is necessary. Another option would be to allow Jonathon to serve time in the juvenile facility through the final disposition jurisdiction in his state (for example, until 21 in Colorado) thereby incurring a sight and sound separation violation. The variation in discretionary decision-making of this single case exemplifies the complexity of complying with the JJDP Act.

Since the reauthorization of the JJDP Act (2002), the President and Congress expanded the core protection dealing with jail removal and separation to apply to all youth until they reach the age of 18 (or in some cases the upper age limit of that state's "grace period") regardless of which court, juvenile or adult, handles the cases. A brief examination presented here has yielded important information that if the OJJDP were to strictly enforce the JJDP Act's third core requirement of sight and sound separation, like in Jonathon's case, two outcomes are likely: (a) noncompliant states lose federal funding, or (b) all offenders 18 and over will be automatically sent to the adult corrections system. A decrease in funding would result in devastating resource cuts in treating and managing traditional youthful offenders. Direct transfer into an adult facility could negate earlier juvenile dispositions, increase adult jail/prison populations, and negatively impact vulnerable young adult populations.

At the very least, all court systems in a state should be on the same page with regard to how to sentence those youthful offenders who fall into the "middle ground." Thorough risk assessments and pre-sentencing reports should be consistently based upon a set of guidelines handed down by the state (or OJJDP for federal compliance). Ideally, generic federal guidelines should be interpreted by each state or territory to determine appropriate and consistent application (Davis, 2008). The recommendation for the observed "middle ground" cases in Colorado would be to allow newly convicted adult youthful offenders (over age 18) serve the remainder of their juvenile sentence in the juvenile correctional system up to the age of 22. This provides a 4-year grace period to accommodate these of-

fenders while maintaining compliance with the JJDP Act. The only time these offenders should be considered for adult corrections is if they meet criteria of a typical adult transfer waiver (i.e., heinous crime).

As mentioned earlier, the analysis here is based upon observational case studies in one state and is only in the preliminary stages of a comparative analysis. The limitations of this study are reflected in the small sample sizes and narrow scope of the pilot study. Although much can be extrapolated from these efforts, there is still a possibility that data are either unique to Colorado or the noncompliant cases are anomalies in comparison to the bigger picture. Clearly, there is much more research needed. First, additional pilot studies by jurisdiction in Colorado would serve as appropriate comparisons for the variability between them. Second, other states that wish to continue receiving federal funding through the OJJDP should consider running pilot studies to assess their own compliance status. Third, the OJJDP needs to provide resources for states and jurisdictions to continue to provide data that produce a better understanding of the compliance issues for sight and sound so that they can more effectively enforce the JJDP Act. Fourth and finally, there needs to be continued quantitative and qualitative research focusing on assessing which variables should be considered to decide to place a youthful offender in the adult correctional system that would minimize the risk of further endangerment of that offender.

It is clear that the “middle ground” highlights a difficult situation of how to treat individuals who may continue to commit serious crime but might still be categorized as underdeveloped and vulnerable for commitment to adult detention. There is plenty of evidence that suggests placing youthful offenders in adult correctional facilities may result in long-term trauma, or at the very least, a continuation of the cycle of violence. However, empirical evidence of the impact of an enforced removal and transfer at the age of majority from juvenile to adult correctional facilities is limited, which in turn limits evidence-based practices that ultimately inform federal policy and procedures. If Colorado serves as an example of the typical case for non-compliance, the OJJDP should re-consider its intent to strictly enforce the JJDP Act with regards to sight and sound separation.

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The Relationship between Drug Type and Suicidal Behaviors in a National Sample of Adolescents

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Prior research has examined the relationship between adolescent drug use and suicidal behavior; however, few studies have explored the relationship between specific drug types and suicidal behavior. The current study examines data from the 2007 Youth Risk Behavior Survey (YRBS) (N=11,781) and estimates two logistic regression models on the relationship between drug type and suicidal ideation and action. Findings suggest a significant association between alcohol, marijuana, ecstasy, injected drugs, or cocaine use, and suicidal behavior. Implications for research and practice are explored.

Keywords: adolescent drug use, drug type, suicidal behavior

Adolescent suicide continues to be a serious public health concern in the United States. National survey data indicates that in 2009, 13.8% of high school students reported seriously considering suicide and 6.3% reported attempting suicide at least once in the last year. In fact, suicide is the third leading cause of death among persons between the ages of 15 and 24 and accounts for 12.2% of deaths in that age group annually (CDC, 2010). Drug use is also prevalent among adolescents. In 2006, one-fifth of adolescents between the ages of 12 and 17 reported using an illicit drug in the last year (Office of Applied Studies, 2007). A large body of literature has established that drug use may be an indicator of other issues and may represent attempts to self-medicate serious problems such as depression, physical or sexual abuse, and mental illness (CDC, 2002). Prior research has also established a strong relationship between drug use and adolescent suicidal behavior (Deykin & Buka, 1994; Hallfors et al., 2004; Levy & Deykin, 1989; Wilcox & Anthony, 2004; Wu et al., 2004; Epstein & Spirito, 2009; Flisher et al., 2000; Hallfors, Waller, Ford, Halpern, Brodich, & Iritani, 2004; Wilcox & Anthony, 2004; Luncheon, Bae, Gonzalez, Lurie, & Singh, 2008); however, few studies have specified the relationship between drug use and suicidal behavior by investigating whether drug type is related to suicidal ideation or action. The current study seeks to add to the literature by investigating whether specific drug types, including alcohol, marijuana, and other drugs, are more (or less) strongly associated with suicidal ideation or action.

A Review of the Relevant Research

Numerous studies have explored the relationship between drug use and suicidal behaviors; however, studies have varied considerably in sample selection and methods. Some studies have used specialized populations, such as juvenile delinquents (Chapman & Ford, 2008; Jenson & Howard, 1999) or adolescents in residential drug treatment programs (Deykin & Buka, 1994). Although these studies indicated a statistically significant relationship between drug use and suicidal behavior, these studies could not be generalized to the population at large due to critical differences between the samples used and the general population. For example, suicide rates of juvenile delinquents in detention facilities have been found to be four times higher than suicide rates for adolescents in the general population (Hayes, 2005). The use of hallucinogens (and other drugs) has also been found to be more frequent among juvenile delinquents than among high school students in general (Jenson & Howard, 1999). To address these limitations, many other studies have used data from surveys completed by adolescents in school (Epstein & Spirito, 2009; Flisher et al., 2000; Hallfors, Waller, Ford, Halpern, Brodich, & Iritani, 2004; Luncheon, Bae, Gonzalez, Lurie, & Singh, 2008) or recruited samples from the community in general (Wu, Hoven, Liu, Cohen, Fuller, & Shaffer, 2004). The results of these studies have generally been consistent with previous research and indicate a strong relationship between drug use and suicidal behavior (Evans et al., 2004).

A small number of studies has attempted to distinguish between different predictors of adolescent suicidal behavior. Hallfors and her colleagues (2004), for example, used data from the National Longitudinal Study of Adolescent Health to explore the relationship between substance use and other risk factors and adolescent suicidal behavior. Adolescents' responses were clustered, based on risk behavior, into 16 categories of

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different patterns of sex and substance use behavior. Youth in the abstainer cluster (adolescents who reported no involvement in any risk behavior) showed the lowest proportions of depression and suicidal behavior whereas youth in clusters involving marijuana use, IV drug use, and sex with drug use reported the highest proportions of depression and suicidal behavior (Hallfors et al., 2004). The results indicated that any involvement in substance use increased the risk of depression and suicidal behavior, and the odds ratios were highest for adolescents who engaged in illegal drug use (Hallfors et al., 2004).

Prior research also indicates that age may be an important factor to consider in the relationship between drug use and suicidal behavior. A few studies have found an association between early onset drug use and suicide ideation. However, a major difficulty in determining the extent of this association is a lack of consistency among studies in the operationalization of the age of "early onset" (Epstein & Spirito, 2009). They used the Youth Risk Behavior Survey (YRBS) to examine the relationship between alcohol, tobacco, and other drug use with suicidal behavior. They also examined the relationship between early onset (defined as prior to age 13) substance use with suicidal behavior and found that early onset of drinking was related to suicide ideation, planning, and attempts, and that early onset of smoking was related to attempts only. In discussing their findings, they suggest that early involvement in substance use prior to the age of 13 (particularly drinking and smoking) is related to suicidal behavior.

Another study that examined the effect of early onset substance use on suicide ideation or attempts was conducted by Wilcox and Anthony (2004). In this longitudinal study in which a sample of first-graders was followed through elementary and high school and into young adulthood, the cut off age for "early onset" substance use was 15. They found that suicide ideation was more common among adolescents who were early onset users of tobacco and marijuana and that suicide attempts were more common among early onset users of all drugs, but especially marijuana and inhalants. These studies indicate that the relationship between drug use and suicidal behavior may also be influenced by age; younger drug users may be at higher risk of suicidal behavior.

Other studies have also found gender differences in the relationship between drug use and suicidal behavior (Deykin & Buka, 1994; Hallfors et al., 2004; Levy & Deykin, 1989; Wilcox & Anthony, 2004; Wu et al., 2004); and have found girls to be particularly vulnerable. Wilcox and Anthony (2004) found that suicide attempts were more common among females, and Wu and colleagues (2004) found that girls represented a larger proportion of adolescents who reported a suicide attempt than boys (69.4% vs. 31.6%, respectively). Hallfors and colleagues (2004) reported that while girls did not engage in high-risk behaviors as often as boys, they were more vulnerable to depression, suicide ideation, and suicide attempts when they did engage in such behaviors (Hallfors et al., 2004). Deykin and Buka (1994) found that females were almost twice as likely to experience three different types of suicide ideation as males (69.7%, 57.9%, and 75.0% vs. 46.8%, 30.8%, and 40.3%, respectively) and were more than twice as likely to have made a suicide attempt (60.5% vs. 28.1%, respectively). While most

studies have reported that females are more likely to report suicide ideation and attempts than males (Deykin & Buka, 1994; Hallfors et al., 2004; Wilcox & Anthony, 2004; Wasserman et al., 2005; Wu et al., 2004), not all studies support these findings. For example, Levy and Deykin (1989) report that the effect of substance abuse on suicide ideation is much greater for males than females.

Studies have found that while there is an interaction between depression and substance use as predictors of suicidal behaviors, there is also an independent contribution of substance use (Deykin & Buka, 1994; Levy & Deykin, 1989). Levy and Deykin (1989) note that one of the difficulties in trying to determine the independent contribution of substance use to suicidal behaviors is that depression and substance use commonly occur together. In their study, adolescents who had a diagnosis of substance abuse were 2.1 to 3.7 times more likely to report suicide ideation. After controlling for depression, the odds were reduced but still remained higher than students without substance abuse (Levy & Deykin, 1989). Overall, the relationship between drug use and adolescent suicidal behavior is well established in the literature; however, few studies have examined whether this relationship varies by drug type. This study seeks to add to the body of literature by examining whether drug type is related to adolescent suicidal behavior. The main research question of the current study is: Does risk of adolescent suicidal ideation or action vary by drug type?

Methods

Sample and Data. The sample for the current study included adolescent boys and girls who completed youth behavior surveys for the 2007 Youth Risk Behavior Surveillance (YRBS) System (N=14,028). The YRBS is a nationally representative survey of high school students conducted by the Centers for Disease Control and Prevention (CDC) between February and May of each odd-numbered year. The YRBS monitors six types of health risk behaviors, including tobacco use, alcohol and other drug use, sexual behaviors, dietary behaviors, physical activity, and behaviors that increase risk for intentional and unintentional injuries. Parents provided consent for their children's participation in the survey, and participation was voluntary and anonymous. Schools with relatively high numbers of minority students were over-sampled to ensure adequate representation of these groups. The school response rate was 81%, and the student response rate was 84%. A total of 14,041 students completed the national survey in 2007; however, in the current study, only adolescents between the ages of 14 and 17 were included. Respondents younger than 14 were excluded due to the fact that they represented only a very small percentage of the total sample (<.01% of sample). Respondents older than 17 were excluded due to the fact that 17 is generally considered the cut-off for classification as an adolescent. The final sample size was 11,781.

Measures

Dependent Variable(s) - Suicidal Behaviors. Two dependent variables were used to predict two models of suicidal be-

havior: suicidal ideation and suicidal action. The first measure, suicidal ideation, represented thoughts of suicide. The second measure, suicidal action, represented physical attempts to commit suicide. Suicidal ideation was measured by a question that asked respondents whether they had seriously considered suicide during the past 12 months (1=yes). Suicidal action was measured by a question that asked respondents whether they had actually attempted suicide during the past 12 months (1=1 or more times). These measures of suicidal behaviors have been shown to be reliable as assessed in the YRBS and as indicated by Cohen’s kappa statistics which measure the likelihood that answers are by chance (Brenner et al., 1995).

Independent Variables - Drug Choice. The primary independent variables of interest in the current study were measures of drug type. Several drug types were included in the analysis, including alcohol, marijuana, cocaine, heroin, meth, ecstasy, LSD, and injected drugs. Respondents were asked whether they had ever used these drugs. All of the drug type variables were coded: 0 = never used; 1 = used at least once. Early onset substance use was also included in the analysis and was measured by two questions that asked respondents whether they had used alcohol or marijuana before the age of 13 (1=yes). Age, gender (1=female), and race (1=non-White) were also included in the analysis.

Model Estimation and Analytic Strategy

To examine the relationship between drug type and suicidal behaviors, we estimated two logistic regression models in SPSS version 17.0. Logistic regression is the preferred analytical tool when outcome variables are dichotomous. In the current study both of the dependent variables were dichotomous. Therefore, logistic regression was selected as the appropriate analytical tool for analysis.

Findings

Descriptive statistics for the sample are presented in Table 1. Approximately 15% of the sample had experienced thoughts of suicide and 8% had actually attempted suicide in the last 12 months. The sample included higher numbers of older adolescents between 16 and 17 (60%) as compared to younger adolescents between 14 and 15 (40%); however males and females were evenly divided in the sample. Interestingly, non-Whites were over-represented in the sample and constituted 58% of the sample. Overall, alcohol and marijuana use was most common among adolescents with 76% of respondents having used alcohol and 40% having used marijuana. Almost a quarter of respondents had used alcohol by the age of 12 and almost a tenth of respondents had used marijuana by the age of 12. Respondents much less frequently used other drugs. Between 6% and 8% of respondents had used cocaine, LSD, or ecstasy, and even fewer had used heroin, meth, or injected drugs.

Prior to logistic regression modeling, tests of multicollinearity were conducted. A correlation matrix indicated that many of the independent variables were significantly correlated with one another; however, none of the correlation values were

greater than .7, indicating that multicollinearity was not a serious concern. The Variance Inflation Factor (VIF) was also used as a separate multicollinearity diagnostic test to determine if multicollinearity was a concern for regression analysis. The VIF measures the amount of variance that a regression coefficient has lost or gained due to the presence of correlated variables (Beasley et al., 1980). According to Beasley et al., multicollinearity might exist if the VIF factor is above 3.4. In the current study, the VIF averaged 2.19 across both models. This concludes that the likelihood of multicollinearity within the confines of this research is below the accepted threshold.

Table 1.
Descriptive Statistics

	N	%
Dependent Variables		
Suicidal Ideation	2092	15.1%
Suicidal Action	1002	8.0%
Independent Variables		
Age 14	1361	11.6%
Age 15	3239	27.5%
Age 16	3606	30.6%
Age 17	3575	30.3%
Female	7036	50.2%
Non-White	8018	58.1%
Alcohol	9739	76.0%
Alcohol < 13	3338	24.3%
Marijuana	5509	40.4%
Marijuana < 13	1223	8.9%
Cocaine	1040	7.5%
Heroin	335	2.4%
Meth	610	4.4%
Ecstasy	834	6.0%
LSD	872	7.1%
Injected Drugs	326	2.4%

Two logistic regression models predicting suicidal behaviors are presented in Table 2. Model 1 predicted suicidal ideation and Model 2 predicted suicidal action using age, gender, race, alcohol use, early onset alcohol use, marijuana use, early onset marijuana use, cocaine use, heroin use, meth use, ecstasy use, LSD use, and injected drug use as predictors. Both models were statistically significant at the $p < .001$ level indicating that the independent variables, as a set, were significant predictors of suicidal ideation and action. Model 1 explained about 10.7% of the variation in suicidal ideation and Model 2 explained about 13.3% of the variation in suicidal action (Nagelkerke $r^2 = .107$ and $.133$, respectively) indicating moderate relationships between the predictor and outcome variables.

Table 2.
Logistic Regression Analyses Predicting Suicidal Behavior

	Model 1: Suicidal Ideation				Model 2: Suicide Action			
	B	SE	Wald	Exp(B)	B	SE	Wald	Exp(B)
Age	-.025	.014	3.424	.975	-.043	.020	4.807	.958*
Sex	.921	.064	207.980	2.511***	1.070	.095	128.035	2.916***
Race	.047	.060	.597	1.048	.402	.088	20.685	1.495***
Alcohol	.400	.093	18.584	1.491***	.492	.149	10.892	1.635***
Alcohol < 13	.493	.070	49.323	1.637***	.580	.097	35.574	1.786***
Marijuana	.499	.070	50.083	1.646***	.599	.102	34.780	1.820***
Marijuana < 13	-.067	.107	.390	.936	-.001	.140	.000	.999
Cocaine	.245	.122	4.028	1.277*	.381	.156	5.947	1.463*
Heroin	.390	.241	2.633	1.847	.321	.286	1.260	1.379
Meth	.159	.150	1.120	1.172	.257	.189	1.856	1.293
Ecstasy	.502	.132	14.417	1.652***	.443	.170	6.747	1.557**
LSD	.507	.132	.187	1.059	.047	.175	.072	1.048
Injected Drugs	.497	.256	3.761	1.644***	.857	.296	8.377	2.356**
Chi-2			602.131***				493.880***	
-2LL			7504.441				4164.469	
Nagelkerke R2			.107				.133	

*** Significant at the 0.001 level

** Significant at the 0.01 level

* Significant at the 0.05 level

The strongest predictor of suicidal ideation and action was gender. Controlling for other factors, females were 2.5 times as likely as males to consider suicide and 2.9 times as likely as males to attempt suicide. Age and race were unrelated to suicidal ideation; however, younger adolescents were slightly more likely to attempt suicide than older adolescents and non-Whites were 1.5 times as likely to attempt suicide as Whites. Several drug types were positively associated with suicidal ideation and action. Respondents who used alcohol, marijuana, ecstasy, injected drugs, or cocaine were significantly more likely to consider suicide and attempt suicide than non-users of these drugs. Interestingly, heroin, meth, and LSD use were unrelated to suicidal ideation and action. Early onset alcohol use was associated with 1.6 times higher odds of suicidal ideation and 1.8 times higher odds of suicidal action; however, there was no significant relationship between early onset marijuana use and suicidal behavior.

Discussion

The relationship between drug use and suicidal behavior has been examined by numerous researchers (Deykin & Buka, 1994; Hallfors et al., 2004; Levy & Deykin, 1989; Wilcox & Anthony, 2004; Wu et al., 2004; Epstein & Spirito, 2009; Flisher et al., 2000; Hallfors, Waller, Ford, Halpern, Brodish, & Iritani, 2004; Luncheon, Bae, Gonzalez, Lurie, & Singh, 2008). The findings of this study, which indicate a moderate relationship between drug use and suicidal behavior, are consistent

with this literature base. The current study extends on previous research by specifying the relationship between specific drug types and suicidal behavior and indicates that particular drug types, such as alcohol, marijuana, ecstasy, injected drugs, and cocaine, are positively associated with suicidal behavior, whereas other drug types, such as heroin, meth, and LSD are unrelated to suicidal behavior. Furthermore, the study supports prior research that has found that adolescent females are more likely to consider or attempt suicide than adolescent males and suggests that adolescent females are particularly vulnerable for suicidal behavior. Also, the study supports prior research on age and suicidal behavior and finds that younger adolescents are more likely to attempt suicide. Younger adolescents may have fewer pro-social coping strategies available to them and therefore may be more likely to attempt suicide to avoid stressful situations. It is not entirely clear as to why non-Whites may be more likely to attempt suicide; however, socio-economic differences between Whites and non-Whites remain persistent and could, perhaps, be a relevant factor to consider.

Several limitations of the current study are worth noting. First, the study is limited by the self-report nature of the YRBS data. Some adolescents may have been reluctant to report drug use or suicidal behavior for a number of personal reasons. Second, a number of other factors may also contribute to suicidal behavior, such as depression, and this study could not control for all other possible predictors of suicidal behavior, especially because many of them would be strongly correlated with one another. Third, as with most cross-sectional studies, there is some ambiguity in time order of events. Our dependent vari-

ables measure suicidal behavior in the last 12 months, whereas our independent variables measure any drug use ever. It is possible that some individuals may have considered or attempted suicide prior to drug use; however, the early onset variables seem to indicate that alcohol and drug use was common among respondents prior to the age of 14.

Nevertheless, the findings of this study are consistent with prior research and suggest some important policy implications for prevention and intervention programs to address at-risk adolescents. Programs should seek to intervene prior to the onset of suicidal behavior by enhancing efforts to make adolescents aware of the negative consequences of drug use and to train school personnel to identify symptoms of drug use and emotional problems among adolescents and refer them to appropriate treatment and rehabilitation programs.

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Developing the Job Performance Behavior Questionnaire (JPBQ): Exploratory Factor Analysis

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Due to the multi-dimensional construct of job performance, management needs to effectively encourage supervisors to use performance measures that reflect diverse dimensions of work behavior. Drawing on job performance theories and using data from a sample drawn from a predominantly African American organization, we develop and validate a measure of job performance, called the *Job Performance Behavior Questionnaire (JPBQ)*, that captures various performance behaviors. Job performance is conceptualized as a multidimensional construct with two dimensions: *task performance and contextual performance*. The primary research objective in this study was to examine the underlying factor structure of the JPBQ. Thirty-two items of the JPBQ were used to perform exploratory factor analysis (EFA). Results from EFA and estimates of reliability provide evidence of construct and criterion-related validity of the JPBQ for use with populations similar to the sample employed. Reliability coefficients for the two factors ranged from .73 to .91. The JPBQ was significantly correlated with the Role Based Performance Scale (RBPS) in terms of convergent validity. Overall, a 2-factor model with 12 items was found to be the most interpretable.

Keywords: job performance behavior, contextual performance, task performance, exploratory factor analysis, minority organizations

Campbell (1990) defined job performance as behavior in the work place, and it is widely agreed that job performance is a multidimensional construct (Borman & Motowidlo, 1993; Campbell, Gasser, & Oswald, 1996). Organizational psychology literature is replete with two dimensions of job performance, namely task performance and contextual performance (Borman & Motowidlo, 1993; Motowidlo & Schmit, 1999; Motowidlo & Van Scotter, 1994). Task performance captures behaviors that contribute to the core transformation and maintenance activities in an organization, such as producing products, selling merchandise, acquiring inventory, managing subordinates, or delivering services (Motowidlo & Schmit, 1999). Contextual performance, in contrast, captures behaviors that contribute to the culture and climate of the organization. Examples of contextual performance behaviors include volunteering for extra work, persisting with enthusiasm, helping and cooperating with others, following rules and procedures, and supporting or defending the organization (Motowidlo & Schmit, 1999).

The justification for the current study is informed by the fact that previous and current measures of job performance failed to use a larger sample of minorities for validation efforts. According to Murphy (2009), performance measures should be validated in the setting in which they will be used, and most performance measures fall short of this salient requirement. In addressing the limitations of traditional performance appraisal

systems, it is important to note that Motowidlo and Borman (1997) postulated a theory of individual differences which captured both task and contextual performance. Consequently, a general measure of job performance reflecting dimensions of work in minority organizations is justified (Roth et al., 2003). This justification provides the motivation in developing the Job Performance Behavior Questionnaire (JPBQ), which will have practical and theoretical relevance in organizational literature. Additionally, with the reliability and validity of the JPBQ tested, the instrument can be used with some confidence in making important personnel decisions and conducting research in minority organizations.

Building on the established theoretical foundation of current job performance models combined with the psychological theory of performance as a multifaceted construct, the researchers developed a new instrument that will identify those performance factors most influential in predicting overall job performance in African American organizations. Not all job functions can be evaluated using objective measure, and since job performance is a multidimensional construct (Campbell, 1990; Borman & Motowidlo, 1993; Campbell, Gasser, & Oswald, 1996), it is incumbent upon organizational researchers to develop a job performance measure that reflects the multidimensionality of job performance. Exploratory factor analysis will be used to identify the dimensions or factors of the Job Performance Behavior Questionnaire.

Diversity and Performance

Diversity research in organizations has proposed that working with the same ethnicity supervisor will provide profes-

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sional and personal support and motivation, bolstering a minority employee's level of efficacy and success within an organization, while at the same time reducing potentially negative or neutral mixed-ethnicity-only situations (e.g., Avey, West, & Crossley, 2008). For instance, examining ethnic incongruence, Jeanquart-Barone (1993, 1996) argued that Black employees with White supervisors report less supervisor support and fewer developmental opportunities, leading to potentially lower performance ratings within an organization.

The primary proposition underlying the literature applicable to this study is that there are benefits for those employees who are ethnically similar to their supervisor. One major theoretical framework, the similarity-attraction paradigm, has been used to explain this relational demography effect. The similarity-attraction paradigm first proposed by Byrne (1971, 1997) argues that the extent to which an individual perceives another individual to be similar to themselves, they will be seen as more attractive. Although this judgment may fluctuate over time, it influences the level of attraction between individuals, and hence performance ratings.

A key question arises with regard to whether these beliefs and assumptions are supported by actual workplace behavior and not just the theories underlying them. A meta-analysis conducted by (Kraiger & Ford, 1985) found that ethnic congruence with the manager was associated with higher performance evaluations. As previously noted and consistent with Kraiger and Ford (1985) and Jeanquart-Barone (1993, 1996), Greenhaus, Parasuraman and Wormley (1990) found that minority status in organizations (measured by Black and White) was negatively related to supervisor rating of promotability and positively related to early career plateau.

Models of Job Performance Ratings: Examination of Rater Race

A focus with the rating process approach to performance appraisal research has involved investigating factors that influence performance ratings. Developing and validating a performance appraisal system in a different setting with minority groups might shed some light on the performance domain (Roth et al. 2003). Hunter (1983) study results indicated that job performance ratings were greatly influenced by the rater's race. Specifically, raters with the same ratees (i.e., same race or ethnicity) gave higher ratings than raters with different race, calling for additional research in this area (Roth et al., 2003). More recently, McKay and McDaniel (2006) conducted a study that is considered the largest meta-analysis to date of Black-White mean differences in work performance. McKay and McDaniel examined several moderators not addressed in previous research, and findings indicated that mean racial differences in performance favor Whites. The question is, would a performance appraisal system validated in minority organizations result in a different outcome for Blacks? Unfortunately, no study to date has empirically investigated different contexts (settings) using mostly minority organizations for validation purposes (Johnson, 2010).

More than 20 years ago in a commentary on the initial Hunter study, Guion (1983) suggested that additional variables

should be investigated as potential antecedents of performance ratings. As a result of the clarion call, Guion (1983), Borman, White, Pulakos, and Oppler (1991) proposed and evaluated rating models that included measures of cognitive ability, job knowledge, task proficiency, two temperament constructs (achievement and dependability), awards and problem behavior, and supervisory ratings. Their results indicated that technical proficiency and rate problem behavior had substantial direct effects on supervisory ratings of job performance. It is interesting to note here again that ratings were obtained from majority organizations with majority group (i.e., White sample).

To date organizational researchers are yet to fully adhere to the clarion call made by Guion (1983) that additional avenues of research is needed to fully appreciate the important construct (job performance) in I/O psychology. Helms (1992) has argued that mean differences in Black-White performance ratings can be attributable to the salient characteristics of Blacks, focusing on the type of tasks (concrete behavioral tasks versus abstract conceptual tasks) that are performed. Helms showed that Blacks (African Americans) are better at performing concrete behavioral tasks than abstract conceptual tasks. In a job situation, this would likely be manifested as more effective performance among African Americans on work sample measures than on more abstract measures, such as traditional multiple choice cognitive ability tests. Furthermore, differences in sample size for studies investigating Black-White differences yields different conclusions about the statistical significance of individual job performance ratings (Pulakos, Schmitt, & Chan, 1996), justifying why there should be study focusing on minority organizations with mostly minority samples. A step in the right direction is the development and validation of a Job Performance Behavior Questionnaire in this unique setting using mostly minority samples.

In the present study, we propose that JPBQ is a construct consisting of two dimensions of job performance, namely task and contextual performance behaviors (Borman & Motowidlo, 1997). We predict that JPBQ is a reliable and valid instrument, and ultimately expect that overall JPBQ will be positively related to the role based performance scale (RBPS).

Method

Focus Group/Item Development

Using a sample from a minority organization in the southeastern United States, we conducted four focus groups with employees and supervisors separately, and four individual interviews with district managers, to identify job performance behaviors that were representative of job performance. Based on this information, items for the JPBQ measure were developed deductively from theory as articulated in the above sections and inductively from qualitative interviews. We conducted a content analysis of the data using an open coding approach to identify, categorize, and describe phenomena found in the focus group and individual interview transcripts. Questionnaire items were generated, and a total of 32 items were identified by the team to represent the dimensions of job performance behaviors. The items were then reviewed by sub-

ject matter experts from the organizational programs of a university in the southeastern United States, and several of the items were reworded for clarity based on their feedback.

Measures

Two measures were used in the present study to collect data: the Job Performance Behavior Questionnaire (JPBQ) developed by the researchers for the present study and the Role-Based Performance Scale (Welbourne, Johnson, & Erez, 1998). The JPBQ is proposed to measure job performance of minority employees in a minority organization, and more specifically, to measure the dimensionality of job performance. It consists of 32 items with a five-point rating scale, from 1 = "Needs much improvement" to 5 = "Excellent." Sample items include "getting information," and "processing information."

The Role-Based Performance Scale (RBPS) is chosen due to the demonstrated reliability and validity as a multidimensional measure of job performance. The Role-Based Performance Scale (Welbourne, Johnson, & Erez, 1998) consists of 20 items, with a five-point scale, from 1 = "needs much improvement" to 5 = "Excellent," measuring different dimensions of work, and alpha values ranged from .86 to .96 among the different samples used in their study. The strength of these reliability estimates suggests a high homogeneity among the scale items. Welbourne et al. (1998) provided evidence of construct validity and the presence of deficiency error of the RBPS by analyzing the ability of the RBPS to provide information on organizational outcomes that goes beyond what traditional performance appraisal measures provide.

Sample and Procedure

Participants included 126 employees from a large minority organization (African-American organization) in southeast Texas, which consisted of 56 (44%) males and 70 (56%) females. The participants ranged from 25 to 55 years of age with a mean of 29.35 (SD = 3.28). The ethnic breakdown of the sample was 96% Black, 2% White, and 2% Hispanic/Latino. Fifty-three percent of the employees have been with the organization for more than one year, 15% for one year, and 31% for less than one year. Data were obtained from supervisors' evaluations of employees in their respective divisions. The employees held jobs in various areas of their organization, including management, sales, customer service, marketing, and manufacturing.

For the administration of the JPBQ, supervisors from a southeastern minority organization used the JPBQ to obtain performance ratings of their employees during work hours. The supervisors were required to complete the RBPS for each employee as well. The minority organization allowed 250 participants for the study; therefore, the expected sample size was 250 participants, 10 supervisors and 240 employees. However, 126 questionnaires were completed, resulting in a response rate of 52.50%. The target population consisted of African-American employees in a selected minority organization in southeast Texas.

Data Analysis

The Statistical Package for the Social Sciences, Version 20 (SPSS) was used to store and analyze data. Prior to conducting the analyses, data were inspected for normality, excessive missing cases, and outliers. Unrestricted and restricted (i.e., forced solution) principal-axis factor analyses (PAF) and maximum likelihood factor analysis (ML) were conducted using several criteria to determine factor extraction: Kaiser's criterion of eigenvalues greater than 1 (Kaiser, 1974), Cattell's scree test (Cattell, 1966), Horn's parallel analysis (Horn, 1965), and Velicer's MAP test (Velicer, 1976).

Exploratory factor analysis (EFA) was chosen in order to examine the factor structure of the JPBQ for several reasons. First, the goal of EFA is to reduce "the dimensionality of the original space and to give an interpretation to the new space, spanned by a reduced number of new dimensions which underlie the old ones" (Rietveld & Van Hout, 1993, p. 93). Second, theoretical and empirical evidence suggests that the measure under investigation may be measuring similar latent factor(s) thereby calling into question construct validity. Third, although confirmatory factor analysis (CFA) can show what items are loading on the same factor, it does not show if the factor is measuring the intended construct. The goal of CFA is to test a theory when the analyst has an adequate rationale regarding the structure of the data (Henson & Roberts, 2006).

Maximum likelihood (ML) factor analysis was chosen, as opposed to principal axis factoring, to determine the least number of factors that can account for common variance while taking into account the covariation among the variables. However, if the assumption of multivariate normality is "severely violated," then principal axis factory is recommended. For the present study, assumption of multivariate normality was not violated. In general, ML or PAF will give the best results, depending on whether the data are generally normally distributed or significantly non-normal, respectively (Costello & Osborne, 2005). Since ML generally provides indices of goodness of fit statistic, ML was chosen as the primary extraction method. The objective of ML is to exhibit the factor structure that maximizes (in terms of best fit) the likelihood of the observed correlational matrix by finding the underlying population parameters that are expressed in common factors.

After extraction, the number of factors to retain for rotation was determined. According to Costello and Osborne (2005), both over-extraction and under-extraction of factors retained for rotation can have deleterious effects on the results. Over-extraction means that many factors are being extracted. Over-extraction diffuses variables across a large factor space, potentially resulting in factor splitting, in factors with few high loadings, and in researchers' attributing excessive substantive importance to trivial factors (O'Connor, 2000). Under-extraction means that few factors are being extracted, resulting in a loss of important information. The default in most statistical software packages is to retain all factors with eigenvalues greater than 1.0, which is called the Kaiser Criterion. There is a broad consensus in the literature that this is among the least accurate methods for selecting the number of factors to retain (Velicer & Jackson, 1990). Alternative tests for factor retention

include the scree test, Velicer's MAP criteria, and parallel analysis (Velicer & Jackson, 1990).

To simplify and clarify the data structure, an orthogonal rotation method was chosen rather than oblique rotation. In order to determine the best choice of rotation, Costello and Osborne (2005) argue that if factors are independent (i.e., not correlated); there is enough evidence to warrant orthogonal rotations. In the present study, none of the factor scores are related, which suggests the factors themselves are not related, which indicates that orthogonal rotation can be used. Oblique rotation results in a correlation among the factors that are more difficult to interpret than results of an orthogonal rotation (Rennie, 1997; Costello & Osborne, 2005). Furthermore, the slight difference between results of an oblique rotation and orthogonal rotation is virtually insignificant (Rennie, 1997; Costello & Osborne, 2005). For the present study, Varimax rotation (orthogonal) was used. Varimax focuses on cleaning up the factors.

Finally, empirical and conceptual considerations guided factor interpretation. Factor structure, goodness-of-fit test, and inter-item correlations from EFA were used for guidance in item and factor elimination. Items with loadings below .40 and items that are cross loaded were removed to complete the revised JPBQ. According to Matsunaga (2010), setting the cut-off at .40 (i.e., items with a factor loading of .40 or greater is retained) is perhaps the lowest acceptable threshold. Cross-loading items with values greater than or equal to .32 on at least two factors are generally candidates for deletion, and especially if there are other items with factor loadings of .50 or greater (Costello & Osborne, 2005; Henson & Roberts, 2006). In this study, coefficients exceeding .40 were considered meaningful because it indicated that at least 16% of an item's variance is due to the underlying factor (Matsunaga, 2010). Reliability was assessed for the internal consistency of JPBQ items based on the emergent scales. Convergent validity was assessed by correlating the JPBQ with the RBS.

Results

Exploratory Factor Analyses

The unrestricted factor analysis in both the ML and PAF produced a 7-factor solution with eigenvalues greater than one, which accounted for 57.52% of the variance in the JPBQ items. However, examination of eigenvalues and the Cattell's scree test (Cattell, 1966) revealed a marked gap between the first two factors and the remaining factors (Factor 1 eigenvalue = 7.88; Factor 2 eigenvalue = 5.00; the first two factors aligned with 40.26% of the total variation across factors). As these results could be connected with the eigenvalue ≥ 1 rule and the scree plot, additional analyses using Velicer's MAP test and Parallel analysis were carried out. Complicating interpretation, Velicer's MAP test (1976) and parallel analysis (Horn, 1965) did not correspond with Kaiser's criterion regarding the number of factors to be extracted. In the present study, Velicer's MAP test and parallel analysis suggest that two factors should be extracted. A number of studies and reviews have argued that the best empirical method for factor retention in factor analysis

is parallel analysis (e.g., Hayton, Allen, & Scarpello, 2004; Velicer, Eaton, & Fava, 2000). Based on these initial results, it was decided that several maximum likelihood analyses with varimax rotation will be run to evaluate seven- and two-factor solutions.

7-Factor Solution

Using the rotated factor matrix for interpretation, seven factors accounted for 57.52% of the overall variance. Three items cross-loaded onto two separate factors (values ranged from .430 to .789) and four items did not load within the solution. Community estimates for the 7-factor solution were considerably lower than the 2-factor solutions and ranged from .327 to .716. The communalities are the sum of the squared factor loadings and represent the amount of variance in that variable accounted for by all the factors. For example, in the present study, all seven extracted factors accounted for 43.8% of the variance in the variable "Getting Information" ($h^2 = .438$). More common magnitudes of communalities in the social sciences are low to moderate communalities of .40 to .70 (Costello & Osborne, 2005). Although the communality estimates were lower in the 7-factor solution, the determination of the number of factors to retain is very important, as errors in terms of selecting the number of factors to retain can significantly alter the solution and the interpretation of EFA results (Ledesma & Valero-Mora, 2007). The 7-factor solution resulted in over-extraction of factors, as evidenced with factors 5, 6, and 7, with few substantial loadings, making it difficult to interpret and/or replicate this solution (Zwick & Velicer, 1986, O'Connor, 2000, Fabrigar et al., 1999; Hayton, Allen, & Scarpello, 2004). The remaining factors (i.e., factors 1, 2, 3, and 4) were difficult to interpret, as there were many items splitting across these factors, which are indicative of over-extraction (O'Connor, 2000), and may also indicate that there are too many factors being extracted. These findings, combined with numerous low item communalities and item cross loadings are suggestive that the seven extracted factors may not represent a good fit for the data.

2-Factor Solution

A 2-factor solution was selected for extraction based on the scree plot, MAP test and parallel analysis. Because the scree plot is not an accurate method for determining the number of factors to be retained, additional analyses were carried out: Parallel analysis (Horn, 1965) and Velicer's MAP test (Velicer, 1976). In the former, "the focus is on the number of components that account for more variance than the components derived from random data. In the MAP test, the focus is on the relative amounts of systematic and unsystematic variance remaining in a correlation matrix after extractions of increasing numbers of components" (O'Connor, 2000, p. 396). Two components were extracted according to Velicer's MAP test because the smallest average squared partial correlation, which was .0172, emerged after extracting the two components. Two components were also extracted using Parallel analysis because the first two eigenvalues from the actual (raw) data

(2.65 and 2.22) were larger than the corresponding two 95th percentile (2.26 and 2.05).

Table 1 displays the 2-factor un-rotated solution, using ML as extraction method. Their corresponding eigen values and percentage of explained variance (in brackets) were: 12.09 (37.78%) and 1.69 (5.27%), respectively, and together, the two factors explained 43.05% of the variance in the JPI items. Fol-

lowing the Varimax orthogonal rotation of the 2-factor solution, the corresponding eigen values and percentage of explained variance (in brackets) for the 2-factor solution were: 9 (29.94%) and 4.20 (13.12%) and together, the factors explained 43.05% of the variance in the JPI items. Table 2 displays the variance accounted for by each factor before and after rotation.

Table 1.

Two-Factor Un-rotated Solution Using Maximum Likelihood as Extraction Method

Factor	Initial Eigenvalues			Extracted Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	12.65	39.53	39.53	12.09	37.78	37.78
2	2.22	6.93	46.46	1.68	5.27	43.05

Table 2.

Eigenvalues and Variance Explained in the Un-rotated Extraction and Orthogonal Rotation

Factor	Initial Extraction (ML)			Orthogonal Rotation	
	Eigenvalues	% of Variance	Cumulative %	Eigenvalues	% of Variance
1	12.09	37.78	37.78	9.58	29.94
2	1.69	5.27	43.05	4.20	13.19

Rotation: Varimax

Three items cross-loaded onto two separate factors (values ranged from .437 to .618), and two items did not load within the solution. Items with loading of less than .40 and cross-loaded items with loadings of .32 and above are usually candidates for elimination from a scale (Costello & Osborne, 2005; Henson & Roberts, 2006; Matsunaga, 2010). Given these requirements for item elimination, a series of factor analyses was performed to examine the impact of low-loading items and cross-loading items on the overall factor structure for the two-factor model. After item removal, which reduced the number of JPBQ items from 27 to 22, results did not reveal any significant changes. Although there were several small increases (~ .05) in factor loadings and explained variance (<1%), these differences were negligible and further investigation was warranted. Communality estimates for the 27 items were higher than the original 32 items, ranging from .316 to .695. However, the chi-square statistic for goodness-of-fit was significant, $\chi^2(298) = 563.63, p < .0001$, indicating that the 27 items may not represent a good fit for the data.

In order to investigate if additional removal of items would represent a good fit for the data, items with communality value of less than .45 were considered candidates for removal (Thompson, 2004; Henson & Roberts, 2006). Items that were not clearly defined within a factor, including redundant items were also candidates for elimination from the remaining 27 items of the JPBQ. The results revealed that simple structure was attributable to the number of items with communality values of more than .45; the explained variance of the factors increased with the elimination of items with communality value of less than .45. A final series of factor analyses was performed to examine the impact of items with low communality

values (i.e., less than .45). After item removal, results did reveal significant changes. There were several increases (> .200) in factor loadings and explained variance (>8%), these differences were noted and the two-factor structure with 12 items was retained without further investigation.

The result of ML using two factors instead of seven revealed that practically all factor coefficients loading cleanly on two latent factors corresponding to contextual and task dimensions of job performance. The factor labels proposed by Motowidlo, Borman and Schmit (1997) suited the extracted factors and were retained. The eigenvalues and percentages of variance explained by these factors were: 4.68 (38.96%) and 1.70 (14.19%), respectively, and together, the two factors explained 53.16% of the variance in the 12 items of the JPBQ. These factors were rotated by the Varimax procedure. Internal consistency for each of the scales were high – .91 for Contextual Performance (9 items), .73 for Task Performance (3 items), and .86 for Overall Job Performance (12 items). No substantial increases in alpha for any of the scales could have been achieved by eliminating more items.

In order to assess model fit, the chi-square statistic, which is produced as a result of ML extraction with 12 items, was noted. The goodness-of-fit test gives an indication of how well the two factors reproduce the variables' variance-covariance matrix. The result from the present study shows that the reproduced matrix is NOT significantly different from the observed matrix, indicating good fit, $\chi^2(53) = 64.46, p = .13$. Table 3 shows the rotated factor matrix. The Rotated Factor Matrix displays the loadings for each item on each rotated factor, clearly showing the factor structure.

Table 3.
Factor loadings based on Maximum Likelihood Analysis with Varimax Rotation for 12 items from the Job Performance Behavior Questionnaire (JPBQ) n = 126

Items	Factor 1	Factor 2
1. Inspecting equipment, structures, or materials	.180	.560
2. Operating vehicles, mechanical devices, or equipment	.157	.662
3. Repairing and maintaining electronic equipment	.081	.845
4. Communicating with people outside the organization	.700	.086
5. Guiding, directing, and motivating subordinates	.701	.187
6. Resolving conflicts and negotiating with others	.788	.154
7. Providing consultation and advice to others	.763	.154
8. Evaluating information to determine compliance with standards	.706	.247
9. Organizing, planning, and prioritizing	.695	.182
10. Coaching and developing others	.704	.135
11. Facilitating peer and team performance	.740	.099
12. Persisting with extra enthusiasm when necessary	.633	.155

Composite scores were created for each of the two factors, based on the mean of the items which had their primary loadings on each factor. Higher scores indicated high performance score for the specific domain or factor. As depicted in Table 4, contextual performance and task performance are frequent among employees, and hence, a negatively skewed distributions. Descriptive statistics are presented in Table 4. The skewness and kurtosis were within a tolerable range (skewness < 2 and kurtosis < 7) for assuming a normal distribution (Fabrigar et. al., 1999).

Table 4.
Descriptive statistics for the two Job Performance factors (N = 126)

	No of Items	M (SD)	Skewness	Kurtosis
Cont. Performance	9	4.08 (.72)	-1.21	1.86
Task Performance	3	3.08 (1.19)	-.64	.007

JPQ Reliability

The reliability estimate for the total JPBQ scores was .86, indicating acceptable level of reliability. Furthermore, a measure of internal consistency (Cronbach's alpha) was estimated for each scale prior to elimination of items, as well as for the final model for each scale. The two scales obtained good internal consistency coefficients. The internal consistency measures

were .70 or above for both scales (contextual and task performance), exceeding the widely-accepted social science cut-off for alpha, which is .70 or higher for a set of items to be considered a scale (DeVellis, 1991; de Vaus, 2002; George & Mallery, 2003).

JBQ Validity

Convergent validity. The Role Based Performance Scale (RBPS) from Welbourne et al. (1998) was used to assess the convergent validity of the JPBQ. The psychometric data from the present sample paralleled the data obtained from previous studies of the RBPS making the results interpretable. In the present study, the correlation between the final revised items of JPBQ and RBPS was significant, $r = .80$, $p < .01$. And the internal consistency of the RBPS for the present sample was consistent with previous studies (.95) (Welbourne et.al, 1998). RBPS also significantly correlated with the two factors (dimensions) of the JPBQ. Table 5 presents correlations, means, standard deviations, and reliabilities of all measures in the present study. As displayed in Table 5, JPBQ scores correlated positively and significantly with these two measures (i.e., $r = .91$ and $r = .92$, respectively). The magnitudes of these correlations suggest a strong conceptual overlap in these construct sub-dimensions and therefore provide evidence of convergent validity.

Table 5.
Correlations, Means, Standard Deviations and Reliabilities for all variables (n = 126)

	1	2	3	4
1 Cont. Performance	-			
2 Task Performance	.73**	-		
3 Overall Performance	.91**	.92**	-	
4 RBPS	.72**	.77**	.80**	-
Mean	4.08	3.00	4.09	4.08
Standard Deviation	.72	1.7	.60	.62
Cronbach's Alpha	.93	.88	.95	.95

** Correlation is significant at the .01 (2-tailed)

Discussion

The results of EFA showed evidence of the dimensionality of the JPBQ. Specifically, evidence from the present research provides support for the originally derived factor structures of job performance (Borman & Motowidlo, 1993) for three reasons. First, the 2-factor model was found to be most interpretable, when compared to the 7-factor solution. These results supported predictions that the scales of the JPBQ are as proposed by the general structure of the job performance model (Motiwidlo & Borman, 1993) that job performance consists of dimensions of work, which include contextual and task components.

Second, the scales of the JPBQ were moderately intercorrelated (.73). Specifically, 53% of the variance in task performance is accounted for by contextual performance. This finding is consistent with similar studies investigating the relationship between task performance and contextual performance (Borman & Motowidlo, 1997; Griffin, 2000; Van Scotter, 2000; Devonish & Greenidge, 2010). Organizations are increasingly aware of the role contextual performance behavior plays in task performance and overall performance (Motowidlo, 2003). An interesting finding was the correlation between overall job performance and contextual performance and the correlation between overall job performance and task performance. These correlation coefficients revealed significant strong relationships. However, the correlation between overall job performance and contextual performance was stronger (.95) than the correlation between overall job performance and task performance (.92). Again, these correlations reflect the importance of incorporating both task and contextual components of jobs in evaluating employees in minority organizations. For the most part, the scales were related to each other, but distinct, in a manner predicted by the general structure of the job performance model and supported predictions. These strong correlations suggest that the observed dimensions of work in the present study are equally measuring the construct of job performance.

A third analysis of the convergent validity supported correlations with the Role Based Performance Scale (Welbourne et al., 1998). These results provided further support for the convergent validity of the JPBQ; significant positive correlation occurred between the RBPS and the JPBQ. From these results, it can be concluded that the RBPS and the JPBQ are similar constructs. Given that the correlation between the JPBQ and the Role Based Performance Scale (RBPS) was high, caution should be taken in concluding that both measures are measuring the same construct. If these measures are related, why should one develop another measure of job performance? In developing the RBPS, the researchers (i.e., Welborne et al., 1998) used different employee roles as a method for generating items for their scale. One of the limitations addressed in their study is that employee roles were not exhaustive. The JPBQ was not based on employee roles. Models of job performance that incorporated task and contextual performance were used in the present study to develop the items of the JPBQ. The RBPS has not been validated using minority employees in minority organizations (Welbourne et al., 1998). The present study provided preliminary findings of the RBPS in a minority organization.

Each scale of the JPBQ had good internal consistency with alpha coefficients ranging from .73-.91, thus supporting predictions (the scales will be homogeneous). Task and contextual performance had alpha coefficients of .73 and .91 respectively. Task performance had a lower coefficient (.73) than contextual performance (.91). One plausible explanation was that items from the task domain were fewer than the items in the contextual domain. Another explanation was that cross-loaded items were discarded to achieve a simple factor structure, as these cross-loaded items are indication that these factors can be very difficult to differentiate in actual work context. According to Motowidlo (1997), making distinctions between task performance behaviors and contextual performance behaviors can be fraught with difficulties

as often seen in practice, the lines of demarcation between task and contextual performance can be blurred.

The type of extraction and rotation methods used in EFA can result in different or similar interpretations regarding a factor solution (Costello & Osborne, 2005). For example, in the present study, performing EFA using Maximum Likelihood with Varimax rotation instead of oblique rotation resulted in a similar account regarding factor loadings. Conway and Huffcutt (2003) have suggested using Oblique rotation in EFA in making decisions regarding factor structure. However, oblique rotation is rare in the social sciences because, although it makes linkage of the variables with the factors clearer, it makes the distinction between factors more difficult (Lance, Butts, & Michels, 2006). Since identifying the meaning of the different factor is one of the main challenges of factor analysis, oblique rotation tends to make matters worse in most cases (Lance et al., 2006).

Content validity evidence demonstrates the degree to which a sample of items represents the total domain, or the total construct of interest. The results from this study of the SMEs ratings of the JPBQ items' fit with the general structure of the job performance model supported the content validity of the JPBQ, as predicted. As a check for this procedure, SMEs read all original 50 items of the JPBQ and suggested candidates for elimination, due to lack of clarity and not measuring the domain of interest. These procedures reflected a refined JPBQ items for EFA.

Limitations and Directions for Future Research

There were three limitations with regard to this study. First, one potential source of concern with the current research was the reliance upon asking supervisors to provide job performance ratings of their employees using the JPBQ. Because context makes a difference in job performance ratings, the ratings obtained from supervisors in a minority setting appeared to be negatively skewed (Harris and Schaubroeck, 1988; Avey, West, Conway, 2008; Atwater et al. 1998; Heidemeier & Moser 2009). The second limitation of this study was that the sample size for the current study was 126, which could hinder the generalizability of the findings. Furthermore, because EFA is an internally driven procedure, results may be sample specific (Costello & Osborne, 2005). However, according to Costello and Osborne (2005), strict rules regarding sample size for exploratory factor analysis have mostly disappeared. Studies have revealed that adequate sample size is partly determined by the nature of the data (Fabrigar et al., 1999; MacCallum, Widaman, Zhang, & Hong, 1999). Gorsuch (1983) maintains that the sample size for an EFA should be at least 100. In general, the stronger the data (i.e., communalities greater than .80), the smaller the sample can be for an accurate analysis (Costello & Osborne, 2005; Velicer and Fava, 1998). In the social sciences, more common magnitudes are low to moderate communalities of .40 to .70 (Costello & Osborne, 2005). In the present study, communalities ranged from .40 to .70. Future studies should use adequate sample size for EFA.

A third limitation of this study was that it did not achieve the goal of random sampling from the target population (i.e., employees in a minority organization). The lack of full representation was a weakness stemming from using a convenience sample, and may have produced biases (e.g., results due to

something in common about the participants). For example, while there was diversity in terms of different occupational groups, the sample consisted mainly of student employees, professionals, and females.

Job performance models based on current theories of job performance and consisting of psychometrically sound instruments could help guide practitioners, researchers and academics in the complicated process of assessing job related behaviors. Within the area of I/O psychology the literature is replete with job performance as a multidimensional construct. There does not seem to be any consensus as to how many dimensions they are in job performance. Reliable and valid instruments of job performance, which capture various dimensions of work, are desperately needed within I/O psychology and HRM. One advantage of the JPBQ is that it has items designed to measure different dimensions of job performance behaviors consisting of task performance and contextual performance.

Conclusion

The Borman and Motowidlo (1993) model of job performance could potentially be beneficial to the field of I/O psychology and HRM; however, there is much work to be done. This current research is promising in that it provides support for the reliability and convergent validity for the JPBQ with regard to this sample. As Murphy (2009) stated, the validation of an instrument or test reflects its use and purpose and should be validated in the setting in which it is planned to be used. From a management perspective, the JPBQ offers minority organizations a user-friendly and a valid measure of job performance for evaluating minority employee performance. Furthermore, it is a concise measure, which makes it easy to implement.

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Assessing the Effectiveness of the Violence Free Zone in Milwaukee Public Schools: A Research Note

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The Violence-Free Zone (VFZ) is a youth mentoring program designed to address behaviors that result in truancies, suspensions, violent and nonviolent incidents, involvement in drugs and gangs, and poor academic performance in public middle and high schools. This study employed a quasi-experimental evaluation design, using data from VFZ students in Custer High School as the treatment group and all students at non-VFZ schools in Milwaukee as the control group from academic years 2006 to 2010. The purpose of the study is to assess the efficacy of the Violence Free Zone in providing mentoring services to high-risk, underserved youth within Milwaukee Public Schools. We find preliminary evidence that the Violence Free Zone reduces truancy and suspensions of the target population as well as improving schools' climate, more generally.

Keywords: youth mentoring, truancy, violence prevention, youth violence, Violence-Free Zone

We also know that in too many American schools there is a lawlessness where there should be learning...Make no mistake, this is a threat not to our classroom, but to America's public school system and, indeed, to the strength and vitality of our nation.

(President Bill Clinton, cited in Astor, Meyer, & Behre, 1999, p. 4)

Background

The Center for Neighborhood Enterprise (CNE) coordinates the Violence-Free Zone (VFZ) initiative through local organizations in several U.S. cities. The Center for Neighborhood Enterprise (CNE) was founded in 1981 by former civil rights activist and life-long community organizer Robert Woodson, Sr. The three founding principles established by Woodson to govern and direct CNE, which still serve as the guideposts for the organization 27 years later, are:

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(1) Those suffering from the problem must be involved in the creation and implementation of the solution; (2) The principles of the market economy should be applied to the solution of societal problems; and (3) Value-generating and faith-based programs and groups are uniquely qualified to address the problems of poverty. At the core of CNE's philosophy and approach is a recognition that effective, community-based programs originate in those same communities, and not necessarily from ivory towers or subject matter experts who often have very little practical or first-hand knowledge of these communities. The Violence-Free Zone (VFZ) initiative originated very much along these same lines, as community members worked closely with school safety officers, parents and local police to implement the program.

The thinking and approach of the VFZ initiative, a violence prevention and reduction program located within middle and high schools, was developed and formulated outside of the public school environment. Woodson first applied his knowledge on addressing youth violence and gang-related issues in January of 1997 at Benning Terrace, a public housing development in Washington, DC, where youth violence had led to more than 50 youth deaths within a short period and had culminated in the shooting death of a 12-year-old boy.

Woodson and CNE helped to design a peace agreement between the warring youth factions, while helping to bring life skills, job training and job placement services for youth seeking to avoid a lifestyle typified by drug use and crime. The peace accord was possible because of CNE's openness to recognize and learn from the skills and abilities of existing community organizations and leaders in addressing particular

community problems. One of the key lessons that emerged from these efforts was an understanding of how much influence these violent youth leaders had on young people within these disadvantaged neighborhoods. Unfortunately, in Benning Terrace these youth leaders used their influence negatively to control - and terrorize - the community. However, after CNE's intervention, these same youth leaders instead used their influence to turn the community in a positive direction as they became involved as, for example, coaches of athletic teams, and as they sought to motivate younger kids to exhibit good behavior and complete their school work. Woodson and CNE saw how youth leaders could be effective in influencing younger peers and used this insight to create what would later become a central piece of the VFZ Initiative.

VFZ uses school-based mentors, called "youth advisors" to model and encourage positive behaviors among high-risk youth. VFZ recruits youth advisors who can relate to young people and who have come from circumstances and backgrounds similar to those of the students. The youth advisors monitor, counsel, and mediate on behalf of students within the VFZ program as well as assist with school-wide monitoring (i.e., walking the hallways, being there when students come to school, etc.) and informal mentoring activities for the entire school population. All of these efforts are done in coordination with school officials and representatives.

How the Violence-Free Zone Initiative Works: The 10% Rule

One of the central challenges to public schools is the disruption of the educational environment and educational process (Gladden, 2002). Often a product of neighborhood rivalries or gang-related conflicts occurring during school time, these disruptions cause instability within the school and create an environment that stifles rather than promotes positive learning experiences. What Woodson and his colleagues learned from their previous experiences working with gangs and violent youth was the importance of identifying and reaching out to the leaders of these gangs. According to Kwame Johnson, former national coordinator of the VFZ programs for CNE, this dynamic had direct relevance for working within the high school environment:

If you have a high school of 1,000 or more kids, there are usually about 10% of those kids responsible for most of the incidents and disruptions occurring within the school. About 10% of these kids, in turn, are the leaders that orchestrate much of the disruptions, usually in the form of one gang acting out on another gang. Much of the VFZ strategy boils down to first identifying, and second, trying to develop relationships with these 10 or so leaders. So, the 10% rule is really about the 10% of kids causing the disruption at school, and then drilling down to the 10% of those that are really the driving force behind those conflicts. By engaging and redirecting these leaders, we have seen significant reductions in incidents, particularly gang-related incidents, in the schools where the VFZ initiative is operating (Johnson and Wubbenhorst, 2010, p. 5).

The VFZ model entails recruiting and training Youth Advisors, who are generally mature young adults from the same neighborhoods as the students in the schools they serve. These

Youth Advisors command trust and respect because they have faced and overcome the same challenges these youth are facing. They serve several roles, including: hall monitors, mentors, counselors, mediators, role models, and 'peace-makers' when conflicts flare up in the school. The Youth Advisors also act as additional "sets of eyes" to ward off negative behaviors as they also observe students' behavior outside the building on the school campus. Woodson (1998) describes the type of people sought out to serve this Youth Advisor role as 'community healers,' or 'grassroots Josephs,' the latter in reference to the biblical character and the trials he endured, as well as his subsequent transformation as a leader in the service of Pharaoh and helping Egypt during a time of famine. As Woodson explains:

Grassroots Josephs may not have degrees and certifications on their walls, but they do have this - the powerful, uncontested testimonies of people whose lives have been salvaged through their work. The undeniable fact that lives have been transformed through the work of modern-day Josephs must be appreciated even by observers who may be skeptical about their approach (Woodson, 1998, p. 76).

Previous VFZ Evaluation Efforts

Local public school administrators with the Milwaukee Public Schools (MPS) have praised the initiative's work, and the Department of Justice's National Gang Center endorses the VFZ initiative as a promising program structure (OJJDP, 2012). This evaluation builds on previous research on the Violence-Free Zone (VFZ) initiative in Milwaukee and Richmond. These earlier studies (Johnson and Wubbenhorst 2009; 2010a; 2010b) examined the VFZ program by comparing school-wide trends for variables such as school-wide violent/non-violent incidents, suspensions, and school climate at the seven Milwaukee schools and one Richmond high school with VFZ programs. As of 2013, the VFZ Initiative is in nine of Milwaukee's fourteen public high schools. The results of this research suggest the VFZ program was successful in mitigating violence within those schools. In contrast to the earlier research, which examined trends in the number of incidents, suspensions and GPA for high schools with the VFZ program, the current study examines the impact of the VFZ program specifically on youths directly receiving mentoring services from the VFZ via Youth Advisors at one of the VFZ high schools, Custer High School. This research also draws from data provided by the Milwaukee Public Schools' (MPS) research division, but with a primary focus on pre- and post- trends for those youth enrolled as mentees through VFZ, hereinafter referred to as VFZ caseload youth.

The original evaluation indicated positive overall trends for students in the VFZ schools in comparison to those in MPS high schools without VFZ, in areas such as, lower number of overall incidents, suspensions and improved student responses on school climate surveys. In contrast, the current study is designed to isolate the specific impact of VFZ on the students receiving formal mentoring services, not only in terms of incidents and behaviors but also in terms of grade point average, truancy, and graduation rates. Future research will attempt to

determine how much of the school-wide VFZ benefits observed in both studies are a result of the Youth Advisors formal mentoring activities and how much is attributable to the mentors' more generalized, school-wide efforts (e.g., greeting students, walking the hallways and cafeteria, etc.). Indeed, Youth Advisors make every effort to build positive and sustainable relationships with students and to avoid negatively labeling students, something research has identified as problematic (Greene, 2005; Kaplan and Johnson, 1991).

Literature Review

School-based violence is clearly not a new problem, but has come to be more widely recognized as a significant problem as a result of the unprecedented press coverage surrounding the Columbine shootings in April of 1999. Tragedies like Columbine have caused educators to consider ways to address violence in our schools. School administrators obviously recognize that disruptive behavior interferes with teaching. The deleterious consequences of school violence are many and include:

- ♦ weakening the ability of students to focus on academic pursuits;
- ♦ subverting the academic purposes of schooling by causing students to skip classes or to avoid school;
- ♦ precipitating such internal problems as depression and social anxiety
- ♦ causing fear among teachers and other school staff;
- ♦ increased aggression and carrying of weapons;
- ♦ acceptance of violence as a reasonable form of conflict resolution.

Reducing school violence, therefore, remains a major concern of educators, parents, and policy makers. Consequently, an essential aspect of school violence prevention is the identification and implementation of interventions and strategies designed to prevent or reduce minor as well as more serious forms of violence in schools. Moreover, we know that students who feel connected to their school are also more likely to have better academic achievement, including higher grades and test scores, have better school attendance, and stay in school longer (Resnick et al., 1997).

However, administrators and teachers are already under growing pressure to improve test scores, as well as meet other protocols and guidelines that make it increasingly difficult to manage all these demands, while also facing significant budgetary restrictions. Consequently, according to Greene (2005), educators too often adopt ineffective "quick-fix" solutions to stem violence in their schools including: suspension or expelling of large numbers of disruptive students, electronic security measures, or a single limited psychosocial program.

Walker (1995) identified several major issues contributing to violence-poverty, racism, unemployment, substance abuse, easy to access weapons, inadequate or abusive parents, and exposure to violence in the media. He claims that most tactics implemented in schools to deal with the violence issue are one-dimensional (such as removing the child from the classroom upon the incidence of a violent act). These tactics are

effective in protecting students at the moment, but do nothing to deter them from continuing on with criminal careers. Walker suggests schools should implement peer conflict-resolution programs and student training in empathy, cooperation, and perspective-taking. Though formal research on such efforts is limited, he believes data is beginning to accumulate suggesting peer education improves school climate, increases self-esteem and confidence, and encourages students to have more personal responsibility.

After tracking an increase in youth gun violence since the mid-1980s, as well as increasing gun traffic in schools, Kennedy, Piehl, and Braga (1996) put forward a prevention model to target the illicit market of guns as the primary issue needing to be addressed. In Boston, like other major urban centers, gun acquisition is a problem for youth, not primarily because of drug trafficking, but because of fear, for self-defense. Since 1995, the Boston Gun Project has met biweekly to study the violence dynamic in treatment areas and to monitor gun purchase and robbery. The Gun Project was deemed successful enough to expand to many different jurisdictions across the country (Braga, et al., 2008).

The "Bruno Effect" was a low cost initiative that utilized the notion of an Adult Protective Shield. Members of the Jamaican Constabulary Force were trained in how to be community-oriented actors within schools. They were to act as "Gentle Warriors," carrying the weight of the law outside of the school doors but acting as peacemakers-positive, rather than strictly punitive-authority figures. They were each affiliated with a particular school. Because most problems arose during classes, when students often roamed the hallways, the Warriors would patrol the hallways to enforce attendance. The Bruno Effect had four stages: (a) Address one disciplinary issue, like tucking in shirts; (b) Establish a clubhouse for formal meetings on violence prevention and life skills, followed by recreational sports. The students who attended were called the Honor Group and worked to help the leader; (c) Weapons confiscation; (d) Work with parents as an outreach specialist to ensure the prevention learning went home as well.

According to Sacco and Twemlo (1997), the results of the program were a decrease in sexual harassment, a major increase in classroom attendance, and a decrease of frequency of school violence. Due to funding restrictions, the program was cut and violence returned to previous levels.

Bucher and Manning (2005) state that most of the anti-violence programs implemented in schools after Columbine have since faded out or have been abandoned. The ones that remain are basic ordinances of ID badges and visitor policies, and these are insufficient. At their best, they keep guns away, but students still need to feel "emotionally and intellectually safe." The authors cite a need to increase student-teacher cooperation and a common "conflict management language." There needs to be a sense of community and a positive process-based model, rather than a negative/problem-centered model focused on metal detectors and surveillance cameras. The authors call for a stronger support system and counseling opportunities to help students grow in emotional literacy. They recommend setting up teachers as role models for warmth and embrace in the face of diversity.

In a study of nine ‘atypical’ schools - those that are low in violence yet situated in high violence areas, Astor, Benbenishty, and Estrada (2009) find that the most important variable in safe schools is the leadership of the principal. The principal buffers the school from outside violence by establishing a healthy culture in the building with a strong sense of authority and control. In times of transition, from one principal to the next, there is typically a culture shift or an increase in violence. Furthermore, the authors report that school cultures and expectations for behavior must be adjusted for the age of the student and the broader cultural context.

Wilson and Lipsey (2005) conducted a meta-analysis of 219 studies on reducing school violence. All school ages were included in the studies Wilson and Lipsey reviewed, from pre-school through high school, and the average age was around 10. In general, schools that were studied were selected because of some environmental or neighborhood risk, such as poverty or high crime rates. Importantly, most of these 219 studies were conducted mainly for research purposes with high levels of researcher involvement (research and demonstration programs), and nearly two-thirds of the programs were less than 20 weeks in duration, and almost 40% suffered from implementation problems.

In addition, the studies included in the Wilson and Lipsey meta-analysis evaluated violence intervention programs delivered: (a) in classroom settings, (b) to select students due to the presence of some risk factor, or (c) to students placed within special classrooms because of some behavioral concern. Consequently, though there exists a number of different programs to prevent school violence, there are few evaluations of school-wide violence reduction programs like the Violence Free Zone.

Study Design and Methodology

This study employed a quasi-experimental evaluation design, using data from VFZ students in Custer High School as the treatment group and all students at non-VFZ schools in Milwaukee as the control group from academic years 2006 to 2010. We selected the Milwaukee VFZ program at Custer High School for this study because it was one of the original, and therefore most established, VFZ programs. Also, CNE’s community partner, Runnin’ Rebels, was able to provide the information on Custer’s VFZ caseload youth that we needed for our data request to MPS.

The three main research questions for the current evaluation are:

1. How do the improvements in behavioral outcomes already shown at the school-level compare to changes in behavioral outcomes specifically for the VFZ caseload youth?
2. Are there academic outcome improvements for the VFZ caseload youth trended over time extending from pre-VFZ involvement to graduation?
3. How do the positive behavioral changes in VFZ caseload youth, and the presence of Youth Advisors in the school, affect overall school climate?

The research team requested data from MPS for all students and the VFZ cohort at Custer High School. The VFZ administrators sent the MPS Data Center a list of ID numbers for all students enrolled in the VFZ program at Custer High School from academic year 2007 through 2010. The data included the individual students’ grade levels, disciplinary incidents, GPA, graduations and expulsions, and other details such as types of disciplinary action (e.g., suspensions). MPS coded all data with identification numbers to protect students’ anonymity. The data provided by Runnin’ Rebels included the date each student enrolled in the VFZ program.

The current study captured variables associated with a VFZ cohort of students before and after enrollment in the program and, in some instances, as compared to the entire school. We also examined climate survey trends for Custer High School from academic year 2005-06 (a year before VFZ began at Custer High School) and academic year 2010-11.

The team sought to answer the following research questions during Year 2:

- Does VFZ membership impact VFZ students’ disciplinary incident rates?
- Does VFZ membership influence students’ GPA?
- Does VFZ membership impact graduation rates?
- For each question, what is the context of school variables during the study period (2006 - 2011)?

The following sections describe the methodology used to address these questions.

Changes in Key Variables for Pre- and Post-VFZ Students

The evaluation team was interested in the potential effect of the VFZ program on incidents for VFZ students both before and after their enrollment in the VFZ program.

1. MPS provided a list of incidents by month for all VFZ students which, depending on when the student was enrolled in VFZ, represented incidents occurring before and after their enrollment in the program.
2. Student incidents were separated into two groups: (a) those that occurred on or *before* the month and year they began the VFZ program; and (b) those that occurred the month and year after they joined the VFZ program.
3. The number of months pre-VFZ was determined by counting from the month/year when the student was first involved in an incident to the month/year when they enrolled in VFZ (excluding July and August);
4. For students that reported no incidents prior to VFZ, we referred to the MPS Evolved Demographics file and looked at the earliest “SYS_BEGIN_DATE” date for an approximation of when the student began at Custer High School, and then counted the number of months to when they enrolled in the VFZ program;
5. We wanted at least 2 months of pre-VFZ data, therefore we did not include any VFZ students for which there were not at least 2 months of time between when they entered Custer and when they enrolled in VFZ. We also did not include any VFZ students for which there were not at least 2 months of time in school post-VFZ (i.e., we required at least 2 months of post-VFZ data).

6. Once we defined the sample group, we were able to analyze changes in variables such as average GPA and discipline incidents. Because we have paired samples of pre- and post-VFZ program data, we were able to compare the change in outcomes for students before and after their participation in the VFZ program.

We used t-test/null hypothesis analyses to determine whether the average pre- and post-VFZ samples were statistically different from each other. The paired t-test examines whether the mean of the differences (effect of VFZ program) is discernible from zero (no effect). The null hypothesis is that the population mean of individual differences of paired observations is 0. Therefore, if the null hypothesis is rejected, there must be a significant difference (VFZ program effect) between the two samples (pre and post outcomes).

School Level Variables

MPS tracks variables such as GPA and disciplinary incidents at the school and population subset level. We relied on these reports for summary data, but supplemented these data with additional MPS and VFZ data, detailed at the student level, and coded to protect individual student identities (The annual reports, each summarizing data for three school years, are posted online at www.milwaukee.k12.wi.us/acctrep/rc11.html).

Table 1.
Incidents/Month (Pre- and Post-VFZ intervention)

Variable	# of Observations	Average # of Incidents/Month	Standard Error	Standard Deviation	95% Confidence Interval
Pre-VFZ Incidents/Month	90	1.200	.0951	.9023	1.011 - 1.389
Post-VFZ Incidents/Month	90	.677	.0751	.7128	.528 - .8277
% Reduction in Incident/Month		44%	.0832	.7897	.357 - .688

As shown in Table 1, VFZ students averaged 1.2 incidents per student prior to participating in the VFZ program, whereas after being in the VFZ program longer than 2 months, these averages drop by about 44% to around .68 incidents per student. These data provide initial evidence that the VFZ program reduces disciplinary incidents effectively.

Suspension Days and Changes in Discipline Method

It is reasonable to expect a reduction in suspensions to correlate with reduced numbers of incidents or with lower levels of incident severity. However, as shown in Table 2, the 79% reduction in suspension days/month exceeded the 44% reduction in incidents/month. This result may point to the VFZ's role not only in reducing the occurrence of disruptive incidents in school, but also in changing the manner in which the school chooses to discipline for those incidents that do occur. VFZ advisors may intervene on the students' behalf for a reduction in severity of punishment, such as proposing alternatives to suspension. This may produce positive outcomes to the extent that students miss fewer school days as a result of alternatives to suspension made possible by the VFZ program.

Findings

VFZ Students Pre- and Post-VFZ and Compared to School Level

Disciplinary Incidents

We examined disciplinary incidents for students from school years 2006-07 through 2010-11. MPS categorizes incidents by type to include: assault; battery; bullying; chronic disruption or violation of school rules; disorderly conduct; false fire alarms; fighting; gambling; inappropriate personal property; intent to distribute, use of, or possession of drugs, alcohol or medications; leaving classroom without permission; loitering; possession of stolen property; possession/use of weapon; refusal to work or follow instructions; repeated classroom disruption; tardiness; truancy; and verbal abuse.

We had complete data for 90 VFZ student records, which we examined using the previously described methodology, comparing average discipline incidents before and after the students joined VFZ. Table 1 includes summary statistics of two variables (Pre-VFZ Incidents/Month, Post-VFZ Incidents/Month) and then indicates results of the paired t-test using the differences of matched pairs.

Table 2 shows summary statistics of two variables (Pre-VFZ Suspension day/Month, Post-VFZ Suspension Days/Month) and then the results of the paired t-test using the differences of matched pairs.

The monthly post-VFZ mean of .12 is smaller than the .60 suspension days/month students received before joining the VFZ program, resulting in a 79% reduction in suspension days/month. There are two potential explanations for this reduction, one which pertains to the reduction in incidents themselves, and the other from changes in discipline actions based on the presence of the VFZ program.

Attendance

Data on attendance for VFZ students pre- and post-VFZ were somewhat contradictory and did not reveal any significant improvement or decline (data on attendance are not significant and not presented here, but are available upon request). This may be a result of how some teachers captured data on attendance, as some entries were coded as "absent" in one database and coded as "tardy" elsewhere.

Table 2.
Average Suspension Days/Month (Pre- and Post-VFZ intervention)

Variable	# of Observations	Average # of Suspension Days/Month	Standard Error	Standard Deviation	95% Confidence Interval
Pre-VFZ Incidents/Month	75	.600	.0571	.495	.486 - .713
Post-VFZ Incidents/Month	75	.124	.020	.175	.083 - .164
% Reduction in Incident/Month		79%	.055	.473	.366 - .585

Truancy

We isolated truancy incidents from total incidents, utilizing the same pre-/post-analysis described earlier (i.e., examining VFZ students with at least 2 months pre-VFZ and post-VFZ). Table 3 presents summary statistics of two variables (Pre-VFZ Truancies/Month, Post-VFZ Truancies/Month) and shows the results of the paired t-test using the differences of matched pairs.

The average number of truancy incidents/month for VFZ students decreased by 23% from pre-VFZ levels. Given that almost half (48%) of VFZ youth had at least one truancy incident, this represents 162 fewer days lost from school per year. Furthermore, since the punishment for truancy was suspension in most instances (92%), the reduction in truancy incidents contributes to an additional of 149 fewer school days lost per year. These data suggest a total projected increase of 311 school days per year correlated with VFZ intervention.

Table 3.
Average Truancy Incidents/Month (Pre- and Post-VFZ intervention)

Variable	# of Observations	Average # of Incidents/Month	Standard Error	Standard Deviation	95% Confidence Interval
Pre-VFZ Suspension Days/Month	34	.13	.0667	.389	.145 - .417
Post-VFZ Suspension Days/Month	34	.10	.0355	.207	.088 - .233
% Reduction in Suspension Days/Month	--	23%	.0779	.454	-.038 - 0.278

Changes in Grade Point Average (GPA)

To determine the possible impact of the VFZ mentoring on academic performance, we compared the GPA of VFZ students prior to enrollment and six months after enrolling in the pro-

gram. Table 4 shows that GPA for VFZ students rose by 9.3%. This is a particularly impressive finding, given the fact that Youth Advisors do not provide tutoring to youth on their VFZ caseload.

Table 4.
Average GPA (Pre- and Post-VFZ intervention)

Variable	# of Observations	Average # of Incidents/Month	Standard Error	Standard Deviation	95% Confidence Interval
Pre-VFZ Suspension Days/Month	124	1.62	.074	.824	1.47 - 1.765
Post-VFZ Suspension Days/Month	124	1.77	.070	.777	1.63 - 1.90
% Reduction in Suspension Days/Month	--	9.2%	.040	.435	(-2.24) - (-.070)

High School Graduation and College

Notwithstanding the significance of the findings listed above, the ability to successfully graduate from high school is perhaps the most important success indicator of all. Here the impact of the VFZ program is especially significant. This particular graduation rate is determined by the percentage of 12th grade students that graduate (i.e., total 12th graders less those

students that did not complete but are still registered with MPS and those students that have withdrawn from MPS). Table 5 shows the comparative graduation rates for the VFZ caseload in contrast to other 12th graders at Custer. The VFZ caseload 12th graders graduation rates are 24% higher than those for the whole Custer population

Table 5.
High School Graduate and College (Pre- and Post-VFZ intervention)

School Year	VFZ Graduates	VFZ Withdrawn/ Registered	VFZ Graduation Rate	Custer Graduates	Custer Withdrawn/ Registered	Custer Graduation Rate
2007-08	10	3	77%	141	56	72%
2008-09	17	1	94%	128	39	77%
2009-10	33	1	97%	128	45	74%
3-year average	60	5	92%	397	140	74%

In addition, the 2011-12 VFZ graduating class was significantly more likely to pursue college as compared to the state average. Of the 41 VFZ graduates, 28 (78%) are planning on going to college and 23 (64%) have already received acceptance letters. These percentages are significantly higher than the estimated 59% of high school graduates in Wisconsin that go directly from high school to college. In addition, 12 of the VFZ graduates have declared majors including biology, arts/graphics, medicine, culinary arts, cosmetology, accounting, and liberal arts. Two of those not attending college have jobs and another is joining the National Guard. Therefore as of August 2012, VFZ was aware of all but five graduates' occupational or educational plans.

Custer High School Climate Survey trends

MPS administers an annual 36 question school climate survey to high school students between October and December of each year. The survey elicits students' opinions anonymously about their school's rigor, safety, governance, and environment. Table 6 shows a subset from that questionnaire that correlates with aspects of school climate that the VFZ might be expected to influence positively.

Table 6.
MPS Climate Survey Questions

Category	Question
Atmosphere/ Environment	"My school has a friendly and welcoming atmosphere."
	"My school building has a positive atmosphere for learning."
	"Students at my school focus on learning."
Safety	"My school makes sure that students are safe and orderly while outside on school grounds."
	"The halls, bathrooms, cafeteria and other common areas in my school are safe and orderly."
Orderliness/ Adherence to Rules	"When students at my school break the rules, staff members help them improve their behavior."
	"The staff at my school enforces the rules."

We compared the trends in climate survey responses for Custer High School students with those for MPS high school students overall, as shown in Figure 1. We found that overall climate scores for MPS student respondents improved in all three domains (i.e., school atmosphere, orderliness of schools, and safety of schools) from academic years 2005-06 to 2009-10. The climate survey was not administered at Custer high school during AY 2006-07. However, it also shows significantly higher increases for Custer High School during that same time period.

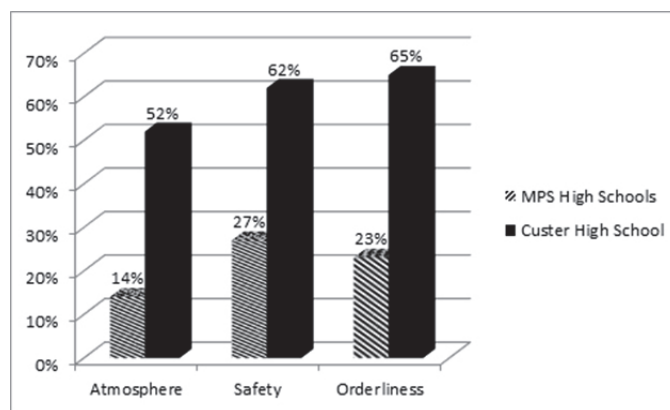


Figure 1. Improvements in School Climate Survey Responses from High School Students: AY 2005-06 to AY 2009-10

Implications of Findings

The research team is encouraged by the Year 2 results. Although data on attendance was incomplete, the other findings suggest that the VFZ has positively impacted disciplinary incidents (including truancy incidents), suspensions, GPA, and has potentially affected the number of 12th graders that graduate and pursue college.

School authorities have discretion about implementing specific disciplinary remedies within certain MPS guidelines (see Parent/Student Handbook on Rights, Responsibilities and Discipline. MPS Division of Communications and Public Affairs. Milwaukee, WI). The VFZ mediates with authorities on students' behalf in some cases of disciplinary incidents. VFZ Youth Advisors also consult with the individual students in an effort to reduce negative behaviors. The number of discipline days a student receives may reflect this mediation, indicate a less severe offense, or be a result of variation in administrative

styles. Apart from how authorities make their judgments, fewer discipline days mean less time spent away from school for the offending student. The effect of this on the student as well as the school body may be positive if the student also decreases his or her disruptive behavior. Our study documents that the average number of discipline incidents/month for VFZ members decreased by approximately 44% after VFZ membership. This preliminary finding is a compelling and positive indicator for the school as well as the VFZ students.

A decrease over time in average suspension days is also a positive indicator for the students, especially when co-occurring with a declining trend in average incidents. The study found that as a group, the VFZ students received about 79% percent fewer suspension days after participating in the VFZ program. This dramatic decrease in suspension days reflects well upon the efforts by the MPS to revise and improve upon their suspension policies and practices.

The combined effect of higher GPAs and fewer incidents and, consequently more days in school, may have also contributed to the comparatively higher rates by which VFZ 12th graders graduate in comparison to Custer students overall. For the 2011-12 school year, most of the VFZ seniors (87.8%) graduated with their class and most of those graduates (78%) plan to go to college. This class is the first to graduate with students who could have potentially been VFZ members during their entire educational experience at Custer High School.

Although the attendance data was inconclusive, we did find decreases in truancy rates for VFZ students as compared to before they enrolled in the VFZ program. Besides being an indicator of poor student performance, high levels of chronic truancy are often associated with increases in off-campus delinquencies (OJJDP Juvenile Justice Bulletin, 2001). Therefore, the indication that shows VFZ affiliation may lead to fewer truancy incidents could affect not only the entire school but also the local community. The decline in truancy days and associated decline in suspension days not only mean more time spent in school for the VFZ students but also may be a contributing factor associated with lower crime rates. Many classic and contemporary studies link increasing crime and deviant behavior with increasing opportunities to commit crime (Cloward and Ohlin 1960; LaGrange and Silverman 1999; Longshore 1998). Stated differently, more time in school reduces the chances that youth will have additional free time and thus the opportunity to be involved in criminal or delinquent acts. The research team plans to investigate this further by requesting relevant summary data from police authorities in Year 3.

The climate survey analysis was the one piece of our evaluation that focused on changes in school-wide indicators. While MPS high schools are improving on climate surveys overall, the dramatic increases in student responses to positive statements about the school environment, safety and orderliness suggest the affirmative impact of the VFZ's presence, beyond the mentoring services provided to VFZ caseload youth. We will continue to closely monitor these improvements in school climate in VFZ schools, and examine what other research literature points to in terms of the benefits to student learning.

A summary of the Year 2 findings is as follows:

- ♦ The study compared the average number of discipline incidents for a group of students at least 2 months before they joined VFZ and after they were in VFZ at least 2 months and found an approximately 44% reduction in monthly disciplinary incidents for students compared to the pre-VFZ rate.
- ♦ As a group, the VFZ students received about 79% percent fewer suspension days after participating in the VFZ program, as compared to suspensions before joining the program.
- ♦ Data on attendance for VFZ students pre- and post-VFZ did not reveal any significant improvement or decline. This may be a result of how various authorities captured data on attendance, as some entries were coded as "absent" in one database and coded as "tardy" elsewhere.
- ♦ The study did find decreases in truancy for VFZ students. The average number of trancies/month decreased by 23% after enrollment in VFZ, resulting in an estimated increase of over 300 days, from reduced trancies and reduced suspension for truancy.
- ♦ The study compared the pre- and post-VFZ students' GPAs, and found that GPA increased by an average of 9.2%. This finding is particularly significant, given the fact that VFZ Youth Advisors do not provide their mentees with any academic counseling.
- ♦ 94% of 12th graders enrolled in VFZ graduated high school between academic years 2007-08 and 2009-10, as compared to only 76% for 12th graders at Custer High School overall. Furthermore, 78% of VFZ High School Graduates in academic year 2010-11 applied for college (64% of those VFZ Custer Graduates have already been accepted), as compared to the estimated statewide rate of only 58% if high school graduates in Wisconsin that go directly into college (This data was not available for VFZ graduates from Custer for academic years 2007-08 through 2009-10).

In an effort to capture how the contribution of VFZ youth advisors extends beyond the 'caseload' of youth they formally mentor, the research team examined student climate surveys at Custer high school between AYs 2005 and 2010, and found significant improvements in several areas. Although climate survey scores improved across all MPs high schools, the percentage increase in positive student responses at Custer (Positive responses were defined as the percentage of students that Strongly Agreed/Agreed with positive statements (i.e., "My school has a friendly and welcoming atmosphere") were significantly higher than MPS as a whole on questions pertaining to: (a) overall school atmosphere/environment (52% vs. 14%), (b) orderliness/adherence to rules (65% vs. 23%), and (c) safety (62% vs. 27%).

Summary and Conclusion

It is not necessarily easy to pinpoint the specific interventions that are clearly significant in reducing school violence. Most of the research reviewed in this study offer multi-variable plans with several different strategies being implemented at once, making it difficult to discern what is effective and what is not. Indeed, the evaluations summarized earlier indicate that when it comes to assessing the effectiveness of youth violence

reduction programs, scholars tend to be more comfortable suggesting that strategies to date “show promise.”

Across the literature a repeated refrain is that we rely too heavily on reactive programs and need to focus on preventative strategies to make real progress in reducing the culture of school violence. One common suggestion is setting firm leadership in place, like a strong principal or another respected figure responsible for superintending student behavior. Another is strengthening the relationships among students and faculty members. There is also a consensus that problem-based/punitive approaches are less effective than positive-process models that develop healthy communities and teach students “emotional literacy.”

According to Jenkins (1995), decreasing levels of school commitment correlate with increasing rates of school crime, school misconduct, and school nonattendance. Moreover, an increase in students’ commitment to their school may mediate many of the risk factors for school delinquency associated with personal background, family involvement, and academic ability. Stated differently, changing the culture of the school may not only help to prevent delinquency, but creates an environment where students can flourish academically. Preliminary evidence suggests that the Violence Free Zone is a new initiative that may help schools build such an environment. The next step in the VFZ program evaluation effort will involve expanding this approach to all of the VFZ schools in Milwaukee, along with one of the VFZ schools located in Richmond, VA (The other VFZ High School in Richmond has not been in place long enough for us to include in this evaluation).

The overall results of the Year 2 research show a correlation between VFZ membership and improved student performance. One puzzling aspect of these findings is that the improved VFZ student performance should also correlate with improved performance at the school level and this is not always the case. One might make the argument that since VFZ targets many of the most at-risk students within the most at-risk schools, variables such as discipline incidents would be even worse if not for VFZ’s presence. However, this is an unverifiable assumption. Therefore, the research team looks forward to the broader and more detailed information it will gain from data collected in Year 3 of this evaluation.

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What Works in Treating Juveniles With Substance Abuse Problems, Mental Health Issues or Co-Occurring Disorders?

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Services for juveniles who exhibit substance abuse disorders, mental health disorders, or co-occurring disorders are rapidly improving across the country. This article reviews what is known about innovative, effective prevention and treatment strategies for juveniles with substance abuse issues. It also reviews effective treatment options for juveniles exhibiting signs of mental illness or co-occurring disorders. Juvenile drug courts and mental health courts are examples of such innovative programming. Our extensive review of literature also reveals other treatment models and programming that are effective for substance abuse treatment, including diversion to community treatment and Functional Family Therapy. And in addition to mental health courts, we find that Multi-systemic Therapy, system of care, and special needs diversionary programming are promising approaches to treating juveniles with mental illness. Finally, we conclude with a call for further research and evaluation to determine the effectiveness of treatment for juveniles with co-occurring disorders.

Keywords: juvenile justice, substance abuse, co-occurring disorders, juvenile rehabilitation

Individuals with substance abuse issues pose significant problems for the criminal justice system insofar as their drug use is often related to addiction, and drug addiction is highly correlated with criminal recidivism. Adolescents' entrance to the juvenile justice system may also be a consequence of behaviors resulting from an undiagnosed, untreated mental health issue other than substance abuse (Skowrya & Coccozza, 2007). Juveniles with substance abuse and/or mental health issues create even more unique challenges for both policymakers (and taxpayers) because their treatment and relapse intervention often extend across the life course.

This article reviews models and programs designed to help prevent and treat substance use by juveniles. It also discusses mental health court programming for juveniles as well as the treatment for the co-occurring disorders of substance abuse and mental illnesses. When appropriate, best practices are identified in each area based on a synthesis of the literature reviewed in each section.

Methodology

In an effort to assimilate the available information on programming for juvenile substance abuse, mental health, and for co-occurring disorders, we used standard social scientific procedures for developing a comprehensive literature review. Here, we obtained both peer-reviewed articles and government

research publications on the above subjects. A number of databases were explored for relevant and current literature, including Academic OneFile, Criminology: SAGE Full-text, ProQuest Criminology, Google Scholar, JSTOR, Boise State University Library TD NET, WorldCat, and PAIS Social Science Abstracts. We also examined the following government websites: National Criminal Justice Research Service (NCJRS), National Institute of Justice (NIJ), and the Bureau of Justice Statistics (BJS). Searches were limited to the previous 10 years. The following search strings, and obvious variations, were used: "juvenile mental illness", "juvenile substance abuse", "juvenile co-occurring disorders", and "treatment for juveniles". When an article/publication that appeared to be relevant was discovered, the abstract was read. If the article seemed satisfactory, it was given a cursory read. Finally, if it still appeared pertinent, it was read in detail and summarized. Its reference section was then consulted for other pertinent research.

While there exists a rather well-regarded scale to determine the effectiveness of programs (the Maryland Scale of Scientific Methods) (Sherman, Gottfredson, MacKenzie, Eck, Reuter & Bushway, 1997), we were not as systematic as Sherman and his colleagues in our assessments. Rather, we evaluated each of the research studies discovered and based our "best practice" acknowledgements on subjective assessments of quality and quantity of the studies dealing with programming in juvenile substance abuse, juvenile mental health, and co-occurring disorders. In essence, we used the confluence of independent streams of evidence to judge specific programming as a "best practice."

However, we would be remiss in not pointing out the obvious. As with any research, there are certain limitations within which all findings must be taken into consideration. This study

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is no different. First, our search for peer reviewed articles and government documents did not include every database in every discipline that may have covered programming for juveniles with substance abuse issues, mental health concerns, or co-occurring disorders. Due to time constraints, we confined our searches to *criminal justice* databases. Second, the keywords used to search these databases may not have been inclusive of every possible term used to describe the subjects in which we were interested. And third, our collection of articles and publications did not include unpublished academic research, such as dissertations or those posted on individual researchers' websites. Despite these limitations, we feel confident that the assimilation of research presented below, as well as our determination of best practices, is representative of the available evidence-based studies available in the areas of juvenile substance abuse, mental health, and co-occurring disorders' programming.

Juvenile Offenders with Substance Abuse Issues

Nationwide in 2006, Snyder (2008) estimated that some 196,700 juveniles were arrested for drug abuse violations and another 20,100 were arrested for driving under the influence. Between 1995 and 2004, there was a 4% decrease in the number of juveniles arrested for drug abuse violations. Across that same time period, the number of male juveniles arrested for drug abuse violations decreased by 8%, whereas the number of female juveniles arrested for the same charges increased by 29% (Snyder, 2008). Nationally, 67% of juveniles held in out-of-home placement were in facilities that screen all youth for substance abuse issues. In addition, to evident substance abuse issues among juveniles, singular or co-occurring mental health issues are also prevalent among adolescents in the juvenile justice system. Shufelt & Coccozza (2006) found that 70% of those in the juvenile justice system exhibited at least one criterion of a diagnosable mental health disorders (including substance abuse). After removing those juveniles who suffered from substance abuse issues, a significant majority (62%) still experienced mental health disorders such as conduct, anxiety, and depression. Further reducing the sample size, the removal of conduct disorders (which can be controversial) resulted in 46% of juveniles exhibiting signs of significant mental health disorders (Shufelt & Coccozza, 2006).

Diversion to Community Treatment Based on Principles of Effective Intervention

It has been estimated that society spends upwards of \$43,200 per year for every untreated addict (OJP, 2000). Community treatment can occur in both inpatient (residential) and outpatient (community) settings. OJP (2000) also concluded that treatment helps to improve the overall health of drug abusers, reduces health care costs associated with substance abuse, and was a cost effective method for reducing addiction.

A distinction is drawn in this work between community treatment founded upon principles of effective intervention and community treatment that is not delivered around those principles (see OJP, 2000). Our search for research concerning community treatment based upon principles of effective interven-

tion uncovered several studies focusing exclusively on juvenile offenders. Luchansky, He, Longhi, Krupski, and Stark (2006) analyzed the outcomes for 5,903 who began and ended a treatment episode in Washington State during 1997 and 1998. Juveniles who completed treatment (whether in- or out-patient) had fewer readmissions to treatment, and fewer post-treatment adjudications for any offense. Longer treatment stays (more than 90 days) had fewer readmissions and felony adjudications. However, older juveniles (over 15 years of age) were less likely to be readmitted to treatment and less likely to be charged with a subsequent offense. Moreover, individuals whose drug of choice was marijuana were less likely to have readmissions compared to individuals who used more addictive substances such as heroin and cocaine (Luchansky et al., 2006).

Lipsey and Cullen (2007) conducted a review of meta-analyses regarding the effectiveness of general rehabilitation efforts. Their findings suggest that reductions in recidivism varied by the type of intervention employed as well as the intervention setting. For instance, reductions in recidivism varied from a low of 14% for residential settings to 26% for community-based settings and to 38% for a combined residential/community analysis (Lipsey & Cullen, 2007). The Lipsey and Wilson (1998) study was the only meta-analysis that provided separate results for community-based and residential treatment. These results show a 12% greater reduction in recidivism for juveniles in a community-based setting as opposed to a residential setting (Lipsey & Cullen, 2007). Lipsey and Cullen (2007) concluded that rehabilitation treatment does work based on the mean effects showing a reduction in recidivism across every meta-analysis with greater reductions appearing with community-based treatment.

Juvenile Drug Courts

Approximately 1,300 drug courts currently exist in the United States with another 500 in the planning stages (BJA Drug Clearinghouse Project, 2005). Wilson, Mitchell, and MacKenzie (2006) list the primary features of a drug court as:

The integration of alcohol and other drug treatment and justice system case processing; a non-adversarial courtroom approach; random urine drug screens or other monitoring of abstinence; judicial monitoring of a participants progress via status hearings; and a system of sanctions and rewards for program infractions and achievements. (p. 460-461)

While evaluations of drug courts in general, and juvenile drug courts in particular, have been slow to emerge, they have become more common since 1997. Unfortunately, most of these studies are process evaluations (which tend to focus on descriptive aspects of program integrity); only a handful of existing studies evaluate actual participant outcomes. Henggeler et al. (2006) reported on the outcomes of a juvenile drug court study. In this study, 161 juvenile offenders were randomly assigned to four treatment options: family court with traditional court services, drug court with traditional court services, drug court with multisystemic therapy (MST), or drug court with enhanced case management services for substance abuse, delinquency, and days in out-of-home placement during a 1-year period. Results suggest that drug court was more effective than

family court services in reducing both substance use and delinquency, but reductions in delinquency did not mean fewer arrests or subsequent out-of-home placements. Henggeler et al. (2006) speculate that this might have been due to the increased surveillance (technical violations) in drug court as opposed to more traditional family court services. Drug courts using evidence-based treatments (such as MST) had even lower rates of substance use (Henggeler et al., 2006).

In another meta-analysis, Wilson et al. (2006) compared outcomes for participants assigned to drug court (both juvenile and adult) and a control group assigned to probation with community treatment. Their findings suggest that drug court participants were less likely to be arrested or adjudicated for any offense, including drug offenses, than were control group subjects. An analysis of the three strongest studies showed mixed results with a non-significant overall reduction in recidivism of 14%. According to these authors, drug courts using a pre- or post-plea model were more effective in reducing recidivism than those using other approaches. In addition, courts using a single treatment provider were more effective at reducing recidivism. This result may have been due to more dedicated providers (sole contracted) using a cognitive behavioral approach than multiple treatment providers (Wilson et al., 2006).

Three studies measured drug use as recidivism and found more drug use (as measured through drug testing) among drug court attendees than the comparison group. However, decay effects appear to be small among drug court participants with one study finding positive effects at 36 months (Wilson et al., 2006). Evidence accumulated across these studies suggest that drug courts are effective in reducing recidivism; however methodological weaknesses in the various research designs of these studies hinder definitive conclusions.

Lipsey and Cullen (2007) reviewed four drug court meta-analyses (Wilson et al., 2006; Lowenkamp et al., 2005; Pearson & Lipton, 1999b; Lipsey & Wilson, 1998) and reported reductions in recidivism ranging from 10% to 24%. Unfortunately, as noted earlier, these analyses included both juvenile and adult drug courts without disaggregating the results by age (juvenile vs. adult), thus it is impossible to determine if that range in recidivism reductions will remain constant for drug courts that cater exclusively to the unique needs of juveniles. The Washington State Institute on Public Policy (WSIPP) (2007) lists juvenile drug courts as an effective evidence-based juvenile offender program. They analyzed the outcomes of 15 studies on juvenile drug courts. Their meta-analysis suggested that juvenile drug courts reduced recidivism for substance abusing offenders by 3.5% across all 15 studies (WSIPP, 2007).

Functional Family Therapy (FFT)

Functional Family Therapy (FFT) is an intervention program that focuses on reducing risk factors and strengthening protective factors for juveniles and their families through the use of an "interventionist" in a home setting. FFT is a five-phase program consisting of engagement, motivation, assessment, behavior change, and generalization. The first phase of *engagement* emphasizes individual and family protective

factors that seek to decrease the likelihood of dropping out of the program. The second phase of *motivation* focuses on changing negative emotional patterns and belief systems as well as improving positive emotional and psychological factors that promote long-term change. The third phase of *assessment* explores relationships in the youth's life and how they can impact long-term change. The fourth phase is *behavior change*, which focuses on teaching or improving communication, parenting, problem solving, and other important family management skills. The final phase of *generalization* applies the new emotional patterns, belief systems, behaviors, and skills to all life situations and social interactions (CSPV, 2006).

FFT targets juveniles between the ages of 11 and 17 who exhibit substance abuse, delinquency, behavioral disorders, and co-occurring depression. Probation officers, psychosocial rehabilitation specialists, and mental health professionals from de-greed programs have all been trained in the FFT model as interventionists. The average program operates for 90 days. CSPV (2006) reports reductions in recidivism ranging from 25% to 60% across many studies (for general juveniles as opposed to specifically substance abusing juveniles). Hinton, Sims, Adams, and West (2007) also cite FFT as being an effective intervention for drug-abusing youth. Aos, Phipps, Barnoski, and Lieb (2001) identified seven outcome evaluations using the FFT approach. They found that FFT significantly reduced recidivism across several settings with an average reduction of roughly 25%.

WSIPP (2004) conducted an outcome evaluation of FFT programs in Washington State where juveniles admitted to the FFT program were compared with similarly situated juveniles who received traditional juvenile court services. According to this study, the FFT group had a 24.2% recidivism rate compared to a 27% rate for the control group, for an overall reduction in recidivism (re-conviction) of 10.4%. This was not a significant difference. However, WSIPP (2004) also assessed program integrity by measuring how closely interventionists adhered to FFT standards and protocol (referred to by the authors as interventionist "competency"). When the data were re-analyzed according to interventionist competency, the FFT juveniles had a recidivism rate of 17% compared to 27% for the control group; this was a statistically significant difference. Overall, competent interventionists realized a 38% reduction in recidivism in their juvenile clients as opposed to an increase in recidivism of 17% for incompetent interventionists. This too was a statistically significant difference (WSIPP, 2004).

Multisystemic Therapy (MST)

Multisystemic therapy (MST) is an intervention program based on the notion that juvenile anti-social behavior is the result of problems in multiple domains: individual, social, family, and community. MST provides home-based services to juveniles and their families in an effort to increase parental efficacy and build upon the strengths inherent in each juvenile and their respective family. This intervention seeks to improve caregiver discipline practices; enhance family affective relations; decrease youth association with deviant peers; increase youth association with prosocial peers; improve youth school

or vocational performance; engage youth in prosocial recreational outlets; develop an indigenous support network of extended family, neighbors, and friends to help caregivers achieve and maintain such changes (see CSPV, 2006).

Henggeler, Pickrel, & Brondino (1999) conducted a study comparing 118 drug abusing youth randomly assigned to both MST and traditional probation services across three time episodes (pre-treatment, post-treatment, and 6 months post-treatment). Alcohol and drug use significantly decreased between the pre- and post-treatment periods for both groups, but more so for MST youth for both alcohol/marijuana and other types of drug use. However, further analysis of differences in drug use between the two groups yielded no significant differences. Problems existed with treatment integrity among providers in this study, which may have negatively impacted the findings. Moreover, these authors suggest that MST may not be an appropriate intervention for serious substance abusing juveniles (Henggeler et al., 1999). Aos et al. (2001) reviewed three studies of MST programs and found an average reduction in recidivism of 31% across the three studies. Unlike Henggeler et al. (1999), Aos et al. (2001) concluded that MST was indeed effective in reducing recidivism for substance using juveniles, although they note the need for further research with more diverse populations.

Curtis, Ronan, and Borduin (2004) conducted a review of 11 studies evaluating MST. They found that juveniles assigned to MST programming were functioning, on average, better than 70% of juveniles in the comparison groups. However, as with FFT, the authors found a difference in effect sizes depending on therapist competency. That is, graduate student therapists who were closely supervised by MST trainers were more effective in reducing juvenile anti-social behavior than were community-based therapists who were not closely supervised. Here again, it is important to note that therapist competency and/or adherence to MST protocol seems to impact program effectiveness. Littell, Popa, and Forsythe (2005) reviewed eight studies evaluating MST with juvenile offenders, only one of which exclusively involved substance-abusing youth. Their analysis suggested that, while outcomes for MST-involved juveniles were generally favorable, differences in recidivism and other outcome measures between MST effects and more traditional juvenile services were not statistically significant (Littell et al., 2005).

Intensive Case Management Services Involving Families

Dembo et al. (2000) conducted a study of the Family Empowerment Intervention (FEI) program. Their study analyzed outcome measures for 303 juveniles involved in randomly assigned comparisons of FEI and Extended Services Intervention (ESI). Outcome measures were collected at 12 months post-treatment. Family Empowerment Intervention involves home-based services focused on improving family functioning, including hierarchy, setting boundaries, rules, and communication. If needed, field consultants connected juveniles and their families to other community-based services. Juveniles assigned to ESI received monthly contacts via telephone and referral to community-based services; this is comparable to traditional probation services. Dembo et al. (2000) found no significant

difference in the number of arrests and arrest charges between FEI and ESI participants. However, there was a significant difference between those who completed FEI and those who did not with a 59% lower re-arrest rate for FEI completers (Dembo et al., 2000).

Lattimer (2001) conducted a review of 35 studies evaluating family-involved treatment programs. This analysis revealed that juveniles in family-involved treatment programs had significantly lower recidivism rates than juveniles in non-family programs with younger juveniles (under age 15), while juveniles who voluntarily entered treatment showed the lowest recidivism rates. However, Lattimer (2001) found that methodologically weaker studies were more likely to show lower recidivism rates than more methodologically rigorous studies. In fact, there was no significant difference between the two approaches (i.e., family-involved vs. non-family) in the more rigorous studies (Lattimer, 2001).

Dembo, Wareham, Poythress, Cook, and Schmeidler (2006) conducted a study evaluating the Arbitration Intervention Services. This study analyzed outcome measures 12 months post-treatment for 164 juveniles randomly assigned to either the Arbitration Intervention or the "treatment as usual" group. Parents of juveniles assigned to the treatment as usual group received contact information on community-based organizations that could provide individual or family counseling services. The juveniles assigned to the Arbitration Intervention group received 16 weeks of case management in their home by case managers who were overseen by a clinical supervisor. Case management focused on an intervention plan based on the strengths and weaknesses of both the juvenile and his/her family. This also included counseling and referrals to other agencies for more specific juvenile or family needs. Results showed no statistically significant difference in recidivism between juveniles assigned to either the Arbitration Intervention or the treatment as usual groups (Dembo et al., 2006).

Due to the mixed findings across the intensive case management programs involving families, we conclude that the effectiveness of these programs at reducing recidivism among substance abusing juvenile offenders is unknown.

Best Practices for Handling Juvenile Offenders with Substance Abuse Issues

A review of the existing research literature suggests at least three best practice approaches for handling juvenile offenders with substance abuse issues. These practices include: (a) diversion to community treatment using the principles of effective intervention; (b) juvenile drug courts, albeit much of the evidence indicating effectiveness has been gleaned from outcome evaluations using adult drug court participants; and (c) Family Functional Therapy (FFT). Two other approaches—Multisystemic Therapy, and Intensive Case Management involving families—while not yet fully vetted in the research literature, are considered "promising" practices. What is evident is that those practices deemed effective or promising overwhelmingly focus on meeting the individualized needs of substance abusing offenders and, often, involve family members and/or significant individuals in the juvenile's life.

Juvenile Offenders with Mental Illness Issues

Mental illness is a serious and widespread problem that affects a significant number of youth in correctional facilities (Cellini, 2000). Jenson and Potter (2003, p. 589) found that 20% and 84% of youth involved in the juvenile justice system have mental health issues. Juvenile offenders with mental health issues do not necessarily belong in correctional institutions. Indeed, their mental health interests might be better served in a setting that is more conducive to treatment.

Wraparound Programs

Wraparound programs seek to promote the integration of comprehensive, community-based services that are offered in the least restrictive environment. Such programs encourage the full participation of the youth's family as part of the treatment plan. There are several principles to wraparound programs which include: team-driven treatment (i.e., health care providers, government agencies, and community services), active family input, individualized strength-based services, encouraging support from peers and extended family, and the use of flexible plans and sufficient funding. Such comprehensive and integrated programming is rarely offered to youth in the juvenile justice system and very little research has been done to evaluate its effectiveness in reducing recidivism (Pullman et al., 2006).

In response to the disproportionate number of youth with mental health problems who are processed in the juvenile justice system, Pullman et al. (2006) conducted a one-shot case study that compared two types of programs for effectiveness: a wraparound program, *Connections*, and traditional mental health service programs. *Connections* is a community-based wraparound program that serves delinquent youth with emotional and behavioral disorders (Pullman et al., 2006). This study compared 106 youth in *Connections* to 98 youth on whom data were gathered from historical records. Findings revealed that the comparison group youth were almost three times more likely to commit another offense than those in the *Connections* group. Youth in the comparison group averaged 104 days until their next offense, whereas youth in *Connections* averaged 366 days until their next offense. In addition, the comparison group youth were three times more likely to commit a felony offense, and, during the post identification time period, the comparison group averaged 7.5 detention episodes per youth, while the *Connections* group had an average of 4.4 detention episodes (Pullman et al., 2006). Pullman et al. (2006) concluded that the *Connections* program is effective for reducing recidivism.

Another wraparound program similar to *Connections* is the *Wraparound Milwaukee* program. *Wraparound Milwaukee* serves approximately 400 adjudicated youth and was started by a Mental Health Services grant. In addition to the wraparound programming discussed above, *Wraparound Milwaukee* includes needs-based services and outcomes-focused plans for youth. For example, this program is noted for its apparent success in treating troubled youth with multiple needs (Kamradt, n.d.). Twenty-five youth, who had no plans to be released from

residential care for their problems, were chosen for the program. Since the program's inception, there has been a 60% decrease in residential placements in Milwaukee and an 80% decrease in psychiatric hospitalizations. Additionally, the average treatment cost per child has dropped from \$5,000 to \$3,000 a month due in large part to coordination of services (Kamradt, n.d.). In a one-shot case study, clinical outcomes of a group of 300 youth enrolled in *Wraparound Milwaukee* were examined. During a 6 month and 1 year follow-up, there was a decrease in recidivism for all offenses measured, which included: sex offenses (10%), assaults (7%), weapons offenses (11%), property offenses (17%), drug offenses (3%), and other offenses (16%) (Kamradt, n.d.).

System of Care

The System of Care philosophy posits that the community is responsible for children's mental health needs and is defined as "a comprehensive spectrum of mental health and other necessary services and supports organized into a coordinated network to meet the diverse and changing needs of children and youth with mental health needs and their families" (MacKinnon-Lewis et al., 2002, p. 360). In addition to being community-based, the System of Care approach is family-based and culturally sensitive to individual and family needs. At the core of System of Care is the notion that youth and their families have needs and issues that cross agency boundaries, and it is unlikely that any one agency can meet the many needs of youth with mental health issues. Therefore, collaboration is the key for practices, programs, and policy. The collaboration of family service providers is important for keeping those closest to the child well informed when decision making and services with various agencies take place. This model has been utilized in the mental health arena and its principles can be effective for dealing with the juvenile justice system as well (MacKinnon-Lewis et al., 2002).

The Comprehensive Community Mental Health Services for Children and Their Families Program (the "Children's Program") utilizes the system of care approach and has been evaluated in several communities (Foster et al., 2004). For example, Foster et al., (2004) analyzed data collected from two communities in Ohio: Stark County (which utilized System of Care) and Mahoning County (the comparison group). Before and after measures of recidivism were utilized among a sample of 449 youth with mental health problems. Foster et al. (2004) found that when examining recidivism of youth known to have committed at least one offense before study entry, both had a reduction in offending; however, Stark County had a greater reduction in recidivism. Additionally, the likelihood of youth in Stark County committing a serious crime after the study was reduced by 57%, while it remained unchanged in Mahoning County. The researchers concluded that the System of Care approach, coordinated with community-based services, decreases or delays the likelihood that youth with mental health issues will enter the juvenile justice system (Foster et al., 2004). Another exploratory study on the System of Care model was conducted by MacKinnon and colleagues (2002) and their findings generally support the findings of Foster et al. (2004).

Multisystemic Therapy (MST)

Another type of treatment for youth with mental illness is Multisystemic Therapy (MST). Like the System of Care model discussed above, MST is also family- and community-based and seeks to address the underlying causes of antisocial behavior among troubled youth. Specifically, MST focuses on the factors in an adolescent's environment that negatively affect behavior. This treatment model has been a successful clinical alternative to hospitalization for juveniles categorized as having serious clinical issues (Henggeler, 1999). According to the National Mental Health Association (2004), MST is one of the "best available treatment approaches for youth who have mental health treatment needs and who are involved in the juvenile justice system" (p. 5).

In a clinical trial that studied MST as an alternative to hospitalization for youth who suffer from severe psychiatric issues, MST was found to reduce the number of hospitalization days by 90% in the two weeks following the onset of treatment (Henggeler, 1999). Further, MST was found to be more effective than hospitalization in reducing mental health symptoms, improving family relationships, encouraging school attendance, and enhancing client satisfaction (Henggeler, 1999). Unfortunately, no measures of recidivism were included in this particular study.

Special Needs Diversionary Program

Cuellar et al. (2006) evaluated a Texas diversion program for juvenile offenders with mental health issues. The Special Needs Diversionary Program (SNDP) is an initiative that provides mental health services for juvenile offenders in the community. Nineteen counties were contracted to offer services to mentally ill offenders. While the types of services varied across each county, all included intensive treatment services such as "family and individual therapy, medication monitoring, crisis management, client advocacy, and service planning" (Cuellar et al., 2006, p. 201). The program duration was set to last between 4-6 months. To be eligible, participating youth had to: (a) be under the juvenile court's care, (b) meet specified diagnostic criteria, and (c) have a family member willing to participate in the program with them. The sample for this study consisted of 299 referred youth: 148 for the treatment group and 151 for the comparison group. The comparison group consisted of youth who were placed on the SNDP waiting list, but were not accepted into the program due to lack of placement availability. Cuellar et al. (2006) analyzed the research in three waves. Results indicated that 57.2% of the youth had at least one re-arrest; however, re-arrest rates were higher for the comparison group (68.2%) than for the treatment group (45.9%) (Cuellar et al., 2006). Additionally, youth in the treatment group had fewer total re-arrests than the comparison group. The authors concluded that SNDP was effective in delaying, and in some cases, preventing some forms of recidivism.

Multi-Dimensional Treatment Foster Care (MTFC)

Multi-dimensional Treatment Foster Care (MTFC) is a community-based treatment model that emphasizes the importance

of intensive parenting, family support, and skill building for youths suffering from severe behavioral problems and antisocial disorders (Fisher & Chamberlain, 2000). MTFC is specifically designed to treat youth with severe anti-social delinquent behavior and emotional problems and the average program duration is between 6-9 months (National Mental Health Association, 2004). MTFC is different from most community-based programs in that youth are placed in specialized foster homes rather than in group programs that consist of other delinquent peers. Both the foster family and the biological family are strongly integrated into the MTFC model. The primary treatment administrators are the foster families themselves. Through intense training and instruction from the child's case manager, foster parents provide guidance, strict rules, and positive reinforcement to youth. The case managers are available to the foster parents 24/7 and speak with them on a daily basis regarding progress reports and instruction. The biological parents are the secondary treatment providers and are encouraged to actively participate in the program with the juvenile, as the ultimate goal is to return the juvenile's to their homes (Fisher & Chamberlain, 2000).

Fisher and Chamberlain (2000) included a brief summary of a randomized clinical trial on MTFC that compared its program to another community-based program. The study was quasi-experimental. Seventy-nine boys who were sentenced to out-of-home placements were randomly selected to MTFC and a comparison group, Group Care. The boys in the Group Care shared living space together and participated in a model of treatment referred to as: Positive Peer Culture. Recidivism for the two groups was measured based on re-arrest data in a 1-year follow-up period. The results revealed that the MTFC juveniles had fewer arrests than those in the Group Care program; an average of 2.6 arrests for MTFC and 5.4 arrests for Group Care. Additionally, the MTFC boys engaged in less delinquent activities (self-reported) when compared to the Group Care boys. Also, the MTFC group spent fewer days in incarceration than the boys in Group Care (Fisher & Chamberlain, 2000).

Mental Health Courts

Mental health courts for adults began in Florida in 1997 and were one among a number of problem solving courts developed to address specific, frequent issues among offenders (Rossman et al., 2012). Modeled after drug courts, mental health courts follow a similar structure but differ in their level of formality in terms of goal attainment and advancement towards that goal. In addition, mental health courts are less likely to use sanctions (such as short term incarceration) as a consequence for noncompliance compared to drug courts. While mental health courts have gained traction for adult offenders (Rossman et al., 2012), mental health courts for juveniles are a new and emerging practice across the country. The first juvenile mental health court was established in 2001 in San Jose, California (Santa Clara County) and it has become the model for all subsequent juvenile mental health courts. Eligibility for entry into juvenile mental health court differ across each jurisdiction, but all offer some range of treatment services, including individual, family, and group therapy, crisis intervention,

medication, wraparound services, and other individualized programming (Arredondo et al., 2001). Currently, there are only a handful of these specialty courts in operation. According to the National Center for Mental Health and Juvenile Justice (NCMHJJ), as of August 2005, there were only nine juvenile mental health courts operating nationwide (NCMHJJ, 2005). However, in a survey of juvenile justice systems across the country, an additional 20 indicated a mental health court was either under consideration or currently being planned for implementation (Cocozza & Shufelt, 2006). This stands in stark contrast to the over 100 adult mental health courts funded between 2000-2011 (Rossman et al., 2012). Following this same trend, process and outcome evaluations for mental health courts, while few for adult versions of this court (Rossman et al., 2012), are fairly nonexistent at the juvenile court version (Cocozza & Shufelt, 2012). However, the NCMHJJ is currently conducting a two-site evaluation of mental health courts for juveniles (NCMHJJ, n.d.).

Best Practices for Handling Juvenile Offenders with Mentally Health Issues

Research related to the effective handling of juvenile offenders with mental illness is sparse, thus limiting conclusions that could be drawn about best practices. All of the promising programs (MST, system of care, special needs diversionary program) involve comprehensive collaboration across multiple systems. Mental health courts appear to be an innovative initiative addressing the needs of mentally ill juvenile offenders. However, the lack of outcome evaluations demonstrating reductions in recidivism and cost effectiveness precludes us from categorizing it as an effective best practice. If mental health courts follow the same pattern as drug courts and their adult mental health court counterparts, in due course, productive evaluations should be available shortly.

Juvenile Offenders with Co-Occurring Disorders

Youth suffering from co-occurring mental illness and substance abuse disorders are doubly disadvantaged, insofar as both types of disorders can be equally predictive of behavioral problems and out-of-home placement. Abrantes and colleagues' (2005) study of youth admitted to a juvenile detention facility revealed that 52% of juveniles had multiple disorders upon admission; a conduct disorder in conjunction with a substance abuse disorder was the most common combination of co-occurring disorders (Abrantes et al., 2005). Another study (Vaughn et al., 2007, p. 1297) found the estimates of juveniles with co-occurring disorders to be two to three times higher than that of the general population. Abrantes and colleagues (2005) explain that delinquents with co-occurring substance abuse and mental health disorders are at even higher risk for recidivism.

Unfortunately, little research has been conducted on the topic of youth with co-occurring mental health and substance abuse disorders; even less literature is available on the effectiveness of existing programs. Several diversion programs for delinquent youth with co-occurring disorders are currently in

operation; however the effectiveness of these programs remains unknown. The following programs fit into this category: the MH/JJ program, the DAWN project, and Persons in Need of Supervision Program (PINS).

Mental Health Juvenile Justice (MH/JJ) Diversion Project

The Mental Health/Juvenile Justice Diversion Project (MH/JJ) is an initiative launched by the state of New York to divert juveniles with mental health and substance abuse problems into community-based programs in lieu of out-of-home placements (Sullivan et al., 2007). The primary goals of the initiative are to reduce the number of out-of-home placements, reduce recidivism, and to improve the lives of the youths and their families. The treatment methods used for juveniles in the MH/JJ project include a combination of three different treatment approaches. First, a comprehensive and integrated services approach was utilized. Second, age and developmentally appropriate services were provided. Third, while treatment services sought to address individual needs, those efforts also focused on enhancing the youth's "natural strengths, resources, and resiliencies" (Sullivan et al., 2007, p. 559). The MH/JJ staff at all 12 participating counties were required to provide a minimum of services that included: screening, assessment, individual, group, and family counseling, and referrals to mental health and/or (depending on need) substance abuse community treatment programs. In addition, each program provided wrap-around case management services (Sullivan et al., 2007).

Data for Sullivan's research were collected over a 7-year period from a sample of 2,309 arrested youth who were identified as being at risk for out-of-community placement, but who were ultimately placed on probation. Recidivism was measured by number of re-arrests. Over the project duration, recidivism varied: it decreased in the first two years, increased slightly for the third and the fourth year, and decreased significantly in the last three years, ending at 8% (Sullivan et al., 2007).

Another study by Hamilton et al. (2007) evaluated 10 county MH/JJ Project site outcomes. The purpose of this study was to examine variations in the different program types and to explore the impact each program had on placement and recidivism. Results revealed that mental health and substance abuse issues were two of the most significant factors predicting the type of placement. Substance abuse issues were also found to be strong predictors of recidivism. In the final analysis, it was determined that program sites that provided direct services to clients, such as in-house care, reduced the likelihood of placement into secure juvenile detention facilities (Hamilton et al., 2007).

The DAWN Project

The DAWN Project is a program in Marion County, Indiana, that serves youth with mental health and co-occurring substance abuse problems. Youth who participate in the DAWN program are at risk for being removed from their homes and are often referred by the juvenile courts (National Mental Health Association, 2004). DAWN is a community-based program that emphasizes the inclusion of family members in the provision of treatment. Other key elements of the program in-

clude wraparound services, intensive case management, and collaboration between several state agencies including Indiana's: Division of Mental Health and Family and Children, Department of Education, Office of Family and Children, Superior Court, and the Mental Health Association of Marion County. To be eligible for the project, youth must be involved with at least two of the above-mentioned agencies, have an impairment that affects social functioning, and have a diagnosed mental health disorder. A preliminary evaluation of this program demonstrated positive effects across all measures (Anderson, Wright, Kooreman, Mohr, & Russell, 2003). Twelve months post-enrollment in the project, significant reductions in impairment were measured in sample participants ($p < .0001$) in addition to a greater proportion of participants residing in less restrictive environments (i.e., non-institutionalized). In terms of recidivism, measured as remaining out of the juvenile justice or child welfare system, 83% of program completers had not returned compared to 9% of non-completers (Anderson et al., 2003).

Persons In Need of Supervision Diversion Program

The Orange County (New York) Mandatory Persons in Need of Supervision (PINS) Diversion Program is a community-based program that aims to reduce the number of youths with mental health and co-occurring issues who are sent to out-of-home placements. Probation officers determine eligibility and a screening group comprised of various healthcare providers develop a specialized treatment plan for each juvenile. Unfortunately, like the DAWN Project discussed above, very little published data is available regarding this program or its effectiveness in reducing recidivism (National Mental Health Association, 2004).

Best Practices for Handling Juvenile Offenders with Co-Occurring Disorders

Little empirical research is currently available regarding best practices for handling juvenile offenders with co-occurring disorders. Much of the research discussed above lacks methodological rigor found in other offending sub-populations. As a result, the effectiveness of the programs identified in this section must be interpreted with a healthy dose of skepticism. The paucity of research in this area begs for new ideas and a deeper analysis of the issues facing juvenile offenders with co-occurring disorders.

Conclusion

Services for juveniles who exhibit substance abuse disorders and/or mental health disorders are rapidly improving across the country with innovative interventions for the treatment of juveniles with substance abuse and mental health problems continually being developed. Juvenile drug courts and mental health courts are examples of such innovation, which requires collaborative inter-agency, public-private partnerships in planning and implementation.

In the area of juvenile substance abuse treatment, the most effective and promising approaches appear to be ones that focus on meeting the individualized needs of substance abusing offenders and, often, involve family members and/or significant individuals in a juvenile's life. Such approaches included the aforementioned juvenile drug courts, in addition to diversion to community treatment using the principles of effective intervention, and Family Functional Therapy (FFT). While not yet fully vetted in the literature, two other approaches—Multisystemic Therapy and Intensive Case Management involving families are “promising” practices in the treatment of juveniles with substance abuse disorders.

In terms of mental health treatment, we find that promising approaches appear to involve comprehensive collaboration across multiple systems, including the aforementioned juvenile mental health courts, Multisystemic Therapy, a system of care approach, and special needs diversionary programs. However, the lack of outcome evaluations demonstrating effectiveness across dependent variables such as cost and recidivism lead us to be tentative in our conclusions. Further outcome evaluation research is needed here. And the same can be said for treatment programs addressing the needs of juveniles with co-occurring disorders. While promising, innovative programs exist in this area, “best practices” are yet to be identified.

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Countervailing Effects of Parental Monitoring on Teenage Deviance

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Structural Equation Models are estimated using data from a sample of 2,181 parent-child pairs interviewed between 1993 and 1997 to test the proposition that parental monitoring exerts countervailing effects on adolescent deviance. As a component of authoritative parenting, parental control is expected to be inversely related to deviant behavior. At the same time, parental monitoring threatens the child's needs to express autonomy and independence, and so is expected to evoke deviant responses. The results indicate that the construct of authoritative parenting (commonality of monitoring and support) exerts an inverse effect on adolescent deviance, but parental monitoring additionally has a countervailing positive effect on adolescent deviance. These effects are net of the influences of prior deviance, gender, race/ethnicity, and a child's age. The findings may suggest that parents should be sensitive to a child's needs in specific developmental stages in order to adjust and execute proper parental techniques on their children lest ironically they increase the behavior that the parental supervision is intended to forestall.

Keywords: deviance, adolescent, parental monitoring, parental support, authoritative parenting

Different aspects of the theoretical and empirical literature on parenting have opposing implications for the effects of parental monitoring on the deviant behavior of children. On one hand parental monitoring, particularly in conjunction with affectionate parent-child bonds, might be expected to decrease the likelihood of the child acting out deviant motivations. Where the child is positively disposed to the parents, the child's perception of parental monitoring and the expectation of negative sanctions for deviant acts serve to deter deviant acts. The parenting style that combines setting limits and positive emotional ties between parent and child has been termed 'authoritative parenting' (Baumrind, 1991), a pattern that is said to be most effective in deterring deviant acts (Maccoby, 1992; Simons, Chao, Conger, & Elder, 2001; R. Simons, L. Simons, Burt, Brody, & Cutrona, 2005; Thornberry, Freeman-Gallant & Lovegrove, 2009; Wilson & Herrnstein, 1985; Wright & Cullen, 2001). These studies echoed and supported Baumrind's (1991) contention of "authoritative" parenting in prevention of child's misconduct. However, these studies measured authoritative parenting as a composed measure of parental support/warmth and parental monitoring/supervision. The potential countervailing effects of parental monitoring have not been examined although they have been theorized by several criminologists. Further, parental monitoring, one of the components of authoritative parenting, was discussed in the recent research literature as an effective way to limit adolescent interaction with delinquent peers, as well as a way to limit general

misconduct behaviors (Blondal & Adalbjarnardottir, 2009; Simons et al., 2001; Simons et al., 2005; Wright & Cullen, 2001). Indeed, several studies have found just such an inverse relationship between parental monitoring/supervision and delinquency (Costello & Vowell, 1999; Jackson, Henriksen, & Dickinson, 1999; Paternoster, 1988; Rodgers, 1999), or involvement with deviant peers (Dekovic & Meeus, 1997).

Literature Review

Parental monitoring has been studied widely in variety of research with regards to parenting effects on child's antisocial behavior (see Hoeve et al., 2009; Lac & Crano, 2009). Although researchers may conceptualize this variable somewhat differently from their own field, a common theme of those efforts in the conceptualization involves attention, structuring, and/or tracking of the child's behavior (Dishion & McMahon, 1998). In a recent meta-analysis research, Lac and Crano (2009) reviewed studies of the effect of parental monitoring on marijuana use. They concluded that most parental monitoring measures reflect parental knowledge of the child's whereabouts, activities, and relationships. Many recent studies have adopted such measures for parental monitoring otherwise termed 'parental supervision' in some studies (R. Simons, L. Simons, Chen, Brody, & Lin, 2007; Thornberry et al., 2009; Wright & Cullen, 2001). Lac and Crano (2009) further reported that such a measure is the most useful component associated with lower marijuana use in the 24 independent samples (out of 25) they reviewed. Nevertheless, in an effort of reviewing some other unpublished studies, there were many of these file-drawer studies found zero effect size of parental monitoring on a child's drug use.

On the other hand, parental monitoring may be regarded as an unwanted intrusion and the resulting resentment may moti-

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vate deviant acting out (Colvin, 2000; Sherman, 1993; Tittle, 1995). According to some developmental psychological perspectives, adolescence is a period when children begin to seek autonomy and independence from parents although they still desire parental support. In Erikson's (1968) scheme, the adolescent approaches identity formation with a sense of self as an autonomous, active, and competent agent in a relatively secure setting. The transition into adolescence is a period to form a sense of individuality (Moshman, 1999), as well as a realignment of family relationships with temporary perturbations in the parent-adolescent relationship (Collins, 1990; Hill, 1980; Steinberg, 1990). The parental image is deidealized (Sessa and Steinberg, 1991) and there is a significant amount of minor but persistent conflict between parents and adolescents during this period (Collins, 1991; Holmbeck & O'Donnell, 1991; Smetana, 1995). When emotional autonomy exceeds the level of behavioral autonomy granted to an adolescent by parents, unhealthy rebellion from already deidealized parents may be invoked. Adolescents want to have control over their life, and develop subjective feelings of being able to make decisions without excessive social violation (Sessa & Steinberg, 1991). Greenberger (1982, 1984) observed that those adolescents increase their subjective sense of autonomy from preadolescence to late adolescence. Parent-adolescent conflicts may occur regularly in everyday life so that the tension within parent-adolescent relationships accumulates chronically. Adolescents, because they are less-experienced in dealing with interpersonal relationships and have fewer coping strategies, may easily find antisocial behaviors seductive to them such as smoking, drinking, drug use, etc. (Agnew, 1992, 1997). They may also seek friendships where they can obtain social support when disputes with parents provoke them to voice their resentment about parental control and distrust. Given that deviant adolescents are more likely to have disputes with parents and authorities, they may provide social support to other adolescents, which increases the latter's propensity to commit delinquency with the 'established' deviant adolescents.

Preadolescents and adolescents argue that parents should not impose rules and regulations unilaterally, and should not underestimate their ability to regulate themselves (Damon, 1977; Hunter, 1984; Lamb, Hwang, Ketterlinus, & Fracasso, 1999). These observations are consistent with Tittle's (1995) control balance theory that postulates that deviance is related to the ratio of control a person exercises to that which is exercised over the person. The hypothesized positive association between parental monitoring and adolescent delinquency receives a good deal of empirical support. For adolescent samples, Seydlitz (1993) reported a curvilinear relationship between parental control and female delinquency. Weintraub and Gold (1991) observed that parental monitoring was associated with elevated levels of delinquency, and research in Italy, demonstrated that parental supervision is associated with an increased incidence of deviant behavior in religious schools (Claes et al., 2001).

To accurately examine the countervailing effects of parental monitoring on a child's deviance, a hypothesized model should integrate parental monitoring with parental support as the la-

tent construct of authoritative parenting, which was recently re-examined by Thornberry and his associates (Thornberry et al., 2009). This has been suggested by others as well, Wright and Cullen's (2001) "parenting efficacy" refers to the level of support and control by parents with their children and echoes Baumrind's (1991) measures of authoritative parenting. Wright and Cullen (2001) argue that when parental support and monitoring are intertwined, they produce effective parenting. They argued that in most instances, parental control (such as parental monitoring) is an expression of the parent's affection and support of the child. They found this was a better predictor than all the other parenting variables in predicting the variance of delinquency. Also, Simons and his associates' (2005) longitudinal samples demonstrate that authoritative parenting has strong deterrent effect on adolescent deviant behavior and their association with deviant peers. Jang and Smith (1997) proposed that weak supervision is likely to lead to reduced affective ties indirectly through delinquent behavior. Poorly supervised adolescents become more delinquent, and their poor behavior distances them from parents, further undermining affective ties to parents (Agnew, 1985; Liska & Reed, 1985). Some interactional and developmental theories (Thornberry, 1987, 1996; Jang & Smith, 1997), as well as socialization theories also suggest that parent-child bonds are an essential component of healthy development and provide the motivation to invest the time and energy (e.g., for monitoring) that is required to socialize children toward conventional behaviors (Peterson & Rollins, 1987). Weakened parent-child ties often make it difficult for parents to involve themselves in their children's activities in order to provide strong supervision. This in turn leads to further detachment and delinquency (Patterson, 1982).

To summarize, the theoretical and empirical literature is consistent with these hypotheses that: (a) parental supervision in conjunction with positive affectionate relations between parents and adolescent children deters deviant behavior, and (b) parental supervision as a contraindication of the adolescent's need for autonomy increases resentment of and consequent deviant challenges to conventional authority. The present analysis estimates an inclusive model that incorporates both of these countervailing relationships between parental supervision and the adolescent child's deviant behavior.

Model

The theoretical model specifies both an inverse relationship between authoritative parenting (one component of which is parental monitoring) and the adolescent's deviant behavior and a residual positive effect of parental monitoring on the adolescent's deviant behavior. These effects are hypothesized to be independent of the common influence of the adolescents' gender, race/ethnicity, age, and prior deviant behavior on these constructs. We also hypothesize that the positive countervailing effect of parental monitoring on child's deviance is stronger among girls than boys because of differential parental expectations and control over girls and boys in our society.

Method

Data

The research utilizes two waves of data from a two-generation longitudinal study. The first generation panel consists of a random sample of 7th graders in the Houston Independent School district in 1971. Most of these subjects were re-interviewed between 1993 and 1997 when they were 35 - 39 years of age. The second-generation sample is part of an ongoing two-wave panel survey that began in 1993 when the second-generation children were between 12 and 18 years of age. The present study only focuses on intact families (parents were married and living together, or married but living apart for reasons other than marital problems when they were interviewed.)

The sample for the present analyses consists of 2,181 parent-child pairs who provided complete information on all variables. Although parents and children data were collected during roughly the same period of time, 52.4% of the youth were interviewed 1 year after their parents were interviewed. The other parent-child data were collected in the same year; but parents were interviewed from at least 3 to 12 months earlier than their children. Sample characteristics shown in Table 1 indicated that about 55% of the children in this sample were 12 years old. Whites composed a little more than 64% of the sample, African Americans constituted around 20% of the sample, and Latinos contributed around 15% to the sample. Male and female subgroups of the second generation show no significant demographic differences.

Table 1.
Sample Demographic Distribution by Boys/Girls

	Boys (N = 1074)		Girls (N = 1107)			Boys (N = 1074)		Girls (N = 1107)	
	N	%	N	%		N	%	N	%
Child's Age					Mother's Education				
12	594	55.3	614	55.4	Junior high school or less	109	10.1	118	10.7
13~14	234	21.7	237	21.4	Senior high school	514	47.9	576	52.0
15~16	166	15.4	172	15.6	College or more	301	28.0	285	25.7
17~18	80	7.4	84	7.6	Missing	149	13.9	128	11.6
Race and Ethnicity					Father's Education				
White	684	63.7	714	64.5	Junior high school or less	118	11.0	108	9.8
Black	218	20.3	222	20.1	Senior high school	471	43.9	458	41.4
Latino	170	15.8	171	15.4	College or more	303	28.2	343	31.0
					Missing	170	15.8	197	17.8
Who Disciplined Child					Household Income				
Mother	320	29.7	453	41.9	25,000 or less	83	7.7	91	8.2
Father	349	32.5	239	21.8	25,000-50,000	343	31.9	322	29.1
Both	396	36.9	406	36.7	50,000-75,000	344	32.0	361	32.6
No Discipline	8	.7	8	.7	75,000 or more	277	25.8	313	28.3
Others	.1	.1	0	0	Missing	27	2.5	20	1.8

Measures

Parenting variables. The variable "parental support" is comprised of four observed variables: (a) a parent's self-report, (b) this parent's report about his/her spouse's parenting, (c) child's report about mother's parenting, and (d) child's report about father's parenting. The respondent's self-report (father or mother) and his/her report of the spouse's parenting techniques were recoded so that the responses were indicated as father's report or mother's report. Both parent and child reported five items for the variable of parental support: "child discusses personal problems with mother/father," "mother/father openly

shows affection to child," "mother/father discusses personal problem with child," "child shows affection to mother/father," and "child discusses things that happened at school with mother/father." The Cronbach's alpha for parents' report is .74, while it is .83 for child's report.

The "parental monitoring" latent variable consists of three observed variables: (a) a parent's self-report, (b) the parent's report about spouse's monitoring on child, and (c) child's report about monitoring from both of their parents. Parent's self-report consists of two items (hardly ever or never, sometimes, often): "know the children's best friends," and "know the parents of the children's best friends." Child's report con-

sists of two dichotomous items (yes/no): “Do your parents know your close friends?” and “do your parents know your close friends’ parents?” The Cronbach’s alpha for parent’s report is .73, while it is .58 for child’s report. The measurement reflects the mainstream studies conceptualizing parental monitoring as parental knowledge of the child’s whereabouts, activities, and relationships.

Dependent variables. Deviance was assessed with four measures reported by children. The first consisted of four items asking whether the respondent engaged in violent behaviors in the last year (e.g., “got angry and broke things?” “carried a razor, a switch blade or gun?” “beat up on someone who had not done anything with you?” and “started a fist fight?”). The second measure consisted of three items asking whether the respondent engaged in stealing property in the last year (e.g., “took things worth between \$2 and \$50 that did not belong to you?” “took little things worth less than \$2 that did not belong to you?” and “took a car for a ride without the owner’s knowledge.”). The third measure consisted of three items asking whether the respondent used drugs or alcohol in the last year (e.g., “used alcohol on other than religious occasions?” “smoked marijuana?” and “used other illegal drugs?”). The last measure consisted of three items asking whether the respondent engaged in deviance in school (e.g., did you “cheat during your last test or exam period?” “within the last month of attending school did you skip classes without an excuse?” and “took things from someone else’s desk or locker at school without permission?”).

Control variables. These factors include child’s gender, age, race/ethnicity, and parents’ recognition of child’s prior deviance (PRCPD). This variable includes 10 items inquiring whether the parents knew their child engaged in the following behaviors: “damaged/destroyed property that did not belong to them;” “hit someone with the idea of hurting them;” “stole something worth less than \$5;” “went into or tried to go into a building to steal;” “smoked tobacco;” “used alcohol on other than religious occasions;” “smoked marijuana;” “used other illegal drugs;” “skipped school without an excuse;” and “got into trouble at school.” The Cronbach’s alpha for the variable of parents’ recognition of child’s deviance is .70. While it is debatable that direct measurement of the child’s prior deviance can be a better choice, it was not available because the child sample was collected after they reached 12 years old of age (although some children had passed the age when they were interviewed). Furthermore, it was not difficult for parents to be aware of pre-teen children’s deviant behavior, at home or in schools. The results of the current study suggest a relatively strong relationship between this variable and child’s later deviance, which is commonly reported in empirical studies. It seems to suggest the current measurement for PRCD is a reliable variable for the current research.

The other control variables were gender (male = 1, female = 0), race/ethnicity (African American = 1, others = 0; Latino Americans = 1, others = 0), and age. Empirical studies (see Lac & Crano, 2009) suggests that parental monitoring has stronger deterrent effect on girls’ deviant behavior comparing to that of boys, while boys are more involved in delinquent behavior than girls. Furthermore, studies have inconsistent findings on the effects of parenting factors on boys and girls (Hoeve et al.,

2009). The current study thus considers child’s gender as the important control variable in the analytical model.

There is no significant difference in the effect size of parental monitoring on deviant behavior between racial groups in the literature and no difference in the effect size was reported for different age groups. However, these demographic variables were examined in the current study because they are highly related to the variable of child’s deviance.

Analysis

Analysis is conducted using LISREL 8.14 (Joreskog & Sorbom, 1993). It provides maximum likelihood estimates (MLE) of model parameters. In this study, we estimated models in two stages. First, we estimated two baseline models examining the respective effects of parental support and parental monitoring on child’s deviant behaviors. Second, we incorporate these two models into an integrated second-order-factor structural equation model to estimate the structural effects of authoritative parenting on child’s deviant behaviors and the residual effect of parental monitoring on child’s deviant behaviors with control variables. The use of second-order-factor structural equation model allows the countervailing effects of parental monitoring on child’s deviance to be estimated through its loading on authoritative parenting and the direct residual effect on child’s deviance. We then estimated the model separately for female and male adolescents. This analysis was done because of theoretical concern with gender difference in the levels of social control and delinquency.

Female adolescents reported significantly higher levels of subjective distress, instability of self-images, sensitivity to peer reaction, parental restriction and avoidance, than male adolescents, and parental restriction is positively related to future subjective distress (Liu & Kaplan, 1999). Our society has higher tolerance for male delinquency and regards girls as more delicate and in need of greater protection than boys (Keane, Gillis, & Hagan, 1989; Gecas & Seff, 1990). Parents thus are more likely to protect girls by restricting social activities to avoid the possibility of being assaulted by boys (Peters, 1994). The higher level of parental restriction may partially contribute to girls’ higher experience of subjective distress and the negative-feelings of being deprived of opportunities to express autonomy and independence (Avison & Mcalpine, 1992). Research in gender difference of delinquent commitments attributed the divergence to differential controls by parents on boys and girls (Hagan, Gillis, & Simpson, 1985), especially differential supervision by mothers (Hagan & Simpson, 1979). In such social circumstances, parental control may be more likely to exert stronger effects on a girls’ delinquency than a boys’ delinquency due to girls’ higher level of experience in subjective distress and parental control.

Results

Bivariate correlations for the analytical model (Table 2) indicated that four parental support variables (two parents’ reports and two child’s reports) were significantly associated with four categories of child’s deviant behaviors in 14 of 16

correlations. Parental monitoring was also negatively associated with child's deviant behaviors; 7 of the 12 zero-order correlations were statistically significant. All seven parenting indi-

cators were significantly and positively interrelated with one another. The four child deviance variables were also significantly interrelated.

Table 2.
Correlation Matrix

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Father's supports	--										
2. Mother's supports	.45**	--									
3. Mother's supports (child's report)	.29**	.13**	--								
4. Father's supports (child's report)	.13**	.24**	.57**	--							
5. Father's monitoring	.41**	.18**	.18**	.11**	--						
6. Mother's monitoring	.19**	.25**	.11**	.13**	.56**	--					
7. Parents' monitoring (child's report)	.05*	.05*	.13**	.16**	.19**	.21**	--				
8. Violence	-.07**	-.03	-.15**	-.13**	-.04	-.01	-.10**	--			
9. Property Stealing	-.06**	-.03	-.09**	-.10**	-.04	-.05*	-.05*	.22**	--		
10. Substance Use	-.11**	-.08**	-.16**	-.09**	-.05*	-.04	-.07**	.31**	.21**	--	
11. School Deviance	-.13**	-.09**	-.15**	-.11**	-.08**	-.02	-.06**	.28**	-.22**	.38**	--
Mean	11.68	13.23	11.44	9.92	4.90	5.51	1.63	.12	.07	.11	.10
S.D.	2.23	1.50	2.25	2.54	1.23	.82	.63	.40	.29	.38	.34

Note. * $p < .05$; ** $p < .01$, two-tailed

Girls reported higher score for mother's support ($p < .001$) and parental monitoring than did boys. However, boys' self-reported deviant behaviors (violence, property stealing, substance use, and school deviance) were significantly greater than girls.

The structural equation models are shown in Figure 1, Figure 2 (baseline models) and Figure 3 (full model). The hypothesized model fits the data within acceptable limits (chi-square = 28.22 with 15 df for Baseline Model I in Figure 1, chi-square = 23.86 with 12 df for Baseline Model II in Figure 2, and chi-square = 218.46 with 74 df for Full Model in Figure 3). The goodness-of-fit indices, adjusted goodness of fit, normed fit, and non-normed fit were .96 or above. The chi-square to degree-of-freedom ratio for these three models was 1.88, 1.99 and 2.95, respectively and their RMSEAs were .020, .021, and .030, respectively). A GFI of .90 or above, a chi-square to degree-of-freedom ratio well below 3.0 (Hayduk, 1987), and a RMSEA of less than .05 (see Browne and Cudeck 1992) indicate that the models provide a good fit to the data.

In the baseline models (Figure 1 and Figure 2), parental support was negatively associated with child's self-report of deviance ($\beta = -.51$), as was parental monitoring ($\beta = -.20$). Stan-

dardized coefficients only reported in the text. Unstandardized coefficients are shown in the Tables.

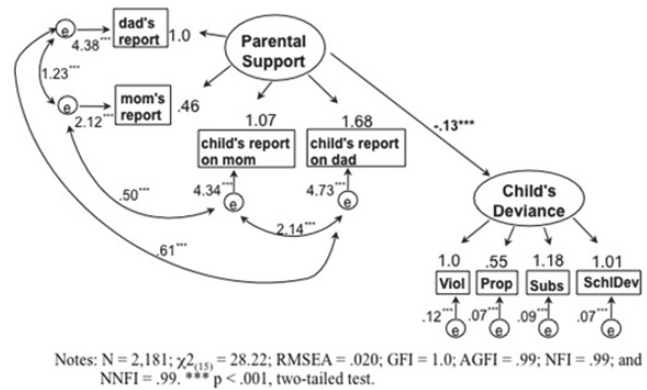


Figure 1: Unstandardized Coefficients for Baseline Model I

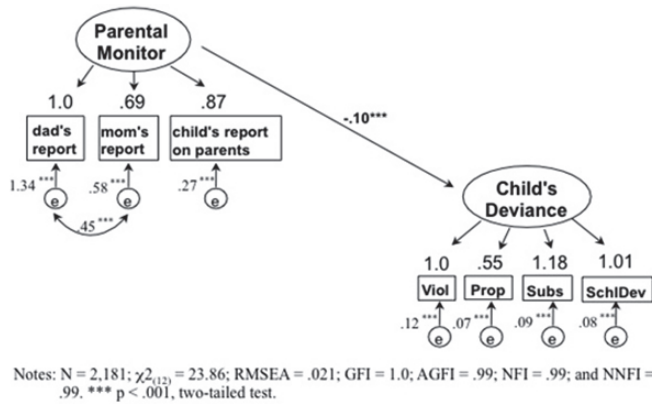


Figure 2: Unstandardized Coefficients for Baseline Model II

In the full model (Figure 3), parental support and parental monitoring reflect the second-order latent construct, authoritative parenting loadings of (.82 and .63, respectively). The greater use of authoritative parenting techniques was related to less adolescent deviance ($\beta = -.51$). The stability effect of adolescent deviance was also significant ($\beta = .31$) at $p < .001$. As expected, parental monitoring was observed to have a countervailing effect on adolescent deviance ($\beta = .35$). To examine whether there is a residual effect of parental support (rather than parental monitoring) on the child's deviance, we freed the parameter but found this alternative model did not converge. Additionally, parents' recognition of child's prior deviance had significant negative residual correlations with the residuals of parenting support and parental monitoring.

parental monitoring. In addition, Latino Americans were more likely to report more deviant behaviors. Child's age was negatively correlated with both parental support and parental monitoring, but positively associated with child's deviant behaviors. For reasons noted above, we also conducted separated structural models for male and female subgroups. The results are summarized in Table 3. When compared with the total sample, relationships between endogenous variables in the hypothetical model remain basically similarly for males and females with a few exceptions. Among male adolescents, being African American was not related to the lower level of parental support as shown in full sample model, and such path coefficient was significantly larger for girls than boys.

Importantly, the significant countervailing effect of parental monitoring on girls' deviance was observed, but it was not statistically significant in the boy's model. Nevertheless, this difference between boys and girls path coefficients was not significant. Uniquely, for the female adolescents, being Latino American was not correlated with greater deviant activity as in the full model, nor, for females, was the correlation between age and parental monitoring significant unlike the case of the full model and the boy's model. However, the gender differences in the effects were not significantly different. The only exception with regard to gender difference is that the effect of being African American was related to lower parental support for females. The subgroup analysis thus complies with the full model guided by the theoretical framework. It suggests that the hypothesized model is suitable in explaining common adolescent hood albeit the magnitude of structural coefficients may somewhat different between gender subgroups.

Discussion and Conclusion

Our data support the hypothetical model informed by theories of developmental psychology and juvenile deviance. Further, our findings echo past research guided by control theories. Like many studies, we found deterrent effects of parental support and monitoring on a child's deviant behaviors. In addition, however, we found a countervailing facilitative effect of parental monitoring on a child's deviance consistent with developmental perspectives that emphasize threats to the adolescents' needs for autonomy frequently observed in American culture. While two baseline models show both parental support and parental monitoring to have significant negative relation with child's deviance, as did our simultaneous second-order SEM with several relevant control variables, the latter model also demonstrated that parental monitoring had a residual positive effect on a child's deviance. The results suggest that parenting monitoring, which is often seen as a good parenting practice, may not be unequivocally benign. The finding of a residual longitudinal effect of parental monitoring on deviance, it should be emphasized, is net not only of earlier negative effects of authoritative parenting on deviance, but also net of the contemporaneous negative association between the elements of authoritative parenting and parents' perceptions of the child's prior deviance.

Earlier studies that included both parental support and parental control variables did not observe the countervailing ef-

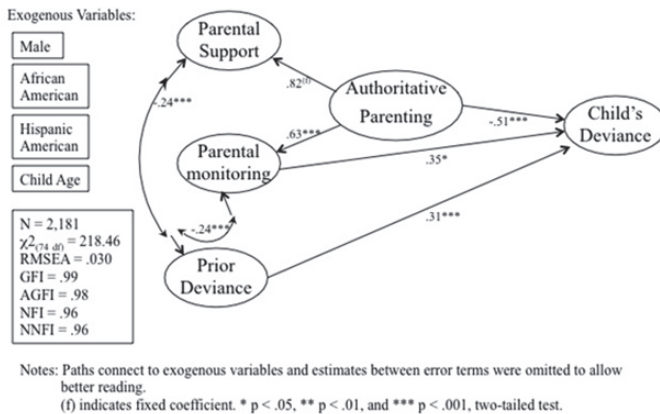


Figure 3: Standard Path Coefficients for Full Model

Our hypothesized model controlled for child's sex, age, race/ethnicity (Whites as the referent group), parents' recognition of child's prior deviance, and family structure (thus we only analyzed subjects from intact families for the present study). In Figure 3, the effects of exogenous variables are not shown. The effects are reported in Table 3. Male adolescents were more likely to commit deviance. Being African American correlated negatively with parental support. Being African American and Latino American also negatively correlated with

Table 3.
Path Unstandardized (Standardized) Coefficients for Structural Equation Models

Independent Construct	Dependent Construct	No Control	Boy Model	Girl Model	Full Model
		N=2,181	N=1,074	N=1,107	N=2,181
Authoritative Parenting	Child's Deviance	-.12*** (-.59***)	-.05* (-.19*)	-.06*** (-.64***)	-.10*** (-.51***)
Parenting Monitoring	Child's Deviance	.03 ⁺ (.15 ⁺)	.02 (.05)	.08*** (.53***)	.12* (.35*)
Male	Parenting Monitoring	--	Parent	--	-.05 (-.05)
	Parental Support	--	--	--	.09 (.04)
	Child's Deviance	--	--	--	.04*** (.11***)
African Americans	Parenting Monitoring	--	-.45*** (-.29***)	-.61*** ^a (-.43***)	-.49*** (-.35***)
	Parental Support	--	.07 ^b (.02)	-.51*** ^b (-.17***)	-.27 (-.09)
	Child's Deviance	--	-.01 (-.02)	.04 (.17)	.04 (.08)
Latino Americans	Parenting Monitoring	--	-.62*** ^c (-.36***)	-.42*** ^c (-.27***)	-.50*** (-.32***)
	Parental Support	--	-.10 (-.03)	.11 (.03)	-.02 (-.00)
	Child's Deviance	--	.07 ⁺ (.09 ⁺)	.03 (.12)	.08* (.15*)
Age	Parenting Monitoring	--	-.06*** (-.16***)	-.02 (-.05)	-.03*** (-.11***)
	Parental Support	--	-.26*** (-.38***)	-.18*** (-.27***)	-.27*** (-.39***)
	Child's Deviance	--	.08*** (.51***)	.02*** (.45***)	.06*** (.52***)
Parents' Recognition of Child's Prior Deviance	Child's Deviance	--	.05*** (.24***)	.03*** (.36***)	.05*** (.31***)
		χ^2 (df)	80.48 (33)	179.79 (69)	175.15 (69)
	chi-square/degree-of-freedom ratio	2.44	2.61	2.54	2.95
	GFI	.99	.98	.98	.99
	AGFI	.99	.96	.96	.98
	NFI	.98	.93	.93	.96
	NNFI	.98	.93	.93	.96
	RMSEA	.026	.039	.037	.030

Notes. + $p < .10$, * $p < .05$, ** $p < .01$, and *** $p < .001$, two-tailed test.

a, b, and c indicate coefficients between boy and girl models are significantly different in magnitude.

fect of parental monitoring on a child's delinquency (Aseltine, 1995; Simons et al., 2001; Simons et al., 2005; Wright & Cullen, 2001). However, these two dimensions of parental practices were treated either as additive variable or as two separate constructs. The commonality of parental support and parental control (that is, authoritative parenting) was not estimated, nor was its net effect on child's delinquency specified along with

the estimation of the residual effect of parental monitoring on delinquency. Thus, these studies could examine only the negative relationship between parental control and the child's delinquency.

Our structural equation models simultaneously integrate parenting control and parenting support as indicators of the construct of authoritative parenting as defined by Baumrind

(1991) and supported empirically by earlier studies (Jang & Smith, 1997; Wright & Cullen, 2001). However, our data and model specification allowed us to estimate the preventive effect of parental monitoring and the potential countervailing effect on a child's problem behaviors. At the same time, our analytical models show that parental support and parental monitoring are intertwined with each other indicating that parents who are closely attached to their youth are also more likely to set rules and supervision to reduce delinquency. The loadings of both parental techniques on latent constructs of authoritative parenting confirm Baumrind's (1991) assertion that parents who are restrictive and responsive invest a great amount of time and energy in helping their adolescent children avoid wayward influences. Social control theory also implicitly distinguishes between direct parental control (parental supervision) and indirect parental control (parental attachment) as major confluences in the reduction of delinquency, although it has been argued that the element of social support in parental control has not been adequately recognized in control theory and research (Braithwaite, 1989; Cullen 1994; Currie, 1985; Wright & Cullen, 2001).

Our gender specific findings suggest some directions for future research. If subsequent research observes greater effects of parental monitoring for females, this difference may reflect possible differential influences of parental monitoring on male and female negative self-feelings. Girls' greater emotional bonds with parents are more likely to increase the effect of parental monitoring on negative self-feelings due to their greater trust and emotional bonding with parents. Thus, if they perceive that they are distrusted, as this is reflected in parental monitoring, girls may experience greater distress than those who are not as emotionally bonded up with their parents. That is, feelings of being monitored or distrusted may interact with emotional bonds with parents and result in greater negative self-feelings on the part of girls. In contrast, boys' weaker emotional bonds with parents may not influence their development of negative self-feelings since emotional bonds with parents were not as developed as with girls. Instead, boys' feelings of being distrusted by parents may persuade them to seek alternative support groups. Our model yielded a stronger positive effect of parental supervision on child's deviance in girls, but the magnitude of difference in effect was not significant between girls and boys. The mediating influence of negative self-feelings, thus may explain the moderating influence of gender on the residual positive effect of parental monitoring on deviance.

Our research benefited from multiple reports from parents and the child. The parenting variables reported from both parents and the child increase their validity because the parenting latent constructs measure the agreement among the father, the mother and the child and attribute their disagreement to be a part of error terms of the latent constructs.

The current findings may shed a light for the implied countervailing effects of parental monitoring on child's deviance (Colvin, 2000; Sherman, 1993; Tittle, 1995). Our findings if confirmed by future research on different samples and using different constructs may have important implications for parenting practices. Bronfenbrenner (1974) argued that adolescents turn to peers for companionship and emotional support not because of their inevitable attraction by peers but because

of their inattentive and unconcerned parents. Certainly parental supervision and affective ties between parents and children play an essential role in preventing children's engagement in deviance and attraction to deviant peers. However, parental monitoring, although effective in reducing deviance, should be executed carefully due to its potential countervailing effect on increasing a child's deviant behavior. The current study suggests that parental support and parental monitoring work together in maintaining and enhancing positive relationships between parents and children. However, the findings further suggest that parents should be sensitive to a child's needs in specific developmental stages in order to adjust and execute proper parental techniques on their children lest ironically they increase the behavior that the parental supervision is intended to forestall. The current findings may fill the gap between the controversial findings reported in the literature with regards to the contradicted effects of parental monitoring on child's deviance. Our theory-based empirical evidence might be the first step to answer the contradicted effects of parental monitoring on teenage deviance.

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