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*Criminal Justice and Behavior* 2009; 36; 840
DOI: 10.1177/0093854809337714

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AN EXPLORATION OF DSM-ORIENTED SCALES IN THE PREDICTION OF CRIMINAL OFFENDING AMONG URBAN AMERICAN YOUTHS

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Wayne State University

Research has long suggested comorbidity between mental health and poor life course outcomes such as delinquency. The early identification of mental illness in youths is an important goal for researchers examining the relationship between mental disorder and offending. The present study examined the comorbidity of various mental health problems such as anxiety, affective, attention deficit/hyperactivity, somatic, and oppositional defiant problems and their effect on offending in youths participating in the Project on Human Development in Chicago Neighborhoods (PHDCN). Innovative Diagnostic and Statistical Manual (DSM)–oriented scales that allow for distinctions between normal, borderline, and clinical levels of mental health problems were used in logistic regressions to predict the odds of offending across four stages of development. Findings showed a consistent pattern across the life course of oppositional defiant problems increasing the likelihood of future property and violent offending. Furthermore, the value of using DSM-oriented scales was demonstrated. Implications for future studies and policy are discussed.

Keywords: dimensional measures; youth violence; PHDCN; child psychopathology; violence

In recent years, the major disciplines of sociology, public health, epidemiology, and criminology have integrated with psychiatric and psychological disciplines to create a global psychosocial perspective on the genesis of violence and offending over the life span (Molnar, Roberts, Browne, Gardener, & Buka, 2005; Patel, Flisher, Hetrick, & McGorry, 2007). A large body of scientific evidence has subsequently emerged under the domain of life course criminology regarding the onset, persistence, and desistence of a wide range of psychosocial problems and deviant behaviors within a developmental rubric (see Farrington, 2005, for a review). These perspectives assume that the correlates of antisocial behavior may change as a function of age and situational factors, creating dynamic feedback loops whereby behavioral traits and outcomes produce “risk factors” that lead to poor life course outcomes (Loeber & Farrington, 1998, 2000). Specifically, children and adolescents share the highest rates of deviant, noncompliant, and problem behaviors when compared to other age groups (Mash & Wolfe, 2005).

AUTHORS’ NOTE: The authors wish to thank the researchers from the Project on Human Development in Chicago Neighborhoods (PHDCN) and the Inter-University Consortium for Political and Social Research (ICPSR) for access to these data. We would also like to thank the editor and anonymous reviewers for their constructive feedback on this article. Please direct correspondence to Denise Paquette Boots, PhD, University of Texas at Dallas, School of Economic, Political, & Policy Sciences, Program in Criminology, 800 W. Campbell Rd., GR 31, Richardson, TX 75080; e-mail: deniseboots@utdallas.edu.
Troubled youths in the criminal justice system have often reported various psychopathological problems that have been linked to delinquency and adult offending (Goldstein, Olubadewo, Redding, & Lexacten, 2005; Lynam, Caspi, Moffitt, Loeber, & Stouthamer-Loeber, 2007; Teplin et al., 2006). The early identification of mental illness in youngsters is an important goal for researchers who are trying to determine if a causal relationship exists between various forms of mental disorder and offending (Loeber, 2004; Moreland & Dumas, 2008). Charting the developmental sequencing of different types of criminal offending (e.g., theft or violence) in children and adolescents is an important goal of developmental criminologists and one that needs to be explored further as it relates to mental health, crime specialization, and the escalation of problem behaviors within individuals (Boots, 2008; Loeber, Farrington, Stouthamer-Loeber, & White, 2008).

In response to scholars who have criticized the categorical, yes or no, diagnostic criteria (Durand & Barlow, 2006; Frances, Pincus, Widiger, Davis, & First, 1990; Jensen, 1995; Widiger, 2005) of DSM disorders (the Diagnostic and Statistical Manual used for psychiatric diagnoses; American Psychiatric Association, 2000), multidimensional, noncategorical, nosological approaches to studying mental illness have risen in prominence (Achenbach, Bernstein, & Dumenci, 2005; Connor, 2002; Maser et al., 2009). These dimensional measures of mental health problems allow researchers to identify youths who do not meet the criteria for clinical diagnosis but who still have enough significant differences, when compared with their “normal” peers, to suggest that they are at increased risk for negative outcomes. For example, assessments such as the Child Behavioral Checklist (CBCL; Achenbach, 1991a) are frequently used and have been widely accepted as valid and reliable (Achenbach, Dumenci, & Rescorla, 2002; Millon, 1996; Spatola et al., 2007). These types of standardized instruments have been converted to capture information from multiple informants (e.g., parents and self) as a way to provide a more holistic picture of problem behaviors across distinct domains.

Borrowing from Achenbach and his colleagues (Achenbach & Edelbrock, 1983; Achenbach & Rescorla, 2001, 2003), the present study utilizes measures from the CBCL and related instruments using innovative DSM-oriented scales. These scales allow for distinctions between informants regarding “normal,” “borderline,” and “clinical” levels of mental health problems to determine their ability to predict offending across various stages of childhood and adolescence. These DSM-oriented scales were devised by Achenbach after consulting with 22 cross-cultural mental health experts who determined which descriptive criteria were most consistent with diagnostic categories in the DSM. Symptoms were derived from the American Psychiatric Association’s (2000) DSM-IV-TR categories of diagnoses for several common childhood psychiatric disorders, including oppositional defiant problems (ODP), attention deficit/hyperactivity problems (ADHP), anxiety problems, affective problems, and somatic problems. These mental health disorders have been empirically linked with poor life course outcomes in youths (Borum & Verhaagen, 2006; Elbogen & Johnson, 2009; Vermeiren, 2003).

Continuous measures such as those offered in DSM-oriented scales have several advantages over purely categorical nosologies of mental health problems. These dimensional and/or quantitative measurement strategies are more sensitive to developmental differences that are inherent when studying children and adolescents as compared to adult populations (see Achenbach, 2009). Such continuous forms of measurement also offer a more comprehensive view of the broader spectrum of psychopathological problems, including subclinical...
levels of impairment, which are lost when using strictly categorical diagnoses found within the *DSM* (Angold, Costello, Farmer, Burns, & Erkanli, 1999; Drabick, 2009). There is some scholarly evidence that clinical problems are continuously distributed and that the frequency and severity of symptoms increase the likelihood of poor outcomes and significant impairment across domains (Beauchaine, 2003; Maser et al., 2009; Rutter & Sroufe, 2000). Such findings support the utility of *DSM*-oriented scales, as dimensional measures of psychopathology allow for age- and gender-appropriate distinctions across normal, borderline, and clinical levels of mental health and illness.

The present study joins only a handful to date (see Boots, 2008) that has utilized *DSM*-oriented scales to measure the onset and prevalence of childhood mental disorders as it predicts offending across different stages of the life course. Our study applies this innovative methodology to a community sample of youths using both multiple informants and prospective data and is the first to our knowledge to explore these issues within the Project on Human Development in Chicago Neighborhoods (PHDCN) data set. The prospective sampling design and numerous instruments and measures found within the PHDCN offer researchers a unique opportunity to explore the complex mechanisms related to serious offending with indicators at multiple levels and time points and is a notable strength of these data. As mental health problems are age and gender sensitive and fluctuate over time as a function of the normal course of human development, the use of multiple cohorts of youngsters is a major advantage of the PHDCN design and especially relevant when exploring the etiology of offending. Thus, the present work addresses a significant gap in the literature by determining the prevalence of various taxonomic forms of psychopathology in boys and girls at various developmental stages and by multiple informants (youths and caretakers) and then examining what relationships may exist over time with self-reported property and violence in these youths.

Due to the exploratory nature of this study, both theft and violent offending are explored separately in an attempt to illuminate the pathways that may be affected by various *DSM*-oriented problems while controlling for other co-occurring factors within the models. Examinations of age- and gender-appropriate developmental sequencing are critical in identifying progressions from less to more serious crimes (e.g., from theft to violence) and determining what particular risk factors (e.g., forms of psychopathology) create forward probabilities for different types of offending (Loeber et al., 2008). Operating under a general mental health framework, optimal mental health is posited here to be related to prosocial life course outcomes. Conversely, the development of mental disorders is expected to be significantly related to antisocial outcomes such as offending behaviors over the life span.

**METHOD**

**PARTICIPANTS**

This study relies on secondary data from the first two waves of the Longitudinal Cohort Study from the PHDCN. The Longitudinal Cohort Study collected extensive in-home and assessment data from parents (primary caregivers) and youths for seven age cohorts (birth, 3, 6, 9, 12, 15, and 18). Participants were selected utilizing a three-stage stratified sampling design. First, the 847 census tracts demarcating the city of Chicago were aggregated into 343 neighborhood clusters, comprised of contiguous census tracts containing populations
of approximately 8,000 people who were relatively homogeneous with respect to housing structure, racial/ethnic, and socioeconomic (SES) characteristics. Second, neighborhood clusters were stratified by (a) seven levels of racial/ethnic mix and (b) three levels of socioeconomic status, from which 80 neighborhood clusters were randomly selected for sampling. Neighborhood clusters for predominately White and low SES, predominately Hispanic and high SES, or Hispanic and Black mixed and high SES clusters were not available for these areas, which affects generalizability. Finally, dwelling units were randomly selected, proportionate to size, from blocks within the 80 neighborhood clusters. The result was a sample representative of the Chicago area with respect to racial/ethnic and socioeconomic distribution at the neighborhood level. The sample is self-weighting and representative of residences within the neighborhood clusters of Chicago (Sampson, 1997; Sampson, Raudenbush, & Earls, 1997). The Longitudinal Cohort Study of individuals selected by the PHDCN was administered at three waves over a 6-year period: Wave 1 in 1995-1997 (75% average response rate), Wave 2 in 1997-2000 (86% average response rate), and Wave 3 in 2000-2001 (78% average response rate). In the present study, Wave 1 and Wave 2 data were used for youths who were at least 7 years old (from Cohorts 6-18) at Wave 1.

Among these participants, 2,415 provided responses to at least one of the items used to create the dependent variables for Wave 2. Borrowing conceptually from the developmental and child psychology literature, these data were divided into four age periods that reflect different stages of human development during childhood and adolescence. These developmental stages (referred to henceforth as chunks) include middle childhood for ages 7 to 9 (Chunk 1; \(M = 8.64\) years old), late childhood for ages 10 to 12 (Chunk 2; \(M = 11.65\) years old), early adolescence for ages 13 to 16 (Chunk 3; \(M = 14.68\) years old), and late adolescence for ages 17 to 19 (Chunk 4; \(M = 17.68\) years old).

**DEPENDENT VARIABLES**

Two dependent variables were constructed from Wave 2 self-reported offending items. Property crime was measured as an additive index comprised of eight items pertaining to the youths’ self-reported offending behaviors within the past year (\(\alpha = .448\)), including property damage, breaking into a building to steal, stealing from a store, stealing from a household member, snatching a purse, stealing from a car, buying/selling stolen goods, and stealing a car or motorcycle. As expected, very few youths in the younger age groups reported committing any of these offenses. Therefore, a dichotomous indicator of whether the youths had reported committing any of these property behaviors was created for analysis. Violent crime was measured as an additive index also comprised of eight items pertaining to the youths’ self-reported offending behaviors within the past year (\(\alpha = .583\)), including hitting someone you live with, hitting someone you do not live with, attacking someone with a weapon, using force to rob, throwing objects at people, shooting at someone, being in a gang fight, and threatening to hurt someone. Due to the skewed distribution of these data, a dichotomous indicator of whether the youths had reported committing any of these violent behaviors was created for analysis.

**INDEPENDENT AND CONTROL VARIABLES**

Several control variables and independent variables were included from Wave 1 as predictors of Wave 2 offending behaviors. Table 1 contains descriptive statistics for each of the variables used in this study.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Chunk 1 Ages 7 to 9</th>
<th>Chunk 2 Ages 10 to 12</th>
<th>Chunk 3 Ages 13 to 16</th>
<th>Chunk 4 Ages 17 to 19</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>%</td>
<td>M</td>
</tr>
<tr>
<td>Age</td>
<td>8.64</td>
<td>0.49</td>
<td></td>
<td>11.65</td>
</tr>
<tr>
<td>Affective (PC)</td>
<td>1.84</td>
<td>2.31</td>
<td></td>
<td>1.82</td>
</tr>
<tr>
<td>Anxiety (PC)</td>
<td>2.12</td>
<td>1.86</td>
<td></td>
<td>1.82</td>
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<tr>
<td>Somatic (PC)</td>
<td>1.02</td>
<td>1.68</td>
<td></td>
<td>1.26</td>
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<tr>
<td>ADHP (PC)</td>
<td>3.00</td>
<td>2.50</td>
<td></td>
<td>2.60</td>
</tr>
<tr>
<td>ODP (PC)</td>
<td>2.94</td>
<td>2.37</td>
<td></td>
<td>2.78</td>
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<tr>
<td>Affective (Y)/depressive (YA)</td>
<td>—</td>
<td>—</td>
<td></td>
<td>3.92</td>
</tr>
<tr>
<td>Anxiety (Y and YA)</td>
<td>—</td>
<td>—</td>
<td></td>
<td>3.38</td>
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<tr>
<td>Somatic (Y and YA)</td>
<td>—</td>
<td>—</td>
<td></td>
<td>3.22</td>
</tr>
<tr>
<td>ADHP (Y)</td>
<td>—</td>
<td>—</td>
<td></td>
<td>3.00</td>
</tr>
<tr>
<td>ODP (Y)/APP (YA)</td>
<td>—</td>
<td>—</td>
<td></td>
<td>2.70</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>46.5</td>
<td></td>
<td></td>
<td>50.7</td>
</tr>
<tr>
<td>Male</td>
<td>53.5</td>
<td></td>
<td></td>
<td>49.3</td>
</tr>
<tr>
<td>Ethnicity*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-White</td>
<td>36.5</td>
<td></td>
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<td>40.1</td>
</tr>
<tr>
<td>Hispanic</td>
<td>48.7</td>
<td></td>
<td></td>
<td>46.0</td>
</tr>
<tr>
<td>White</td>
<td>14.9</td>
<td></td>
<td></td>
<td>14.0</td>
</tr>
<tr>
<td>SES*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>31.2</td>
<td></td>
<td></td>
<td>30.1</td>
</tr>
<tr>
<td>Middle</td>
<td>38.7</td>
<td></td>
<td></td>
<td>43.3</td>
</tr>
<tr>
<td>High</td>
<td>30.0</td>
<td></td>
<td></td>
<td>26.6</td>
</tr>
<tr>
<td>Prior property (ever)*</td>
<td>13.5</td>
<td></td>
<td></td>
<td>30.7</td>
</tr>
<tr>
<td>Prior violent (ever)*</td>
<td>17.1</td>
<td></td>
<td></td>
<td>34.7</td>
</tr>
<tr>
<td>Property crime Wave 2*</td>
<td>15.8</td>
<td></td>
<td></td>
<td>28.3</td>
</tr>
<tr>
<td>Violent crime Wave 2*</td>
<td>16.6</td>
<td></td>
<td></td>
<td>32.6</td>
</tr>
</tbody>
</table>

Note. PC = primary caregiver, Y = youth, YA = young adult. ADHP = attention deficit/hyperactivity problems, ODP = oppositional defiant problems, APP = antisocial personality problems, SES = socioeconomic status. Mean comparisons across age chunks were not calculated for the DSM scales due to differences in informant and instrumentation sources. *Chi-square significant at $p < .05$. 
Sociodemographic characteristics. A dichotomous measure for gender was included, with female as the reference category. Race was coded as 0 = Hispanic, 1 = non-White (mostly Black/African American; 89.9%), and 2 = White (reference category). Family SES was based on an imputed indicator available in the PHDCN data for maximum SES reported by the primary caregiver or young adult at Wave 1. For most youths, the SES measure reflected scores on the Duncan Socio-Economic Index (SEI; Reiss, 1961) of social status, which ranges from 0 to 100, with 100 being the excellent or highest social stratification level. For youths missing SEI scores (11% of sample used here), a maximum SES score was imputed by PHDCN researchers based on reports for maximum parental or young adult education level and salary. Youths missing education, salary, and SEI data were treated as missing in the analyses. For the purposes of analysis, this indicator was recoded based on quartiles for the entire sample such that 2 = top 25th percentile or high SES (reference category), 1 = middle 50th percentile or middle SES, and 0 = bottom 25th percentile or low SES.

Prior delinquency. As previous engagement in aggressive or violent behaviors has consistently been shown to influence future antisocial behavior, a control variable for prior violence was used in the analyses. An index for ever reported prior violent behavior (α = .611) was created from the same items from Wave 1 as the dependent variable for violence at Wave 2, except Wave 1 did not contain items for shooting at someone or threatening to hurt someone. An index for ever reported prior property offending (α = .582) at Wave 1 was also created using the same items as the dependent variable for Wave 2 property crime. Due to skewness, these two indicators were also dichotomized, with never serving as the reference category in regression analyses.

DSM-oriented scales. At Wave 1, primary caregivers completed the 120-item Child Behavior Checklist (Achenbach, 1991a, 1992) for Chunks 1, 2, and 3. Primary caregivers were asked to report whether the assessment items applied to their child’s behavior within the past 6 months. In addition, youths were also asked to self-report the same problem behaviors as measured in the CBCL. For Chunks 2 and 3, youths were administered the Youth Self-Report (YSR; Achenbach, 1991b), a 112-item instrument containing comparable items to the CBCL and appropriate for older children. For Chunk 4, older youths were administered the Young Adult Self-Report (YASR; Achenbach, 1997) instrument, a 138-item instrument containing comparable items to the CBCL and appropriate for adults ages 18 to 30. For each instrument, responses were 0 = not true, 1 = somewhat true, and 2 = very true. For each of the DSM-oriented scales, youths missing greater than 30% of the original Achenbach items were excluded; thereafter, missing values were conservatively assumed to be zero. Achenbach and his colleagues have developed several DSM-oriented scales from the CBCL, YSR, and YASR, five of which were included here: oppositional defiant problems, attention deficit/hyperactivity problems, anxiety problems, affective problems, and somatic problems. Due to the tautological nature of the Conduct Problems Scale in explaining criminal behaviors, this index was omitted from the present analysis. Achenbach and Rescorla (2001) provided raw score conversions to T-scores to allow for comparisons with normalized populations. Because the T-scores range from 50 to 100, Achenbach and Rescorla recommended using raw scores for analyses to avoid problems associated with censored measures. Therefore, raw scores were used in the analyses and converted to T-scores for interpretation. The CBCL, YSR, and YASR are widely recognized as reliable
and valid instruments that include age- and gender-appropriate measures of emotional and behavioral problems among children and young adults (see Achenbach & Edelbrock, 1983; Achenbach, McConaughy, & Howell, 1987; Achenbach & Rescorla, 2001).

An additive index for affective problems was created from the CBCL (α = .692) for Chunks 1, 2, and 3 and the YSR (α = .714) for Chunks 2 and 3. The Affective Problems Index is a summary measure of the raw scores for 12 items, including frequent crying, attempts to harm oneself or suicide, sleeping problems, and feelings of worthlessness. (For the PHDCN, 1 item dealing with lack of enjoyment was missing from Achenbach’s original 13-item Affective Problems Index.) Among the older adolescents in Chunk 4, the YASR contains a similar index of depressive problems that summarizes 12 items (α = .792). (For the PHDCN, 2 items dealing with lack of enjoyment and success were missing from Achenbach’s original 14-item Depressive Problems Index.)

An additive scale for DSM-oriented anxiety problems was created from raw scores for six items from the CBCL (α = .543) for Chunks 1, 2, and 3 and the YSR (α = .564) for Chunks 2 and 3. These measures include problems as unusual dependence on adults, fear of certain situations, nervousness, and worrying. Among the older adolescents in Chunk 4, the YASR also contains an index of anxiety problems (α = .606), with a summary measure of the raw scores for five items comparable to those available for the younger participants. (For the PHDCN, two items dealing with worry about family and physical manifestations of anxiety were missing from Achenbach’s original seven-item Anxiety Problems Index.)

An additive index for somatic problems was created from seven items from the CBCL (α = .687) for Chunks 1, 2, and 3 and the YSR (α = .721) for Chunks 2 and 3. These items describe physical problems with unknown medical causes such as headaches, nausea, rashes, and vomiting. Among the older adolescents in Chunk 4, the YASR also contains an index of somatic problems (α = .756), with eight items comparable to the younger chunks. (For the PHDCN, one item dealing with unknown causes for numbness in body parts was missing from Achenbach’s original nine-item Somatic Problems Index.)

An additive index for five items related to attention-deficit/hyperactivity problems was created from the CBCL (α = .691) for Chunks 1, 2, and 3 and the YSR (α = .663) for Chunks 2 and 3. (For the PHDCN, two items dealing with inattention and failing to finish tasks were missing from Achenbach’s original seven-item ADHP Index.) Problems such as restlessness, lack of concentration, impulsivity, and loudness were included. Among the older adolescents in Chunk 4, less than 50% of the items used to create Achenbach’s ADHP Scale were available for the PHDCN. Therefore, an ADHP scale was not created for Chunk 4 (ages 17-19).

Lastly, a DSM-oriented scale for oppositional defiant problems was created from the CBCL (α = .822) for Chunks 1, 2, and 3 and the YSR (α = .787) for Chunks 2 and 3. The ODP Index is a summary measure of the raw scores for five items, with problems such as arguing and disobeying parents/teachers and having a hot temper. Among the older adolescents in Chunk 4, the YASR contains an index of antisocial personality problems (APP; α = .780) that contains items similar to ODP and conduct problems in youths. This DSM-oriented scale was included here to allow for a continual examination of developmentally appropriate problem behaviors across the age chunks because ODP is a diagnostic precursor to APP later in life. The APP Index is a summary measure of the raw scores for 15 items such as arguing a lot, being mean to others, lack of guilt, lying, threatening people, fighting, and having a bad temper. (For the PHDCN, 5 items dealing with blaming others, not getting
along with family, irresponsible behavior, and an inability to keep a job were missing from Achenbach’s original 20-item APP Index.)

ANALYSIS

Logistic regression analysis was used to examine the relationship between DSM-oriented scales and property and violent crime prevalence, respectively, while controlling for a number of demographic characteristics (significance level of \( p < .05 \)). The regression analyses were performed separately for the four developmental age groups (Chunk 1 = ages 7-9, Chunk 2 = ages 10-12, Chunk 3 = ages 13-16, Chunk 4 = ages 17-19). For Chunk 1, the PHDCN only contained data for the CBCL, administered to primary caregivers about their children. For Chunks 2 and 3, the PHDCN administered two informant assessments: the CBCL to primary caretakers and the YSR to youths. For Chunk 4, the PHDCN only contained self-reported youth data from the YASR. Consequently, 12 separate regression models were estimated in this study.

RESULTS

An examination of bivariate correlations between the measures indicated that a few of the variables demonstrated moderately strong correlations. (Appendices containing the correlations are available from the corresponding author on request.) For Chunks 1 through 3, moderate associations were found between ADHP and ODP (CBCL Chunk 1: \( r = .645 \); CBCL Chunk 2: \( r = .593 \); CBCL Chunk 3: \( r = .628 \); YSR Chunk 2: \( r = .575 \); YSR Chunk 3: \( r = .590 \)). Moderate correlations were also found between affective problems and anxiety problems (CBCL Chunk 1: \( r = .495 \); CBCL Chunk 2: \( r = .487 \); CBCL Chunk 3: \( r = .587 \); YSR Chunk 2: \( r = .588 \); YSR Chunk 3: \( r = .546 \)), ADHP (YSR Chunk 2: \( r = .549 \); YSR Chunk 3: \( r = .508 \)), and ODP (CBCL Chunk 3: \( r = .508 \)). For Chunk 4, bivariate correlations indicated modest relationships between depression and anxiety (\( r = .577 \)), somatic (\( r = .531 \)), and antisocial personality problems (\( r = .510 \)). Although some of these correlations were moderately strong, variance inflation factors (VIFs: 1.026 to 2.117; tolerances: 0.472 to 0.975) scores for the regression models were well below 4, indicating that multicollinearity was not a problem (Fox, 1991).

Furthermore, as shown in Table 1, comparisons across chunks indicated that older age chunks contained significantly more youths who engaged in prior property: \( \chi^2(3, N = 2,390) = 318.06, p < .001 \); violent: \( \chi^2(3, N = 2,389) = 304.89, p < .001 \); and future offending, property: \( \chi^2(3, N = 2,415) = 44.58, p < .001 \); violent: \( \chi^2(3, N = 2,415) = 85.93, p < .001 \). There were no gender differences across the chunks, but there were significantly more White, \( \chi^2(6, N = 2,411) = 13.67, p = .034 \); and middle SES, \( \chi^2(6, N = 2,281) = 93.57, p < .001 \), youths in older aged chunks. Mean comparisons across chunks for the DSM-oriented scales were not conducted due to scale and informant source differences across age.

Six logistic regression models were estimated regarding the prevalence of property crime among PHDCN youths controlling for comorbidity in DSM-oriented symptoms and prior offending. These models included three for primary caretaker–reported and three for youth self-reported DSM problems. Table 2 reports the findings from the four significant regressions containing DSM-oriented effects (both informant models for Chunk 3 were
TABLE 2: Logistic Regression Models for the Effects of Diagnostic and Statistical Manual (DSM)–Oriented Problems at Wave 1 on Youths’ Self-Reported Property Crime at Wave 2

<table>
<thead>
<tr>
<th>Model 1: Caregiver</th>
<th>Model 2: Caregiver</th>
<th>Model 3: Youth</th>
<th>Model 4: Youth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ages 7 to 9</td>
<td>Ages 10 to 12</td>
<td>Ages 17 to 19</td>
<td></td>
</tr>
<tr>
<td>(n = 657)</td>
<td>(n = 659)</td>
<td>(n = 378)</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>b</td>
<td>b</td>
<td>b</td>
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<td>SE</td>
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<td>SE</td>
</tr>
<tr>
<td>OR</td>
<td>OR</td>
<td>OR</td>
<td>OR</td>
</tr>
</tbody>
</table>

Gender
- Male
  - Gender
    - Mal
      - OR = 0.997
      - OR = 1.072
      - OR = 1.157
      - OR = 1.323
- Hispanic
  - Race
    - Hispanic
      - OR = 0.409
      - OR = 1.212
      - OR = 1.011
      - OR = 0.364
- Non-White/Black
  - SES
    - Low
      - OR = 0.860
      - OR = 0.784
      - OR = 0.837
      - OR = 0.820
    - Middle
      - OR = 0.892
      - OR = 1.233
      - OR = 1.320
      - OR = 1.508
- Prior property (ever)
  - Prior property (ever)
    - OR = 1.498
    - OR = 1.273
    - OR = 1.320
    - OR = 1.508
- Prior violent (ever)
  - Prior violent (ever)
    - OR = 1.005
    - OR = 1.320
    - OR = 1.342
    - OR = 1.429

DSM scales
- Affective/depressive
  - OR = 0.954
  - OR = 0.984
  - OR = 1.007
  - OR = 1.016
- Anxiety
  - OR = 0.990
  - OR = 0.910
  - OR = 0.997
  - OR = 0.971
- Somatic
  - OR = 1.061
  - OR = 1.041
  - OR = 0.970
  - OR = 0.920
- ADHP
  - OR = 1.129
  - OR = 1.007
  - OR = 1.018
  - —
- ODP/APP
  - OR = 1.040
  - OR = 1.110
  - OR = 1.126
  - OR = 1.162

Intercept
- Intercept
  - -1.992
  - -1.968
  - -2.018
  - -3.294
- -2 log likelihood
  - 514.82
  - 712.18
  - 715.71
  - 363.77
- Model \( \chi^2/df \)
  - 59.18/12*
  - 73.98/12*
  - 74.11/12*
  - 100.73/11*
- Pseudo \( R^2 \) controls only
  - 0.122
  - 0.139
  - 0.138
  - 0.277
- Pseudo \( R^2 \) full model
  - 0.148
  - 0.152
  - 0.152
  - 0.331

Note. OR = odds ratio. SES = socioeconomic status, ADHP = attention deficit/hyperactivity problems, ODP = oppositional defiant problems, APP = antisocial personality problems.
* \( p < .05 \).
excluded due to nonsignificant mental health effects). Across the four models, the most robust predictor of future property crime was a history of either violent or property offending with increases of odds ranging from 59% to 448%. Among the youngest group of PHDCN youths, Hispanics were significantly less likely than Whites to report engaging in future acts of property crime, controlling for other measures. No other race, gender, or SES effects emerged from the four models for property prevalence.

Regarding significant DSM-oriented effects, youths in middle childhood (ages 7-9) whose parents reported high attention-deficit/hyperactivity problems ($b = 0.121$) were significantly more likely to engage in future property crime. A one-unit increase in ADHP resulted in a 13% increase in the odds of theft behaviors. For parent- and youth-based reports in late childhood (ages 10-12), greater levels of oppositional defiant problems (parent: $b = 0.105$; youth: $b = 0.119$) significantly predicted property crime. A one-unit change in caretaker and youth reports of ODP increased the chances of property offending by 11% and 13%, respectively. For youths in late adolescence (ages 17-19), only self-reported antisocial personality problems ($b = 0.150$) significantly affected future theft, increasing the odds of such behaviors by 16%. These models accounted for between 14.8% and 33.1% of the variation in subsequent property crime, with variance increasing across age chunks. Overall, when controlling for comorbid mental health issues and other antisocial behaviors, these results imply a continuity and persistence across developmental stages of impulsive, oppositional, and defiant behaviors that predict future property crimes in PHDCN youths.

Turning toward violence prevalence, Table 3 reports the four significant logistic regression results of DSM-oriented problems across age chunks and informant types. (Parent-based DSM models for Chunks 2 and 3 revealed no significant mental health effects on violence and were not reported here.) In concordance with property offending, the most consistent and robust predictor of future violence in youths was prior violent offending. Prior violence increased the odds of future violence from 117% to 365% across the models. Regarding gender, male youths were significantly more likely to commit later violence than their female counterparts, regardless of informant and developmental stage. Strong racial effects were also found when looking at violence, with non-White/Black youths at significantly greater risk of later violent behaviors when compared to Whites for youth-reported DSM models. These findings are consistent with Boots’s (2008) report of strong, positive racial effects for Blacks on violent crime among the Pittsburgh Youth Study (PYS) youths. In addition, the caretaker model for the youngest cohort found a significantly higher risk for violence in White youths when compared to Hispanic youngsters. None of the other demographic variables influenced violence prevalence across age chunks and informants.

The results for the violence models revealed consistent DSM-oriented problems when controlling for comorbid psychopathology and all else. For Chunk 1 parent reports, a one-unit increase in oppositional defiant problems ($b = 0.184$) resulted in a 20% greater likelihood of subsequent violence. For older children and younger adolescents (Chunks 2 and 3), self-reported ODP ($b = 0.191$ and $b = 0.171$) significantly increased the odds of violence by 21% and 19%, respectively. This trend of defiant behavior continued for youths in late adolescence, with antisocial personality problems ($b = 0.115$) significantly affecting personal aggression at Wave 2.

To address inherent tautological issues when using a mental health index with items related to criminal offending to predict later offending, we conducted additional ad hoc tests on the APP DSM-oriented scale. Additional logistic regressions were conducted using
### TABLE 3: Logistic Regression Models for the Effects of *Diagnostic and Statistical Manual (DSM)*-Oriented Problems at Wave 1 on Youths' Self-Reported Violent Crime at Wave 2

<table>
<thead>
<tr>
<th>Model 5: Caregiver</th>
<th>Model 6: Youth</th>
<th>Model 7: Youth</th>
<th>Model 8: Youth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ages 7 to 9</td>
<td>Ages 10 to 12</td>
<td>Ages 13 to 16</td>
<td>Ages 17 to 19</td>
</tr>
<tr>
<td></td>
<td>(n = 657)</td>
<td>(n = 542)</td>
<td>(n = 378)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>0.475</td>
<td>0.641</td>
<td>0.957</td>
</tr>
<tr>
<td></td>
<td>.241*</td>
<td>.216*</td>
<td>.291*</td>
</tr>
<tr>
<td></td>
<td>1.608</td>
<td>1.898</td>
<td>2.604</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>-0.787</td>
<td>-0.164</td>
<td>0.784</td>
</tr>
<tr>
<td></td>
<td>.378*</td>
<td>.309</td>
<td>.383*</td>
</tr>
<tr>
<td></td>
<td>0.455</td>
<td>0.849</td>
<td>2.190</td>
</tr>
<tr>
<td>Non-White/Black</td>
<td>0.513</td>
<td>0.672</td>
<td>0.935</td>
</tr>
<tr>
<td></td>
<td>.340</td>
<td>.236</td>
<td>.376*</td>
</tr>
<tr>
<td></td>
<td>1.671</td>
<td>1.066</td>
<td>2.546</td>
</tr>
<tr>
<td>SES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>0.244</td>
<td>0.172</td>
<td>-0.661</td>
</tr>
<tr>
<td></td>
<td>.316</td>
<td>.287</td>
<td>.469</td>
</tr>
<tr>
<td></td>
<td>1.277</td>
<td>1.187</td>
<td>0.516</td>
</tr>
<tr>
<td>Middle</td>
<td>0.119</td>
<td>0.064</td>
<td>-0.181</td>
</tr>
<tr>
<td></td>
<td>.280</td>
<td>.236</td>
<td>.398</td>
</tr>
<tr>
<td></td>
<td>1.126</td>
<td>1.066</td>
<td>0.834</td>
</tr>
<tr>
<td>Prior violent (ever)</td>
<td>1.319</td>
<td>1.538</td>
<td>1.369</td>
</tr>
<tr>
<td></td>
<td>.251*</td>
<td>.246*</td>
<td>.299*</td>
</tr>
<tr>
<td></td>
<td>3.740</td>
<td>4.653</td>
<td>3.932</td>
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<td>DSM scales</td>
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<td></td>
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<tr>
<td>Affective/depressive</td>
<td>0.009</td>
<td>-0.010</td>
<td>0.069</td>
</tr>
<tr>
<td></td>
<td>.062</td>
<td>.039</td>
<td>.045</td>
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<td></td>
<td>1.009</td>
<td>0.990</td>
<td>1.071</td>
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<td>Anxiety</td>
<td>0.098</td>
<td>-0.019</td>
<td>-0.054</td>
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<td></td>
<td>.073</td>
<td>.055</td>
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<td></td>
<td>1.102</td>
<td>0.982</td>
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<tr>
<td>Somatic</td>
<td>0.056</td>
<td>-0.048</td>
<td>-0.026</td>
</tr>
<tr>
<td></td>
<td>.065</td>
<td>.046</td>
<td>.054</td>
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<tr>
<td></td>
<td>1.058</td>
<td>0.953</td>
<td>0.974</td>
</tr>
<tr>
<td>ADHP</td>
<td>-0.047</td>
<td>-0.030</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>.060</td>
<td>.055</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>0.954</td>
<td>0.970</td>
<td>—</td>
</tr>
<tr>
<td>ODP/APP</td>
<td>0.184</td>
<td>0.171</td>
<td>0.115</td>
</tr>
<tr>
<td></td>
<td>.064*</td>
<td>.056*</td>
<td>.038*</td>
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<tr>
<td></td>
<td>1.202</td>
<td>1.187</td>
<td>1.122</td>
</tr>
<tr>
<td>Intercept</td>
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<td>-2.250*</td>
<td>-3.336*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-2.369*</td>
<td></td>
</tr>
<tr>
<td>-2 log likelihood</td>
<td>496.94</td>
<td>742.57</td>
<td>383.29</td>
</tr>
<tr>
<td>Model $\chi^2$/df</td>
<td>96.71/11*</td>
<td>89.73/11*</td>
<td>92.18/10*</td>
</tr>
<tr>
<td>Pseudo $R^2$</td>
<td>0.180</td>
<td>0.130</td>
<td>0.246</td>
</tr>
<tr>
<td>controls only</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Pseudo $R^2$ full model | 0.230  | 0.178 | 0.268 | 0.302

**Note.** OR = odds ratio. SES = socioeconomic status, ADHP = attention deficit/hyperactivity problems, ODP = oppositional defiant problems, APP = antisocial personality problems.  
*p < .05.
a modified *DSM*-oriented scale, with six items excluded that refer to criminal behavior: damaging property, fighting, attacking people, stealing, threatening to hurt people, and doing things to get in trouble with the law. The additive raw score totals denoting borderline and clinical distinctions of APP were not altered from their original format to provide the most conservative test possible with all tautological items removed. The results revealed no substantive differences in the model for property crime and violent crime for age Chunk 4 (17–19 years old) with these exclusions in the construct. Indeed, the strength of the relationship between APP and future offending increased slightly in the modified model.

The aforementioned models in Table 3 explained between 17.8% and 30.2% of the variance in violence prevalence. Although these effects were weak when compared to other variables within the model, the results show a continuity and persistence of oppositional and antisocial mental health problems across life stages even when controlling for comorbidity.

To gain a better understanding of how *DSM*-oriented problems affect future offending among the youths in the sample, predicted probabilities were calculated for the normal, borderline, and clinical ranges of significant *DSM*-oriented constructs in the models. Recall that Achenbach and Rescorla (2001) provided conversions for the raw scores of the *DSM*-oriented scales into age- and gender-appropriate *T*-scores for comparison to a normalized population. Figures 1 and 2 offer a visual representation of the predicted probabilities of

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**Figure 1:** Predicted Probabilities for Future Property Crime Based on Significant Diagnostic and Statistical Manual (*DSM*)-Oriented Scales for White Girls With and Without Prior Offending

*Note.* Predicted probabilities are based on observed rather than expected scores. Probabilities were calculated for logistic regression models containing significant *DSM*-oriented scales, where sex = female, race/ethnicity = White, socioeconomic status = middle class, prior delinquency = ever (1) or never (0), and all other variables equal means. For ADHP and APP, none of the youths reported maximum scores on the scale. Shaded area of line indicates the “borderline” range of *DSM*-oriented scale. The portion of the line segment to the left of a shaded area is within “normal” classification range for the age- and gender-appropriate *DSM*-oriented scale (indicated by x-axis label). The portion of the line segment to the right of a shaded area is within “clinical” classification range of *DSM*-oriented scale. ADHP = attention deficit/hyperactivity problems, PC = primary caregiver, ODP = oppositional defiant problems, Y = youths, APP = antisocial personality problems, YA = young adults.
offending. The predicted probabilities of property and violent offending were calculated based on the logistic regression results reported in Tables 2 and 3, holding SES at middle (1) and all other DSM problems at their means. The predicted probabilities vary across gender and race, with male and non-White/Black participants having higher probabilities across the sample. Conversely, girls and Hispanics demonstrated a decreased propensity for offending. Therefore, in an effort to be conservative and not inflate the salience of DSM-oriented problems in predicting later property and violent behaviors, the figures primarily reflect predicted probabilities for females and White youths.

Figure 1 provides a summary of the predicted probabilities for the significant DSM-oriented effects on property crime reported in Table 2 for White girls. Because there were no significant gender differences across these models of property offending, only the predicted probabilities for females are presented. Each graph presented within Figure 1 contains two lines. The bottom lines represent the probabilities of property crime based on attention deficit/hyperactivity, oppositional defiant, or antisocial personality problem scores for White females with no prior self-reported offending. The top lines represent the probabilities of theft based on ADHP, ODP, or APP scores for White girls with histories of property and violent offending. In this fashion, an indication of the range of property crime risk associated with specific DSM-oriented problems between these two extreme categories is illustrated. The DSM-oriented scales are continuous indicators of mental health, with
lower scores reflecting normal thresholds, middle scores representing borderline levels, and higher scores indicating clinical ranges of psychopathology. In Figure 1, the shaded area on each line designates the borderline range of scores, which is gender and age appropriate. Scores within the normal range fall to the left of the shaded area on each line. Scores within the clinical range of problem behaviors for each DSM scale fall to the right of the shaded areas on each line.

Accordingly, Figure 1a indicates that White girls in Chunk 1 with normal levels of attention deficit problems and no history of offending had between 12% and 23% chances of subsequent theft, compared to between 37% and 58% chances for those with a history of offending. Examination of the borderline ranges of ADHP for these two categories of girls revealed a probability of future theft between 26% and 28% for those with no prior offending and between 61% and 64% for those with a history of offending. Girls in the clinical category of ADHP had a 31% chance of property crime if they had no history of offending and twice that (67%) if they reported previous theft involvement. As Figures 1b and 1c show, the probabilities for theft based on oppositional defiant problems in Chunk 2 using both parent and youth informant data, respectively, were similar to those of ADHP for White girls. The probabilities of future theft based on antisocial personality problem scores illustrated in Figure 1d were slightly higher for White girls in late adolescence (Chunk 4), especially for the clinical range (without priors: 26%-61%; with priors: 71%-91%). The predicted probabilities for Hispanic and non-White/Black youths as well as boys were only slightly higher (on average between 3 and 5 percentage points) than those of White girls. In general, the findings from the predicted probability scores suggest that youths scoring in the clinical ranges of ADHP, ODP, and APP, progressing from youngest to oldest developmental stages, were most at risk of engaging in future property crime, controlling for comorbidity in DSM-oriented mental health factors and delinquency. Therefore, when focusing on the relationship between mental health problems and property crime, the most salient category of DSM-oriented problems was the clinical range.

The regression analyses for violence prevalence indicated significant gender differences in all models; hence, Figure 2 compares the predicted probabilities for girls and boys. Similar to Figure 1, Figure 2 illustrates the probabilities of violence based on the significant DSM-oriented scales for White youths, who represented the middle at-risk group for violence in Chunks 1 and 3 and the lowest at-risk group in Chunks 2 and 4. Hispanic youths demonstrated the lowest predicted probabilities of violence in Chunks 1 and 3 and the middle in Chunks 2 and 4, whereas non-White/Black youths demonstrated the highest predicted probabilities of violence for all chunks. As Figure 2 illustrates, youths without prior violence displayed lower probabilities of violence than those with a history of violence, and girls had lower chances of future violence compared to boys within their respective categories of prior violence. This trend is consistent with the literature on risk factors for delinquency.

As Figures 2a through 2c illustrate, the predicted probabilities for violence based on oppositional defiant problems were similar across developmental stages, with one exception. For Chunk 2 (ages 10-12), ODP scores for youths with no history of violence predicted slightly higher odds of violence than Chunk 1 or 3. As seen in Figure 2a, the chances of violence based on parental reports of oppositional defiant problems in the normal range were 6% to 14% for White girls without prior violence, 9% to 21% for White boys without prior violence, 19% to 37% for White girls with a history of violence, and 28% to 49% for White boys with prior violence. For youths in Chunk 1 (Figure 2a) in the borderline range
of parent-reported oppositional defiant problems, the chances of future violence were 16% for White girls without prior violence, 24% for White boys without prior violence, 42% for White girls with prior aggression, and 54% for White boys with prior aggression. For youths in Chunk 1 falling in the clinical range of parent-reported ODP, the probabilities of future personal violence were 19% to 29% for White girls without prior violence, 27% to 39% for White boys without prior violence, 46% to 60% for White girls with a history of violence, and 58% to 71% for White boys with prior violence. In general, the chances of violence for youths in Chunks 2 (Figure 2b) and 3 (Figure 2c) ranged from 0 to 19 percentage points higher across DSM risk thresholds (i.e., normal, borderline, or clinical) for those without prior violence and from 3 to 9 percentage points higher for those with prior violence.

Figure 2d illustrates the predicted probabilities of violence for Chunk 4 (ages 17-19) based on youth self-reports of antisocial personality problems. Looking at older adolescent youths who scored in the normal range of APP, White girls, regardless of offending history, and White boys with no history of violence were at substantially lower risk of violence (3%-26%) than White boys who self-reported engaging in prior violence (24%-50%). It is noteworthy that the upper level of “normal” APP predicted violence with the same chances as the “borderline” threshold of ODP. A similar pattern is evident when looking at those falling in the borderline range of APP, such that White boys with prior violence and APP had a 53% to 56% chance of future violence compared to a 9% to 36% chance for the three other categories of youths. When considering how the clinical range of antisocial personality problems affects future violence for Chunk 4 (Figure 2d), there were two noteworthy findings. First, the probabilities of violence for White boys without prior violence and White girls with prior violence approached those of White boys with prior violence as antisocial personality problems increased. Second, the range of scores comprising the clinical threshold of APP was broad, accounting for probabilities of 14% to 44% for White girls without prior violence, 27% to 67% for White boys without prior violence, 38% to 76% for White girls with prior violence, and 59% to 89% for White boys with prior violence. The predicted probabilities for Hispanic and non-White/Black youths (not shown here) revealed similar trends across the developmental stages and DSM risk thresholds, with higher probabilities of violence for Hispanic youths in Chunks 2 and 4 and even higher probabilities for non-White/Black youths in all chunks. Similar to results for property crime, the findings for violent crime suggest that the most salient category of DSM-oriented problems in predicting violence was the clinical range; however, it is also important to consider the upper level of borderline and even normal problems.

**DISCUSSION**

This article takes an exploratory approach and is the first to estimate the ability of DSM-oriented scales to predict future property and violent crime in PHDCN children and adolescents. It builds on the work of Boots (2008) and her examination of DSM-oriented problems and serious offending over time in the first cohort of Pittsburgh Youth Study boys beginning in middle childhood and following them through late adolescence. To our knowledge, Boots (2008) is the first scholarly work to combine multiple waves of longitudinal data from various informants (e.g., parents and teachers) using Achenbach’s DSM-oriented scales within a developmental framework to explain serious offending behaviors. The present
study extends this literature by utilizing multiple cohorts of child and adolescent PHDCN boys and girls, clustering these cohorts into developmental groups, and then assessing the onset and continuity of various parent- and child-reported DSM-oriented problems (while controlling for all other DSM problems, sociodemographics, and prior offending) across childhood and adolescence as they relate to later offending.

When looking across the general property and violence models and between parent and youth reports, several intriguing findings emerge. Supported partly by Boots’s (2008) findings regarding oppositional defiant problems and violence in PYS boys, ODP and antisocial personality problems in PHDCN youth at Wave 1 were consistent predictors of property and violent offending at Wave 2 in five out of six total Youth Self-Report/Young Adult Self-Report models. Indeed, children and adolescents in Chunks 2, 3, and 4 who self-reported ODP and APP mental health problems were more likely to act violently at Wave 2. The consistency of these results across the age chunks and within respondents suggests they are not due to random effects. Caretaker reports of ODP also significantly predicted violence in Chunk 1 and property crimes in Chunk 2.

In addition, the continuity and progressiveness of oppositional defiant problems (a precursor to conduct disorder and antisocial personality problems) into APP across the developmental chunks was striking, especially in youth reports, with the predicted probability of future offending increasing dramatically as youngsters moved from normal to borderline to clinical thresholds. These findings highlight the practical utility of borderline distinctions, with children who failed to meet clinical levels having a greater probability of violence than their “normal” peers across each model. Clearly, intervention and prevention strategies may benefit from including consideration of certain upper-level “normal” and “borderline” symptoms of mental health problems. Although we were unable to examine developmental change within individuals in the present study, the predicted probabilities presented here across the age chunks suggest a developmentally linked increase of risk for youths possessing borderline and clinical levels of DSM-oriented scales. The findings are consistent with a large body of literature that has found a link between oppositional and antisocial behaviors in youth and violence over the life course (Connor, 2002; Loeber, 2004).

The only other significant DSM-oriented problem scale originated from parent reports of attention deficit/hyperactivity problems for Chunk 1. Although three of the eight significant DSM-oriented models originated from caretaker data, this ADHP finding was an anomaly and not duplicated in any other models. With the high number of models run here, this relationship may be due to random error and should be viewed with caution prior to further investigation. On the other hand, it is possible this effect is particular to explaining property behavior and a consequence of the highly impulsive nature of the disorder (Barkley, Fischer, Smallish, & Fletcher, 2004; Satterfield & Schell, 1997). Out of 58 total DSM-oriented problems tested across the 12 models, only 3 were significant from parent reports and 5 were significant from youth self-reports of DSM-oriented problems. There was little congruence between parent and child reports of mental health problems across developmental stages and offending types, with the convergence found only in Models 2 and 3 (see Table 2) as ODP in Chunk 2 predicted property crime. As such, it appears that youths are better able to recognize serious oppositional and antisocial behaviors that put them at risk for self-reported violence when compared to their caretakers. Scholars have presented a number of reasons for such discrepancies between informant reports as parental attributions, assessments of child temperament, and caretaker psychological functioning.
may all color perceptions of children’s mental health (see Grietens et al., 2004; Kerr, Lunkenheimer, & Olson, 2007). These results shown here reinforce the strength of designs using multiple informants (Duhig, Renk, Epstein, & Phares, 2000; Raudenbush & Earls, 2000) and are consistent with empirical literature that suggests that parents might lack objectivity in gauging serious externalizing mental health problems of their offspring, especially in younger children (Barker, Bornstein, Putnick, Hendricks, & Suwalsky, 2007; Edelbrock, Costello, Dulcan, Calabro, & Kala, 1986).

Inasmuch as they also suggest the direction of the causal relationships between mental health and offending, these preliminary results warrant further exploration because eight of the models reached statistical significance even when controlling for all other DSM-oriented problems, prior delinquency, gender, race, and SES. Achenbach’s raw score distinctions between normal, borderline, and clinical thresholds were fully maintained in our analyses despite shorter scale intervals due to missing items for some DSM-oriented scales. With many of the scales missing items that could have further inflated the significance of child mental health problems, this conservative approach makes these results even more noteworthy. An additional strength of this article is that it controls for comorbidity with other DSM-oriented problem behaviors and prior delinquency and shows consistently robust significant effects. An ongoing controversy with multiple problem youths relates to which of the DSM scales have the greatest probability of persistence over the life course. Existing studies that do not control for simultaneous DSM problems but rather look at these issues separately could be reporting spurious effects that would be reduced to nonsignificance in more complex models that account for multiple mental health problems. To offer a clearer picture of the strength of these relationships, future studies should comparatively explore the independent ability of these DSM-oriented scales in predicting deviance and poor life course outcomes over time versus a combined model that controls for comorbid effects.

Briefly, several other findings emerged concerning the control variables that deserve mention. The most robust and anticipated finding was the positive relationship between prior offending and future property and violent offending across all models. As only self-reported offending behaviors were used here, it would be worthwhile to test whether similar patterns persist with official report data (Farrington et al., 2003; Loeb et al., 2008). Also noteworthy were the significant gender effects found here, with boys more likely to commit property crimes in two models (not shown) and violent crimes in all models. These findings reinforce the urgent call to explore the etiology of gender differences in more depth, especially in relation to mental health problems. Regarding race, some interesting trends emerged when looking across the violence models, with Black, non-White youths at greater risk of violent behaviors across DSM-oriented problems. For the most part, these race effects are consistent with those reported by Boots (2008), who found strong positive effects for Black males on violent crime in the youngest cohort of PYS boys. It should be noted however that the aggregated variable of Blacks/Hispanics was a potential confounder in Boots’s analyses. The present study however analyzed Hispanic ethnicity as a separate variable to offer a clearer picture of the role of race and ethnicity in offending behaviors when controlling for other variables and found decreased risk for Hispanic youth in middle childhood but increased risk for those in late adolescence. Future studies should examine the gender and race/ethnicity effects in more depth.

This study has several limitations. First, this work considered only two time points and prevented an examination of the persistence of these problem behaviors beyond Wave 2.
Moreover, with only three waves of data available for the PHDCN, we were limited in our ability to assess change within individuals over time and perform more advanced longitudinal models. The PHDCN also lacks teacher reports of problem behaviors that would have allowed an exploration of DSM informants within another domain (e.g., school). Such data offer valuable information about youngsters that can vary dramatically from parent or child reports regarding mental health problems (see, Loeb, Farrington, Stouthamer-Loeber, & Van Kammen, 1998). In addition, researchers should consider replicating this study with official report data as scholars have raised concerns about the reliability and validity of self-report measures of crime as well as the potential for respondent recall error and response falsification (Kirk, 2006).

In summary, this work provides an introductory examination of the ability of select mental health problems in predicting violence among youngsters. As this study is one of the first to utilize DSM-oriented scales in a large, community-based sample over time, the results presented here are exploratory and should be viewed as preliminary. Because our models did not control for familial, socialization, and community variables that may further explain some of the more complex mechanisms that interact with and reinforce mental health problems in troubled youths, future works should consider adopting multilevel modeling techniques that incorporate these variables from the PHDCN. As stated previously, the independent influence of these DSM-oriented scales on offending is also unclear. It would be meaningful to explore the spuriousness of offending models that rely on singular predictors of mental health and compare these findings with comorbid models of psychopathological problems. Additional research should also explore gender and race differences in offending reported here in more depth as there is tremendous interdisciplinary interest in such disparities and developing successful interventions and prevention programs for at-risk youths (Loeb & Farrington, 2001). Without a doubt, the amelioration of problem behaviors that lead to serious offending in youths is a critical public health and policy issue that links academics, families, practitioners, and communities together with a common and important objective (Dahlberg & Potter, 2001).

NOTE

1. The focus of this article is not on race and ethnicity; additional logistic regression analyses looking at only Black youths compared to White and Hispanic youths indicated some intriguing results. Specifically, for the ages 7 to 9 chunk, the effect of ADHP on property crime became nonsignificant ($p = .082$), and for the ages 10 to 12 chunk, the effect of oppositional defiant problems (ODP) on property crime became nonsignificant ($p = .071$). This finding suggests that caregivers of non-Hispanic, non-Black minority youths report higher levels of attention deficit/hyperactivity problems and ODP problems that accounted for the non-White/Hispanic effects. Future studies should explore these ethnicity effects further.

REFERENCES


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