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van der Put, C.E.; Asscher, J.J.

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Protective Factors in Male Adolescents With a History of Sexual and/or Violent Offending: A Comparison Between Three Subgroups

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Claudia E. van der Put¹ and Jessica J. Asscher¹

Abstract

This study aimed to examine the presence and impact of dynamic protective factors for delinquency in male adolescents with a history of sexual and/or violent offending. Bipolar factors (factors with risk and protective factors being the ends of the same continuum) were examined in male adolescents with a history of sexual offenses against younger children (CSOs; $n = 341$), a history of sexual offenses against peers and/or adult victims (PSOs; $n = 207$), and a history of nonsexual violent offenses (VOs; $n = 1,356$). We conducted secondary analyses on data collected with the Washington State Juvenile Court Assessment and on general recidivism data. ANOVA, correlations, Fisher's z tests, and logistic regression analyses were applied. Results showed that, in VOs, the number of risk factors was greater than the number of protective factors, whereas in PSOs, and especially CSOs, the number of protective factors was greater than the number of risk factors. Protective factors appeared to be especially important for juveniles with a history of sexual offenses for two reasons. First, the impact of most protective factors on recidivism was larger among juveniles with a history of sexual offenses than among those with a history of violent offenses. Second, protective factors added to the predictive accuracy over and above risk factors in juveniles with a history of sexual offenses, but not in those with a history of violent offenses.

¹University of Amsterdam, The Netherlands

Corresponding Author:

Claudia E. van der Put, Research Institute of Child Development and Education, University of Amsterdam, P.O. Box 94208, Amsterdam 1090 GE, The Netherlands.

Email: c.e.vanderput@uva.nl

Keywords

male adolescents with a history of sexual offenses, male adolescents with a history of violent offenses, protective factors, risk factors, dynamic factors, impact of factors, presence of factors, peer victims, child victims

Juvenile sexual offending has been explained from two perspectives. The first perspective focuses on *offense-specific risk factors* which are thought to be uniquely, or primarily, relevant to sexual crimes, whereas the second perspective, the *general delinquency* explanation, assumes that sexual offending is part of a broader pattern of delinquency and could be explained as a manifestation of general antisocial tendencies. In both perspectives, juvenile sexual offending is explained by focusing solely on risk factors. Protective factors are rarely examined, and therefore, little is known about protective factors for both sexual and general recidivism.

To provide adequate assessment and treatment for juvenile offenders, including juveniles who offend sexually, the risk-needs-responsivity (RNR; Andrews & Bonta, 2010) model is generally considered to be the most important. According to the RNR model, treatment should comply with a number of principles to be effective: (a) the intensity of treatment should be matched to the risk of recidivism (risk principle); (b) the intervention must be geared to the criminogenic needs of a juvenile, that is, targeting dynamic risk factors related to recidivism (needs principle); and (c) the intervention must be responsive to juveniles' individual characteristics and motivation (responsivity principle). These principles emerge from a series of comprehensive meta-analyses of interventions targeting criminal offense recidivism (Andrews & Bonta, 2006; Andrews et al., 1990; Dowden & Andrews, 1999, 2000; Gendreau, 1996; Gendreau, Smith, & French, 2006). The principles also appear to be important in the treatment of those who offend sexually (Hanson, Bourgon, Helmus, & Hodgson, 2009).

The RNR model has been expanded beyond the original RNR principles with the *strengths principle*, which requires that personal strengths (protective factors) are assessed and integrated into interventions (Andrews, Bonta, & Wormith, 2011). However, very little is known about protective factors for general and/or sexual delinquent behavior and recidivism (Luthar, Cicchetti, & Becker, 2000). Deković (1999) defined protective factors as "those personal, social, and institutional resources that foster competence, promote successful development and, thus, decrease the likelihood of engaging in problem behavior" (p. 670). However, there is little consensus in the literature with regard to the use of the term *protective factor* (Luthar et al., 2000).

First, there is a discussion about the definition of protective factors (Deković, 1999; Luthar et al., 2000). Some researchers define protective factors as factors that buffer against risks of delinquency (Fergusson & Lynskey, 1996; Pollard, Hawkins, & Arthur, 1999; Rutter, 1987, 2003), whereas other researchers assume that protective factors have a direct effect on reducing problem behavior, even where there are no risks present (Sameroff, Bartko, Baldwin, Baldwin, & Seifer, 1998). In recent studies, evidence was found only for direct effects of protective factors on recidivism (Farrington,

Loeber, Jolliffe, & Pardini, 2008; Stouthamer-Loeber, Loeber, Wei, Farrington, & Wikström, 2002; Van der Laan, Veenstra, Bogaerts, Verhulst, & Ormel, 2010).

Second, there is discussion about whether factors are unipolar or bipolar; that is, whether risk and protective factors really are two different groups of factors or the same factors, with a risk effect at one end of the continuum and a protective effect at the other end. It has been shown in various studies that protective and risk effects often co-occur in the same variables (e.g., Farrington et al., 2008; Stouthamer-Loeber et al., 1993; Van der Laan et al., 2010), including variables such as peer delinquency, school motivation, parental supervision, relationship with parents, parental stress, academic performance, psychopathic features, depressed mood, and family socioeconomic status (SES). In this study, we focused on bipolar variables.

Compared with the number of studies in which risk factors for recidivism are examined, there are relatively few articles on the impact of protective factors on recidivism. Moreover, differences between juveniles who offend sexually and violently in the impact of protective factors on recidivism has, to our knowledge, not yet been studied. Therefore, the aim of our study was to enhance knowledge on protective factors by examining the presence and impact of both dynamic risk and protective factors from various domains on general recidivism in both male adolescents with a history of sexual offenses and male adolescents with a history of nonsexual violent offenses (VOs). Because it has repeatedly been shown that male adolescents who offend sexually form a heterogeneous group (e.g., Barbaree & Marshall, 2006; Hunter, Figueredo, Malamuth, & Becker, 2003; Seto & Lalumière, 2010), a distinction was made between adolescents with a history of sexual offenses against younger children (CSO) and adolescents with a history of sexual offenses against peer and/or adult victims (PSO).

To be able to effectively adhere to the strength principle, it is important to know which dynamic protective factors are most associated with recidivism. The effect of an intervention to prevent recidivism is likely to be greatest when it is aimed at those dynamic protective factors that are most related to recidivism. The stronger the link with recidivism, the greater the potential effect of an intervention targeting these factors. In this study, we examined the relation between protective factors and *general (any) recidivism*, because both juveniles who offend sexually and juveniles who offend nonsexually continue committing nonsexual offenses much more often than sexual offenses (Långström & Grann, 2000; McCann & Lussier, 2008; Rasmussen, 1999). Juveniles who offend sexually are approximately 3 times more likely to reoffend by committing a nonsexual offense than a sexual offense (e.g., Långström & Grann, 2000; McCann & Lussier, 2008; Rasmussen, 1999; Vandiver, 2006). Therefore, it is crucial to know, from a risk assessment and treatment perspective, which factors are most associated with general recidivism among these youth, taking account of both risk factors and protective factors.

This study is a follow-up of an earlier study in which we concentrated solely on risk factors (Van der Put, Van Vugt, Stams, Deković, & Van der Laan, 2013). The results of that study showed that there were more risk factors for general delinquency in juveniles who offended nonsexually than in juveniles who offended sexually, whereas the impact of those risk factors on general recidivism was larger in juveniles who offended

sexually than in those who offended nonsexually. In this study, we extended the previous study by examining the presence and impact of both protective and risk factors for general delinquency in PSOs, CSOs, and VOs.

Method

Sample

For this study, secondary data from the Washington State Juvenile Court Assessment (WSJCA) validation study were used (Barnoski, 2004a). The dataset consisted of Washington State probationers between 12 and 18 years of age. The WSJCA is a screening and risk assessment instrument that comprised two parts: a full assessment and a pre-screen (see "Instruments and Procedure" section). The pre-screen is administered to all youth on probation to indicate whether a youth is at low, moderate, or high risk for reoffending. The full assessment is required only for youth who are assessed as having moderate or high risk on the pre-screen (71% of the juveniles) to identify a youth's risk and protective factor profile to guide intervention targeting rehabilitation and desistance from crime. The sample included those for whom the full assessment was performed, which indicates that the participants had a medium-to-high recidivism risk on the pre-screen. We identified the following subgroups:

- a. *CSOs*: all male adolescents who have ever been convicted of a felony sexual offense against a child who was at least 5 years younger ($n = 341$);
- b. *PSOs*: all male adolescents who have ever been convicted of a felony sexual offense in which the victim was a person of similar age or an adult person ($n = 207$) and who have not been convicted of a sexual offense against a child who was at least 5 years younger. Felony sexual offenses include the following offenses: assault to rape, incest, and indecent liberties; and
- c. *VOs*: all male adolescents who have ever been convicted of a felony violent offense other than a sexual offense ($n = 1,356$) and who have not been convicted of a felony sexual offense.

Instruments and Procedure

WSJCA. The WSJCA is a screening and risk assessment instrument, which was developed in Washington State (Barnoski, 2004a, 2004b). With the WSJCA, the most important risk and protective factors for *general recidivism* on a large number of domains are measured. The development of the instrument was based on a review of research in the following areas: recidivism prediction literature and instruments, for example, the Wisconsin Risk Scale (Baird, Storrs, & Connelly, 1984) and the Youth Level of Service and Case Management Inventory (Hoge & Andrews, 1994), theoretical models for juvenile delinquency, risk and protective factor research, resiliency research, and research on effective juvenile delinquency programs (see Barnoski, 2004a). The selection of domains and items took place on the basis of this review and then was modified, based on feedback from an international team of experts (Barnoski, 2004a).

Probation officers complete the WSJCA during intake, on the basis of information from a structured motivational interview with the youth and youth's family. Probation officers were trained in conducting the assessment by probation staff who were certified trainers. This training includes reviewing videotaped interviews and the resulting assessment to ensure the probation officer has mastered the assessment skills. There is a manual available for the WSJCA, and quality assurance is an important part of the assessment structure and organization in Washington State (Barnoski, 2004b). The WSJCA measures both static and dynamic risk and protective factors. Dynamic risk and protective factors are circumstances or conditions in a youth's life that can potentially be changed and, when changed, result in a corresponding increase or decrease in recidivism risk (Andrews & Bonta, 2010). Dynamic risk/protective factors are often targeted in intervention programs, and we, therefore, focused on dynamic factors in this study. The dynamic factors were measured over a period of 6 months prior to the assessment, so the dynamic risk and protective factors were present at the time of the assessment or shortly before (maximum 6 months). The dynamic predictive validity of almost all dynamic protective/risk factors of the WSJCA was demonstrated by Bindels (2012), who showed that all 53 included dynamic factors changed in both directions over time. For 49 of the 53 bipolar factors, the change scores were significantly related to recidivism. The static risk factors are summarized in the criminal history score and the social history score. The criminal history score is the sum of items from the criminal history domain, ranging from 0 to 31. The social history score is the sum of items from the social history domain, ranging from 0 to 18. Higher scores thus reflect the presence of more risk factors in the youth's social and criminal environments.

All questions were asked to both the youth and the family. The items concerning schools (e.g., grades) were checked with the schools that the juveniles were attending. If conflicting answers were given by the youth and his family, the probation officer made an estimation of the accuracy of the answers and the most appropriate response. Most items were rated on a 3-point scale (*strong protective side, neutral middle part, and strong risk side*), a 4-point scale (*strong protective side, weak protective side, weak risk side, and strong risk side*), or a 5-point scale (*strong protective side, weak protective side, neutral middle part, weak risk side, and strong risk side*).

Each item was recoded in two separate dichotomous variables as follows: a protective factor (1 if the strong protective side was present and 0 if the strong protective side was absent) and a risk factor (1 if the strong risk side was present and 0 if the strong risk side was absent). Thus, the meaning of the scale-points of the items was decisive for determining which response categories were designated as protective or risk factor. For example, the response categories of the item "believes getting education of value" were coded as follows: "believes getting education of value" (protective), "somewhat believes education of value" (neutral), and "does not believe education of value" (risk).

Examples of the extreme ends of the variables indicating risk or protective factors analyzed in this study are presented in Table 1. The wording used in the table is not exactly the same wording as used for individual items in the tool. When conducting the assessment, the probation officers could use sample interview questions. For example, to assess the youth's school attendance in the most recent term, the following sample

Table 1. Examples of Strong Protective and Strong Risk Ends (Extreme Ends) of the Measured Variables.

Risk Domain	Protective End	Risk End
School	Good behavior at school	Severe behavior problems
	Good academic performance (mostly As and Bs)	Poor academic performance (some Ds and mostly Fs)
	Good attendance (few excused absences)	Truancy
Use of free time	Very likely to graduate	Not likely to graduate
	Involvement/interest in two or more structured or unstructured recreational activities (hobby, clubs, groups, church)	Not involved/interested in structured or unstructured recreational activities (hobby, clubs, groups, church)
Relationships	Two or more positive adult non-family relationships	No positive adult non-family relationships
	Strong pro-social community ties	No pro-social community ties
Family	Only pro-social friends	Antisocial friends or gang membership
	Close relationship with both father and mother	Poor relationship with parents
	Consistent, good parental supervision	Inadequate parental supervision
Alcohol/drugs	Usually obeys and following family rules	Youth consistently disobeys family
	Strong family support network	No family support network
	No current alcohol use, no current drug use	Alcohol and/or drug abuse (alcohol and/or drugs causing family conflict and/or problems in other domains such as school, health, or friends).
Attitude	Uses self control (usually thinks before acting)	Impulsiveness (usually acts before thinking)
	Belief in control over antisocial behavior	No or little control over antisocial behavior
	Empathy, remorse, or sympathy for victims	No or little empathy, remorse, or sympathy for victims
Aggression	Accepts responsibility for antisocial behavior	Does not accept responsibility for behavior
	Believes physical aggression to solve a conflict is never appropriate	Beliefs physical aggression is sometimes or often appropriate to solve a conflict
Skills	Primarily positive interpretation of other's behavior/intentions	Hostile interpretation of other's behavior/intentions
	Applies appropriate solutions to problem behavior	Poor problem-solving behavior
	Often uses advanced social skills in dealing with others	Lacks basic social skills
	Often uses skills in dealing with difficult situations	Lacks skills in dealing with difficult situations
	Often uses skills in dealing with emotions	Lack of skills in dealing with feelings/emotions
	Uses techniques to control impulsive behavior	Lacks techniques to control impulsive behavior

questions are listed in the manual: “How often do you go to school?” “How often do you skip the whole day? Certain classes?” and “Why do you skip?” In this study, the domain scoring scheme of the WSJCA full assessment was not used, as only dynamic risk factors with both protective and risk ends were selected. As described above, we recoded these individual items into two separate variables: a protective factor and a risk factor. A total risk score was calculated for each domain by adding the number of risk factors (extreme ends), and a total protective score was calculated for each domain by adding the number of protective factors (extreme ends). In addition, a Total risk score was calculated by adding the total risk scores of the separate domains and a Total protective score was calculated by adding the total protective scores of the separate domains.

The predictive validity of the WSJCA pre-screen and the slightly adapted tools (Positive Achievement Change Tool [PACT] pre-screen and Youth Assessment and Screening Instrument [YASI] pre-screen) were examined in four different studies (Baglivio, 2009; Barnoski, 2004a; Orbis Partners Inc., 2007; Van der Put et al., 2013). The Barnoski (2004a) study examined the extent to which the WSJCA pre-screen was able to predict 18-month recidivism (defined as convictions). In that study, a distinction was made between three types of recidivism: total recidivism (both misdemeanor and felony re-offenses), felony recidivism, and violent felony recidivism. The area under the receiver-operating-characteristic curve (AUC) was .64 for all three types of recidivism. The Baglivio (2009) study examined the extent to which the PACT pre-screen was able to predict 12-month recidivism, defined as any subsequent delinquency referral after the assessment date (both felony and misdemeanor referrals). The AUC of the PACT pre-screen was .59. The study of Orbis Partners (2007) examined the predictive validity of the YASI pre-screen (Orbis Partners Inc, 2007) for different types of 12- and 24-month recidivism: new referrals/arrests, violations of probation, and adjudications/convictions. For the 12-month follow-up period, the AUC was .58 for new referrals/arrests, .65 for violations of probation, and .60 for adjudications/convictions. Differences between AUC values for 12-month recidivism and AUC values for 24-month recidivism were nonsignificant. Finally, Van der Put and colleagues (2013) examined the extent to which the WSJCA pre-screen was able to predict 18-month recidivism (defined as convictions) in the Netherlands and found an AUC of .63 (95% confidence interval [CI] = [.58, .67]).

Outcome measure. Recidivism was defined as the occurrence of one, or multiple, new convictions within 18 months after completing the full screen. Recidivism included any new offense (violent, sexual, and nonsexual offenses). Data on recidivism were based on official records, both juvenile and adult records, from Washington State. Recidivism was treated as a dichotomous variable (whether or not convicted for any new offense).

Analyses

First, background characteristics, static risk scores, and recidivism rates were determined for each group, and were compared using χ^2 tests and ANOVA. Second, we used ANOVAs to examine differences between the three groups regarding the presence of protective and risk factors. Third, we examined associations between risk/protective

Table 2. Background Characteristics, Static Risk Scores of the WSJCPA, and Recidivism Rates for Each Group.

	VO (n = 1,356)	PSO (n = 207)	CSO (n = 341)	$\chi^2(df)/F$
Background characteristics				
Whites	50.1%	72.5% _a	69.2% _a	66.22***
Average age	15.42 _a (SD = 1.42)	15.24 _{a,b} (SD = 1.43)	15.06 _b (SD = 1.50)	9.03***
Static risk scores of the WSJCPA				
Criminal history score	11.70 (SD = 4.69)	9.39 _a (SD = 3.88)	9.41 _a (SD = 3.63)	52.36***
Social history score	7.58 (SD = 3.29)	5.25 (SD = 4.49)	4.60 (SD = 3.05)	138.23***
Recidivism				
Total recidivism	47.5%	26.1% _a	19.4% _a	108.85(2)***
Misdemeanor recidivism	20.9%	10.6%	6.7%	45.62(2)***
Non-violent felony recidivism	14.8% _a	19.6% _{a,b}	9.4% _b	37.22(2)***
Violent felony recidivism	11.7%	4.8% _a	3.2% _a	28.80(2)***

Note. Values sharing the same subscript do not differ significantly. VO = male adolescents with a history of nonsexual violent offenses; PSO = male adolescents with a history of sexual offenses against peer and/or adult victims; CSO = male adolescents with a history of sexual offenses against younger children; WSJCPA = Washington State Juvenile Court Pre-Screen Assessment.

*** $p < .001$.

factors and recidivism. We used point-biserial correlation coefficients (r_{pb}) because one of the variables was dichotomous (recidivism) and one of variables was interval (number of risk factors). Fisher's z tests were used to examine whether strengths of the correlations differed significantly between the different groups. As correlation coefficients vary with the base rate of examined predictors and outcome variables, we also calculated AUC values, which are not sensitive to base rate differences. To test whether the AUC values of the subgroups differed significantly, we used the method of Hanley and McNeil (1982). Finally, hierarchical multiple logistic regression analyses were performed, separately for each group, to examine whether (a) dynamic risk factors add to the prediction of recidivism over and above static risk factors and (b) dynamic protective factors add to the prediction of recidivism over and above static and dynamic risk factors.

Results

Differences in Background Characteristics, Static Risk Scores, Recidivism Rates, and Dynamic Protective and Risk Factors

Table 2 shows the background characteristics, criminal and social history scores, and recidivism rates of the various groups. The average age was lower in VOs than in CSOs, and there were fewer "Whites" in VOs than in both PSOs and CSOs.

Table 3. Presence of Dynamic Risk and Protective Factors for Each Group.

	Dynamic protective factors			F	Dynamic risk factors			F
	VO (n = 1,356)	PSO (n = 207)	CSO (n = 341)		VO (n = 1,356)	PSO (n = 207)	CSO (n = 341)	
School	1.21	2.07	2.61	98.28***	2.42	1.51 _a	1.32 _a	49.15***
Use of free time	0.30	0.45 _a	0.51 _a	22.11***	0.87	0.49 _a	0.51 _a	46.09***
Relationships	1.07	2.06	2.52	172.41***	1.85	1.03	0.74	86.30***
Family	2.74	4.00	4.58	84.49***	2.49	1.51 _a	1.33 _a	54.98***
Alcohol/drug	1.27	1.68	1.84	88.33***	1.04	0.50	0.23	73.38***
Attitude	2.55	3.73	4.46	86.99***	2.42	1.60	1.22	44.66***
Aggression	0.99	1.98	2.21	171.35***	1.27	0.57	0.38	109.30***
Skills	1.93	2.91 _a	3.29 _a	45.64***	3.94	3.22	2.60	21.41***
Total number of factors	10.91	17.34	20.31	147.76***	15.18	9.79	7.99	92.64***

Note. Values sharing the same subscript do not differ significantly ($p < .05$). VO = male adolescents with a history of nonsexual violent offenses; PSO = male adolescents with a history of sexual offenses against peer and/or adult victims; CSO = male adolescents with a history of sexual offenses against younger children.

*** $p < .001$.

The criminal history score and the social history score were higher in VOs than in PSOs and CSOs. Total recidivism, misdemeanor recidivism, and violent felony recidivism were all higher in VOs than in both PSOs and CSOs.

The total risk and protective scores per domain are presented in Table 3. ANOVAs were used to examine differences between the various groups in the presence of dynamic risk and protective factors. *Protective* factors in the school, relationship, family, alcohol and drugs, attitude and aggression domains were most common in CSOs, followed by PSOs, whereas protective factors in these domains were least common in VOs. In addition, protective factors in use of free time and skills domains were less common in VOs than in both PSOs and CSOs. *Risk* factors in the relationship, alcohol and drugs, attitude, aggression, and skills domains were most common in VOs, followed by PSOs, whereas risk factors in these domains were least common in CSOs. In addition, risk factors in school, use of free time, and family domains were more common in VOs than in both PSOs and CSOs.

Compared with the average number of protective (10.91) and risk (15.18) factors in VOs, the number of protective factors was about 1.9 times greater in CSOs (20.31) and about 1.6 times greater in PSOs (17.34), and the number of risk factors was about 0.5 times smaller in CSOs (7.99) and 0.7 times smaller in PSOs (9.79). In VOs, the number of risk factors was greater than the number of protective factors, whereas in PSOs, and especially CSOs, the number of protective factors was greater than the number of risk factors.

In sum, there were more risk and fewer protective factors present than in VOs than in both PSOs and CSOs. In addition, more risk and fewer protective factors were present in PSOs than in CSOs.

Differences in the Strength of Bivariate Associations Between Dynamic Protective/Risk Factors and Recidivism

The correlations between the protective/risk scores per domain and recidivism for each group are presented in Table 4. Most of the protective scores were significantly related to recidivism in the three groups. Only the protective score of the domain use of free time was not significantly related to recidivism in PSOs and CSOs, and the protective score of the domain skills was not significantly related to recidivism in PSOs. In addition, most of the total risk scores were significantly related to recidivism in the three groups. Only in VOs was the total risk score of the school domain not significantly related to recidivism, and in PSOs, the total risk scores of the domains relationships, family, and skills were not significantly related to recidivism.

However, due to the differences in sample sizes, the strength of a correlation had to be relatively large to be considered significant in PSOs and CSOs compared with VOs. For example, a correlation between $-.08$ and $-.10$ was significant in VOs, but not in PSOs and CSOs. In addition, the base rates (recidivism rates) differed between the groups; therefore, we calculated the values for small, medium, and large effect sizes for point-biserial correlations (r_{pb}) for the different base rates in VOs, PSOs, and CSOs, based on a conversion formulae (after Rosental, 1991; Swets, 1986) provided by Rice and Harris (2005). For a 47.5% base rate (recidivism in VOs), the r_{pb} values for small, medium, and large effect sizes are .099, .242, and .371, respectively; for a 26.1% base rate (recidivism in PSOs), the r_{pb} values for small, medium, and large effect sizes are .087, .214, and .331, respectively; and for a 19.4% base rate (recidivism in CSOs), the r_{pb} values for small, medium, and large effect sizes are .079, .194, and .302, respectively.

In VOs, the magnitude of most correlations was between .099 and .242; therefore, the effect sizes should be considered small. In PSOs, medium effect sizes ($r_{pb} > .214$) were found for the protective factors in the school, relationship, alcohol/drugs, attitudes, and aggression domains and for risk factors in the school, alcohol/drugs, and attitude domain. In CSOs, medium effect sizes ($r_{pb} > .194$) were found for the protective factors in the school, family, alcohol/drugs, and attitudes domains and for risk factors in the school, relationships, family, and alcohol/drugs domains. Moreover, large effect sizes ($r_{pb} > .302$) were found for the protective factors in the relationships and aggression domains and for risk factors in the attitudes domain.

We calculated Fisher's z tests to examine the significance of the differences between the sexual offending groups and the violent offending group in the strength of the correlations between protective/risk scores and recidivism. The relation between protective factors and recidivism was significantly stronger in PSOs and CSOs than in VOs for the school, relationships, alcohol/drugs, and attitude domains. In addition, the relation between protective factors and recidivism was significantly stronger in CSOs than in VOs for the family and aggression domains. The relation between risk scores and recidivism was significantly stronger in PSOs and CSOs than in VOs for the school and alcohol/drugs domains. In addition, the relation between risk scores and

Table 4. Correlations Between the Dynamic Protective/Risk Factors and Recidivism for Each Group.

	VO (n = 1,356)	PSO (n = 207)		CSO (n = 341)	
	R	R	z	R	z
Protective factors					
School	-.09**	-.28***	2.63**	-.26***	2.89**
Relationships	-.12***	-.27***	2.08*	-.31***	3.29***
Family	-.17***	-.14*	0.41	-.29***	2.09*
Use of free time	-.08**	-.10	0.27	-.10	.33
Alcohol/drugs	-.10***	-.25***	2.06*	-.24***	2.38**
Attitudes	-.16***	-.30***	1.97*	-.31***	2.62**
Aggression	-.13***	-.22**	1.24	-.33***	3.49***
Skills	-.11***	-.08	0.40	-.18***	1.18
Total number of protective factors	-.18***	-.24**	0.84	-.32***	2.46**
Risk factors					
School	.05	.23***	2.45*	.25***	3.38***
Relationships	.16***	.11	0.68	.28***	2.08*
Family	.17***	.10	0.95	.29***	2.09*
Use of free time	.12***	.14*	0.27	.16**	.67
Alcohol/drugs	.10***	.28***	2.49*	.29***	3.26**
Attitudes	.15***	.27***	1.67	.31***	2.79**
Aggression	.17***	.14*	0.41	.27***	1.73
Skills	.07**	.00	0.93	.07*	.00
Total number of risk factors	.18***	.15*	0.41	.27***	1.56

Note. VO = male adolescents with a history of nonsexual violent offenses; PSO = male adolescents with a history of sexual offenses against peer and/or adult victims; CSO = male adolescents with a history of sexual offenses against younger children; z = Fisher's z significance test (one-tailed) for the difference between the sexual offending groups and the violent offending group in the strength of the correlations between the protective factors and recidivism.

*p < .05. **p < .01. ***p < .001.

recidivism was significantly stronger in CSOs than in VOs for the relationships, family, and attitudes domains.

We also calculated AUC values for each protective/risk score because AUCs are not sensitive to base rate differences (see Table 5). In VOs, the AUC values of the protective and risk factors were statistically above chance, with the exception of the AUC value of the risk score of the school domain. In PSOs, the AUC values of the protective scores of the domains school, relationships, alcohol/drugs, attitude, and aggression, and the AUC values of the risk scores of the domains school, alcohol/drugs, and attitude were statistically above chance. In CSOs, the AUC values of the protective and

Table 5. AUC values for the Dynamic Protective Factors Predicting Non-Recidivism and for the Dynamic Risk Factors Predicting Recidivism in Each Group.

	VO (<i>n</i> = 1,356)		PSO (<i>n</i> = 207)			CSO (<i>n</i> = 341)		
	AUC	95% CI	AUC	95% CI	<i>z</i>	AUC	95% CI	<i>z</i>
Protective factors								
School	.550	[.519, .580]	.680	[.602, .758]	2.75**	.691	[.616, .765]	3.37***
Relationships	.569	[.539, .599]	.674	[.596, .753]	2.21*	.724	[.651, .797]	3.79***
Family	.594	[.563, .624]	.587	[.499, .675]	0.14	.705	[.636, .774]	2.68**
Use of free time	.538	[.507, .568]	.559	[.471, .647]	0.43	.572	[.498, .646]	0.79
Alcohol/drugs	.552	[.522, .583]	.599	[.507, .692]	0.97	.612	[.529, .695]	1.39
Attitudes	.596	[.565, .626]	.697	[.617, .777]	2.17*	.718	[.647, .789]	2.97**
Aggression	.570	[.540, .600]	.641	[.556, .727]	1.48	.733	[.668, .799]	4.01***
Skills	.553	[.523, .584]	.543	[.457, .629]	0.21	.636	[.564, .708]	1.94*
Total number of protective factors	.605	[.575, .635]	.658	[.577, .739]	1.11	.735	[.663, .808]	3.21***
Risk factors								
School	.519	[.488, .551]	.653	[.565, .740]	2.80**	.642	[.564, .721]	2.87**
Relationships	.601	[.571, .631]	.552	[.458, .646]	1.01	.650	[.570, .731]	1.15
Family	.596	[.566, .627]	.563	[.470, .656]	0.68	.686	[.609, .764]	2.15*
Use of free time	.567	[.536, .598]	.551	[.456, .646]	0.32	.584	[.505, .664]	0.39
Alcohol/drugs	.558	[.527, .589]	.626	[.531, .721]	1.41	.606	[.522, .691]	1.35
Attitudes	.602	[.571, .632]	.659	[.573, .744]	1.20	.666	[.587, .746]	1.51
Aggression	.605	[.574, .635]	.581	[.489, .674]	0.49	.654	[.573, .734]	1.15
Skills	.545	[.514, .576]	.496	[.408, .583]	1.01	.567	[.490, .643]	0.51
Total number of risk factors	.602	[.571, .632]	.618	[.534, .702]	0.33	.692	[.621, .763]	2.16*

Note. AUC = area under the receiver-operating-characteristic curve; VO = male adolescents with a history of nonsexual violent offenses; PSO = male adolescents with a history of sexual offenses against peer and/or adult victims; CSO = male adolescents with a history of sexual offenses against younger children; CI = confidence interval; *z* = significance test (one-tailed) for the difference in AUC values between the sexual offending groups and the violent offending group by means of the method of Hanley and McNeil (1982).

p* < .05. *p* < .01. ****p* < .001.

risk factors were statistically above chance, with the exception of the AUC value of the risk score of the use of free time domain and the AUC value of the protective score of the skills domain. Again, due to differences in sample sizes, an AUC value had to be relatively large to be considered statistically above chance in the PSO and CSO groups compared with the VO group. Although most of the AUC values were statistically above chance, the AUC values are all relatively low. Medium effect sizes ($AUC > .65$; Rice & Harris, 2005) were found only in the PSOs (protective and/or risk factors in the

Table 6. The Results of Hierarchical Logistic Regression Analyses Testing the Incremental Contribution of Dynamic Risk and Protective Factors Above Static Risk Factors.

	VO (n = 1,356)		PSO (n = 207)		CSO (n = 341)	
	$\Delta\chi^2$ (df)	ΔR^2	$\Delta\chi^2$ (df)	ΔR^2	$\Delta\chi^2$ (df)	ΔR^2
Static risk factors (Block 1)	87.60 (4)***	.086	30.61 (4)***	.206	54.33 (4)***	.241
Dynamic risk factors (Block 2)	18.73 (8)*	.017	18.02 (8)*	.108	5.56 (8)	.022
Dynamic protective factors (Block 3)	4.99 (8)	.005	17.96 (8)*	.105	18.02 (8)*	.099
Total model	111.32(20)***	.108	66.59(20)***	.419	77.91(20)***	.362

Note. VO = male adolescents with a history of nonsexual violent offenses; PSO = male adolescents with a history of sexual offenses against peer and/or adult victims; CSO = male adolescents with a history of sexual offenses against younger children.

* $p < .05$. ** $p < .01$. *** $p < .001$.

domains of school, relationships, and attitudes) and in the CSOs (protective and/or risk factors in the domains of school, relationships, family, attitudes, and aggression).

To test whether the AUC values of the protective/risk scores differed significantly between the groups, we used the method of Hanley and McNeil (1982). The comparison of AUC values yielded the same pattern of results as the comparison of the correlations.

Multivariate Associations Between Dynamic Protective/Risk Factors and Recidivism

Multiple hierarchical logistic regression analyses were performed, separately for each group, in which we entered the static risk factors in Block 1, the dynamic risk factors in Block 2 and the dynamic protective factors in Block 3 (Table 6). The dynamic risk factors added to the predictive accuracy above the static risk factors in both VOs and PSOs but not in CSOs. In addition, the dynamic protective factors added to the predictive accuracy above the static and dynamic risk factors in both PSOs and CSOs, but not in VOs.

We found differences between the groups in the unique contributors to recidivism. In VOs, the social history score, the criminal history score, being “White,” and dynamic risk factors in the aggression domain were uniquely related to recidivism. For PSOs, the criminal history score, risk factors in the school domain, and protective factors in the school and relationships domains were uniquely related to recidivism.

Finally, in CSOs, the criminal history score and dynamic protective factors in the alcohol/drugs and aggression domains were uniquely related to recidivism.

Discussion

In this study, we aimed to examine the presence and impact of dynamic protective/risk factors for delinquency in CSOs, PSOs, and VOs. Results showed that in VOs, the number of risk factors was larger than the number of protective factors, whereas in PSOs, and especially CSOs, the number of protective factors was larger than the number of risk factors. To our knowledge, this is the first study to compare the presence of protective factors for general recidivism in juveniles who offend sexually and non-sexually. The results regarding *risk* factors are in line with the findings of a meta-analysis conducted by Seto and Lalumière (2010) showing that, compared with PSOs, CSOs scored significantly lower on criminal history, conduct problems, substance use, antisocial attitudes/beliefs, associations with antisocial peers, and antisocial personality traits.

In addition, this study showed that the impact of most protective factors was significantly larger in PSOs and CSOs than in VOs. In our searches, we were unable to find any studies in which a comparison is made between juveniles who offend sexually and nonsexually in the *strength* of the relation between protective factors and general recidivism. This type of research requires samples of sufficient size, which most studies do not have. From the meta-analysis of Seto and Lalumière (2010) on 59 independent studies comparing male adolescents who offend sexually with male adolescents who offend nonsexually, it appears that the average sample size of adolescents who offend sexually is 65, which is somewhat low for detecting differences in correlations.

The results of this study showed which risk/protective factors are uniquely related to recidivism in each group. For example, in PSOs, the school domain seems to be particularly important, given that risk and protective factors in this domain uniquely contributed to recidivism in these youths. Thus, addressing risk/protective factors pertaining to the school domain may be effective in interventions aimed at reducing criminal recidivism among PSOs. Examples of the protective factors in the school domain are good attendance, participation in school activities, close relationship with teachers, and getting higher grades. In addition, the results of this study indicated that dynamic protective factors add to the predictive accuracy over and above dynamic risk factors in juveniles with a history of sexual offenses, but not in those with a history of violent offenses. Combined with the finding that the correlations between protective factors and recidivism were stronger in juveniles with a history of sexual offenses than in those with a history of violent offenses, protective factors seem to be especially important for juveniles with a history of sexual offenses.

Some limitations of this study need to be mentioned. First, because the follow-up period of our study was rather short, we were only able to examine the impact of risk/protective factors on general recidivism and not on sexual recidivism. The study would have provided more useful information if it also had included associations with sexual

recidivism. Second, the WSJCA was not designed to provide an in-depth examination of risk factors. Instead, it is a risk assessment tool that is designed to be used by juvenile justice professionals and clinicians to summarize juveniles' risks and (criminogenic) needs, classify their overall risk level, and plan treatment and supervision strategies. Third, there are no data regarding the interrater reliability of the WSJCA. However, quality assurance is an important part of the assessment structure and organization in Washington State, and probation officers receive intensive training to adequately administer and reliably score the WSJCA (Barnoski, 2004b). Fourth, the sample consisted predominately of juveniles with a moderate or high risk score on the WSJCA pre-screen. Therefore, the results cannot be generalized to juveniles with a low risk of criminal offense recidivism. Fifth, another limitation of our study is the reliance on official records of recidivism (convictions). The use of official records involves the risk of underestimating the actual number of criminal acts, as there is more criminality than is registered in the official systems. Therefore, convictions represent a conservative estimate of reoffending. Moreover, it has been well established that sexual crimes are underreported more often than many other criminal behaviors. Finally, we only examined direct effects of protective and risk factors on recidivism. To enhance knowledge on the mechanisms of protective and risk factors, it is important that indirect effects are also addressed in future research.

Notwithstanding these limitations, the results of this study contribute to the limited knowledge about protective factors. The results have important implications for clinical practice. First, it was shown that dynamic protective factors are relatively important for juveniles with a history of sexual offenses because protective factors added to the predictive accuracy over and above risk factors in juveniles with a history of sexual offenses, but not in those with a history of violent offenses. Therefore, dynamic protective factors should be taken into account for juveniles with a history of sexual offending in assessing the risk for recidivism and planning treatment. Second, it was shown that, although dynamic risk and protective factors were less common in juveniles with a history of sexual offending compared with those with a history of violent offending, the impact of most dynamic risk and protective factors on recidivism was larger in juveniles with a history of sexual offending than in those with a history of violent offending. The potential effect on recidivism from interventions that address these factors is, therefore, relatively large in juveniles with a history of sexual offending compared with juveniles with a history of violent offending. If, in addition to specific programs for sexual offending, behavioral interventions are used that are aimed at the dynamic risk and protective factors most strongly related to general recidivism, it is possible that there will be a decrease not just in general recidivism, but also in sexual recidivism. Our results suggest that treatment designed for general delinquency, which addresses dynamic risk and/or protective factors, may also be effective with juveniles who offend sexually in reducing general recidivism and, furthermore, that the potential effect of these treatments is relatively high for juveniles who offend sexually.

In future research, it would be useful to focus on the impact of protective factors on *sexual* recidivism. To our knowledge, it is unknown whether there are

specific protective factors for sexual offending. This knowledge can be useful to inform treatment decisions and to develop treatment programs that fit the needs of juveniles who offend sexually.

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