Assessment of Accused Juvenile Sex Offenders in Germany: A Comparison of Five Different Measures

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The present study examines the relationship between risk and protective factors among young alleged sexual offenders ($N = 66$) in pre-trial and pre-treatment settings. For risk assessment purposes, the Screening Tool for the Assessment of Young Sexual Offenders' Risk (STAYSOR), the Structured Assessment of Violence Risk in Youth (SAVRY), and the Structured Assessment of Protective Factors for violence risk (SAPROF) were used. Psychopathological indicators measured with the Basis Raads Onderzoek (BARO) and the German adaption of the Reynolds Adolescent Adjustment Screening Inventory (RAASI) were used to examine the relationship between the risk assessment scales and instruments measuring risk-relevant psychopathological constructs. Risk and protective factors were significantly negatively correlated. Psychopathological measures were positively correlated with risk factors and negatively with protective factors. Although further studies on the predictive validity of the instruments are needed, the results of the present explorative pilot study indicate that the use of all five instruments may be clinically meaningful for the assessment of young persons who are at risk of sexual offending. Copyright © 2012 John Wiley & Sons, Ltd.

The number of juvenile sex crime suspects in Germany recorded by the national police authorities showed a marked increase in recent years. Although sex crimes account for less than 1% of all criminal acts in Germany, 20% of all sex crime suspects are younger than 21 years (Elz, 2010). Furthermore, as known from the literature about adult sexual offenders, it is probable that antecedents of sexual delinquency often develop in childhood or adolescence. For example, in a retrospective study, 42% of adult sex offenders reported having paraphilic fantasies before the age of 20 (Abel, Osborn, & Twigg, 1993). However, the prevalence of such fantasies in non-forensic adolescent samples and their stability during the lifespan as well as their relevance for sexual offending remains uncertain.

In recent years, there has been a growing body of research on risk factors for future criminal behavior in adolescent sexual offenders (e.g., Busch et al., 2009; Fanniff & Becker, 2006; Seto & Lalumière, 2010; Worling & Långström, 2003). In a study by Långström and Grann (2002), risk factors for general recidivism were closely

connected with general recidivism but not with sexual reoffending in a sample of adolescent sexual offenders. Therefore, researchers attempted to differentiate between risk factors for violent and for sexual abusing behavior in juveniles. Zagar and Grove (2010), for example, identified 14 significant predictors of future violent behavior (e.g., alcohol and substance abuse, previous court contacts, violent family member, or physical abuse). Other studies have investigated specific risk factors that are associated with sexual recidivism of adolescent offenders (Busch et al., 2009; Långström, 2002; Långström & Grann, 2000).

In close conjunction with the reviews and empirical studies on risk factors for future criminal and (sexually) violent behavior, several standardized risk assessment tools for juvenile offenders have been developed over the past two decades. Some are based on adult risk assessment and diagnostic tools, such as the Youth Level of Service/Case Management Inventory (YLS/CMI; Hoge & Andrews, 2006) and the Psychopathy Checklist: Youth Version (PCL: YV; Forth, Kosson, & Hare, 2003). Others, such as the Juvenile Sex Offender Assessment Protocol-II (J-SOAP-II; Prentky & Righthand, 2003) and the Estimate of Risk of Adolescent Sexual Offense Recidivism (ERASOR; Worling & Curwen, 2001), are conceptualized particularly for the assessment of the sexually motivated recidivism risk of detected juvenile sex offenders. In the meantime, many research articles have been published on the psychometric properties of these instruments. Table 1 presents examples of the results of recent research on the predictive validity of risk assessment tools for adolescent sexual offenders.

More recently, research has begun to focus on protective factors, because prevention of recidivism is only possible when the resources and strengths of the juveniles are also taken into account (Jessor, 1991; Resnick, Ireland, & Borowsky, 2004; Salekin & Lochman, 2008). There has been more progress in research on juvenile violent behavior in this area than in research on adult criminal behavior. Some studies have defined potentially protective factors that can militate against risk factors and therefore

Table 1. Current research results on the predictive validity of risk assessment tools for adolescent sexual offenders

Authors	Country	Sample size	Follow-up	Instruments	General recidivism (AUC)	Sexual recidivism (AUC)
Quenzer & Dahle (2010)	Germany	$N = 124$	$M = 80$ months	ERASOR	0.63	0.52
				J-SOAP-II	0.65	0.72
				PCL:YV	0.63	0.46
				SAVRY	0.69	0.42
				YLS/CMI	0.75	0.37
Viljoen, Elkovitch, Scalora, & Ullman (2009)	USA	$N = 193$	$M = 7.24$ years	ERASOR	0.53	0.60
				PCL:YV	0.66	0.49
				YLS/CMI	0.63	0.55
				Static-99	0.52	0.60
Viljoen et al. (2008)	USA	$N = 169$	$M = 6.50$ years	J-SOAP-II	0.54	0.56
				SAVRY	0.53	0.58
				J-SORRAT	0.53	0.54
Zagar & Grove (2010)	USA	$N = 1127$	Between 3 and 12 years	Safety Scale for Youth	0.91	

Note. AUC, area under the curve; ERASOR, Estimate of Risk of Adolescent Sexual Offense Recidivism; YLS/CMI, Youth Level of Service/Case Management Inventory; PCL:YV, Psychopathy Checklist: Youth Version; J-SOAP-II, Juvenile Sex Offender Assessment Protocol-II; J-SORRAT-II, Juvenile Sexual Offense Recidivism Risk Assessment Tool- II; SAVRY, Structured Assessment of Violence Risk in Youth.

reduce the risk of recidivism (Borowsky, Hogan, & Ireland, 1997; Hall & Barongan, 1997; Hoge, Andrews, & Leschied, 1996). Rogers (2000) postulated that an assessment based solely on risk factors without considering situation-specific and protective factors is likely to be one-sided and unbalanced. Zagar, Busch, Grove, and Hughes (2009) recommended considering protective factors for youth violence as the opposite of risk factors and compared characteristics of juvenile violent and homicide offenders with those of non-delinquents and non-violent delinquents, thereby identifying factors with potential implications for treatment success (e.g., school behavior and achievement or stable social integration). Following this conceptualization, the opposite of risk factors for juvenile sexual offenders could be interpreted as protective factors (Busch et al., 2009). A similar assumption can be found in the theoretical background of the Short-Term Assessment of Risk and Treatability (START; Webster, Martin, Brink, Nicholls, & Middleton, 2004).

The Structured Assessment of Violence Risk in Youth (SAVRY; Borum, Bartel, & Forth, 2003) is one of the few standardized risk assessment instruments that includes not only risk factors but also protective factors and which, therefore, is not open to the criticism of being one-sided (e.g., Rogers, 2000). The SAVRY follows the Structural Professional Judgment (SPJ) approach of risk assessment (e.g., Hart, 1998; Hart & Boer, 2009) and is specifically designed to examine risk and protective factors in adolescent violent offenders. Meanwhile, a number of studies have shown that the SAVRY can predict violent and general recidivism (Cathpole & Gretton, 2003; Dolan & Rennie, 2008; Meyers & Schmidt, 2008). A study by Lodewijks, de Ruiter, and Doreleijers (2010) investigated, in particular, the relevance of protective factors measured by the Protective Factor scale of the SAVRY in violent adolescent offenders. In their study, low-risk adolescent offenders presented significantly more protective factors than a high-risk group. Overall, a lack of protective factors in the high-risk group was significantly associated with higher rates of violent reoffending in the follow-up period. This result supports the assumption that the presence of protective factors can reduce the risk of violent reoffending. Additionally, Rennie and Dolan (2010) investigated the influence of protective factors in reducing risk among 135 juvenile delinquents using the Protective Factor scale of the SAVRY and found that those with more protective factors were older at their first arrest and showed fewer psychopathological problems than offenders without any protective factors. Furthermore, group comparison of adolescents with and without reoffenses showed that those who did not reoffend during the 12-month follow-up had significantly more protective factors. Two studies on the use of the SAVRY in juvenile sexual offenders have been published thus far and showed that the SAVRY predicts future general but not sexual violence (Quenzer & Dahle, 2010; Viljoen et al., 2008; see also Table 1).

The Structured Assessment of Protective Factors for violence risk (SAPROF; de Vogel, de Ruiter, Bouman, & de Vries Robbé, 2009) is a recently developed assessment instrument that relies exclusively on protective factors. The SAPROF is also a SPJ instrument, which was designed to assess protective factors for future violence among psychiatric patients and prisoners. The SAPROF should be used in combination with a SPJ risk assessment instrument, such as the Historical-Clinical-Risk Management-20 (HCR-20; Webster, Douglas, Eaves, & Hart, 1997). The authors of the SAPROF provided adequate reliability and predictive validity. The SAPROF total score showed good to moderate predictive validity for non-recidivism with the outcome criterion "violent offense" during the one-year (AUC = 0.85), two-year (AUC = 0.80), and three-year

(AUC = 0.74) follow-up periods (de Vries Robbé, de Vogel, & de Spa, 2011). Yoon, Spehr, and Briken (2011) demonstrated the usefulness of the SAPROF with outpatient sexual offenders in Germany. The SAPROF was significantly ($p < 0.01$) negatively correlated with the Sexual Violence Risk-20 (SVR-20; Boer, Hart, Kropp, & Webster, 1997) but not with the STATIC-99 (Hanson & Thornton, 2000).

The present study is part of a comprehensive research project, the Hamburg Model Project for children and adolescents at risk for sexual offending (Driemeyer, Spehr, Yoon, Richter-Appelt, & Briken, in press; Spehr, Yoon, & Briken, 2010), and is the first implementation of the SAPROF in a population of children and juveniles in Germany. For the present study, the feasibility and usefulness of the SAPROF in an adolescent population were of special interest. The aim of this explorative pilot study was to examine the relationship between protective factors measured by the SAPROF and risk factors measured by the SAVRY and the Screening Tool for the Assessment of Young Sexual Offenders' Risk (STAYSOR) in a sample of young males accused of sexual offences. The STAYSOR is a self-constructed risk assessment instrument consisting of 11 dichotomous and predominantly static-historical items, which are described in more detail in the following. The present study aimed to examine the correlation between instruments designed to measure risk and/or protective factors of future offending and instruments that measure indicators of psychopathological characteristics in juveniles. Previous research has emphasized the relevance of psychological abnormalities in juvenile sexual offenders (e.g., Carpenter, Peed, & Eastman, 1995; Katz, 1990).

METHODS

Participants

The present sample consisted of 66 children and juveniles participating in the Hamburg Model Project (Spehr, Yoon, & Briken 2010). The mean age at the time of offense was $M = 14.15$ years (SD = 2.15), the youngest boy was 8 years old and the oldest was 17 years old. Forty-one (62.1%) of the boys had a migration background (Turkey, $n = 14$; Ghana, $n = 5$; Serbia, $n = 4$; Poland, $n = 4$; and others, $n = 14$). Almost one-half of the present sample (45.5%, $n = 30$) had attended a special education school.

It must be taken into account that all participants in the present sample are considered innocent until their adjudication. Thus far, the majority of studies have investigated juvenile sexual offenders or adolescents who were detained or in treatment settings at the time of data collection. Therefore, Butler and Seto (2002) pointed out that an investigation of young sexual offenders who had not been adjudicated would be methodologically useful.

Based on the juridical terms of the German Criminal Code, the largest group of boys (47%, $n = 31$) was accused of "sexual assault by use of force or threats; rape". Twenty-two boys (33%) were accused of "child abuse", and four (6%) of "aggravated child abuse". Four boys were reported to the participating institutions because of "abuse of persons who are incapable of resistance" (6%), seven (9%) because of "sexual insult," one because of "exhibitionism" (2%) and one because of "distribution of pornography" (2%). Thirteen (19.7%) adolescents were accused or adjudicated/convicted of having committed a sexual offense prior to their first contact to the participating institutions.

Database

The Hamburg Model Project was established in 2007 by the Senate of Hamburg in order to evaluate and improve case-specific interventions for juvenile sexual offenders. From 2007 to 2010, the Family Intervention Team (FIT), a specialized department of the city's Welfare Office, registered every accused sexual offender under the age of 18 in Hamburg. During this period, 177 boys under suspicion of having committed a sexual crime were reported to the FIT by the police. With a standardized diagnostic system, the FIT developed a case management procedure for each juvenile. The Institute for Sex Research and Forensic Psychiatry at the University Medical Centre Hamburg-Eppendorf was commissioned to evaluate the quality of the project empirically.

Of the 177 reported minors, 83 (49%) gave their written consent to participate in the scientific evaluation. All participants and their legal guardians signed a declaration of consent and received a monetary reward of 20 euros for their participation. The ethics committee of the Hamburg Medical Council approved the completion of the study.

Instruments

Screening Tool for the Assessment of Young Sexual Offenders' Risk (STAYSOR)

The STAYSOR was constructed for initial and time economic risk screening purposes at the time of registration. This instrument is based on adaptations of four items from the STATIC-99 (prior sexual offenses, any conviction for non-contact sexual offenses, any stranger victim, and any male victim; see Hanson & Thornton, 2000), which is internationally the most commonly used and best validated risk assessment tool for adult sexual offenders (Anderson & Hanson, 2009). The other six items (age, intimate relationship, index non-sexual violence, prior non-sexual violence, prior sentencing dates, and any unrelated victim) of the STATIC-99 did not seem to be appropriate for the population of adolescent sexual offenders and were therefore excluded. Based on Worling and Långström's (2003) comprehensive review, six additional risk-relevant items were included in the instrument. This review focuses on risk factors that are associated with recidivism in adolescent sexual offenders on the basis of empirical evidence and clinical guidelines. Worling and Långström (2003) distinguished the risk factors regarding their predictive value. Risk factors with good predictive values were deviant sexual interests, past sexual offenses against two or more victims, social isolation, threats or use of excessive violence or weapons during a sexual offense, problematic parent–adolescent relationships, and attitudes supportive of sexual offending. These empirically supported items were added to the STAYSOR. Additionally, mental disorder was included as a risk factor because psychopathology appears to be an important risk-relevant domain in the population of juvenile sexual offenders (e.g., Carpenter, Peed, & Eastman, 1995; Katz, 1990; van Wijk, Blokland, Duits, Vermeiren, & Harkink, 2007). In summary, the instrument consisted of 11 items. The final risk rating of the STAYSOR was determined not only by calculating a total score but also by using a three-point ordinal scale (low, moderate, or high risk) based on the SPJ paradigm (e.g., Hart, 1998; Hart & Boer, 2009) and rated by social workers of the FIT.

Assessment of Psychopathology

During the first contact, an initial screening for mental disorders and psychological abnormalities on the basis of the Basis Raads Onderzoek (BARO; Gutschner & Doreleijers, 2007) was applied. The BARO is a semi-structured interview for the initial assessment of juvenile offenders using a clinical checklist. The instrument covers questions about the index offense, addiction, family functioning, behavioral disorders, development, and psychopathology. The interviews with the adolescents and their parents were conducted separately by trained social workers of the FIT. The factors of concern were summed after the interview. Higher scores indicate that juveniles are at a higher risk of offending. Initial studies verifying the good psychometric properties of the BARO have recently been published (Doreleijers, Boonmann, van Loosbroek, & Vermeiren, 2011; for a validation of the German version, see Gutschner et al., 2011).

In order to identify indicators for relevant psychopathology in the adolescents, a German adaptation of the Reynolds Adolescent Adjustment Screening Inventory (RAASI; Reynolds, 2001), the "Screening psychischer Störungen im Jugendalter" (SPS-J; Hampel & Petermann, 2005) was used. The instrument is derived from the criteria of the *Diagnostic and Statistical Manual of Mental Disorders*-IV (DSM-IV; American Psychological Association, 1994). This self-report instrument consists of 32 items and measures four subareas: aggressive and antisocial behavior (eight items); anger control problems (eight items); anxiety and depression (10 items); and self-esteem problems (six items). Because of the delinquency-related problems in the present sample, the focus was primarily on the aggressive and antisocial behavior subscale. This scale measures alcohol and drug abuse, problems at school, at home and at work, and rule violations. The first validation study of the German version of the RAASI examined good reliability and construct validity of the instrument (Hampel, Rosemann, Schneider, Karpinski, & Petermann, 2010).

Structured Assessment of Violence Risk in Youth (SAVRY)

The SAVRY was designed to evaluate the risk for violence in juveniles and is based on the HCR-20 (Borum et al., 2003). The instrument consists of 24 risk and six protective items, divided into four domains: historical (10 items: history of violence and non-violence, early initiation of violence, supervision failure, history of self-harm/suicide attempts, exposure to violence at home, childhood maltreatment, partental criminality, caregiver disruption, and poor school achievement); social-contextual (six items: peer delinquency and rejection, poor coping and parental management, lack of support, and community disorganization); individual-clinical (eight items: negative attitudes, impulsivity, substance use, anger problems, low empathy, attention deficit, poor compliance, and low school commitment); and protective factors (six items: prosocial involvement, social support, attachment, positive attitudes, commitment to school, and resilient traits). The risk factors are rated on a three-point ordinal scale as low, moderate, or high, whereas the protective factors of the SAVRY are scored dichotomously as present or absent. The final risk judgment is formed with respect to all risk and protective items based on the SPJ approach as low, moderate, or high. In the present study the SAVRY was coded retrospectively.

Although the SAVRY is designed to estimate general risk of violence and not specifically the risk for sexual violence, the instrument was used in the present study for several

reasons. Foremost among them, the definition of violence in the SAVRY includes sexually motivated violence. Furthermore, 39.4% ($n = 26$) of the sample were also accused as having committed a non-sexual violent offense in the past, indicating a large overlap between general violence and sexually motivated violence in young offenders.

Structured Assessment of Protective Factors for Violence Risk (SAPROF)

Although originally developed for generally violent adult offenders, the SAPROF was applied for the structured assessment of protective factors in the present sample of alleged juvenile sexual offenders. Since the SAPROF is more comprehensive than the SAVRY and includes additional factors, both instruments were used together to examine protective factors among the juveniles. The rating was conducted retrospectively, similarly to the SAVRY. The SAPROF consists of 17 items, divided into three scales (internal items – intelligence, attachment, empathy, coping, and self-control; external items – social network, intimate relationship, professional care, living circumstances, and external control; and motivational items – work, leisure activities, financial management, motivation for treatment, attitudes toward authority, lifegoals, and medication), which are rated on a three-point ordinal scale each. The final protection judgment is again rated as high, moderate, or low.

Procedure and Data Analysis

Specialized and trained social workers and psychologists of the FIT conducted the initial risk assessment based on the STAYSOR, the BARO, and the SPS-J, during the first contact. The SAVRY and the SAPROF were retrospectively rated by three research assistants using written summaries of the BARO interviews and additional clinical files of the FIT. These files consisted of a comprehensive assessment protocol about the psychological, medical, and criminological characteristics of the alleged offender. Since only 66 summaries of the BARO were available, the sample was reduced from 83 to 66 subjects. Ten randomly selected cases were rated independently by the three research assistants to calculate the interrater reliability of the SAVRY and the SAPROF. The SAPROF item on compliance in taking medication was missing in 90.8% of all cases, and the item about life goals of the offender was missing in 92.3%.

To prove the internal consistency of the SAVRY and the SAPROF, Cronbach's alpha was calculated. The interrater reliability was examined using the single measure intraclass correlation coefficient (ICC) with the two-way random effects model absolute agreement type (McGraw & Wong, 1996). To determine the relationship between protective factors, indicators of psychopathology, and risk factors, Pearson's r was calculated to examine correlations between the instruments. SPSS version 16 was used for the statistical analysis.

RESULTS

Reliability

The interrater reliability of the SAVRY total score was ICC = 0.94 (historical scale, ICC = 0.96; individual scale, ICC = 0.96; social scale, ICC = 0.80; protective scale,

ICC = 0.56) and that of the SAPROF total score was ICC = 0.92 (internal scale, ICC = 0.86; motivational scale, ICC = 0.94; external scale, ICC = 0.92). The average Cronbach's alpha of the SAVRY was $\alpha = 0.72$ (historical scale, $\alpha = 0.62$; individual scale, $\alpha = 0.64$; social scale, $\alpha = 0.43$; protective scale, $\alpha = 0.56$), while that of the SAPROF was $\alpha = 0.60$ (internal scale, $\alpha = 0.54$; motivational scale, $\alpha = 0.41$; external scale, $\alpha = 0.19$).

Assessment of Risk and Protective Factors

Using the clinical judgments of the STAYSOR, 34 boys (51.5%) were allocated to the high-risk category, 14 (21.2%) to the moderate-risk category, and 18 (27.3%) to the low-risk category. In addition to this clinical judgment, the distribution of the total scores was examined. When considering the distribution of the item scores ($M = 1.80$; $SD = 1.67$, range 0–7), fixed cut-off values for low-, moderate-, and high-risk categories were generated. Total scores of 4 and above were considered as high risk, whereas values between 1 and 3 were classified as a moderate risk. Only the complete absence of risk factors was considered as low risk. According to these cut-off values, the classification of the boys in the high-, moderate-, and low-risk groups changed (see Table 2).

The mean total score of the SAVRY was $M = 13.64$ (SD = 6.86; range 2–31) and the mean final judgment score was $M = 1.74$ (SD = 0.83; range 0–2). The frequency in the risk assessment and the distribution of the low-, moderate-, and high-risk groups of the SAVRY is demonstrated in Table 2. The mean total score of the SAPROF was $M = 12.6$ (SD = 4.37; range 2–21). The mean final protection judgment score of the SAPROF was $M = 1.89$ (SD = 0.66; range 0–2), which indicates a moderate average protection. Table 2 describes the distribution of the present sample in the categories high, moderate, and low protection.

Risk Assessment and Psychopathology

The BARO high-risk scale showed a significant negative correlation with the SAPROF sum score ($r = -0.47$, $p < 0.01$). Another significant negative correlation was found between the SAPROF total score and the aggressive and antisocial behavior scale of the SPS-J ($r = -0.40$, $p < 0.01$). The SAVRY total score was significantly positive related to the BARO high-risk scale ($r = 0.61$, $p < 0.01$) and the aggressive and antisocial behavior scale of the SPS-J ($r = 0.57$, $p < 0.01$).

In order to examine the relationship between the risk factors measured with the SAVRY and STAYSOR and the protective factors measured with the SAPROF, correlation analyses were conducted. For these analyses the total scores of the instruments were used by adding up the single item scores and the final judgments in the categories low, moderate, and high based on the SPJ approach (see Table 3). Overall risk factors and protective factors showed significant negative correlations.

The SAPROF total score and the Protective Factor scale of the SAVRY showed a significant positive correlation ($r = 0.80$, $p < 0.01$). The Protective Factor scale of the SAVRY was also positively correlated with the final protection judgment of the SAPROF ($r = 0.79$, $p < 0.01$).

Correlation analysis was conducted for both risk instruments (SAVRY and STAYSOR) as well, in order to examine relationship between them (see Table 3). The contingency

Table 2. Frequencies of combined risk (STAYSOR, SAVRY) and protection (SAPROF) assessment categories

	SAPROF			SAVRY		
	Low protection (*n* = 18; 27.3%)	Moderate protection (*n* = 36; 54.5%)	High protection (*n* = 11; 16.7%)	Low risk (*n* = 33; 50%)	Moderate risk (*n* = 17; 25.8%)	High risk (*n* = 16; 24.2%)
STAYSOR						
Low risk (*n* = 18, 27.3%)	*n* = 2 (11.1%)	*n* = 10 (55.6%)	*n* = 6 (33.3%)	*n* = 13 (39.4%)	*n* = 5 (29.4%)	*n* = 0 (0%)
Moderate risk (*n* = 39; 59.1%)	*n* = 10 (26.3%)	*n* = 23 (60.5%)	*n* = 5 (13.2%)	*n* = 17 (51.5%)	*n* = 11 (64.7%)	*n* = 11 (68.8%)
High risk (*n* = 9, 13.6%)	*n* = 6 (66.7%)	*n* = 3 (33.3%)	*n* = 0 (0%)	*n* = 3 (9.1%)	*n* = 1 (5.9%)	*n* = 5 (31.3%)
SAVRY						
Low risk (*n* = 33; 50%)	*n* = 5 (15.2%)	*n* = 18 (54.5%)	*n* = 10 (30.3%)			
Moderate risk (*n* = 17; 25,8)	*n* = 2 (12.5%)	*n* = 13 (81.3%)	*n* = 1 (6.3%)			
High risk (n = 16; 24,2%)	*n* = 11 (68.8%)	*n* = 5 (31.3%)	*n* = 0 (0%)			

Note. STAYSOR, Screening Tool for the Assessment of Young Sexual Offenders' Risk; SAVRY, Structured Assessment of Violence Risk in Youth; SAPROF, Structured Assessment of Protective Factors for violence risk.

Table 3.   Correlations between the final judgment and the sum scores of SAVRY, SAPROF, and STAYSOR

	SAVRY		STAYSOR		SAPROF	
	Final judgment	Total score	Final judgment	Total score	Final judgment	Total score
SAVRY						
Final judgment			−0.305★★	0.397★★	−0.503★★	−0.604★★
Total score			−0.393★	0.493★★	−0.604★	−0.612★★
STAYSOR						
Final judgment					0.283★	0.274★
Total score					−0.359★★	−0.346★★

Note. STAYSOR = Screening Tool for the Assessment of Young Sexual Offenders' Risk; SAVRY = Structured Assessment of Violence Risk in Youth; SAPROF = Structured Assessment of Protective Factors for violence risk.
★Correlation is significant at the 0.05 level (two-tailed).
★★Correlation is significant at the 0.01 level (two-tailed).

table shows how many juveniles from the different STAYSOR and SAVRY risk groups were assigned to the different protection categories of the SAPROF (see Table 2).

DISCUSSION

The current study is the first examination of the relationship between risk factors (assessed with the STAYSOR and the SAVRY) and protective factors (assessed with the SAVRY and the SAPROF) in young alleged sexual offenders. This initial application of the SAPROF to juveniles could have important clinical implications for the use of protective factors in juvenile populations. At first, the reliability of each of the two instruments measuring protective factors was examined. Using the critical values for ICCs (single measure) reported by Fleiss (1981; ICC < 0.39, poor; 0.40–0.59, fair; 0.60–0.74, good; > 0.75, excellent), the interrater reliabilities for both the SAVRY and the SAPROF were excellent. The average Cronbach alpha coefficient in the reliability analysis confirms an acceptable internal consistency of the SAVRY. However, the internal consistency of the SAPROF was questionable.

The assumption that protective factors are associated with risk factors in a negative direction was supported. These results are consistent with previous findings of the present research group in adult sexual offenders (Yoon, Spehr, & Briken, 2011). In a Dutch study, the SAPROF was significantly negatively correlated with the HCR-20 in a sample of violent offenders (de Vries Robbé, de Vogel, & de Spa, 2011). Furthermore, the finding of the present study that no subject from the high-risk group of the SAVRY and the STAYSOR was represented in the high protection group of the SAPROF can be interpreted as additional evidence for a negative relationship between risk and protective factors. However, the STAYSOR, which comprises mainly historical and static items, showed a weaker correlation with the SAPROF than with the SAVRY. This could indicate that the SAPROF corresponds better with dynamic instruments due to its own predominantly dynamic factors. Taken together, the SAPROF seems to be a practical, meaningful extension of the initial risk assessment procedure of young sexual offenders.

The positive correlation between the total scores of the STAYSOR and the SAVRY, on the one hand, and the negative correlation between the final risk judgments of the

STAYSOR and the SAVRY, on the other, appear counterintuitive at first glance. However, previous studies have shown that ideographically changed total scores – the so-called clinical override – can distort and deteriorate the actual predictive accuracy (Hanson & Morton-Bourgon, 2009). These results indicate that both methods of deriving a final risk judgment – adding up total scores and clinical-ideographic final risk judgments – can differ substantially. One explanation for this discrepancy is that such clinical judgments can overestimate the actual value of factors measured with the risk assessment instrument by obstructing a balanced view of critical items. The findings of the present study confirm this assumption: the results showed that the risk category based on numerical thresholds decreased the overall risk level dramatically and assigned 59.1% of the boys to the moderate category, whereas the initial clinical nominal judgment appraised 51.5% boys to be at high risk.

Another possible explanation could be that the risk estimates measured with the SAVRY and the STAYSOR are characteristically different in terms of their severity, imminence, and frequency. The SAVRY aims to assess violent recidivism risk in general, including sexual violence, whereas the STAYSOR explicitly focuses on sexually motivated offending behavior by primarily using historical and static risk factors. Although 24.2% of the boys were assigned to the high-risk category according to the SAVRY, not all of them were considered to be at high risk in the STAYSOR. Taking the distribution of the index offenses into account, it may be that the majority of the juveniles are at risk of offending behavior, but not necessarily against the sexual self-determination of others. A closer examination of this finding and the hypotheses regarding the predictive value of variables on the item level may be a promising task for future investigations, including studies of official recidivism data.

This study was the first implementation of the STAYSOR, a risk assessment tool, which includes predominantly static-historical items associated with sexual recidivism. Considering the lack of a well-validated actuarial instrument to determine the base rate of certain risk groups in the juvenile population, further studies should examine the predictive value for general and sexual recidivism of the STAYSOR, especially in comparison with instruments, which like the SAVRY, focus more on dynamic risk factors. The use of the SAVRY and the STAYSOR was exceptional in this study, since risk for both sexual and violent recidivism were measured. The positive correlation between the SAVRY and the STAYSOR total scores further suggests that both instruments could capture relevant risk factors in the population of young alleged sexual offenders. Moreover, 18% of the adolescents in the present sample showed evidence of general delinquency risk factors and risk factors associated with sexual delinquency. There are several studies illustrating adolescent sexual offenders' proneness to recidivate non-sexually to a greater extent than sexually (Caldwell, 2002). In the light of the recent discussion among researchers suggesting that sexual delinquency in adolescents is part of a manifestation of general delinquency (e.g., Seto & Lalumière, 2010), the results of the present study seem to reveal a similar tendency. However, in a study conducted by Worling and Curwen (2000), risk factors associated with general delinquency predicted both sexual and non-sexual reoffending in an adolescent sexual offender sample. Assuming that juvenile sexual offenders are more likely to reoffend non-sexually but that non-sexual violence is a risk factor for both sexual and non-sexual recidivism, the use of both types of risk assessment tools seems to be reasonable (Viljoen et al., 2008). Overall, the subjects of this study were accused juvenile sexual offenders who had not yet been adjudicated. Following the risk-need-responsivity

(RNR) principles associated with effective treatment for adult offender samples (Andrews, Bonta, & Hoge, 1990; Bonta & Andrews, 2007; Hanson, Bourgon, Helmus, & Hodgson, 2009), the instruments were useful as screening tools to discriminate between juveniles at high risk for reoffending and those at low risk, and to inform the selection of measures for early intervention.

The screening instruments for psychopathological indicators, the BARO and the SPS-J, revealed negative correlations with the SAPROF. However, the SAVRY showed positive correlations with psychopathological indicators such as level of psychosocial function measured by the BARO. These results indicate that both the SAVRY and the SAPROF could function as valid measures corresponding to the psychopathological measures. The BARO seems to capture appropriate risk factors that are of particular relevance for juvenile sexual offenders. These risk factors show a substantial overlap with risk factors for juvenile rapists that were identified by Busch and colleagues (2009).

A problematic issue in scoring the SAPROF for young offenders arose while assessing the items "medication" and "life goals". In more than 90% of the cases, neither items was applicable. A possible explanation is that life goals imply the presence of a differentiated self-concept, which might still be immature in the majority of young people due to the dynamic process of adolescence. The infrequent use of psychotropic medication is probably due to the sample characteristics of the study group, young, non-forensic, and pre-treatment. But it is also possible that both medication and life goals items are inherently inappropriate in the adolescent population. Further studies are needed to examine the predictive validity of the SAPROF on the item level and these may provide a more suitable factor set for this specific population.

There are several limitations to the current study. According to the seminal work of Cook and Campbell (1979), generalizability is the most important issue of external validity. In the present study, the small sample size in conjunction with the response rate of approximately 50% constrains the generalizability of the results substantially. The latter limitation of the relatively low response rate also threatens the internal validity of the present study, assuming that there could be a systematic bias for dropping out (Cook & Campbell, 1979). However, according to current scientific knowledge about the mutual effects of protective and risk factors, studies with a small sample size can also make an important contribution to the research field (Lodewijks, de Ruiter, & Doreleijers, 2010). Nevertheless, further research is needed to establish a detailed insight into the relationship between risk and protective factors regarding the risk for future sexual and general violent behavior in larger samples in various settings. In addition, the design of this pilot study leads to limitations in interpretation because of the missing recidivism data. Because of the missing outcome data, further studies with recidivism data of this sample are planned to prove the predictive validity of the instruments with multivariate statistical methods. Furthermore, besides testing the psychometric properties of the instruments, future research should investigate the incremental validity of the more dynamic risk factors beyond the amount that is captured by the static factors alone with regard to predicted outcome measures.

Busch and colleagues (2009) criticized the methodology of different studies on juvenile sex offenders because most of the studies did not include randomized samples or follow subjects longitudinally over time. The design of the present sample can be criticized in this respect. However, it should be noted that the methodologically innovative study by Busch et al. (2009) was published after the establishment of the Hamburg Model Project in 2007. Even if randomization is not possible, further research within

the Hamburg Model Project will provide prospective longitudinal data about the actual relapse history of the juveniles and will therefore allow a more differentiated inspection of criminological characteristics of the present sample.

In conclusion, the present explorative pilot study makes a contribution towards better understanding of the relationships between protective and risk factors for juvenile sexual offending. The results of the present study suggest that the SAPROF, in combination with the SAVRY and STAYSOR, serves as a valuable measure for examining young people at risk of sexual offending.

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