

# ASSESSING RISK OF RECIDIVISM IN SEX OFFENDERS

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*Violent behaviour risk assessment is currently one of the most relevant research areas in the Psychology of Crime. Various scales for violence risk assessment have been developed in recent years through research on criminal careers and risk factors. One such instrument is the Sexual Violence Risk Assessment-20 (SVR-20), translated and adapted to Spanish by the Advanced Studies in Violence Group at the University of Barcelona. The goal of this study is to assess the capacity of the SVR-20 for predicting sexual violence recidivism in a Spanish sample of sex offender prison inmates. The method used was a retrospective study based on the files of 163 sex offenders who had been discharged from prison. Data were analyzed using the logistic regression technique. Of the total sample, 79.9% of non-recidivists and 70.8 % of recidivists were correctly classified. The ROC curve obtained for the model shows very good discriminant capacity for the SVR-20, with an AUC value of 0.83. The main conclusion of this study is that the Spanish adaptation of the SVR-20 is a useful instrument for improving the prediction of sexual violence risk.*

**Keywords:** risk assessment, recidivism and sex offenders.

*La evaluación del riesgo de conducta violenta es un campo emergente en la actual Psicología de la Delincuencia. A partir de la investigación sobre carreras criminales y predictores de riesgo, durante los últimos años se han desarrollado diferentes escalas de evaluación del riesgo de violencia. Uno de estos instrumentos es el Sexual Violence Risk Assessment-20 (SVR-20), traducido y adaptado al español en el Grupo de Estudios Avanzados en Violencia de la Universidad de Barcelona. El objetivo de este estudio es evaluar la capacidad del SVR-20 para predecir la reincidencia sexual en una muestra española de delincuentes sexuales. Para ello se ha aplicado el SVR-20 de forma retrospectiva a un grupo de 163 agresores sexuales ya excarcelados. La capacidad discriminativa del instrumento ha sido evaluada a través del modelo de regresión logística. Se obtuvo un porcentaje de clasificaciones correctas de los sujetos no reincidentes del 79,9% y de los sujetos reincidentes del 70,8%. La curva ROC obtenida muestra una buena capacidad discriminativa del SVR-20 con un valor de área bajo la curva (AUC) de 0.83. La principal conclusión de este estudio es que el SVR-20 es un instrumento de utilidad para mejorar los pronósticos de riesgo de violencia sexual.*

**Palabras clave:** predicción de riesgo, reincidencia y agresores sexuales.

In our society, violence in general, and sexual violence in particular, are substantial problems which cause considerable concern among citizens and public authorities (La Fond, 2005). In the face of growing social alarm, often aggravated by the media, both leaders of institutions and experts in this field are seeking ways to prevent violent behaviours. Despite the fact that sex offenders present a low official rate of recidivism (with a figure of 20% internationally), the public outcry provoked by such offences has led to the search for legislative solutions, sometimes drastic ones, to deal with the

problem of sexual violence and recidivism (Mercado & Ogloff, 2007).

Violence risk assessment constitutes one of today's great challenges for judicial institutions (Lalumière & Quinsey, 1996; Quinsey, Lalumière, Rice & Harris, 1995). The best results in risk assessment tend to be obtained through a combination of psychological and behavioural variables, and not merely on the basis of expert clinical judgement or of actuarial variables, such as offenders' age, educational level or place of residence (Rodríguez, López & Andrés Pueyo, 2002). On the other hand, several studies have found a relationship between some personality factors and violent crime (Ortiz-Tallo, Fierro, Blanca, Cardenal & Sánchez, 2006; Sobral, Luengo, Gómez-Fraguela, Romero & Villar, 2007). Among these factors are impulsiveness, absence of fear and sensation-seeking (Herrero & Colom, 2006).

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Recently, in order to overcome some of the disadvantages of risk assessment systems – both of the purely clinical and the purely actuarial type –, new systems have been developed based on *structured professional judgement*. These assess risk according to explicit guidelines based on empirical research. The advantage of this prediction method is that it is systematic but at the same time flexible enough to permit adequate practical application (Douglas, Cox & Webster, 1999).

A specific assessment procedure based on structured professional judgement is the *Sexual Violence Risk-20* (SVR-20) (Boer, Hart, Kropp & Webster, 1997). The SVR-20 (the abbreviation we shall use from now on) is a protocol designed for the assessment of risk of sexual violence in adult sex offenders. This risk assessment instrument was developed on the basis of empirical research and expert clinical practice in the field of sexual violence. We should clarify at this point what we mean in this work by the terms risk factors and item, in order to avoid confusing interpretations. The expression “risk factors” is employed in research on criminal careers to refer to those personal or social elements and variables whose presence makes the maintenance of criminal activity more likely in an individual or, in other words, increases his/her criminal risk. This will be the meaning of “risk factor” in the present work. For its part, the term “item” will be used in reference to a unit of information on the individual and his or her personal or social circumstances, which can be rated as present, partially present or absent. These units of information (i.e., the items) are based on research about risk factors. Thus, each item of the SVR-20 rates information on the individual that may be a risk factor for his or her future behaviour. However, in no case should the expression “risk factor” be associated with the meaning of the term “factor” as it is commonly used in Psychology. In the SVR-20, risk assessment is carried out by a forensic expert based on a list of standardized risk factors to arrive at a global risk judgement.

Forensic professionals working with sex offenders and employed by courts or prisons are under growing pressure to provide accurate assessments of risk levels and to make their decision-making process as transparent as possible (Craig, Beech & Browne, 2006). A sex offender assessed as high-risk will require much stricter control and community supervision than one who is considered to have a low risk for sexual recidivism. Therefore, good prediction of sexual recidivism is necessary not only to avoid future victims, but also to reduce the institutional cost of sex offenders, and consequently, to maximize the resources

available for attention to those who truly require it.

In Spain there is currently no systematic and generalized use of instrument for risk assessment of sexual recidivism. Consequently, use of these tools (like SVR-20) could be extremely beneficial. Thus, the present research has scientific and practical relevance insofar as it constitutes a first attempt at empirical validation in Spain of an instrument for use by those working in sexual violence risk assessment. Specifically, the aim of the study is to apply the SVR-20 retrospectively to a sample of sex offenders, now discharged from a Spanish prison, in order to assess the predictive capacity of this instrument in relation to sexual recidivism.

Assessment by means of the SVR-20 of each participant, using the documents and information available, made it possible to estimate in each case whether this instrument had correctly predicted sexual recidivism. To this end, risk of recidivism predicted by the instrument was compared with empirical recidivism observed.

## Method

### Participants

Participants in the present study were from the population of sex offenders serving their sentence at the *Brians* penitentiary in Barcelona (Spain) between the date of its opening in May 1991 and December 2002. From this population we selected a sample of 163 male participants, of whom 95 were sex offenders against adult women (rapists) and 58 had abused minors. Selection criteria were that the offenders' files contained as much information as possible, and at least sufficient information to respond to the items of the SVR-20.

Participants' age ranged from 27 to 68 years (Mean = 44.41, SD = 9.29). As regards educational level, 72.4% had primary education, 12.9% secondary education and 7.4% higher education. As far as marital status was concerned, 47.2% were single, 34.4% were married and 17.8% were separated. There were no differences between these variables in relation to the variable “type of sexual offence” (rape or child abuse).

### Instruments

The predictions in this study were made using the *Sexual Violence Risk-20* (SVR-20), in its Spanish-language version (*Manual de valoración del riesgo de violencia sexual*). This risk-assessment instrument was translated and adapted for the Spanish prison population by Martínez, Hilterman and Andrés Pueyo (2005), from the Advanced Studies in Violence Group (*Group de Estudios Avanzados en Violencia*, GEAV) at the University of

Barcelona.

The SVR-20 includes 20 sexual violence risk factors grouped in three sections (see Appendix):

1. *Psychosocial functioning*, which includes risk factors 1 to 11. The first two risk factors refer to the individual's psychosexual functioning: 1) the possible presence of *sexual deviance* (i.e., a paraphilia diagnosis or an abnormal or dysfunctional pattern of sexual arousal) and 2) having been a *victim of abuse in childhood*. The next four risk factors are related to the person's psychological functioning: 3) *Psychopathy*, assessed by means of the *Psychopathy Checklist-Revised* (PCL-R) or its brief version, the *Psychopathy Checklist-Short Version* (PCL-SV), 4) *severe mental disorder* (presence of psychosis, mania, mental disorder or severe neuropsychological disability), 5) *substance abuse* (includes abuse of alcohol, prescription drugs and illegal drugs), and 6) *suicidal or homicidal ideation* (includes impulses, images and verbalized intentions to do harm to oneself or others). These four are followed by two risk factors which indicate whether there has been a failure to adopt two important social roles: 7) *problems of forming or maintaining intimate or stable partner relationships*, and 8) *problems for obtaining and maintaining a steady job*. Finally, there are three factors which indicate the individual's predisposition for antisocial behaviour in general: 9) *antecedents of non-sexual violent behaviour*, 10) *antecedents of non-violent crime*, and 11) *failure of previous supervisory measures* (i.e., possible non-compliance with measures previously imposed by courts or justice departments, such as parole, supervised parole or conditional discharge).
2. *Sexual offences*, which groups together seven items related to previous sexual violence: 12) *frequency of serious sexual offences* (takes into account both the time elapsed between crimes and the risk of the criminal behaviour committed), 13) *diverse sexual typologies* (refers both to the variety of victims and the diversity of illegal sexual behaviours committed), 14) *severity of the physical or psychological harm caused to the victim of the sexual assault*, 15) *use of weapons or death threats*, and 16) *progression in the frequency or intensity of the crimes*. Finally, the SVR-20 considers two risk factors linked to psychological aspects of the sexual violence: 17) *extreme minimization or denial of the sexual violence*, and 18) *attitudes that support or tolerate sexual violence*.
3. *Future plans*, a section that includes two items assessing the respondent's life projects. First of all it is

assessed whether the individual has a tendency to make *unrealistic future plans or to avoid any future planning* (Item 19). Secondly, it is assessed whether there is a *negative attitude toward intervention* (Item 20), that is, if the individual is pessimistic about treatment/supervision programmes, or resists or fails to cooperate with their application.

Clinical coding of the SVR-20 items is made on an ordinal scale with three possible categories (N/?/S), according to the degree of certainty about whether or the risk factors are present in the individual or have been at some time in the past. A value of N (no) indicates that the risk factor is definitely absent; a question mark (?) means there is some suspicion (but not certainty) of the risk factor being present; a value of Y (yes) indicates that the risk factor is present or has been previously.

This scoring method is that which is recommended by the authors of the instrument (Boer et al., 1997), and is well suited to the needs of clinical professionals, who are its main users. Nevertheless, for research purposes it is permitted to fill out the SVR-20 in an actuarial fashion, that is, assigning a numerical value (0, 1, 2) to each item. This was the case in the present study, providing a global score for each respondent, and making it possible to carry out all the statistical analyses that will be explained below.

### **Coding of variables**

Coding of the SVR-20 items was carried out on the basis of all the information available in the files of the individuals selected. Specifically, with the information obtained on the participants it was possible to code a maximum of 16 items of the Spanish version of the SVR-20 (see Appendix: coded items shown in bold): from the *Psychosocial functioning* block the Items 1, 3, 5, 7, 8, 9, 10 and 11 were coded; from *Sexual offences*, Items 12, 13, 14, 16, 17 and 18; and finally, from *Future plans*, Items 19 and 20. Items 2, 4, 6 and 15 were unable to be coded due to lack of relevant information.

### **Sources of information**

The information sources for this research were as follows:

- Classification protocols and prison files of the participants. These contain all the information on each offender during his time in prison. These files include judicial information (related to sentencing and other matters), reports on interviews by the prison's *Treatment team* (psychologists, social educators, teachers, mentors, etc.), reports on activities carried

- out by the participants, and disciplinary records.
- Initial classification interviews. These provide information on the individual's life history, from childhood up to the present. Aspects covered include: school behaviour, family environment, peer-group relations, employment record, conjugal family, health problems, substance use, beginning of criminal behaviour, adaptation to prison system, short- and long-term plans, and so on.
  - Computerized prison file.

### **Procedure**

The present work is a single-group retrospective study of the predictive capacity of the SVR-20 for the assessment of recidivism in a sample of sex offenders who have completed a prison sentence. Since the prediction was made a posteriori, for rating of the participants we used a coding design in which the raters were blind to the follow-up data and respondents' possible recidivism. Inter-rater agreement was assessed for each coded item by means of Cohen's Kappa (Cohen, 1960; Fleiss, 1981). To this end a second assessor trained in coding for this instrument rated 30 protocols independently. Mean Kappa value was 0.95 (SD= 0.08), with a range of 0.73 to 1.00, which situates inter-rater agreement for the various items between good and very good (Cohen, 1960).

Next, the SVR-20 was filled out for each participant. As explained in the sections on the coding of variables and information sources, the SVR-20 is not a questionnaire, but rather a protocol for hetero-assessment of criminal behaviour risk, based on a structured clinical judgement. Data for completion of the protocol can come either from interviews or from clinical or other records. In no case is it applied directly to participants; rather, they are assessed through the information available on them. Here, coding of the SVR-20 for the individuals was carried out on the basis of the documentary information about each of them.

From the coding of all the SVR-20 items to which it was possible to respond, we obtained a global numerical score for each participant, from which we made the descriptive analyses. It was confirmed that the sample, despite not having been selected at random, did not differ from the global population of origin in the various characteristics considered.

### **Data analysis**

The predictive capacity of the instrument was studied by means of logistic regression. The choice of this method is based on the fact that the binary logistic

regression technique provides a probability of membership  $P$  of a category (in this case a recidivist group). From this probability  $P$ , a cut-off point is determined, above which cases are classified as belonging to the positive group (in this case, recidivists). Although there are other statistical and non-statistical techniques that permit classification with respect to a criterion variable, an advantage of this technique is that it is not restrictive in its assumptions, nor does it demand homocedasticity; moreover, it allows the use of both quantitative and categorical variables as predictors. Thus, the characteristics of logistic regression are highly desirable, and make it a better and more accurate classification tool than other parametric techniques, such as discriminant analysis (Hosmer & Lemeshow, 2000; Kiang, 2003; Lei & Koehly, 2003; Jackson & Wang, 1994). Finally, the logistic regression technique makes it possible not only to make a prediction of the criterion, but also to describe, in a way that can be interpreted, the relationship between the criterion variable – respondents' recidivism – and the predictor variable – total score on the SVR-20. Operatively, the aim of this study is to check whether the SVR-20 helps classify the participants in two groups: recidivists and non-recidivists.

Secondly, we set out in this study to find the best empirical cut-off point of the SVR-20, given that the probability of occurrence of the events to be predicted is not equivalent to that of their non-occurrence (probability of official recidivism in sex offenders is much lower than probability of non-recidivism).

## **Results**

### **Descriptive analyses**

Observed recidivism, defined as the commitment of a new offence and imprisonment for it, includes here both sexual and non-sexual offences. A total of 78.5% of the sample did not reoffend, 14.7% reoffended with a sexual offence, and 6.7% committed a new offence that was not sexual. These figures are close to those obtained in international research on sexual recidivism, which reveal that 20% of sex offenders will probably reoffend over a 5-year follow-up period (Garrido, Stangeland & Redondo, 2006; Hanson, 2005; Lösel, 2002).

The criterion variable, sexual recidivism, was coded as 1 (occurrence of the event to predict, that is, participants' recidivism) or 0 (its absence). According to the grouping in this variable, 85.3% of cases (139 participants) did not reoffend sexually, and 14.7% (24 participants) did commit a new sex offence.



Table 1 shows the data for participants' global score (criterion variable) on the instrument and the three subscales making it up: *Psychosocial functioning*, *Sexual offences* and *Future plans*.

As regards total score on the SVR-20, the median is 8 points, with a minimum of 0 and a maximum of 25 (for 16 items filled out of the 20 making up the scale). Mean is 9.3 points, with a standard deviation of 5.2. As far as *Psychosocial functioning* is concerned, a mean of 5.9 points was obtained (with a standard deviation of 3.5 and range of 0 to 16). For *Sexual offences*, the mean is 2.3 points, with a standard deviation of 1.8, and a range of 0 to 8. Finally, in relation to *Future plans*, the mean is 1.1 points, with a standard deviation of 1.1 and a range of 0 to 4.

Figure 1 shows that the curve of total scores on the SVR-20 is asymmetric positive, that is, biased toward a low risk level. This distribution is coherent with the sample of our study, since many sex offenders, in spite of the seriousness of their crimes and the long sentences they serve, are not considered, in terms of recidivism, to be high-risk (Redondo, Luque, Navarro & Martínez, 2005).

### Logistic regression

The predictive capacity of the SVR-20 was estimated by means of the logistic regression technique, using as predictor variable the global SVR-20 score. The results indicate that total score on the SVR-20 is a significant predictor of sexual recidivism ( $\beta = .240$ , Wald  $\chi^2 = 21.00$ ,  $p < .001$ ). This value means that the risk of recidivism increases 1.27 times for each point of increase in the SVR-20 total score. The Homer-Lemeshow goodness-of-fit test indicates that, at a confidence level of 99%, the regression model shows a good fit to the data (Chi-squared = 5.751; df = 8;  $p = 0.675$ ). Nagelkerke's  $R^2$  value is 0.272. Table 2 shows the values of the regression model parameters, the standard error and the confidence interval at 95%.

### Classificatory capacity of the model: ROC curve

Predictive efficacy of the SVR-20 was established through analysis of the ROC curves. The ROC curve is the result of plotting the rate of true positives (sensitivity) against the rate of false positives (1 minus specificity) for each cut-off point of the instrument. An AUC (area under the curve) of 0.50 represents a random prediction, and an AUC of 1 would be equivalent to a perfect prediction, that is, the instrument would never be inaccurate on predicting sexual violence.

Figure 2 represents the ROC curve of sexual recidivism predicted by the SVR-20. The SVR-20 presents good

predictive capacity for sexual recidivism. As the figure shows, the AUC value is 0.833 (SE = .036). This AUC is significantly better than the classification made at random ( $p < .001$ ). Confidence interval for the AUC value is in the range between .761 and .904.

Through the study of the ROC curve it was estimated that the best probability of prediction for the SVR-20 is  $prob(y=1) = 0.20$ . This cut-off point offers the best possible equilibrium between the instrument's sensitivity and its specificity. Thus, the probability of 0.20 is the point, obtained by means of the ROC curve, at which the instrument best classifies the participants, giving the smallest number of false positives and false negatives. From this cut-off point we calculated the table of classifications of the protocol. Specifically, the SVR-20 correctly predicts 79.9% of non-reoffenders (specificity or true negatives) and 70.8% of reoffenders (sensitivity or true positives), with a total of correct classifications of 78.5% (Table 3).

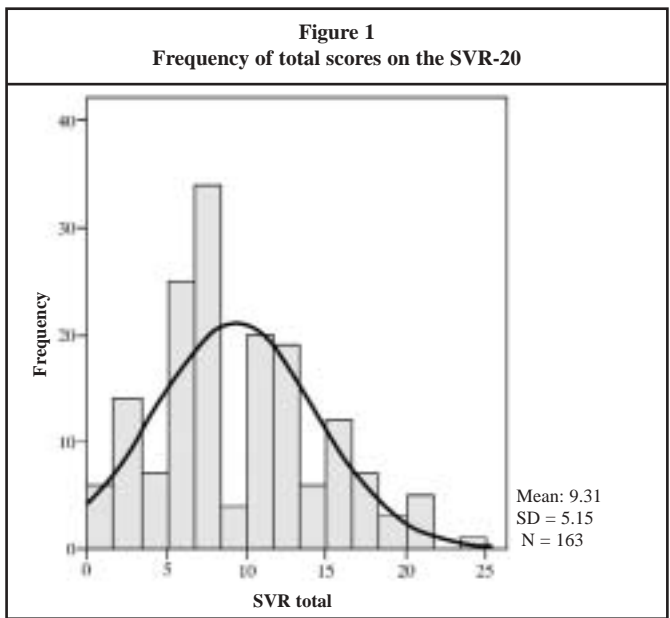


Table 1 Total score on the SVR-20 and its subscales					
	Total SVR score	Psychosocial functioning	Sex offences	Future plans	
N	Valid	163	148	159	133
	Lost	0	15	7	30
Mean		9.31	5.89	2.32	1.06
Median		8.00	5.00	2.00	1.00
Std. deviation		5.15	3.53	1.84	1.13
Minimum		0	0	0	0
Maximum		25	16	8	4
Risk factors		16	8	6	2

## DISCUSSION AND CONCLUSIONS

As regards the objectives set in this study, the SVR-20 was found to yield a reasonable rate of overall accuracy, 78.5%, in the prediction of sexual recidivism. Specifically, the protocol is more efficient in its prediction of non-reoffenders (with 70.8% accuracy) than of reoffenders (with 79.9% accuracy). The social significance of these results is that it seems to be easier to

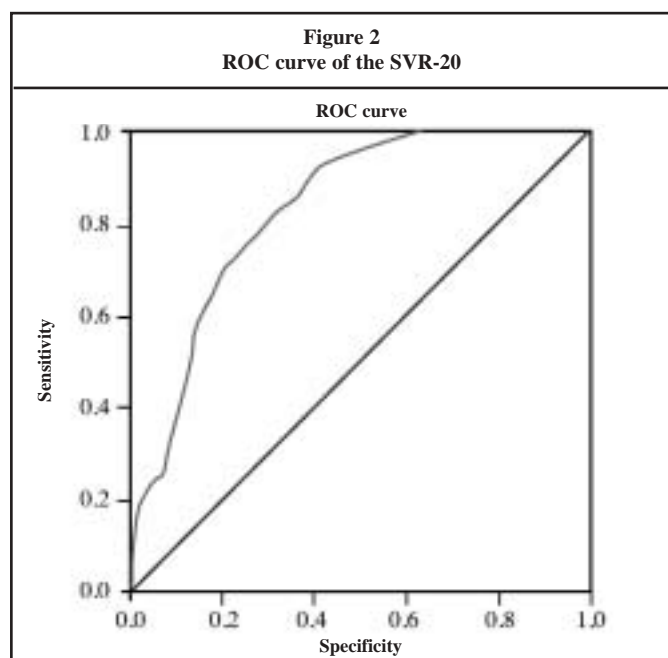


Table 2 Variables in the equation							
	$\beta$	SE	Wald	df	Sig.	CI 95.0% for EXP( $\beta$ )	
						Exp (B)	Lower Upper
SVR total	.240	.052	21.004	1	.000	1.272	1.147 1.409

Table 3 Classifications			
	Sexual recidivism observed		Total correct classifications
	Yes	No	
Sexual recidivism predicted			
Yes	17 True positives	28 False positives	
No	7 False negatives	111 True negatives	
Percentage Correct	70.8% (Sensitivity)	79.9% (Specificity)	78.5%

identify those cases in which there will probably not be recidivism than those in which there probably will. For a problem so complex and multifactorial as criminal behaviour, an average predictive accuracy of 78.5%, from a prediction instrument still in the process of development, is an encouraging result, albeit in relative terms and with room for improvement.

In any case, these results allow us to conclude that, although the frequency of official sexual recidivism is low, if specific variables and appropriate predictive instruments are used, risk assessment of sexual violence can achieve commendable rates of accuracy.

This is the first empirical study in Spain on the predictive efficacy of an instrument for estimating sexual violence risk, namely, the *Sexual Violence Risk-20* (SVR-20). These first results indicate good discriminant capacity of the SVR-20. However, lack of some of the necessary information meant that it was not possible to fill out all the items of the instrument – a limitation not uncommon in retrospective designs. Even so, the good results obtained in this study allow us to consider for now that the SVR-20 can make a sound contribution to improving the prediction of sexual violence risk. Future research should aim to solve the methodological problems mentioned here and to assess the predictive validity of the SVR-20 through longitudinal designs that permit the collection of all the data necessary to respond to its items.

Appendix Protocol for the Sexual Violence Risk-20	
Coding sheet	Presence (0/1/2)
<b>PSYCHOSOCIAL FUNCTIONING</b> <b>1. Sexual deviance</b> 2. Victim of abuse in childhood <b>3. Psychopathy</b> 4. Severe mental disorder <b>5. Problems related to toxic substance use</b> 6. Suicidal/homicidal ideation <b>7. Interpersonal problems</b> <b>8. Work problems</b> <b>9. Antecedents of non-sexual violent offences</b> <b>10. Antecedents of non-violent offences</b> <b>11. Failure of previous supervisory measures</b>	
<b>SEXUAL OFFENCES</b> <b>12. High frequency of sexual offences</b> <b>13. Multiple typology of sexual offences</b> <b>14. Victim physically harmed in sexual offences</b> 15. Use of arms or death threats in sexual offences <b>16. Progression in the frequency and severity of the sex offences</b> <b>17. Extreme minimization or denial of the sex offences</b> <b>18. Attitudes that support or tolerate sexual offences</b>	
<b>FUTURE PLANS</b> <b>19. Lack of realistic/viable plans</b> <b>20. Negative attitude toward intervention</b>	

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