The Structured Interview of Family Assessment Risk: Convergent validity, interrater reliability and structural relations

Short running title: Family Risk Assessment Interview

Abstract

This paper describes a research which had as a goal to accomplish the complementary validation studies of the Structured Interview of Family Assessment Risk, a structured professional judgment tool for the assessment of family risk and protective factors of juvenile delinquents. The sample is composed by 130 parents and their adolescent delinquent sons analyzed as a paired sample. The statistical analyses used to evaluate the validity of SIFAR included inter-rater reliability (n = 26, 03 blinded coders), convergent validity with Youth Level of Service/Case Management Inventory and, additionally, to analyze the predictive validity by the Partial Least Squares approach to structural equation modeling. Findings show that it has adequate psychometric properties, being useful as a complementary assessment tool of structured risk assessment instruments, allowing understanding the vulnerabilities and strengths of delinquent adolescent's family, oriented to case management and family intervention.

Keywords: delinquency; family assessment; parenting; risk assessment

Considering the risk and protective factors for the young offender's delinquency, the family emerges as a fundamental factor in the literature on forensic youth assessment and intervention (Dattilio & Fromm, 2011; Goodman & Adler, 2010; Jones, 2008; McGuire, 2004; Piquero & Moffitt, 2010; Wasserman et al, 2004). The functioning of the family (e.g. parenting, family bonds, family attachment, parental supervision, parent and sibling criminality, family conflicts) constitutes either a risk factor or a protective factor, depending on the quality of these relations (Goodman & Adler, 2010; Jones, 2008; McGuire, 2004; Piquero & Moffitt, 2010; Welsh & Farrington, 2010) thence the inexistence of any specific instrument to assess the adolescent family risk/protective factors constitutes a gap in their forensic assessment.

In the last 20 years, fundamental concepts were clarified and many risk assessment tools were produced. Probably the most relevant clarification it is the concept of risk factor, defined as the characteristics of people and their circumstances which are associated with an increased chance of future violence involvement or re-ofending (Andrews & Bonta, 2010; Loeber, Farrington, Stouthamer-Loeber, & White, 2008). These factors can be static - the individual and historical events not changeable, dynamic - the changeable personal and interpersonal events and risk management - the conditions of the living environment (Andrews & Bonta, 2010; Heilbrun, Yosuhara, & Shah, 2010).

The development of risk concept lead to the development of models and the Risk, Need and Responsivity model (RNR; Andrews & Bonta, 2010) it is one of the most complete and integrative, proving empirically it usefulness in assessment and intervention planning (Andrews & Bonta, 2010; Heilbrun et al, 2010; Loeber et al, 2008). This model it is based in three major principles: the risk principle, the need principle, the responsivity principle, (Andrews & Bonta, 2010; Hoge, 2010). These concepts are the base of the RNR model, which anchors its fundaments beyond the mere diagnostic of risk, need and strength factors,

but intents to deliver clinical and social services to criminal individuals (Andrews & Bonta, 2010, Hoge, 2010).

In parallel of risk factors, the strengths/protective factors present a proved relevance on risk assessment (Farrington, Loeber, Jolliffe, & Pardini, 2008; Lodewijks, de Ruiter, & Doreleijers, 2010). Particularly in case management, the neglect of protective factors may introduce negative centered perspective of clients, negativism in the professionals and lengthy detention of offenders (de Vogel, Robbé, de Ruiter, & Bouman, 2011). The Lodewijks, de Ruiter, and Doreleijers (2010) study with Dutch adolescent offenders revealed that the presence of less protective factors produced significantly higher violence recidivism.

Farrington et al. (2008) differentiate protective factors (buffer factors) from promotive factors, these ones conceptualized as the factors associated with the decrease of later delinquency, whether it may decrease the recidivism (*promotive remediative factors*) or avoid the adolescents criminal involvement (*promotive preventive factors*). Developing their studies in protective and promotive factors with the Pittsburgh sample, Farrington et al (2008) found adolescents and child family promotive factors in violence and serious theft: high persistence of discipline, low level of physical punishment, adequate parental supervision, involvement in family activities, low level of parental stress, living in prosocial neighborhoods, non adolescent mothers and good relationship with pro-social peers, but that these promotive factors moderate differently the effect of risk factors across ages. Thus, the concepts of promotive factors are conceptualized as in the moderate model (de Ruiter, & Nicholls, 2011; de Vogel et al, 2011) and both refer to the moderation effects of protective factors.

To organize the risk and protective factors assessment, risk assessment tools present an evolution until the actual fourth generation instruments design. The actual fourth generation tools are established in static, dynamic, risk management and protective factors, being case management oriented, in a integrative methodology that allows the formulation of different

risk levels, based in the principles of risk, criminogenic needs, the assessment of special responsivity factors and personal strengths, organizing the case monitoring in all intervention process (Andrews & Bonta, 2010; Heilbrun et al., 2010, McGuire, 2004). Presently there are two major categories of risk assessment instruments design empirically validated: the actuarial and the structured professional judgment (SPJ). In the actuarial instruments there are a score of a group of risk factors to define a probability of future violence or recidivism. On the other hand, the SPJ approach uses checklists of risk factors to analyze static, dynamic risk and management factors, in a integrative framework to perform a risk level to a specific person in their specific conditions (de Vogel et al, 2011; Robbé, de Vogel, & Spa, 2011).

Based in these different designs, some valuable instruments of risk have been developed in the adolescent risk assessment. In the Portuguese juvenile forensic official services it is in use the YLS/CMI (Hoge, Andrews, & Leschied, 2002). Based in actuarial assumptions, it is a fourth-generation risk assessment structured instrument that assesses static, dynamic, management risk and protective factors, establishing a quantitative estimate for general and violent offending. The YLS/CMI also assesses the protective factors as responsivity factors which might facilitate the intervention (Hoge, 2010).

Despite the relevant contribution of this instrument in our forensic practice in adolescents risk assessment, it is not designed to assess the particular family strategies to deal with relational and contextual difficulties which have recursive impact in the adolescents offensive risk. These tools organize the family information as a collection of difficulties or strengths, but they don´t allow to define in which degree the family organizes itself to face these problems and misses the understanding of the strategies they use (or not) to solve the family difficulties found. This perspective it is very important in the clinical forensic practice with adolescents, especially if we intent to intervene straight to adolescent risk factors and case management (Andrews & Bonta, 2010; Jones, 2008; Loeber et al., 2008; Wasserman et al.,

2004). Andrews and Bonta (2010) present empirical evidence about the fact that parental and family factors are more likely to increase the probability of criminal involvement in juveniles than in adults, showing the sensitivity of this development period to family conditions. According with the relevance of family in adolescent criminal risk and the lack of multidimensional family assessment, it's clear the need of an instrument to assess the adolescents family risk and the reason why SIFAR was designed for.

We hypothesize that SIFAR family assessment it is related with risk assessment of family context YLS/CMI item and its risk level, giving both tools different but complementary predictive results about the severity of juvenile criminal conduct.[c1]

Method

Sample

This study uses a convenience sample of parents and their young male offenders incarcerated in adolescent justice facilities of the Directorate-General of Rehabilitation and Imprisonment Services of the Portuguese Ministry of Justice. From a total of eight adolescent justice facilities, five of them authorized the data collecting. All the adolescents were between 8 months and 3 years of the total length of their sanction rehabilitation detention. The selection criteria of the participants in the study were: a) adolescent and parents/caretakers living as a family at least since he´s 8 years old, b) adolescents between 12 and 18 years old, c) all the adolescents should have been convicted to at least 6 months of detention, d) they give us the permission to assess their sons with the same interview content, e) the adolescents where in the first 6 months of their conviction, and f) only integrated this study the parents and adolescents who both gave permission to be assessed with SIFAR.

The adolescents sample has 130 adolescent male incarcerated offenders, who were at the time of assessment between 13 and 18 years old (M = 16.06; mode = 17; SD = 1.07); 72.3%

of the adolescents present previous mixed addictions of alcohol and drugs; 56.9% (n = 74) of the adolescents present 4 school years of school failure and 37.7% (n = 49) at least 3 school years, only 5.4% (n = 7) have fail two or less school years; in terms of the criminal practice, 49.2% (n = 64) committed theft, robbery and aggression, 17.7% (n = 23) robbery, 13.1% (n = 17) aggression, 6.9% (n = 9) theft, 6.2% (n = 8) multiple crimes including rape, 2.3% (n = 3) committed homicide or homicide attempt and 1.5% (n = 2) committed multiple crimes including homicide; (84.6%, n = 120) of these adolescents were involved in violence episodes, 52.3% (n = 68) exclusively outside the family, 22.3% (n = 29) inside and outside their families, 6.2% (n = 8) as victims and aggressors, 3.8% (n = 5) exclusively as victims; only 15.4% (n = 20) didn´t present violence involvement outside their criminal practice.

The parents/caretakers sample (referred from now as parents) it is composed by 130 persons, 101 females (77.7%) and 29 males (22.3%), whose were 117 parents (90.0%) and 13 caretakers (10%); 104 parents (80%) are between 31 and 55 years old, 40 parents (30.8%) are between 41 and 45 years old, 23 (17.7%) are between 36 and 40 years old, 23 (17.7%) are between 51 and 55 years old, 18 (13.8%) are between 46 and 50 years old. The youngest parent was 26 and the oldest more than 60 years old. The family structure is composed by 39 (30%) are intact, 68 (52.3%) are single parents and 23 (17.7%) started new stable relations after divorce or widowhood. About the employment, 85 parents (65.4%) are actually employed (18 of them, 13.9%, are actually employed in part-times or without work contract), and 45 (34.6%) are unemployed. Only 9 (6.9%) parents had criminal records: traffic crimes (n = 4; 3.1%), drugs traffic (n = 1; .8%), physical assault (n = 1; .8%), homicide (n = 2; 1.5%) and multiple crimes including robbery, theft, physical assault and homicide (n = 1; .8%). Ninety one of the parents (70%) were native from Portugal, 31 (23.8%) are immigrants from African countries with Portuguese official language and 8 (6.2%) are gypsies.

All information collected with SIFAR was confirmed with social security, forensic records and interviews with case managers and the families and adolescents were informed about this procedure, assigning an informed consent. The data was collected with individual interviews between January 2012 and March 2013, after the family weekend visiting time, in a discrete and private place of each detention facility; the interviewers were forensic psychologists with experience in risk assessment with YLS/CMI and SIFAR.

Instruments

The SIFAR was developed from the *Risk Reduction Integrated Program* interview (Pakman, 2007). With author´s authorization it was designed to be a SPJ tool for family risk assessment of adolescent offenders between 13 and 18 years old and it should be analyzed by forensic psychologists with family assessment/intervention experience. It is composed by the parent's and adolescents complementary versions about the family difficulty areas, strengths and their recursive impact in family life, and it should be combined with an adolescent structured risk assessment toll, namely the YLS. The complementary parent's and adolescent's versions are identical but he language was adapted to those different life stages. The information obtained by the interview and other information sources (case managers, documentation, social security system) it is registered in the quotation sheet called *workspace* where the family risk and protective factors assessment and the family planning intervention (objectives, intervention design and evaluation) are established.

SIFAR protective and the risk items education, poverty, legal problems, social net and parenting are conceived as dynamic factors; the risk factors employment, housing/transport, social security and social/ethnic dissonance are management factors. For case management, the items physical health, mental health, substance abuse, non-adolescent mother, supervision, relation with pro-social peers and good neighborhood are analyzed because of its

clinical relevance. At the end of the interview the "Final Questions" analyze the emotional reaction to the interview, providing an evaluation of the family involvement in the assessment process, openness to change and intervention (e.g. How did you feel in this interview? How was it useful to you? Was here any difficult question? Do you think this conversation helped you to see differently some events of your life?).

Each risk item it is constituted by a group of questions to collect information about: a) actual status (e.g. Do you have legal problems?), b) complications about the problems (e.g what can be the complications of your legal problems?) c) obstacles about the problems (e.g. What obstacles might difficult your attempts to solve your legal problems?) and d) reflexive questions about how to solve the identified problems (e.g. How could you do to avoid this/these complication(s)? What are your plans to avoid problems with the justice?). The item "parenting" present questions according with: a) family rules (e.g. What are the three most important rules in your family? Who defined that rules? Which one(s) do your son(s) have more difficulties to accomplish?); b) family figures (e.g. Who is the family person that your son have more respect? Why do you think he respects that person the most? How long do he spend with this person?), c) supervision (e.g. Can you describe your sons usual activities?), d) routines/activities (e.g. How many times do you spend with your son? What are your family activities?), e) parenting relations (What is more difficult in the relation with your son(s)? What makes it difficult? How could you reduce these difficulties? f) reflexive questions (If you could return back in time what would you do differently with this son?).

The SIFAR risk items assigned in a registration sheet called "workspace", in a 6 point ordinal scale of crescent severity: 0 – Difficulties are not identified in this area; 1 - Difficulties identified, parents and or adolescents present an appropriate intervention straight to the difficulties identified; able to identify constraints and presents concrete strategies to reduce/avoid complications; 2 - Difficulties identified; parents and/or adolescents present

undefined intervention straight to those difficulties; they might identify the inherent difficulties but do not know how the decrease/avoid them; they do not find possible solutions for resolving difficulties or do not materialize what they propose; 3 – Difficulties identified; parents and/or adolescents do not present any intervention addressed to the identified problems; they do not identify difficulties that might aggravate the present situation; 4 – Difficulties identified; parents and/or adolescents present maladaptative strategy(ies) to deal with the difficulties identified or do not consider the identified problem(s) as relevant issues, do not know or do not want to solve the difficulty(ies) found, provides solutions that possibly worsen the problem(s) or "magic solutions"; 5 – Parents and adolescents deny/omit/ignore the(s) difficulty(ies), there are concrete and authoritative references (informants, official documents, records, etc.) about existing problems in this domain.

The SIFAR protective factors are family involvement, low parental stress, low physical punishment and high discipline, coded as dichotomic items (0 – absent; 1 – present), assessed through the interview analysis and other information sources.

The YLS/CMI (Hoge, Andrews, & Leschied, 2002) is a fourth-generation risk assessment structured instrument designed in actuarial assumptions, that assesses static, dynamic, management risk and protective factors, establishing a quantitative estimate for both general and violent offending, designing the intervention plan and its monitoring. Based in the risk, need and responsivity principles, the YLS/CMI major risk/needs assessment factors are divided in proximal (history of conduct disorder, antisocial attitudes, values and beliefs, dysfunctional parenting, dysfunctional behavior and personality traits, poor school/vocational achievement, antisocial peer associations and poor use of leisure) and distal factors (indirect but relevant influence in the proximal factors: criminal/psychiatric problems in family of origin, family financial problems, poor accommodations and negative neighborhood environments); both these factors are the ones which present the highest association with

juvenile criminal conduct (Hoge, 2010). The YLS/CMI also assesses the protective or strengths factors as responsivity factors, that is, as individual/contextual features that may facilitate the intervention (Hoge, 2010). In YLS/CMI the family context it is assessed as a dynamic factor through six items: parental supervision, difficulties in behavior control, discipline, inconsistent parental practices, negative relation with mother and/or father. The family protective factors assessed are the stable and cohesive family, parent support and care, support and care from other adults, adolescent attached to mother or other adult positive model, adequate parent supervision, adequate family economic status, adequate and attractive family relational environment (Andrews & Bonta, 2012; Hoge, 2010).

Statistical analysis

The study was composed by a set descriptive analyses, interrater reliability, convergent validity and the Partial Least Squares approach to Structural Equation Modeling (SEM), the PLS Path Modeling (PLS-PM; Lohmöller, 1989; Wold, 1982, 1985). The interrater reliability study was based in the Intraclass Correlation Coefficients (ICC), which critical values for single measures were defined by Fleiss (1986) as excellent (ICC $\geq$ .75), good (.60 $\leq$ ICC < .75) and moderate (.40 $\leq$ ICC < .60). The convergent validity with YLS/CMI was analyzed using the Pearson *r* correlation, with the association values of Cohen, (1998): .10, small; .30, moderate and .50 large. The SPSS 17.0 perform the three first analyses and the statistical software SmatPLS 2.0 (Ringle, Wende & Will, 2005) the SEM analysis.

The PLS-PM was used because it is recommended to validate exploratory models and prediction oriented research as this one (Henseler, Ringle, & Sinkovics, 2009). It can estimate very complex models, with many latent variables and handle with formative models, minimal demands on sample size, suitability to handle model complexity and the violation of multivariate normality (Bagozzi & Yi, 1994; Diamantopoulos, Riefler, & Roth, 2008; Henseler

et al, 2009). The current study uses a large and complex model involving many indicators and latent variables, and the formative model was used because the indicators of both risk assessment tools forms its dimensions/parameters (defined as latent constructs in our model), and it intent to understand the relation between the dimensions of both tolls and with the risk level measure of YLS/CMI. The assessment of the measurement model was based in the nomological validity, external validity by the variance of the error, the significance of weights and the multicollinearity by the variance inflation factor (VIF; Diamantopoulos et al, 2008; Henseler et al, 2009). The structural model was assessed by the R^2 of endougenous variables (.67 – substantial; .33 – moderate; .19 weak; Henseler et al, 2009) the sign, magnitude and significance of the estimated values (bootstrapping procedure), the effect size (.02 - weak, .15 - medium and .35 – large; Henseler et al., 2009), and finally the prediction relevance with the blindfolding procedure (Diamantopoulos et al, 2009; Henseler et al, 2009).

Results

The structural reliability of SIFAR showed an internal consistency of .75 for the risk items and .79 for the protective factors. The Corrected Item Total Correlations for the risk and protective factors indicated acceptable strength between item ratings and total scores, and the Mean Inter-Item Correlations showed unidimensionality (Nunnaly & Bernstein, 1994) of SIFAR.

The descriptive analysis about SIFAR risk factors (table 1), shows that the higher means are presented by legal problems (M = 3.68, SD = .80, Mdn = 4.00, Mode = 4), parenting (M = 3.93, SD = .78, Mdn = 4.00, Mode = 4) and education (M = 2.28, SD = 1.19, Mdn = 2.00, Mode = 2). From all risk items only legal problems and parenting were never coded with zero (no difficulties found), and social net was the only item which was never coded with level 5,

the most sever level. The SIFAR global value (M = 17.36, SD = 6.67, Mdn = 17.00, Mode = 14, Range = 34, min = 6, max = 40) was only used for research purposes.

Table 1 here

About the protective factors (table 2), the items high discipline (M = .19, SD = .39, Mdn =.00, Mode = 0), high family involvement (M = .18, SD = .38, Mdn = .00, Mode = 0) and low physical punishment (M = .16, SD = .37, Mdn = .00, Mode = 0) present the higher means. The protective total value was also only used for research purposes, showing very low frequencies (M = .62, SD = 1.10, Mdn = 1.00, Mode = 0, Range = 4). From all sample only in 5 families were found the 4 protective factors simultaneously (n = 5, 3.8%).

Table 2 here

Interrater reliability

The inter-rater reliability analysis was based in 26 random cases from the original sample assessed by 3 independent forensic psychologists. It was assessed with the Intra-Class Correlation Coefficient (ICC) using the two-way random effect variance model and consistency type. It shows excellent intraclass correlation for single measures of risk items education, employment, dissonance, social net, social security and parenting. The risk items with lower interrater reliability are the poverty with moderate values (.50 to .74, $p < .001$), the legal problems from moderate (.55, $p < .001$) to excellent (.76, $p < .001$), and the housing/transport with an ICC from .54 (moderate, $p < .001$) until .89 (excellent, $p < .001$). Relatively of SIFAR total risk scores the ICC presents an excellent value between the three coders (over .90, $p < .001$) (table 3).

In respect with protective factors, high family involvement, high discipline and low physical punishment present good to excellent values (from .62 to .84, $p < .001$), and the low

parental stress present values from moderate to excellent (.42 to .78, p < .001). The ICC for total scores of protective factors present moderate (.64, $p < 001$) to excellent (.82, $p < .001$) values of reliability (table 3).

Table 3 here

Convergent Validity

The chosen of YLS/CMI tool to establish the concurrent validity was based in the fact that it is the official risk assessment tool of the Portuguese juvenile forensic services, fact why all practitioners present large experience with its design and concepts.

The convergent validity between SIFAR and YLS/CMI was based in the Pearson *r* correlation, looking for the association between both the corresponding items, using the SIFAR total measure only for this analysis and not as a purpose of its design.

Education and employment items present moderate positive correlation with YLS/CMI education/employment ($r = .33$ and $r = .23$, $p < .01$, respectively). The House/transport present only a small positive correlation with YLS/CMI peers relations ($r = .17$, $p < .01$). The legal problems item present small positive correlation with YLS/CMI family context ($r = .20$, $p < .01$) and peers relations ($r = .23$, $p < .01$). Dissonance presents only a small positive correlation with YLS/CMI peers relations ($r = .26$, $p < .01$), like social net with YLS/CMI attitudes/orientation ($r = .21$, $p < .01$). Poverty presents small positive correlations with YLS/CMI previous criminal behavior and family context (both $r = .20$, $p < .01$) and peers relations ($r = .29$, $p < .01$). Social security present positive small associations with YLS/CMI peers relations ($r = .27$, $p < .01$) and leisure ($r = .26$, $p < .01$). SIFAR parenting item presents a large positive correlation with YLS/CMI family context ($r = .61$, $p < .01$). Regarding the global values, SIFAR total value present moderate correlation with YLS/CMI previous criminal behavior ($r = 30$, $p < .01$), family context ($r = .40$, $p < .01$), peers relations ($r = .49$,

$p < .01$), substance abuse ($r = .30$, $p < .01$), leisure ($r = 34$, $p < .01$), attitudes/orientation ($r = 35$, $p < .01$) and global risk value ($r = .46$, $p < .01$) (table 4).

In respect with protective factors, correlations shows small to moderate negative coefficients between SIFAR protective and YLS/CMI risk items. Family involvement and discipline shows negative small correlation with YLS/CMI peers relations (both $r = -.26$, $p < .01$) and discipline with education/employment ($r = -.20$, $p < .01$). Low physical punishment presents small negative correlations with YLS/CMI education/employment ($r = -.21$, $p < .01$), substance abuse ($r = -.21$, $p < .01$), leisure ($r = -.20$, $p < .01$) and attitude/orientation ($r = -.23$, $p < .01$) and moderate with peers relations ($r = -.38$, $p < .01$). Low parental stress present low negative correlation with previous criminal behavior ($r = -.20$, $p < .01$), substance abuse ($r = -.26$, $p < .01$), leisure ($r = -.22$, $p < .01$) and attitudes orientation ($r = -.23$, $p < .01$), and moderate with peers relations ($r = 40$, $p < .01$). The SIFAR total protective factors shows small negative correlations with YLS/CMI global risk value ($r = -.22$, $p < .01$), education/employment ($r = -.22$, $p < .01$), and moderate negative correlation with peers relations ($r = -.37$, $p < .01$) (table 4).

Table 4 here

Partial Least Squares – Path Modeling

The PLS-PM (Ringle et al, 2005) was used to analyze the relation between SIFAR and YLS/CMI risk factors and its predictive capability with it the risk level, fact why the formative measures were used. The assessment of the measurement model was made by a item *purification process* (Diamantopoulos et al, 2008; Henseler et al, 2009), based on indicators which captures the meaning of a formatively-measured construct using the expert opinion, validating the formative indicators as relevant and according with theoretical rationale of risk and family assessment (Diamantopoulos et al, 2008; Henseler et al, 2009).

In the assessment of formative models Diamantopoulos et al (2008) and Henseler et al (2009) argue that internal consistency and construct validity are not meaningful once the formative model it is based in the assumption of error-free measures. Once reliability it is not meaningful, the validity assessment at the construct and indicator level becomes a fundamental issue (Henseler et al, 2009). To assess if the formative index presents the intended meaning of the construct the external validity it is calculated, which should be compared with the threshold of .80 considered the minimum value for external validity (Henseler et al, 2009). Table 5 presents the values of external validity of the constructs, where we can observe that the second order constructs *SIFARtotal* and *YLSRiskLevel* show adequate external validity, explaining respectively 83% of the variance of the SIFAR adolescent family risk and 99% the YLS/CMI adolescent risk level.

At the indicator level, the validity it is assessed by the level of significance for the formative index and the presence of multicollinearity (Henseler et al, 2009; Diamantopoulos et al, 2008). To obtain the significance of the formative index a bootstrapping procedure was made (Efron & Tibshirani, 1993) and the results are shown in table 6. For the cut point of 1.64 all the formative indicators show an adequate significance to the construct, forming and adequate formative index of the latent constructs. Calculating the VIF [D2], it shows ??? values of multicollinearity among the formative indicators (Henseler et al, 2009).

The structural model assessment, evidences that the coefficient of determination (R^2) of the endogenous variables (Figure 2) with weak values are SIFARDiscipline ($R^2 = .12$) and *YLS/CMIModerate* ($R^2 = .17$); the variables of the structural model with substantial values are *SIFARParenting* ($R^2 = .71$), *SIFARprotective* ($R^2 = .73$), *SIFARtotal* ($R^2 = .83$), *YLS/CMIBigFour* ($R^2 = .68$) and *YLS/CMIrisklevel* ($R^2 = .99$).

The path coefficients estimates (Figure 1) shows that the SIFAR protective factors present a positive sign in *SIFARparenting* latent variable and the risk items a negative sign,

meaning that the protective and risk family indicators have an inverse relation, also the positive path coefficient between *SIFARDiscipline* (protective factor) and *SIFARParenting*, shows the expected relations between the corresponding protective factors (the positive sign indicators of the index) and risk factors (the negative sign index indicators), meaning that these latent variables present an inverse relation according with the nomological net of risk and protective factors research (Andrews & Bonta, 2010; Farrington et al, 2008; Lodewijks et al, 2010; de Ruiter, & Nicholls, 2011; de Vogel, et al, 2011). There are a positive path coefficient between *SIFARSocial* and SIFARTotal, and this one and *YLSModerate* and *YLSBigFour*, which are the expected sign relation of the path coefficients between those latent variables. The magnitude of the path relationships are adequate being the smallest value .08 (between *SIFARTotal* and *YLSBigFour*) and the highest .85 (between SIFARParenting and SIFARProtective).

The nonparametric bootstrap procedure (Efron & Tibshirani, 1993) was used to create 130 bootstrap samples to provide the statistical significance for the coefficient of the index of the formative constructs (table 6) and the structural relationships (table 7), providing the significance of a Student's t-test of index and path relationships, showing that all exogenous variables in the model are determinants of the endogenous constructs ($t > 1.64$, $\infty = .05$).

The effect size (f^2), intents to analyze the predictor impact of a latent variable in other latent construct and it uses the Cohen (1988) reference values which are low (.02), medium (.15) and large (.35); The effect size of the predictor latent variable are shown in table 8.The latent constructs of YLS/CMI present all large effect sizes on YLS risk level, and in SIFAR only SIFARSocial present a large effect size on its global value, but there are also large effect sizes (of inverse relations) between its risk and protective items.

Table 8 here

The prediction relevance of the model it is based in the Stone-Geisser´s Q^2, measured by the *blindfolding* procedure (Henseler et al, 2009), and it intends to provide a prediction of the endogenous latent variable´s indicators, based in fitting and cross-validation. Its values should be above 0, meaning that the explanatory variables provide predictive relevance to the endogenous constructs (Diamantopoulos et al, 2008; Henseler et al, 2009). As we can see in table 9, all the latent variables in the model present $Q^2 > 0$, providing the prediction of the endogenous latent variables indicators.

Discussion

SIFAR it is a SPJ tool designed to assess the family risk and protective factors of adolescent offenders and the SIFAR coding it is based in the assessment of the family strategies to lead with the difficulties they are confronted with. SIFAR parenting and education items show the highest means in the risk items, reflecting the areas where families found the major difficulties in finding appropriate strategies to lead with obstacles, which seems to be according with family investigation in the forensic field (Jones, 2008; Loeber et al., 2008; Wasserman et al., 2004). In special, the fact that SIFARtotal present a moderate significative positive correlations with all YLS/CMI risk factors and the SIFAR parenting with YLS/CMI family context, peers relations and attitudes/orientation risk factors, reveals positive findings in external validity for SIFAR. The large association between SIFAR parenting and YLS/CMI family context reflects the major finding about convergent validity, reflecting the fact that families who found difficulties with adequate strategies to deal with their relations present evidently high problems in the family context items of YLS/CMI (parental supervision, difficulties in behavior control, discipline, inconsistent parental practices, negative relation with mother and/or father). This results also shows some discriminant validity between these tools, because assessing family strategies or the

presence/absence of risk indicators are different but complementary types of assessing family, what can be seen in the fact that only SIFAR parenting item present a large positive significative association ($r = .61$, $p < .01$), but the presence of low to moderate of the other associations between both risk items.

The SIFAR results about protective factors present in our study showed that the highest mean it is in the non-adolescent mother and the minor mean it is low parental stress, indicating the opposite frequency of presence of these protective factors. Relatively to the convergent validity of SIFAR protective factors with YLS/CMI risk factors, they show the expected significative negative correlations with YLS/CMI peers relations and education/employment, but no negative correlation with YLS/CMI family context and personality/behavior (only SIFAR low parental punishment and low parental stress present significative negative correlations with all YLS/CMI risk factors except family context and personality/behavior). If relatively to the YLS/CMI peers relations, education/employment and personality/behavior risk factors it doesn´t be problematic once these are not considered family risk factors on YLS/CMI, we cannot say the same about the inexistent but expected negative correlation with the YLS/CMI family context. Even if all SIFAR protective factors present a low to moderate negative correlation with YLS/CMI total risk value, the inexistence of a clear negative correlation between SIFAR protective factors and the family context of YLS/CMI seems to show the discriminant validity between both tools. In fact, the only shared antagonic relation between risk and protective factors are the family discipline (assessed as protective in SIFAR and risk in YLS/CMI), no other SIFAR protective factor from the tool coding assesses the same YLS/CMI items, reinforcing the complementary perspective between both tools in family risk assessment items.

The inter-rater reliability with ICC for the three independent coders showed good values of agreement between raters. The use of ICC between coders it is important for the reliability

studies, in particular when the analysis of risk it is based in multiple information sources. This strategy of coding it is not different of other risk tools like YLS/CMI and the results on ICC coefficients allow assuming that the outcomes of SIFAR are not determinate by chance.

The structural model which emerges from PLS-PM was used to modelate the complex multivariable relationships between observed and latent variables (Henseler et al, 2009; Diamantopoulos et al, 2008), of both risk assessment tools SIFAR and YLS/CMI, understanding how SIFAR items constitute determinants of the risk assessment measured by YLS/CMI. Other variables of SIFAR risk assessment were initially in the model (physical health and education) but due the purification process, these two variables were dropped. The structural model shows that higher family difficulties to deal with adverse social conditions like employment difficulties, housing/transportation problems, poverty, social security assessment/support and social/ethnic dissonance, it determinates low levels of parenting discipline (β = -.353; f^2= .14) in sons education. Both conditions seem to be determinants of parenting difficulties in finding adequate strategies to deal with their adolescent sons, with higher predictibility from SIFARDiscipline (β= .637; f^2= 0.97) than SIFARSocial (β= .375; f^2= 0.11). these results shows that families with higher social difficulties present low discipline and both factors determinate higher parenting difficulties, in special these parents present more difficulties in finding adequate strategies to deal with parenting, mental health needs, family violence, social net difficulties and legal problems, and less parenting protective factors (that is, higher physical punishment, higher parental stress, less involvement in family activities, major probability to have a non-adolescent mother and less parent supervision). These parenting difficulties are determinants of the SIFAR protective factors total value (β= .853; f^2= 2.63; total values were only used for research purposes). The latent variable parenting relates with the protective total values in a inverse order what seems to be according with risk and protective factors assessment (Andrews & Bonta, 2010;

Farrington et al, 2008; Lodewijks et al, 2010; de Ruiter, & Nicholls, 2011; de Vogel, et al, 2011). All the variables that constitute the SIFAR tool are related with its global value (SIFARSocial β= .83, f^2= 3.27; SIFARParenting β= -.34 f^2= .13; SIFARProtective β= .33, f^2= .02), meaning that the risk and protective factors of this tool are all, with different effect sizes and the expected signs, determinants of its SIFAR total value, being SIFAR social the latent construct clearly with the higher effect.

About the relation between both tolls, the SIFARParenting construct, based in risk (indicators with negative signals) and protective items (indicators with positive signals), and SIFARTotal value are determinants of YLS/CMIFamily construct explaining about 17% of its variance (R^2 = .17). The relations between these variables shows that SIFAR protective factors are negative determinants and SIFAR risk factors are positive determinants of YLS/CMI family context dimension, explaining about 17% of its variance. The null effect of SIFARTotal (β= .08, f^2= .00) and large effect of YLSModerate (β= .79, f^2= 1.63) shows that YLSModerate construct it is a determinant of YLSBigFour, explaining the .68% of its variance; both YLS/CMI moderate and big four factors explain about 99% of its risk level (YLSBigFour β= .59, f^2= 5.84; YLSModerate β= .45 f^2= 9.00). This results show that SIFARTotal and SIFARParenting present low levels of determination of the YLS/CMI factors, being the higher value of determination between the SIFAR total and SIFAR parenting with the YLSModerate, where the family context and other than individual indicators are present, what seems to contribute for both convergent validity between both tool in respect to family and social conditions, and at the same time, the discriminant validity with SIFAR items and the YLSBigFour, the one which are related with individual conditions and the peers relations.

The SIFAR behave as predicted, it is a family assessment tool to be used in complement of structured risk assessment tools like YLS/CMI, helping to explain not the mere presence or

absence of family conditions, but the family strategies to deal with several conditions whose presence of difficulties might constitute risk conditions for youngsters (Jones, 2008; Loeber et al., 2008; Wasserman et al., 2004). Of course we can consider the YLS/CMI family context items like parental supervision and discipline as strategies that parents present to deal with their youngsters and the negative relation with mother and/or father just as difficulties in behavior control and inconsistent parental practices as results of these strategies. However the major differences between both tools are centered in the fact that SIFAR it is designed to assess several family conditions that are present in a large proportion of the families of adolescent offenders (Farrington, 2004; Jones, 2008; Loeber et al., 2008; Wasserman et al., 2004), the interrelation between these family areas and parenting/family difficulties (Pakman, 2007) and the recursivity between these difficulties and the strategies that families find to solve it (Madsen, 2007; Pakman, 2007).

Conclusion

In this article we analyzed the validation of SIFAR through the ICC, convergent and prectictibiliy validity. SIFAR it is divided into adolescents and parents complementary forms, analyzing multiple and complex information concerning the family system, taking advantage of relevant but usually scattered data. SIFAR requires a complementary use with actuarial tools, allowing the focus in both the individual and family risk factors, crossing family and individual variables, to the understanding of the criminogenic needs underlying the adolescent anti-social behavior and the designing of intervention plans. These join of tools and methods between the family assessment, individual features and other risk factors could provide a more integrative and structured risk assessment of adolescent offenders, especially because of the relevance of family in adolescence life stage. The coding of SIFAR in a strategy which brings to the assessment and intervention the family strategies to deal with the

difficulties that might work as risk or protective factors, allows the practitioner to understand how the family functioning it is relevant to the criminal behavior of the adolescent and how it can be worked to increase the protective factors and decrease the family risk factors involved.

Considering the limitations of this study (its exploratory design, the use of a convenience sample) difficult the generalization of the results, the fact that this is a sample of families of adolescent males in custody and the results should be understood in this specific context. The results are promising and the long process of validation of a family tool will continue with clinical samples, conformity family samples and with the female adolescent's offenders.

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Table 1. Descriptives of SIFAR´s risk factors (*N* = 130, paired sample).

	Mean	Median	Mode	Std Dev	Variance	Range
Education	2.28	2.00	2	1.19	1.41	5
Employment	1.35	1.00	0	1.50	2.24	5
Housing	1.22	.50	0	1.45	2.10	5
Legal problems	3.68	4.00	4	.80	.66	4
Dissonance	.45	.00	0	1.05	1.10	5
Poverty	1.80	2.00	0	1.53	2.35	5
Social net	.67	.00	0	1.28	1.65	5
Social Security	1.91	2.00	0	1.80	3.25	5
Parenting	3.93	4.00	4	.78	.60	4
SIFARtotal	17.36	17.00	14	6.67	44.45	34

Table 2. Descriptives of SIFAR´s protective factors (*N* = 130, paired sample).

	Mean	Median	Mode	Std Dev	Variance	Range
High Discipline	.19	.00	0	.39	.15	1
High Family involve.	.18	.00	0	.38	.15	1
Low Phys. Punishment	.16	.00	0	.37	.13	1
Low Parental Stress	.08	.00	0	.27	.08	1
Protective total	.62	.00	0	1.10	1.22	4

Table 3. Inter-rater reliability by Intraclass Correlation Coefficient (n = 26).

	Rater A Rater B	Rater B Rater C	Rater A Rater C
SIFAR risk items			
Education	.89	.88	.94
Employment	.91	.92	.93
Housing/transport	.89	.61	.54
Legal Problems	.76	.64	.55
Dissonance	.91	.87	.98
Poverty	.57	.74	.50
Social net	.94	.93	.95
Social security	.95	.95	.95
Parenting	.77	.75	.77
Global values	.91	.94	.91
SIFAR protective			
Family involvement	.72	.69	.81
High discipline	.81	.81	.62
Physical Punishment	.84	.64	.78
Low parental stress	.65	.78	.42
Global values	.79	.82	.64

Table 4. Correlation matrix between SIFAR and YLS/CMI (Pearson *r*, 2-tailed).

	YLS/CMI								
SIFAR	PCB	FC	EE	PR	SA	L	PB	AO	GRL
Education	.22*	.07	.33**	.42**	.21*	.25*	.22*	.29**	.35**
Employment	.20*	.18*	.23**	.26**	.11	.19*	.07	.21**	.26**
House/transp.	.04	.10	.06	.17*	-.03	.11	-.04	.07	.07
Legal problems	.10	.20**	.19*	.23**	.01	.14	.14	.15	.22*
Dissonance	.12	.13	.14	.26**	-.02	.14	.07	.17	.18*
Poverty	.20*	.20*	.18*	.29**	.16	.09	.09	.22*	.25**
Social net	.10	.11	.02	.13	.12	.17	.09	.21*	.16
Social security	.11	.13	.19*	.27**	.17	.26**	.07	.08	.22*
Parenting	.18*	.61**	.13	.17	.09	.00	.13	.21*	.25**
SIFARtotal	.30**	.40**	.28**	.49**	.30**	.34**	.22*	.35**	.46**
Family Involv.	-.13	-.06	-.19*	-.26**	-.10	.00	-.03	-.11	-.16
Discipline	-.06	-.04	-.20*	-.26**	-.13	-.01	-.05	-.09	-.15
Punishment	-.19*	.01	-.21*	-.38**	-21*	-.20*	-.11	-.23**	-.27**
Parental stress	-.20*	.04	-.34**	-.40**	-.26**	-.22*	-.08	-.23**	-.30**
Protective total	-.13	-.03	-.22*	-.37**	-.19*	-.15	-.03	-.15	-.22**

*Correlation is significant at the .05 (2-tailed); **Correlation is significant at the .01 (2-tailed). PCB – Previous criminal behavior; FC – Family context; EE - Education and employment; PR - Peers relations; SA – Substance Abuse; L – Leisure; PB – Personality/behavior; AO – Attitude/orientation; GRL – Global risk level.

Table 5. External validity *Var(v)*.

		R^2	*Rel ζ*	*Var(v)*
SIFAR	Discipline	.12	.12	.12
	Parenting	.71	.67	.75
	Protective	.72	.72	.72
	SIFARtotal	.83	.83	.83
YLS	YLS/CMIModerate	.17	.17	.16
	YLS/CMIBigFour	.67	.65	.69
	YLS/CMIRiskLevel	.92	.92	.92

Table 6. Level of significance for the formative index, bootstrapped mean, standard deviation, standard error and *t*-values ($t > 1.64$, $\infty = .05$).

Outer model	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T Statistics |O/STERR|
Attitudes->YLSBigFour	.34	.33	.06	.06	5.07
Behavior->YLSBigFour	.36	.35	.06	.06	5.94
PeersRelations->YLSBigFour	.38	.38	.06	.06	6.29
PreviousCrime->YLSBigFour	.16	.17	.05	.05	3.24
Education->YLSModerate	.59	.57	.08	.08	6.79
FamilyContext->YLSModerate	.23	.24	.07	.07	3.08
Leisure->YLSModerate	.23	.22	.08	.08	2.74
SubstanceAbuse->YLSModerate	.27	.28	.08	.08	3.10
Dissonance->SIFARSocial	.22	.21	.05	.05	4.50
Employment->SIFARSocial	.29	.27	.07	.07	4.08
Housing->SIFARSocial	.13	.14	.06	.06	2.04
Poverty->SIFARSocial	.33	.33	.05	.05	6.00
SocialSecurity->SIFARSocial	.35	.35	.06	.06	6.03
SubstanceAbuse->SIFARSocial	.31	.31	.05	.05	5.74
FamilyInvolv.-> SIFARParenting	.51	.49	.07	.07	7.14
LegalProblems->SIFARParenting	-.09	-.08	.05	.05	1.84
LowPunishment->SIFARParenting	.12	.12	.04	.04	2.92
LowStress->SIFARParenting	.28	.27	.06	.06	4.89
MentalHealth->SIFARParenting	-.11	-.11	.05	.05	2.13

NonAdolescent->SIFARParenting	.29	.29	.06	.06	5.22
Parenting->SIFARParenting	-.19	-.19	.05	.05	3.82
SocialNet->SIFARParenting	-.12	-.13	.05	.05	2.71
Supervision->SIFARParenting	.20	.20	.04	.04	4.59
Violence ->SIFARParenting	-.16	-.16	.05	.05	3.20

Table 7. SEM standardised path coefficient estimates, bootstrapped mean, standard deviation, standard error and t-values of the endogenous constructs ($t > 1.64$, $\infty = .05$).

Structural Relationship	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T Statistics |O/STERR|
YLSBigFour->YLS	.59	.59	.01	.01	35.46
YLSModerate->YLS	.91	.92	.01	.01	23.29
YLSModerate->YLSBigFour	.79	.80	.03	.03	24.89
SIFARDiscipline->SIFARParent.	.63	.62	.09	.09	7.72
SIFARParenting->SIFARProtective	.85	.85	.03	.03	28.09
SIFARParenting->SIFARTotal	-.05	-.05	.06	.06	3.85
SIFARParenting->YLSModerate	-.22	-.25	.10	.10	1.75
SIFARProtective->SIFARTotal	.32	.32	.07	.07	4.46
SIFARTotal -> YLSModerate	.25	.24	.10	.10	2.51
SIFARSocial->SIFARDiscipline	-.35	-.36	.06	.06	5.62
SIFARSocial->SIFARParenting	-.59	-.62	.06	.06	4.84
SIFARSocial->SIFARTotal	.86	.86	.02	.02	19.42

Table 8. Effect sizes (f^2) of predictor latent variables.

Latent variable	f^2	*Effects*
SIFARSocial → SIFARParenting	.11	weak
SIFARSocial → SIFARDiscipline	.14	weak
SIFARSocial → SIFARTotal	3.27	large
SIFARDiscipline →SIFARParenting	.97	large
SIFARParenting → SIFARProtective	2.63	large
SIFARParenting → YLSModerate	.10	weak
SIFARParenting → SIFARTotal	.13	weak
SIFARProtective → SIFARTotal	.02	weak
SIFARTotal → YLSModerate	.10	weak
SIFARTotal → YLSBigFour	.00	null effect
YLSModerate → YLSBigFour	1.63	large
YLSModerate → YLS	5.84	large
YLSBigFour → YLS	9.00	large

Table 9. Prediction relevance based in construct cross-validated redundancy.

	SSO	SSE	Q^2 1-SSE/SSO
YLSModerate	83.63	76.96	.08
YLSBigFour	76.42	40.21	.47
YLS	16.22	.35	.97
SIFARprotective	11.48	7.20	.37
SIFARdiscipline	12.44	8.12	.35
SIFARparenting	180.40	158.63	.12
SIFARtotal	21.59	2.19	.90

Figure 1. Path diagram of the SEM model.