Health Promotion International, Vol. 31 No. 1
doi:10.1093/heapro/dau062
Advance Access published 8 August, 2014

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# Psychometric properties of the Iranian version of 'Communities That Care Youth Survey'

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## SUMMARY

*This article investigated the psychometric properties of 'Communities That Care Youth Survey' (CTC-YS) among Iranian adolescents. To prepare the CTC-YS for administration in Iran, it was translated from English to Persian and back translated to English. A total of 753 Iranian adolescents aged 15–18 years old filled out a CTC-YS questionnaire. Its reliability for Iranian youth was assessed using Cronbach's alpha coefficient and its construct validity was assessed using confirmatory factor analysis. After removing two items from individual/peer and community domains, a suitable internal reliability was found among items of the 29 sub-scales (0.66–0.89). The findings of construct validity suggest that existing measures of risk and protective factors have good construct validity. The validity and reliability of CTC-YS showed that this questionnaire has appropriate psychometric characteristics and can be made available to researchers in Iranian adolescent health as an appropriate tool for future research.*

*Key words*: communities that care youth survey; psychometrics properties; Iranian adolescents

## INTRODUCTION

Problem behaviors are an important factor in adolescent morbidity and mortality worldwide. Preventing problem behaviors reduces morbidity burden in adolescence and problems prevented in adolescent can reduce morbidity in adulthood (Catalano *et al.*, 2012). Prevention science suggests that preventive interventions should be based on changing predictors of adolescent problem behaviors, reducing risk factors and enhancing protective factors (Hawkins *et al.*, 1992; Coie *et al.*, 1993). To this end, the risk and protective factors associated with these behaviors must be identified and measured, then interventions based on addressing predictors of adolescent problem behaviors may be planned. This requires a suitable comprehensive measuring tool for both risk and protective factors at personal and environmental levels, which is convenient, valid and reliable (Sameroff and Gutman, 2004).



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Inclusion of all risk and protective factors in a single study is a huge undertaking, and for this reason, many researchers recommend that theoretical models be used to study adolescents' high-risk behaviors (Yi *et al.*, 2010). One of these functional models is a 'social development model' (Hawkins and Weis, 1985; Catalano and Hawkins, 1996; Cohen, 2003) that merges social learning, control theory and differential association theories (Hawkins *et al.*, 1992; Catalano and Hawkins, 1996; Cohen, 2003) and incorporates empirical findings regarding risk and protective factors into a general theory of high-risk behaviors. The social development model is a developmental theory, with four sub-models across childhood and adolescence suggesting that individual and environmental (peer, family, school and community) levels vary across development. Research has demonstrated that this model has the power for explaining various adolescent problem behaviors (Catalano and Hawkins, 1996; Herrenkohl *et al.*, 2001; Fleming *et al.*, 2002; Choi *et al.*, 2005).

Communities That Care Prevention (CTC) System is an operating system that incorporates elements of the social development model. Relying on a variety of disciplines, including public health, sociology, psychology, criminology and community psychology, the CTC system has identified the predictors of youth problem behaviors and provided an epidemiologic assessment tool to measure them. 'Communities That Care Youth Survey' (Arthur *et al.*, 2002) is a CTC assessment tool that enables communities to identify specific risk and protective profiles and then to select evidence-based prevention programs and policies that reduce risk factors and enhance protective factors. CTC-YS, which is an efficient measure of many empirically identified risk and protective factors, has demonstrated reliability and validity in the USA, Australia and the Netherlands (Arthur *et al.*, 2002; Beyers *et al.*, 2004; Glaser *et al.*, 2005). CTC-YS is unique due to its extensive assessment of risk and protective factors, as well as its theoretical basis. The strength of this questionnaire is applicable to a wide adolescent age range (11–18 years) and assessment of numerous sub-scales within the four domains of individual/peer, family, school and community, alongside health consequences (Flynn, 2008). Despite many studies in developed countries, few psychometric studies on CTC-YS have also been conducted in developing countries. Morojele *et al.* (Morojele *et al.*, 2002) examined reliability of sub-scales of CTC questionnaire in a study on African adolescents and found it appropriate for use on high school students in South Africa with a modest modification. Another study that assessed construct validity of this questionnaire is of Maguire *et al.* (Maguire *et al.*, 2011) in which the construct validity of seven factors in a community domain was assessed in 2500 adolescents in Trinidad and Tobago. Their results found a weak construct validity of community sub-scales, and researchers emphasized the need for designing a questionnaire based on their cultural and community characteristics (Maguire *et al.*, 2011).

In Iran, the issue of adolescent and youths' health is a research priority, and many studies have been conducted with the aim to design preventive programs and interventions (Kelishadi *et al.*, 2006; Allahverdipour *et al.*, 2007a,b; Rahmani *et al.*, 2007; Niknami *et al.*, 2008; Rezaei *et al.*, 2011; Geramian *et al.*, 2012; Habib *et al.*, 2012; Mohammadpoorasl *et al.*, 2012). However, so far, no comprehensive study has been carried out including both risk and protective factors associated with adolescent problem behaviors at various personal and environmental levels in Iran. It is vital to identify needs, prioritize preventive actions and plan targeted interventions in countries with limited resources and primarily young population. Therefore, the present methodological study aims to translate and validate CTC-YS questionnaire to assess its applicability in the Iranian society before use.

## METHODS

This article is a part of a larger mixed-methods study as a PhD thesis that was funded and supported by Tehran University of Medical Science.

### Participants

The data were collected through a population-based sample in a cross-sectional study. The sample was drawn through a cluster sampling method across Tehran, Iran. In this method, each household was considered as a cluster. First, Tehran was divided into five geographical regions (North, South, East, West and Center) and sampling was carried out according to the number of neighborhoods located in these five regions and households in each neighborhood. To calculate the number of clusters, the number

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of households living in each region was divided by the total number of households, and that was multiplied by the correspondent number of samples. Thus, the number of clusters in each district was obtained. Based on the number of neighborhoods, one neighborhood was selected as cluster heads randomly. Ten households were selected from the cluster heads via systematic sampling, and all of the adolescents in the households were interviewed. Due to high sensitivity of the issues raised in the questionnaire, the questioners and the participants were chosen to have the same sex, and verbal consent was obtained from adolescents and their families. The questionnaire was completed in self-reporting style, supervised by the researcher, in the absence of family members and others. Participants in this study were 753 Iranian adolescents aged 15–18 years who voluntarily completed the CTC questionnaire in autumn 2012. The total response rate was 78.7%. Table 1 summarizes the sample characteristics. The ethics committee of Tehran University of Medical Science approved the protocol of the study. Participants were assured of confidentiality and were told they could withdraw whenever they wished.

## Measurement

The CTC-YS questionnaire was used in this study, and the following concepts were added to it from the Australian version: sexual activity, depressive symptoms, self-esteem and parent's substance abuse. The Australian version of the 'Communities That Care Youth Survey' was produced with the aim of cultural adaptation to the original survey with Australian youth and to broaden the scope of behaviors assessed, including measures of depressive symptoms, sexual activity, victimization, physical activity and healthy eating (Bond *et al.*, 2000).

**Table 1:** Demographic characteristics of the sample

| Variable | Number | Percentage |
|---|---|---|
| Age (years) | | |
| 15 | 183 | 24.4 |
| 16 | 202 | 26.9 |
| 17 | 174 | 23.2 |
| 18 | 191 | 25.5 |
| Gender | | |
| Male | 419 | 44.1 |
| Female | 330 | 55.9 |
| Ethnic distribution | | |
| Fars | 682 | 94.2 |
| Turk | 21 | 2.9 |
| Gilak | 9 | 1.2 |
| Arab | 6 | 0.8 |
| Lor | 5 | 0.7 |

Having gained permission to translate CTC questionnaire into Persian language, translation was carried out simultaneously by two linguists (English–Persian translation experts) using a forward–backward translation method based on the International Quality of Life Assessment steps (Keller *et al.*, 1998). Care was taken to translate words and phrases of the questionnaire in such a way that would convey the conceptual meaning to 15–18 years age group. Then, the two independent translations were combined (by an expert) to form a single translation. With a careful review of this version by an expert in instrument design and an expert in youth health, irrelevant themes and phrases to the Iranian society were modified or deleted including the replacement of addictive substances mentioned in the original version by those commonly used in Iran such as 'Snuff, NAS and Cannabis' and substituting 'carrying gun' with 'knife, brass knuckles and the like' (due to legal restrictions on guns in Iran). Also, Likert scale was changed for some of the items, and instead of 'YES, yes, no, NO' answers 'Always, Often, Rarely, Never' were used.

In the next step, the final Persian version was translated back into English by two translators (one Persian speaking fluent in English and another English speaking fluent in Persian). To ensure conceptual uniformity and synonymity of the words and phrases, the English version was compared with the original, and with the consent of two translators, the final English version was made ready. The last step was spelling and grammar corrections of the Persian version. It was then issued to five university lecturers of diverse specialties of health, instrumentation and psychology for assessment and re-edition.

At this stage, a cognitive pretest was conducted on 20 young boys and girls from the south and north of Tehran. The main purpose of this cognitive pretest was to assess the Cronbach's alpha as an indicator of compatibility of items that make up a structure and prerequisite of factor analysis. Moreover, comprehension of participants and their interpretation of questionnaire phrases were examined. Adolescents were

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requested to identify obscure or ambiguous sentences, and to express in their own words, the first thing that came to their mind after reading sentences. The time allocated to complete the questionnaire was 35–40 min. The results of the cognitive pretest lead to modification of a number of items, for example, the word 'grades' instead of 'average', 'religious activities' instead of 'religious duties' or 'mad' instead of 'angry'.

These modifications were implemented with the aim to make the questionnaire more easily understandable, simplified and shorter. Ultimately, in terms of grammar, use of appropriate words and compatibility with Likert scale, the questionnaire received a final assessment and edits. The final version was compiled in 10 pages and 183 items, covering 22 risk factors and 13 protective factors in domains of individual/peers, family, school and community, and also behavioral problems including substance and alcohol abuse, sexual relationships and criminal behaviors.

### Analyses

First, to facilitate data analysis, items were divided into four groups, representing the four main domains, namely individual/peer, family, school and community.

Statistical analyses were performed by Mplus 6.12 (Muthén and Muthén, 2001) and SPSS 17 Statistical Analysis (SPSS, Inc., Chicago, IL, USA). The normal distribution of data was evaluated utilizing skewness and kurtosis measures. Absolute values $<1.5$ and 2 provide evidence of normal distribution of the scales (Munro, 2005). To obtain the missing value, a multiple imputation method was used by fully conditional specification Markov Chain Monte Carlo (MCMC) method which is suitable for data with an arbitrary pattern of missing values. To ensure homogeneity and stability of measurement of attributes or structures present in the questionnaire, inter-item reliability was examined. For this purpose, Cronbach's alpha, the indicator of compatibility of items that make up a structure, was used (Terwee *et al.*, 2003). The cut-off point of 0.6 was considered for determining the internal consistency of each sub-scale. An item would be eliminated if the value of Cronbach's alpha between items of a sub-scale was found to be $<0.6$, so that alpha could attain a desired value. To test the measure structure (to verify the construct validity) and the fitness of the measurement model, confirmatory factor analysis was fitted to data. To investigate model fitness, goodness-of-fit indices were used (Tinsley and Brown, 2000). The values $<0.08$ for root mean square error of approximation (RMSEA) and $>0.9$ for a Tucker–Lewis index (TLI) and comparative fit index (CFI) confirm the fitness of the model (Tinsley and Brown, 2000). The correlation matrix of data was considered as Mplus input. Correlations between 0.1 and 0.3, between 0.3 and 0.5 and $>0.5$ were considered as small, moderate and strong, respectively (Cohen, 1988). The estimation method was WLSMV (mean and variance-adjusted weighted least squares). Based on modification indices, the models were modified considering the cultural adoption of the relation added in the model or transferring an item from one sub-scale to another one. $p$-values $< 0.05$ were considered to be significant.

## RESULTS

First, the level of sincerity in answering the questions was evaluated through two criteria:

(1) Discrepancy in answering two types of questions: 'alcohol and substance abuse in the life time' and 'alcohol and substance abuse in last 30 days'.
(2) Confession of insincerity in answering questions by the participant. Adolescents were categorized as dishonest if they reported that they were not honest at all when filling out the survey.

Based on these two criteria, 1.8% of questionnaires were excluded from the analysis.

### Cronbach's alpha calculation

Internal reliability of all items for each sub-scale was determined through Cronbach's alpha calculation. Items were eliminated to increase the alpha coefficient of sub-scale items with very low alpha coefficient. By eliminating an item from 'rebelliousness' sub-scale (I'd love to know how much I can get away with), alpha coefficient of the remaining two items rose to 0.602, and by eliminating an item from 'low neighborhood attachment' sub-scale (I like to get out of my neighborhood), alpha coefficient of the remaining two items reached 0.641. However, alpha coefficient did not increase by eliminating sub-scales 'belief in moral order' (with Cronbach's alpha 0.423) and 'social skills' (with Cronbach's alpha 0.462). Ultimately, 29 sub-scales including

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13 in individual/peer domain, 7 in family, 3 in school and 6 in community domain had appropriate and acceptable inter-item reliability ranging from 0.666 to 0.892, among which the lowest alpha coefficient related to 'sensation seeking' sub-scale and the highest related to 'early initiation of problem behavior' sub-scale. The final Cronbach's alpha coefficients of the 29 sub-scales are presented in Table 2.

### Confirmatory factor analysis

Risk and protective scales of CTC-YS have been divided into four groups, representing the four main domains, namely peer/individual, family, school and community (Appendix). First, confirmatory factor analyses were run testing the hypothesized factor structures underlying the scales within each domain (Figures 1–4).

### Peer/individual domain

The initial model for the peer/individual domain consisted of nine risk and five protective factors. The items comprising the 'Early Initiation of Antisocial Behaviors' scale were excluded from the analysis, because participant's responses to these items are dependent on their age, since older adolescents have more response options than younger adolescents. Therefore, as Glaser *et al.* (Glaser *et al.*, 2005) mentioned, testing the fit of measurement models containing these items in a multi-age sample is not appropriate. Results of confirmatory factor analysis supported the goodness of fit of the initial model to the data (Table 3). All relationships between scales and items were statistically significant ($p < 0.001$ in all cases). Hence, the construct validity for the scales of measure was confirmed.

### Family domain

The initial model for the family domain consisted of five risk and three protective factors. The item 'Has anyone in your family ever had a severe alcohol or drug problem' on the 'family history of antisocial behaviors' scale was excluded from the analysis due to having two-option answers. Another reason of this excluding was the ambiguity in this item that participants have mentioned it during cognitive pretesting.

Results of confirmatory factor analysis did not completely support the goodness of fit of the initial model to the data. The problem concerned one item on the 'parental attitudes favorable toward drug use' scale, 'How wrong would your parents think—use drugs?'. When the above item was moved to the 'Parental attitudes favorable to antisocial behavior' scale, the resulting model provided a good fit to the data (Table 3). After this revision, all relationships between scales and items were statistically significant ($p < 0.001$ in all cases).

### School domain

The initial model for the school domain consisted of two risk and two protective factors. Results of confirmatory factor analysis supported the goodness of fit of the initial model to the data (Table 3). All relationships between scales and items were statistically significant ($p < 0.001$ in all cases). Hence, the construct validity for the scales of measure was confirmed.

### Community domain

The initial model for the community domain consisted of six risk and two protective factors. Items of 'which of the following activities in your community is available for people your age?' were excluded from the analysis due to having two-option answers. Also items comprising 'Transitions and Mobility' scale were omitted from the present analysis. These items refer to an individual's history and background, not community characteristics (Feinberg *et al.*, 2007). As a result, tested model contained four risk and two protective factors. Results of confirmatory factor analysis did not completely support the goodness of fit of the initial model to the data. We traced the problem's source to the 'Laws and Norms Favorable to Drug Use' scale. With splitting this scale into two scales, the revised model fits the data (Table 3). After this revision, all relationships between scales and items were statistically significant ($p < 0.001$ in all cases).

## DISCUSSION

The science of prevention has provided a wealth of information about preventive and risk factors associated with adolescent problem behaviors (Hawkins *et al.*, 1992; Catalano *et al.*, 2012). Prevention science suggests that identifying and then seeking to address predictors of adolescent problem behaviors has been a promising method

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**Table 2:** Cronbach's alpha of retained sub-scales of the CTC-YS

| Sub-scale | *N* of items | Cronbach's alpha | Sub-scale | *N* of items | Cronbach's alpha |
|---|---|---|---|---|---|
| Rebelliousness | 2 | 0.602 | Parental attitudes favorable toward drug use | 3 | 0.819 |
| Early initiation of problem behaviors | 7 | 0.719 | Parental attitudes favorable toward antisocial behavior | 3 | 0.791 |
| Favorable attitudes toward antisocial behavior | 5 | 0.892 | Attachment to parents | 4 | 0.830 |
| Favorable attitudes toward drug use | 3 | 0.852 | Opportunities for prosocial involvement | 3 | 0.727 |
| Sensation seeking | 3 | 0.616 | Rewards for prosocial involvement (family) | 4 | 0.791 |
| Religiosity | 2 | 0.748 | Low commitment to school | 7 | 0.791 |
| Perceived risks of drug use | 4 | 0.756 | Rewards for prosocial involvement (family) | 4 | 0.699 |
| Interaction with antisocial peers | 7 | 0.816 | Laws and norms favorable to drug use | 6 | 0.783 |
| Friends' use of drugs | 3 | 0.736 | Community disorganization | 5 | 0.748 |
| Rewards for antisocial involvement | 4 | 0.880 | Perceived availability of drugs and handguns | 4 | 0.843 |
| Intention to use | 3 | 0.680 | Opportunities for prosocial involvement (community) | 3 | 0.789 |
| Interaction with prosocial peers | 7 | 0.738 | Rewards for prosocial involvement (community) | 2 | 0.825 |
| Family history of antisocial behavior | 13 | 0.767 | Low neighborhood attachment | 2 | 0.641 |
| Poor family management | 8 | 0.791 | | | |

of preventing these problem behaviors. Prevention science research has been conducted primarily in higher income countries. However, there are important examples of these methods being applied in lower- and middle income countries (Catalano *et al.*, 2012). In countries like Iran, with limited resources and a large child and adolescent population, identifying risk and protective factors that predict problem behavior is even more important. Thus, it is necessary to have a suitable comprehensive measuring tool for both risk and protective factors at all levels, which is convenient, valid and reliable (Sameroff and Gutman, 2004).

The present methodological study has assessed CTC-YS psychometric characteristics on 15- to 18-year-old adolescents in Iran. During the process of translation and assessment of face and content validity, some modifications were made to the content and sentences of the questionnaire for simplicity, fluency and compliance with cultural and social norms. The resulting questionnaire entered the validation process with 35 sub-scales. Cronbach's alpha calculation results showed 29 sub-scales with appropriate and acceptable inter-item reliability.

This study provides a confirmatory test of the fit of the proposed measurement model for the risk and protective scales in each of the domains of peer/individual, family, school and community. The initial models of peer/individual and school domains adequately fit the data. Family and community domains have been revised based on rational principles. It is interesting that in this study as in Glaser *et al.* (Glaser *et al.*, 2005) and also in Maguire *et al.* (Maguire *et al.*, 2011), distinction of 'Law' from 'Norm' was made in 'Law and norm Favorable to Drug Use' scale, which naturally followed a rational basis, as the subject of 'how wrong do neighbors consider drug use by adolescents?' could be different from 'law dealing with adolescent drug use in the community'.

This study showed that CTC Youth Survey has reliable and valid measures of risk and protective factors in Iran. Each specific risk and protective factors were separated from each other within each domain and correlated in the expected directions. Thus, CTC risk and protective factors have good convergent and discriminant validity among 15- to 18-year Iranian adolescents.

Iranian researchers can use CTC Youth Survey for measuring multiple risk and protective factors as well as youth problem behaviors. Prioritizing areas for action in the field of

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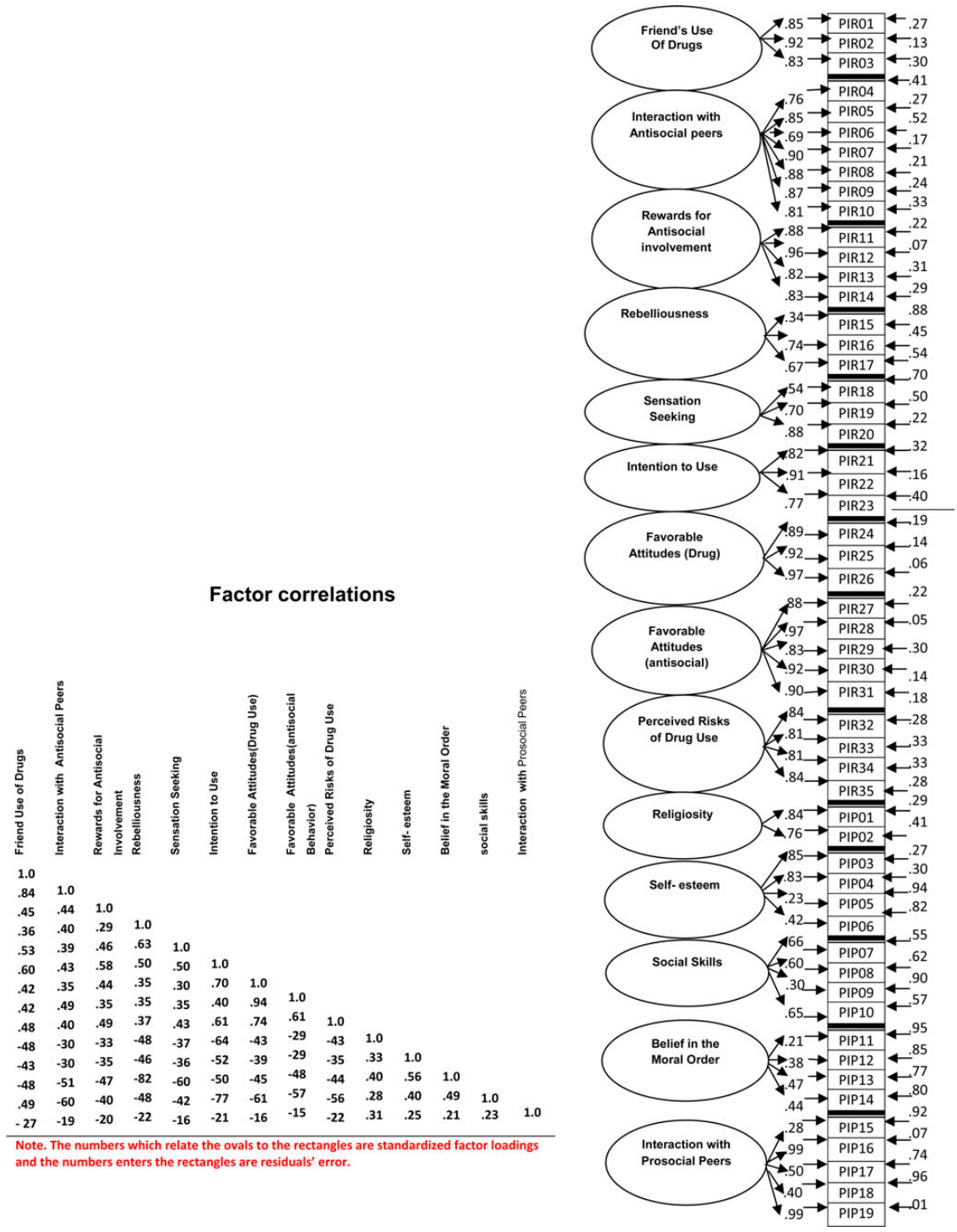


**Factor correlations**

| | Friend Use of Drugs | Interaction with Antisocial Peers | Rewards for Antisocial Involvement | Rebelliousness | Sensation Seeking | Intention to Use | Favorable Attitudes(Drug Use) | Favorable Attitudes(antisocial Behavior) | Perceived Risks of Drug Use | Religiosity | Self- esteem | Belief in the Moral Order | social skills | Interaction with Prosocial Peers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Friend Use of Drugs | 1.0 | | | | | | | | | | | | | |
| Interaction with Antisocial Peers | .84 | 1.0 | | | | | | | | | | | | |
| Rewards for Antisocial Involvement | .45 | .44 | 1.0 | | | | | | | | | | | |
| Rebelliousness | .36 | .40 | .29 | 1.0 | | | | | | | | | | |
| Sensation Seeking | .53 | .39 | .46 | .63 | 1.0 | | | | | | | | | |
| Intention to Use | .60 | .43 | .58 | .50 | .50 | 1.0 | | | | | | | | |
| Favorable Attitudes(Drug Use) | .42 | .35 | .44 | .35 | .30 | .70 | 1.0 | | | | | | | |
| Favorable Attitudes(antisocial Behavior) | .42 | .49 | .35 | .35 | .35 | .40 | .94 | 1.0 | | | | | | |
| Perceived Risks of Drug Use | .48 | .40 | .49 | .37 | .43 | .61 | .74 | .61 | 1.0 | | | | | |
| Religiosity | -.48 | -.30 | -.33 | -.48 | -.37 | -.64 | -.43 | -.29 | -.43 | 1.0 | | | | |
| Self- esteem | -.43 | -.30 | -.35 | -.46 | -.36 | -.52 | -.39 | -.29 | -.35 | .33 | 1.0 | | | |
| Belief in the Moral Order | -.48 | -.51 | -.47 | -.82 | -.60 | -.50 | -.45 | -.48 | -.44 | .40 | .56 | 1.0 | | |
| social skills | .49 | -.60 | -.40 | -.48 | -.42 | -.77 | -.61 | -.57 | -.56 | .28 | .40 | .49 | 1.0 | |
| Interaction with Prosocial Peers | - 27 | -.19 | -.20 | -.22 | -.16 | -.21 | -.16 | -.15 | -.22 | .31 | .25 | .21 | .23 | 1.0 |

Note. The numbers which relate the ovals to the rectangles are standardized factor loadings and the numbers enters the rectangles are residuals' error.

**Fig. 1:** Confirmatory factor model for the peer/individual domain.

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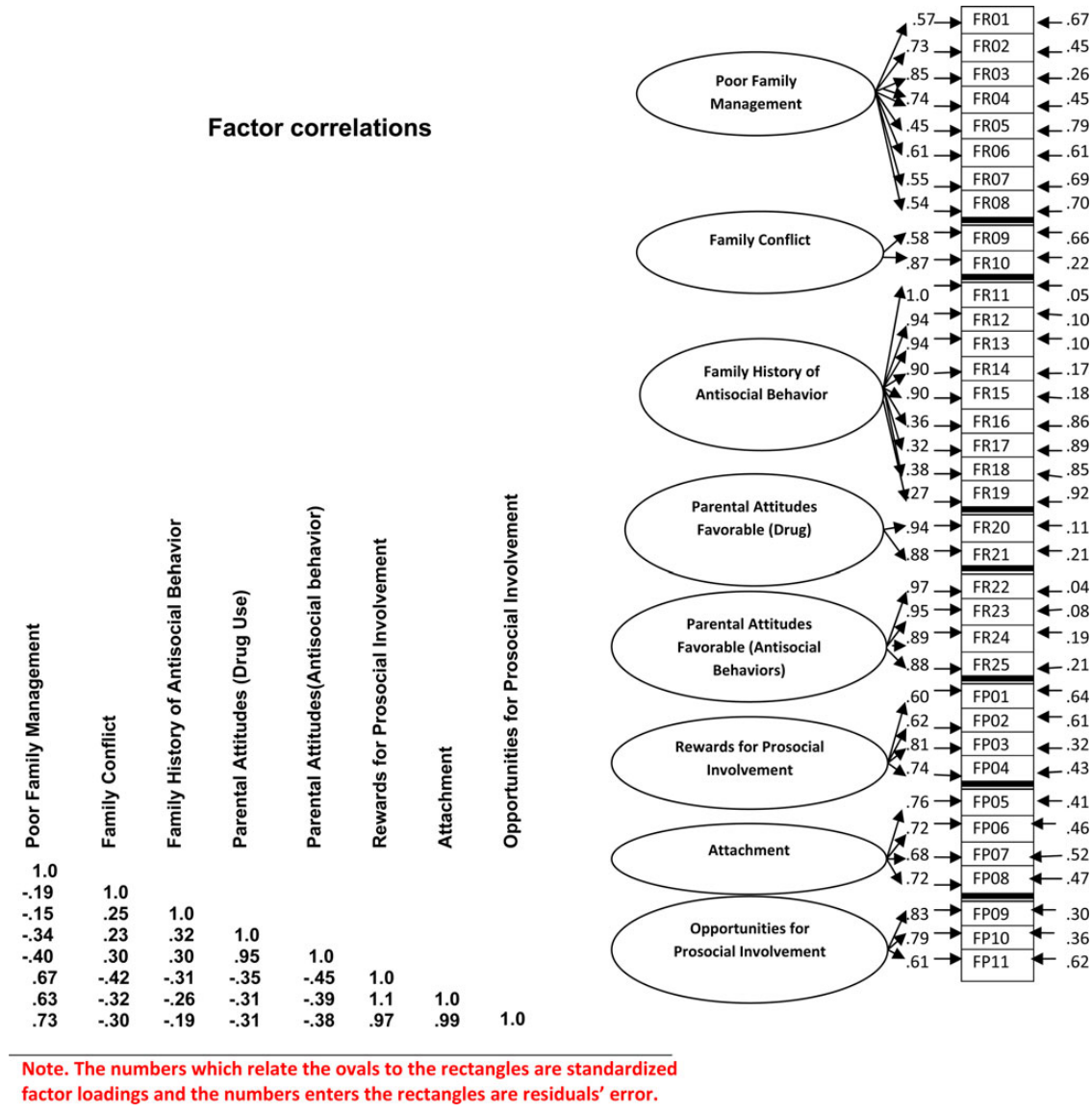


**Fig. 2:** Confirmatory factor model for the family domain.

adolescents' drug use and other problem behaviors is very critical in countries with limited resources; thus, policymakers can use this information to prioritize the community's preventive needs and select the effective prevention strategies. By doing this study, we confirm the theoretical framework of CTC measures, which was designed in the USA and validated in developed countries. Results of this research can contribute to the literature on the international measurement of risk and protective factors in communities.

In spite of designing CTC-YS for a broad range of 11–18 years, our study was limited to 15- to 18-year-old and 11- to 14-year-old adolescents who are probably more important from the standpoint of prevention, have not been considered. Thus, generalization of the findings to Iranian adolescents, in general, should be made with caution. Some modification such as changing the anchors to the response options due to language and cultural restrictions provide a limitation in the cross-national comparability of data based on this

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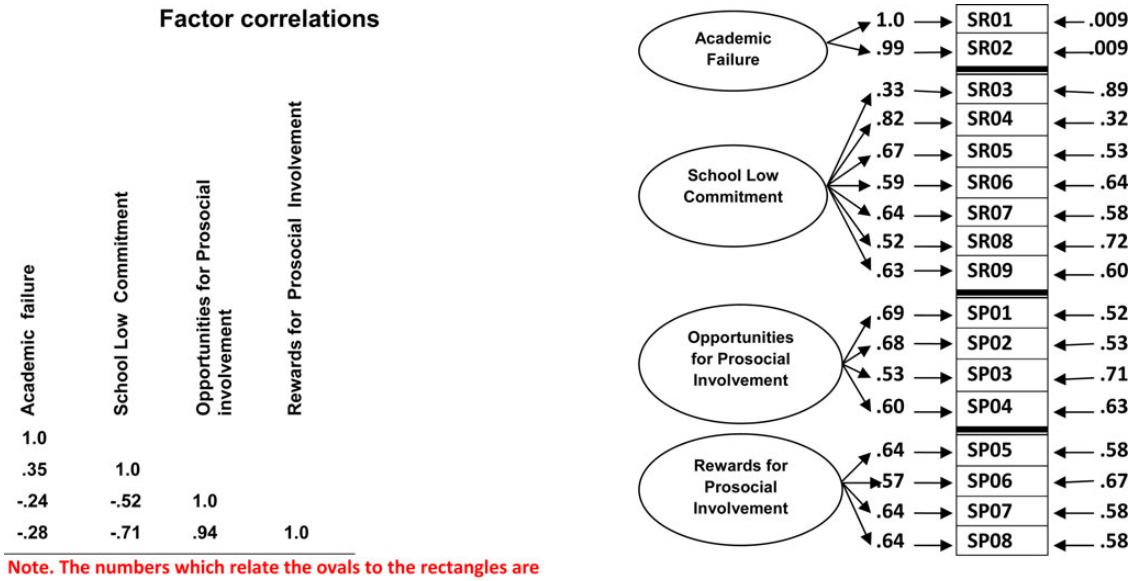


**Fig. 3:** Confirmatory factor model for the school domain.

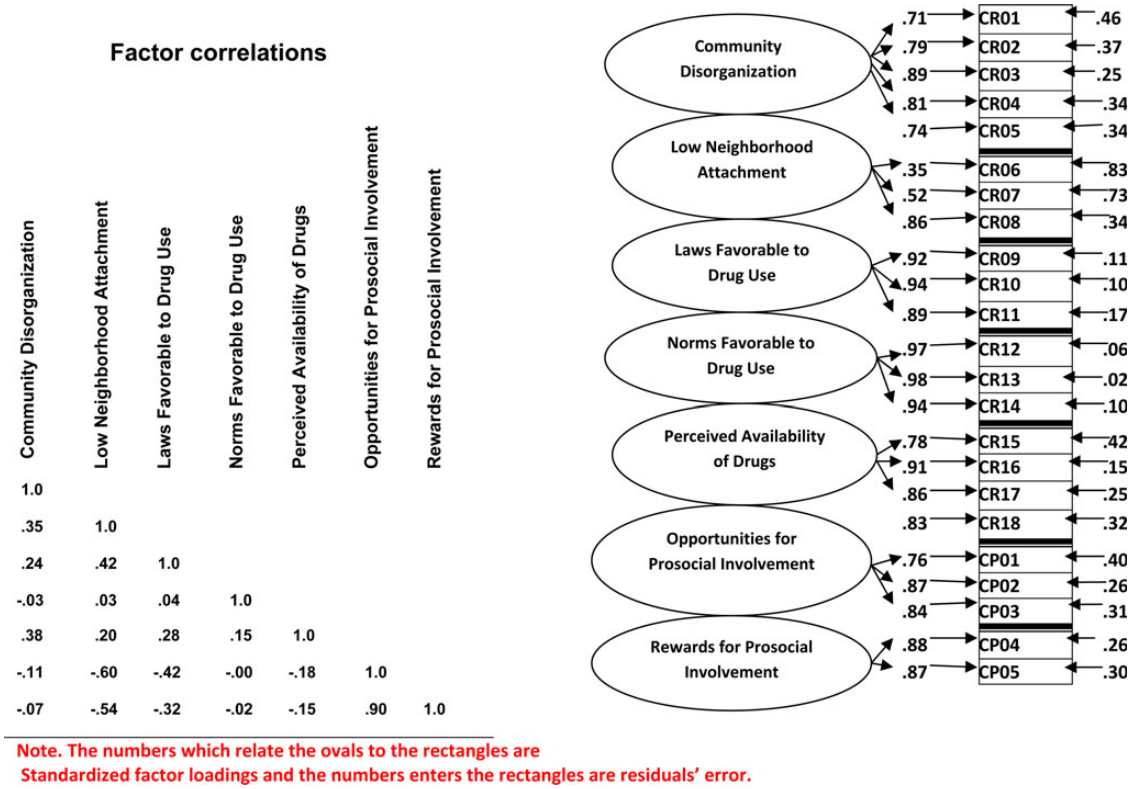


**Fig. 4:** Confirmatory factor model for the community domain.

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**Table 3:** Fit indices for confirmatory factor analysis

| | Peer/individual domain | School domain | Family domain | | Community domain | |
|---|---|---|---|---|---|---|
| | Final model | Final model | Initial model | Final model | Initial model | Final model |
| $\chi^2$ | 2378.5 | 209.1 | 3545.5 | 1723.8 | 3674.1 | 863.910 |
| df | 1270 | 101 | 566 | 549 | 215 | 209 |
| $\chi^2$/df | 1.87 | 2.07 | 6.3 | 3.1 | 17.01 | 2.9 |
| RMSEA | 0.034 | 0.038 | 0.084 | 0.053 | 0.146 | 0.065 |
| TLI | 0.946 | 0.973 | 0.918 | 0.967 | 0.902 | 0.98 |
| CFI | 0.949 | 0.980 | 0.927 | 0.971 | 0.917 | 0.984 |

survey. Furthermore, it is important to examine the extent to which CTC measures of risk and protection are consistent across ethnic groups, due to cultural and ethnical variations in Iran. Finally, one of the very important research in the future would be to explore the degree to which the CTC risk and protective factors are predictive of drug use and other problem behaviors in Iranian adolescents.

## ACKNOWLEDGEMENTS

The authors wish to thank the adolescents and their families who participated in the present study.

## FUNDING

This study was funded and supported by Tehran University of Medical Sciences (TUMS) (grant no. 91-03-28-19503).

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## APPENDIX

| Scales by domain | Item description |
|---|---|
| Peer/individual domain | |
| Friends use of drugs | PiR01: 4 best friends—smoked cigarettes? |
| | PiR02: 4 best friends—consumed alcoholic drinks? |
| | PiR03: 4 best friends—use drugs? |
| Interaction with antisocial peers | PiR04: 4 best friends—been suspended from school? |
| | PiR05: 4 best friends—carried a weapon? |
| | PiR06: 4 best friends—dropped out of school? |
| | PiR07: 4 best friends—stolen a motor vehicle? |
| | PiR08: 4 best friends—been arrested? |
| | PiR09: 4 best friends—been members of a gang? |
| | PiR10: 4 best friends—attacked someone? |

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*Continued*

| Scales by domain | Item description |
|---|---|
| Rewards for antisocial involvement | PiR11: Would you be cool—smoked cigarettes? |
| | PiR12: Would you be cool—began drinking? |
| | PiR13: Would you be cool—used drugs? |
| | PiR14: Would you be cool—carried a weapon? |
| Rebelliousness | PiR15: I like to see how much I can get away with |
| | PiR16: I ignore rules that get in my way |
| | PiR17: I do the opposite of what people tell me |
| Sensation seeking | PiR18: How many times—done what feels good? |
| | PiR19: How many times—done something dangerous on a dare? |
| | PiR20: How many times—done crazy things? |
| Intention to use | PiR21: When I am an adult, I will smoke cigarettes |
| | PiR22: When I am an adult, I will drink alcohol |
| | PiR23: When I am an adult, I will use drugs |
| Favorable attitudes toward drug use | PiR24: How wrong is it—smoke cigarettes? |
| | PiR25: How wrong is it—drink alcohol? |
| | PiR26: How wrong is it—use drugs? |
| Favorable attitudes toward antisocial behavior | PiR27: How wrong is it—stay away from school? |
| | PiR28: How wrong is it—steal something? |
| | PiR29: How wrong is it—pick a fight? |
| | PiR30: How wrong is it—attack someone? |
| | PiR31: How wrong is it—take a weapon to school? |
| Perceived risks of drug use | PiR32: How much harm—smoke cigarettes? |
| | PiR33: How much harm—try drugs? |
| | PiR34: How much harm—use drugs? |
| | PiR35: How much harm—consume alcoholic drinks? |
| Religiosity | PiP01: How committed are you to doing religious duties? |
| | PiP02: How important are religion in your life? |
| Self-esteem | PiP03: I thought I am a loser |
| | PiP04: I was happy with myself |
| | PiP05: I felt I was worth something, at least as much as others |
| | PiP06: I felt I was worthless |
| Belief in the moral order | PiP07: It is all right to beat people up if they start the fight |
| | PiP08: I think it is okay to take something without asking |
| | PiP09: It is important to be honest with your parents |
| | PiP10: I think it is sometimes okay to cheat at school |
| Social skills | PiP11: Would you let a friend steal a CD? |
| | PiP12: Would you go out with friends against mom's wishes? |
| | PiP13: Would you shove back? |
| | PiP14: Would you drink at a party? |
| Interaction with prosocial peers | PiP15: 4 best friends—Were involved in sports. . .? |
| | PiP16: 4 best friends—Liked school? |
| | PiP17: 4 best friends—Pledged not to use drugs? |
| | PiP18: 4 best friends—Participated in religious activities |
| | PiP19: 4 best friends—Tried to be successful in school? |
| Family domain | |
| Poor family management | FR01: Parents ask if I have gotten my homework done |
| | FR02: Would your parents know if you did not come home on time? |
| | FR03: The rules in my family are clear |
| | FR04: One of my parents knows where I am and who I am with |
| | FR05: My family have clear rules about alcohol and drugs use |
| | FR06: If you drank, would you get caught by your parents? |
| | FR07: If you carried a weapon, would you get caught by your parents? |
| | FR08: If you skipped school would you get caught by your parents? |
| Family conflict | FR09: We argue about the same things in my family over and over |
| | FR10: People in my family often insult or yell at each other |

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*Continued*

| Scales by domain | Item description |
|---|---|
| Family history of antisocial behavior | FR11: Have your siblings ever: smoked cigarettes? |
| | FR12: Have your siblings ever: drunk alcohol? |
| | FR13: Have your siblings ever: used drugs? |
| | FR14: Have your siblings ever: been suspended or expelled? |
| | FR15: Have your siblings ever: taken a weapon to school? |
| | FR16: How many adults do you know—been drunk? |
| | FR17: How many adults do you know—used drugs? |
| | FR18: How many adults do you know—dealt drugs? |
| | FR19: How many adults do you know—being arrested? |
| Parental attitudes favorable toward drug use | FR20: How wrong would your parents think—smoke cigarettes? |
| | FR21: How wrong would your parents think—drink alcohol? |
| | FR22: How wrong would your parents think—use drugs? |
| | FR23: How wrong would your parents think—steal something? |
| | FR24: How wrong would your parents think—draw graffiti? |
| | FR25: How wrong would your parents think—pick a fight? |
| Rewards for prosocial involvement | FP01: My parents notice when I am doing a good job |
| | FP02: How often do parents tell you they are proud of you |
| | FP03: Do you enjoy spending time with your mother? |
| | FP04: Do you enjoy spending time with your father? |
| Attachment | FP05: Do you feel very close to your mother? |
| | FP06: Do you share your thoughts and feelings with your mother? |
| | FP07: Do you feel very close to your father? |
| | FP08: Do you share your thoughts and feelings with you father? |
| Opportunities for prosocial involvement | FP09: If I had a personal problem, I could ask my mom or dad |
| | FP10: My parents give me lots of chances to do fun things with them |
| | FP11: My parents ask me what I think |
| School domain | |
| Academic failure | SR01: what were your grades like last year? |
| | SR02: Are your school grades better than the grades of most students? |
| School low commitment | SR03: How many whole days have you missed because you skipped? |
| | SR04: How often is school work meaningful and important? |
| | SR05: How interesting are your courses to you? |
| | SR06: How important are the things you are learning for your life? |
| | SR07: How often did you enjoy being in school? |
| | SR08: How often did you hate being in school? |
| | SR09: How often did you try to do your best in school? |
| Opportunities for prosocial involvement | SP01: Students have chances to help decide things |
| | SP02: Chances to get involved in sports, clubs, activities |
| | SP03: Chances to talk to teachers one on one |
| | SP04: I have lots of chances to be part of discussions |
| Rewards for prosocial involvement | SP05: My teacher notices when I am doing a good job |
| | SP06: I feel safe at my school |
| | SP07: The school lets my parents know when I do well |
| | SP08: My teachers praise me when I do well |
| Community domain | |
| Community disorganization | CR01: What describes your neighborhood—graffiti |
| | CR02: What describes your neighborhood—fights and brawl |
| | CR03: What describes your neighborhood—abandoned buildings |
| | CR04: What describes your neighborhood—crime, drug selling |
| | CR05: I feel safe in my neighborhood |
| Low neighborhood attachment | CR06: I'd like to get out of my neighborhood |
| | CR07: I like my neighborhood |
| | CR08: If I had to move, I would miss the neighborhood I now live in |
| Laws favorable to drug use | CR09: If a kid drank alcohol, would he get caught? |
| | CR10: If a kid used drugs, would he get caught? |
| | CR11: If a kid carried a weapon, would he get caught? |
| Norms favorable to drug use | CR12: How wrong would adults think to smoke cigarettes |
| | CR13: How wrong would adults think to drink alcohol |
| | CR14: How wrong would adults think to use drugs |

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*Continued*

| Scales by domain | Item description |
|---|---|
| Perceived availability of drugs | CR15: How easy would it be to get cigarettes |
| | CR16: How easy would it be to get alcohol |
| | CR17: How easy would it be to get hold of some drugs |
| | CR18: How easy would it be to get a weapon |
| Opportunities for prosocial involvement | CP01: There are a lot of adults I can talk to |
| | CP02: Kids in my neighborhood are involved in decision-making |
| | CP03: Our neighbors listen to what kids have to say |
| Rewards for prosocial involvement | CP04: People in my neighborhood are proud of me |
| | CP05: My neighbors notice when I do a good job |

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