

Developing a psychoeducational risk assessment instrument for community intervention projects: The IARPS-CJ

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Abstract

This paper presents the development and initial data obtained with the IARPS-CJ, a staff-report instrument assessing psychoeducational risk among children and youth. The goal of developing the instrument was to provide a national program intervening in vulnerable communities in Portugal with a universal assessment tool allowing for individual and community-level risk assessment. The IARPS-CJ was constructed with the participation of a group of local intervention teams, and covers the major areas identified in the literature. It is composed of 53 items, each with 3 response options, corresponding to low, intermediate and high risk. Data were collected nationwide (N = 904). Factor analyses identified behaviour, family, school, community, and substance abuse/criminal involvement domains, which were reflected in the scoring procedures. Internal consistency and predictive validity were adequate. Although a lot more research is needed, the IARPS-CJ shows very good qualities, and might become a model for similar instruments in other contexts.

1. Introduction

The work presented in this paper has been undertaken following a request by *Programa Escolhas* [“Choices” Program] for the development of a psychoeducational risk assessment instrument for the community intervention projects it supports.¹ The *Programa Escolhas* was created by the Portuguese government (with additional financing from the European Union, through the European Social Fund) for the purpose of preventing a number of socio-educational risks among children and youth from socioeconomically vulnerable contexts, among them school failure and dropout, unemployment, criminal involvement and other risk behaviours. It acts by supporting projects created by consortia of institutions in local communities (e.g., municipal or

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parish councils, schools, child protection agencies, churches, police, NGOs). These consortia submit projects and apply competitively for funding from the *Programa Escolhas*. In the current, fifth generation, the program supports more than 100 local projects, and involves around 45 000 people. The request for the development of a psychoeducational risk assessment instrument resulted from the understanding that a common, standard instrument was required for the assessment of socio-educational risks in the numerous local projects the program supports. The lack of such a standard instrument was seen as hindering comparative analyses of projects, the appropriate allocation of resources and the assessment of their results. Therefore, the development of such an instrument was commissioned to a team composed of the authors of this paper. The work is supported by a grant from the European Social Fund, through its Technical Assistance Operational Programme.

Such work is rather relevant, given the growing number and severity of psycho-social risks children and youth are subject to, and the importance of community interventions in moderating their effects [8]. This is equally true in the Portuguese society, which is worryingly affected by a variety of risk factors, such as poverty [1], school failure and dropout [5], and juvenile delinquency [11].

2. Instrument development

After a literature review showed that no existing instrument covered all the areas we considered relevant, the development of the new measure began with an examination of the conditions for its use. Given the wide range of ages encompassed by the *Programa Escolhas* (6 to 24 years), and its targeting of mostly underprivileged populations, many of them immigrants or with limited academic skills, it quickly became evident that the core instrument would need to be filled by technical staff in the projects and not by the participants or their families. The wide diversity among the staff, in terms of their training (in psychology, but also education, social work, law, etc.) required special care in ensuring that whatever was to be assessed would be made quite clear and objective.

For the early stages of development, we had the collaboration of eight projects of the *Programa Escolhas*, spread across the country and nominated by the national and regional coordinators of the program as representative of the wide diversity of the local projects they supported. We held two in-person meetings with staff from each project, with additional contacts or the phone and email. This initial collaboration intended to help us get to know the needs of the projects, the assessment practices they already used, the situations they most often confronted in the community they served, the resources they could access, and the practical limitations they faced in carrying out the task of individually assessing the risk present in each young

person's life. It also allowed us to get their reaction to preliminary versions of some of the items and to the choices we made in the process of developing the instrument.

Based upon both the goals of the *Programa Escolhas* and upon our review of the literature regarding the main risk factors affecting similar populations [e.g., 2, 3, 6, 7, 9], we decided that items focusing on the domains of the individual, the school, the family and the community were required. Within each of these, we defined a number of relevant areas, and topics within these areas, which needed to be covered by specific items. The final form of the framework for item development is presented in Table 1.

Table 1. Framework for relevant domains coverage in item development.

Domains	Areas	Topics	Items
Individual	Health	Physical, mental	2
	Diversity	Language command, discrimination	2
	Occupation	Current, career attitudes	2
	Emotional and behaviour problems	Emotional and behaviour problems	2
	Antisocial behaviour	Current, history, criminal involvement	3
	Child/youth protection measures	Child, youth protection measures	2
	Alcohol/illicit substances abuse	Current, history	3
School	Learning disabilities/handicaps	Learning disabilities, handicaps	2
	Academic achievement	Current, history	2
	School attendance	Current, history	2
	School involvement	Social integration, involvement in activities, expectations, self-efficacy, school attitudes, school changes, incompatible roles	7
	School behaviour		1
	School safety		1
Family	Mental health		1
	Relationship quality	Affect, discipline, monitoring, structure, abuse	5
	Stress and resources	Stress, available support, violence, economic problems, immigrant status issues	5
	Antisocial behaviours		1
	School attitudes	School attitudes, expectations and involvement	3
Community	Community	Violence/crime, organization, resources	3

Having established these areas of coverage, we proceeded to write items. Several decisions were also taken at this stage. Namely, we decided that, for the sake of clarity and because abstract, quantitative scales would probably not yield reliable results, every alternative response in each item would have to be clearly defined. We also came to the understanding, as we proceeded with item writing, that no more than three levels could be reliably distinguished. Each item was therefore constructed as a choice among three alternatives: one indicating no risk or a very low level of risk, and intermediate level implying a moderate level of risk, and an upper level indicating a high level of risk in that specific aspect. Each of the levels was defined as clearly as possible, in mutually exclusive terms and with clear indication of the ordinal structure of the alternatives.

To keep items short and reduce response time once the staff gained practice, we kept the alternative response descriptions short, and moved most of the detailed operational definitions to a response guide (21 pages in the final version) intended to be consulted as needed (in the online system used for the final data collection, excerpts from this guide, containing the operational definition of the constructs, appeared in hovering boxes when the mouse cursor was moved over the corresponding words in the items). It is thought that, as the staff gains knowledge and practice in responding to the instrument, the response guide will be less and less used, speeding up the response process.

Long discussions were held, and many versions of the items were discussed before the final ones were settled upon. Difficulties appeared from many

aspects, from legal definitions to words of more or less common usage, to objections by some communities to some expressions, to differences related to age or occupational status. For example, many items referring to school behaviour or adjustment make no sense when administered to late adolescents or young adults no longer in school. The definition of low or moderate risk level of alcohol consumption needs to be quite differently defined for a 6-year-old and a 24-year-old. In some cases, no adjustment in item formulation could accommodate all of these difficulties, and we were forced to have some items not shown to certain groups. Space considerations prevent us from presenting each one of these cases.

For every item, in addition to the three main alternatives, we included the possibility of responding “We do not have information regarding this aspect”. This became necessary because in some cases the project staff really did not have the information necessary to respond and felt that a more intrusive request for information from the youngster, the family or the school might be unadvisable. Additionally, certain items needed a “Does not apply” alternative, for example regarding family relationships when a child has no known relatives or is committed to an institution and has no contact with anything that might be properly called “family”.

As a sample item, the one focusing on behaviour problems has the following alternatives: (a) “no significant behaviour problems” (no or low risk), (b) “significant behaviour problems” (intermediate risk), and (c) “significant behaviour problems with high impact” (high risk). The following operational definitions were provided. Behaviour problems were defined as “the frequency and seriousness of behaviour revealing difficulties in impulse control, delaying gratification and resistance to frustration, including use of profanity words in inappropriate contexts, refusing to comply, throwing tantrums, getting easily irritated, annoying others intentionally, blaming others for one’s mistakes, holding grudges”. “No significant behaviour problems” was defined as “no behaviour problems (as defined above) present, or occurring with a frequency and intensity considered normal for the age”. “Significant behaviour problems” were defined as “behaviour problems with a frequency or intensity above what is expected for the age, and moderately affecting adjustment”. “Significant behaviour problems with high impact” were defined as “behaviour problems with frequency or intensity above what is expected for the age, manifested in more than one context (school, family, peers) and severely disturbing the child/youth’s adjustment in at least one area of life (school performance or learning, peer relations, family harmony)”.

The final version of the instrument is composed of 53 items. It is meant to be filled by a staff

member, assessing the situation of one specific child or youth involved in the project. The person filling the form should be someone well acquainted with the case, and is recommended to examine the items in advance and to collect further information from the child/youth, the family, the school, other staff members or institutions, if necessary and appropriate, before responding. The instrument was named IARPS-CJ, Portuguese initials for “Psychosocial Risk Assessment Inventory for Children and Young People” (*Inventário de Avaliação do Risco Psicossocial em Crianças e Jovens*).

3. Data collection

As mentioned above, we have presented preliminary versions of the items and partial versions of the inventory in interim meetings with the initial collaborating projects. After a first version of the instrument was ready, we set it up on an online survey platform (*Qualtrics*) and asked each of the eight initial collaborating projects to respond for a recommended number of 20 cases. The first two responses (give or take one) were carried out in the presence and with the help of two team members (authors), allowing us to immediately respond to questions, detect difficulties, gaps, need for reformulations etc. This stage of data collection provided us with an initial sample of 140 cases, allowing for preliminary data analyses. These analyses showed that the instrument yielded good quality data. After introducing a number of changes and improvements, the final version of the IARPS-CJ was established.

With the final version ready, we moved forward to the second stage of data collection, this time with the involvement of every project supported by the *Programa Escolhas*, throughout Portugal. Because in-person meetings were infeasible with such a large number of projects, we prepared, in addition to the already mentioned response guide and more specific instructions in written form, a video tutorial explaining and demonstrating response procedures, which was made available, like all other materials, over the World Wide Web. Contact information (phone and email) of the developing team (authors) was provided and used in many cases. Each local project was asked to assess at least 10 cases. In both moments of data collection, respondents were instructed to identify cases by a confidential code. In this way, we could provide feedback on each individual case to the project staff without breaching anonymity. Written instructions were provided regarding informed consent collection, but many of the local projects had procedures already in place for the information they usually collect. The data collection procedures were approved by the

Institutional Review Board of the Faculty of Psychology of the University of Lisbon.

The median filling time was 11 minutes. The first and the third quartiles were 7 and 19 minutes respectively.

4. Sample composition

Of the 109 projects solicited, 93 provided data (85% participation rate). Because not all projects provided the required 10 cases, the final sample was composed of 904 cases (83% of the targeted sample size). The number of cases assessed per project varied between 1 and 14. Regarding gender, 395 cases were of girls/young women (44%) and 509 of boys/young men (56%). The mean age was 13.29 years ($SD = 3.84$). For many of the analyses, we divided the sample into three age categories: children (ages 6 to 11, $N = 317$, 35%), adolescents (ages 12 to 18, $N = 460$, 51%), and youth (ages 19 to 24, $N = 127$, 14%). The percentage pointed out as of immigrant origin was 30.5%. The number attending school was 784 (87%), with the greatest number between grades 4 and 9. Only 27% had no failing grades in any school subject. Two hundred and sixty-two (32% of those eligible) had failed in the previous academic year, 71 (9%) due to lack of attendance (truancy). The percentage of dropouts in the previous academic year was 6.5%. Those employed were 2%, and those in job training 10%.

5. Psychometric analyses

An exploratory analysis was carried out with the principal components technique, so as to identify the main dimensions underlying responses to the IARPS-CJ. This was followed by a Varimax orthogonal rotation. The number of factors to extract was determined with the help of the scree test and parallel analysis [4, 10, 12], separately for each age range. These procedures indicated five as the appropriate number for children and adolescents, and six in the case of the young adults.

Examining the content of items with the highest loadings, the factors were interpreted as referring to (a) family (structure, affect, child monitoring, stress), (b) child/youth behaviour (mostly antisocial and behaviour problems among children and adolescents, mostly emotional problems and peer relationship issues among young adults), (c) school (mostly performance, expectations and self-efficacy, with career attitudes included among children and adolescents), (d) community (structure, criminality, and resources), and (e) substance abuse/criminal involvement (mostly alcohol and illegal substances abuse; criminal involvement was included among children and adolescents. Among young adults, an additional sixth factor emerged, related to more severe family disturbance (abuse or antisocial

behaviours within the family, application of protection or penal measures).

Items with loadings above .40 in each rotated factor were considered for inclusion in factor scales. An effort was made to have the same sets of items in each scale for all three age ranges, but this was dropped when it was judged too incompatible with data. Items were excluded from factor scales if they loaded on more than one factor or if their deletion led to a noticeable increase in the Cronbach alpha coefficient.

The final scales were composed of between 3 and 12 items each, and provided scores with alphas between .74 (School among young adults) and .91 (Family among children). A number of items were not included in any of the scales, due to multiple loadings, no relevant loading on any factor, or causing a lowering of the alpha coefficient. These were, however, included in the total score, unless they correlated less than .20 with the total score (after correction for self-correlation). Only the item referring to physical health issues did not pass this hurdle, resulting in a global alpha coefficient of .92 among children, .94 among adolescents, and .90 among young adults.

The results obtained in the initial phase of data collection were shared with the participating projects and with the central staff of the *Programa Escolhas*. A personalized report was prepared for each group and, in the case of local projects, it contained information on individual cases, in addition to general statistics on the project and how it compared to the whole of the sample. Given the diversity of training types and levels, the results were mainly presented by means of a colour code: green for low risk, yellow for moderate risk, and red for high risk. Percentages of cases at each level in each factor were indicated (for each individual project and in the total sample). For individual cases, a matrix in which cases occupied the rows and factors occupied the columns was filled with green, yellow or red squares.

For calculating scores (global and factor-level), the following rules were established: (a) a score was calculated only if information was available from more than half the respective items ("not applicable" or "no information available" marked in less than half the items); (b) to minimize distortion from missing items, scores were standardized within each item and age range before being averaged for determination of the total score; (c) considering that, in the raw scores of each item, 1 corresponds to low, 2 to intermediate, and 3 to high risk, it was judged that low risk in the factor-level score would correspond to a mean raw score below 1.3, a high risk to a mean raw score above 2.05, and an intermediate risk to a score between these values; (d) given that raw item scores were transformed by standardizing, a linear regression technique was employed to establish thresholds for the derived

scores; (e) in the case of the global score, in which the large number of items would produce a regression- to-the-mean effect leading to a very high proportion of cases in the intermediate category, a different criterion was employed, according to which a standardised score below -0.5 would be considered low risk and a standardised score above +0.5 would be considered high risk. This criterion led to a percentage of about 20 to 30% of the cases being classified in the low and high risk groups, as had happened at the factor level with the criteria described above.

Obtaining external validity data was not feasible in the current data collection procedure. However, we set out to examine the capability of the IARPS-CJ in predicting several of the risk situations the *Programa Escolhas* intends to prevent. Information regarding some of these (e.g., school failure in the previous academic year, number of failing grades, truancy, dropout status, and being unoccupied, i.e., not in school, training or a job) was obtained from initial questions in the online form. Others, as a last resource, had to be obtained from the IARPS-CJ itself (deviant behaviours such as delinquency and substance abuse, application of child/youth protective measures).

Linear or logistic regressions were carried out to determine whether IARPS-CJ scores could significantly predict the targeted risk situations. The large number of analysis (7 criteria in 3 age ranges) precludes their individual presentation, but it may be said that the predictive models were statistically significant in almost every case. The only exceptions were school failure and number of failing grades among young adults, but this was certainly due to diminished relevance of these outcomes at this age level, and to lack of data (small sample size), given that many young people in this age range are no longer in school.

6. Discussion

We believe it may be said that the work described in this paper has reached its main goals. The reaction of both the central staff of the *Programa Escolhas* and the staff from the local programs has been overwhelmingly positive. The IARPS-CJ was judged to cover all the main areas of risk judged relevant, to have a useable and easily understandable format, and to provide a wealth of information with a reasonable time investment in its filling. The data show that it yields consistent psychometric data, as shown by both interpretable factors and high Cronbach alpha coefficients. Regression analyses show that it can provide adequate predictive validity.

It is simultaneously evident that a lot more research work remains to be carried out, mostly relating to external validity, for example relating IARPS-CJ scores to those of established measures

within its domains of assessment or to more elaborate, possibly time-delayed and independent measures of relevant outcomes. It will also be very important to collect longitudinal data, so as to determine the temporal stability and the sensitivity of the IARPS-CJ as a measure of change. Interjudge reliability should also be examined. It is hoped that in the future, when the IARPS-CJ becomes integrated into the main data management platform of the *Programa Escolhas* and its use becomes mandatory for every child or young person involved in any of the projects, further and more complex research projects may become viable. We also believe that the work process presented here may serve as a model for the development of similar instruments for use in other community intervention programmes in different countries. In any case, our greatest wish is that our work will prove useful to children and young people in vulnerable populations and to staff that works hard to provide them with the best possible services.

7. References

- [1] Alves, N., "Novos factos sobre a pobreza em Portugal [New facts on poverty in Portugal]", *Boletim Económico do Banco de Portugal*, Banco de Portugal, Lisboa, 2009.
- [2] Bowen, N. K., Bowen, G. L., and Ware, W. B., "Neighborhood social disorganization, families, and the educational behavior of adolescents", *Journal of Adolescent Research*, Sage Publications, Thousand Oaks, California, USA, 2002, 17, 468-490.
- [3] Casillas, A., Robbins, S., Allen, J., Kuo, Y.-L., Hanson, M. A., & Schmeiser, C., "Predicting early academic failure in high school from prior academic achievement, psychosocial characteristics, and behaviour", *Journal of Educational Psychology*, American Psychological Association, Washington, DC, USA, 2012, 104, 407-420.
- [4] Cattell, R. B., & Vogelmann, S., "A comprehensive trial of the scree and KG criteria for determining the number of factors", *Multivariate Behavioral Research*, Taylor & Francis, London, UK, 1977, 12, 289-325.
- [5] Conselho Nacional de Educação, *Estado da educação 2013* [The state of education 2013], Autor, Lisbon, 2014, retrieved from http://www.cnedu.pt/content/edicoes/estado_da_educacao/Estado-da-Educacao-2013-online-v4.pdf. Access date: 5 April, 2015.
- [6] Hawkins, J. D., Catalano, R. F., and Miller, J. Y., "Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: implications for substance abuse prevention", *Psychological Bulletin*, American Psychological Association, Washington, DC, USA, 1992, 112, 64-105.
- [7] Hawkins, J. D., Herrenkohl, T. I., Farrington, D. P., Brewer, D., Catalano, R. F., Harachi, T. W., and Cothorn, L., "Predictors of youth violence", *Juvenile Justice*

Bulletin, Office of Juvenile Justice and Delinquency Prevention, U.S. Department of Justice, Washington, DC, USA, 2002, retrieved from <http://eric.ed.gov/>. Access date: 5 April, 2015.

[8] Jenson, J. M., and Fraser, M. W., "A risk and resilience framework for child, youth, and family policy", in J. M. Jenson & M. W. Fraser (Eds.), *Social policy for children and families* (2nd ed.), Sage, Thousand Oaks, California, USA, 2011.

[9] Lucio, R., Hunt, E., and Bornovalova, M., "Identifying the necessary and sufficient number of risk factors for predicting academic failure", *Developmental Psychology*, American Psychological Association, Washington, DC, USA, 2012, 48, 422-428.

[10] O'Connor, B. P., "SPSS and SAS programs for determining the number of components using parallel analysis and Velicer's MAP test". *Behavior Research*

Methods, Instruments, and Computers, Springer, Cham, Switzerland, 32, 396-402.

[11] Perista, H., Cardoso, A., Silva, M., and Carrilho, P., *Delinquência e violência juvenil em Portugal: Traçando um retrato a diferentes vozes (YouPrev Project National Report)* [Delinquency and juvenile violence in Portugal: Drawing a picture in different voices], YouPrev Project, Lisbon, 2012, retrieved from http://www.youprev.eu/pdf/YouPrev_NationalReport_PT.pdf. Access date: 5 April 2015.

[12] Zwick, W. R., & Velicer, W. F., "Comparison of five rules for determining the number of components to retain", *Psychological Bulletin*, American Psychological Association, Washington, DC, USA, 99, 432-442.