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COMMENTS, REFLECTIONS, PRESENTATIONS,
REPORTS, DEBATES, INTERVIEWS

The Classmates Social Isolation Questionnaire for Adolescents (CSIQ-A): Validation and Invariance across Immigrant Background, Gender and Socioeconomic Level

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IL CLASSMATES SOCIAL ISOLATION QUESTIONNAIRE FOR ADOLESCENTS (CSIQ-A): VALIDAZIONE E INVARIANZA RISPETTO AL BACKGROUND MIGRATORIO, AL GENERE E AL LIVELLO SOCIO-ECONOMICO

Abstract

It is widely acknowledged that the social relationships of adolescents with their class-mates can have a significant impact on their adjustment to the school environment and their psychological well-being. This study, based on a random sample of 36,712

students, investigates the psychometric properties and the validity of the Classmates Social Isolation Questionnaire for Adolescents (CSIQ-A), a time-efficient instrument intended to measure peer relatedness at school. Confirmatory factor analysis established the bidimensional structure of the scale. The CSIQ-A showed measurement invariance across gender and across students with different immigrant backgrounds and socioeconomic status. A positive correlation between peer acceptance, peer friendship and positive affect provided support for the criterion validity of the measure. The CSIQ-A proved to be a psychometrically sound measure, which can be reliably used with adolescents with different sociodemographic and cultural characteristics. In conclusion, the CSIQ-A makes it possible to directly measure the effects of classroom interventions that are aimed at promoting peer relatedness and preventing social isolation.

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1. Introduction

An extensive body of literature documents that peer relationships have very important implications for adjustment to school and well-being (e.g. King, 2015; Ryan & Deci, 2017).

In defining the construct of peer relatedness and isolation, it is commonly assumed that there is a single continuum running from the absence of social contacts at one end to a high degree of social relatedness at the other. The central question when making an assessment is: «To what extent is the person alone?» (de Jong Gierveld, Van Tilburg, & Dykstra, 2006). According to this conceptualization, peer relatedness and isolation are two ends of a single bipolar continuum. This definition is in line with widely-used sociometric procedures based on peer nomination (e.g. Hughes & Chen, 2011).

Peer social relationships are not all of the same kind, and studies conducted hitherto have usually investigated at least two related but distinct dimensions: (1) the level of acceptance in the group (Ladd, 1990; Bierman, 2004); and (2) the number of friends (Kindermann, 1993; Altermatt & Pomerantz, 2003). While peer acceptance refers to the number of classmates who have social interactions with a student, adolescents consider that friendship basically consists of doing activities together (Parks, 2007; Hall, 2019).

Contexts in which the social relationships take place are also different, and have different implications. While general self-report measures of peer relatedness and isolation are valid research tools for providing overall estimates, when gathering data for planning or evaluating interventions at school, knowing the domain in which social isolation occurs is particularly important. In fact teachers and school staff can influence relationships between students directly when they are in the classroom, and even indirectly when students are not at school by assigning homework or activities to be done together with other students (Alivernini, Manganelli *et al.*, 2018; Alivernini & Manganelli, 2016). Although teachers can affect social interactions between students in the educational context (Girelli *et al.*, 2018a, 2018b), they have no effective control over peer interactions that are not related to school in any way.

A final issue that is often neglected when assessing peer relatedness is the possible bias caused by the variance of measures across sociocultural groups. Adopting measures of established invariance across groups is especially important given the problem of assessing classmates relationships in schools and educational settings in current multicultural societies (Pirchio *et al.*, 2017; Pirchio *et al.*, 2019). This is by no means a trivial issue because the questions that are posed in order to assess peer acceptance and friendship might not be interpreted in the same way by students with different characteristics (Milfont & Fischer, 2015). Psychometrically invariant measures across sociocultural groups are also needed since immigrant background, gender and socioeconomic status are recognized as factors that can be a source of disadvantage and inequality (Alivernini & Manganelli, 2015; Alivernini, Manganelli, & Lucidi, 2016; Cavicchiolo & Alivernini, 2018).

In the present study, taking the above-mentioned issues into account, we developed and validated a version for adolescents of the Classmates Social Isolation Questionnaire (CSIQ; Alivernini & Manganelli, 2016).

2. Sample and procedure

The data used in our study came from a sample of 36,712 students at grade 10 (2,142 classrooms). The average age of the students was 15.6 years (SD = .77) with a slight prevalence of males (50.6%); 6.1% of the students were first-generation immigrants, while 3.8% were second-generation immigrants. The data that corroborates the findings of the present study are available at: https://invalsi-serviziostatistico.cineca.it/.

3. Measures

3.1. *The Classmates Social Isolation Questionnaire for Adolescents (CSIQ-A)*

The CSIQ has been originally validated for children (Alivernini & Manganelli, 2016) and in the present study its contents were adapted for adolescents. This was done on the basis of the most common answers to the open-ended question «describe what kind of social relationships you have with your classmates» that had been collected on a small sample (N = 41) of 10th graders. To ensure content and construct validity, the items were selected and adapted from the scale for children on the basis of the most frequent answers made by adolescents regarding each of the two domains of peer relatedness: Peer Acceptance (PA) and Peer Friendship (PF). The final version of the scale (*Appendix 1*, the English version; *Appendix 2*, the Italian version) includes 4 items related to PA and 4 items intended to determine PF. For each item, students evaluate the number of their classmates with whom they have a social relationship on a scale consisting of 5 possible answers (None, Few, Some, Many or All) coded with values ranging from 1 to 5. In this way the lowest possible score indicates no social contacts between the respondent and the whole class, while the highest possible score indicates social contacts with all the classmates. Therefore the CSIQ for adolescents (CSIQ-A) was based on the theoretical definition of the construct of peer-relatedness and its content was formulated in a way that would be meaningful and relevant to adolescents.

3.2. *Positive affect*

Positive affect at school was measured by using the Feelings At School Scale (FASS; Alivernini, Cavicchiolo *et al.*, 2018). Students were asked to indicate how often they have felt good, cheerful and calm over the past few months at school using a 5-point scale ranging from 1 (Never) to 5 (Very often). The measure proved to have good psychometric properties (Alivernini, Cavicchiolo *et al.*, 2018) and in the present study the internal consistency of the scale was good with a Cronbach's alpha value of .85.

3.3. *Gender and immigrant background*

Gender was coded as 0/1 with 0 indicating female and 1 indicating male. Immigrant background was defined in accordance with the definitions of the Organization for Economic Co-operation and Development (OECD,

2014). Students who were born in Italy or with at least one parent born in Italy were considered to be native students, while foreign-born students with foreign-born parents were considered to be first-generation students, and students who were born in Italy with foreign-born parents were considered to be second-generation immigrants. Immigrant background was coded by means of two dummy variables (0/1), one for the first generation and one for the second generation, with native students as the reference category.

3.4. *Socioeconomic status*

Student's socioeconomic status (SES) was determined in accordance with the definitions of the OECD (2014), which considers four indicators related to family background: the educational level of parents, the occupational level of parents (e.g. manager, teacher, clerk, worker), home possessions (e.g. personal computer, internet connection, a desk for doing homework), and home literacy resources (expressed as the number of the books in the home). Socioeconomic status was derived from these four indicators by means of a Principal Component Analysis (PCA) and it was scored as 1 or 0, with 1 indicating a SES above the median of the distribution and 0 indicating a SES below it.

4. Data analysis

The analyses were carried out using Mplus 8 (Muthén & Muthén, 1998-2017). To take into account the hierarchical structure of the data (students nested within classes), we used the «Type = complex» approach and the Robust Maximum Likelihood (MLR) estimator. The small account of missing data (0.7 - 2.7%) was treated using the Full Information Maximum Likelihood method implemented in Mplus (Muthén & Muthén, 1998-2017). The model fit was assessed using the MLR chi-square test statistic and multiple fit indices (CFI, TLI, RMSEA, and SRMR), in line with common guidelines for an acceptable model fit (Hu & Bentler, 1999) and in line with previous researches (Violani *et al.*, 2003; Chirico *et al.*, 2017; Galli *et al.*, 2018). Criterion validity was assessed by examining the latent correlation between each scale and positive affect. The measurement invariance between immigrant background (native first and second generation students), gender (male, female) and SES (below and above the median) of the scales was examined on the whole sample by means of a hierarchi-

cal series of multi-group CFAs, imposing increasingly restrictive equality constraints on model's parameters (van de Schoot, Lugtig, & Hox, 2012).

5. Results

Our results empirically confirmed the assumed two-factor structure for PA and PF. All the fit indices indicated a good fit of the model: CFI = .96; RMSEA = .06; SRMR = .04 (Hu & Bentler, 1999; Schreiber *et al.*, 2006). The one-factor solution fitted the data poorer (CFI = .78; RMSEA = .15; SRMR = .10) than the two-factor model. *Figure 1* presents the results for the two-factor CFA: all the factor loadings were statistically significant *(p < .001)* and ranged from .63 to .75 for PA scale and from .61 to .82 for PF scale. As expected, PA and PF are positively correlated with each other (.56; *p* < .001). The internal consistency of the two scales is acceptable with a Cronbach's alpha value of .76 for PA and .83 for PF.

The correlation between Peer Acceptance, Peer Friendship and Positive Affect provides support for the criterion validity of the CSIQ-A: high levels of peer relatedness, both with classmates and with friends, are positively related to positive affect (correlation with PA = .40; PF = .25).
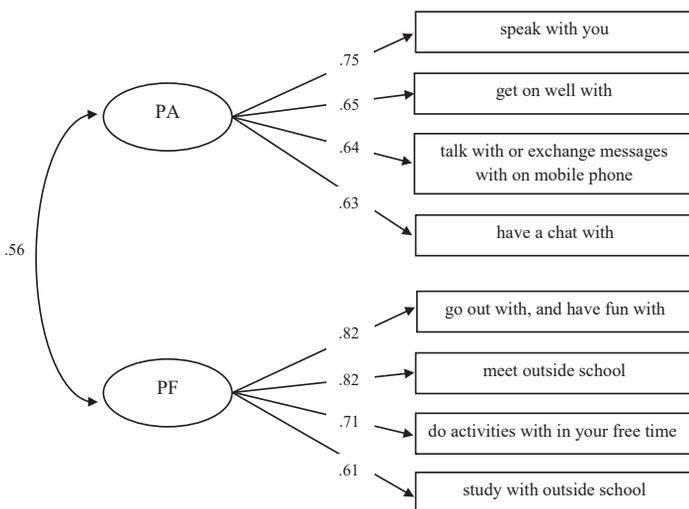
Note: all the estimates are standardized; all the estimates are statistically significant with *p* < .001.

Figure 1. – Confirmatory factor analysis results.

We assessed the measurement invariance of the CSIQ-A across groups with different immigrant backgrounds, gender and different levels of SES. The results showed the full scalar invariance of the scales across gender, immigrant background and SES levels (immigrant background: ΔCFI = .003; gender: ΔCFI = .010; SES: ΔCFI = .003).

6. Discussion

The Classmates Social Isolation Questionnaire for Adolescents (CSIQ-A) is a very short and concise instrument for assessing adolescents' peer relatedness, with specific reference to the group of classmates. Our results showed that the factor structure of the scale was as posited, consisting of two distinct dimensions regarding peer relatedness: Peer Acceptance (PA) and Peer Friendship (PF). Peer acceptance refers to the number of classmates with whom a student has social interactions whereas peer friendship refers to the number of classmates who choose to spend time and share activities with a student. These two dimensions are related, but they are also distinct, as shown by the fact that the one factor solution has a very bad fit to the data. This finding is in line with the literature and clearly shows that acceptance by the group and friendship are two different aspects of peer relatedness (Hughes & Chen, 2011). Although these two dimensions were measured by a small number of items, their internal consistency is good. Peer relatedness is widely recognized to have an impact on psychological well-being (Matthews *et al.*, 2015) and the CSIQ-A scores show non-trivial correlations with positive affect at school, indicating validity with regard to this criterion. The instrument proved to have complete configural and metric invariance across immigrant background, socioeconomic status and gender. Adolescents with different characteristics therefore appear to have similar conceptions regarding peer relatedness and to interpret the corresponding items of the instrument in very similar ways. As it also shows scalar invariance, the CSIQ-A appears to be a reliable instrument for comparing the peer relatedness profiles of different groups of students.

7. Conclusions

In the present study we provided evidence indicating that the CSIQ-A is a psychometrically sound measure, which can be reliably used with adolescents with different sociodemographic and cultural characteristics. This instrument is short and time-efficient, but it effectively measures

peer acceptance and friendship. These are two different, but connected, aspects of peer relatedness, which are often investigated in studies involving time-consuming sociometric procedures. The scale's scores vary from a minimum that indicates a complete absence of social contacts with one's peers, to a maximum that indicates having many friends and positive communicative relations with the whole class, and it is therefore easy and straightforward to interpret the results. This instrument can be very useful in educational research due to the fact that it investigates behaviours that are malleable and can be directly influenced by teachers and school staff. This is particularly important in schools that are increasingly multicultural environments: activities and programmes aiming to promote inclusive social relationships can foster immigrant students' school adjustment and promote more egalitarian social contexts (Pirchio *et al.*, 2017). For example, activities that include students' emotional involvement and are based on the narrative format have proved to be effective not only for foreign language learning, but also for improving intercultural relationships in primary schools (Pirchio *et al.*, 2019).

Finally, due to the fact that the CSIQ-A is a domain-specific measure of social relationships, rather than a more general measure, it also makes it possible to directly measure the effects of specific classroom interventions that are aimed at promoting social inclusion and preventing social isolation.

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APPENDIX 1

The Classmates Social Isolation Questionnaire – Adolescents (CSIQ-A). Peer Acceptance (PA) subscale: item 1, 3, 5 and 7. Peer Friendship (PF) subscale: item 2, 4, 6 and 8. *English version.*

Your classmates. *Put a cross in only one box for each question.*	None	Few	Some	Many	All
1. How many of your classmates do you chat with?	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
2. How many of your classmates do you meet outside school?	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
3. How many of your classmates speak with you?	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
4. How many of your classmates do you study with outside school?	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
5. How many of your classmates do you talk with or exchange messages with on your mobile phone?	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
6. How many of your classmates do you do activities with in your free time?	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
7. How many of your classmates do you get on well with?	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
8. How many of your classmates do you go out with, to have some fun?	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$

APPENDIX 2

The Classmates Social Isolation Questionnaire – Adolescents (CSIQ-A). Peer Acceptance (PA) subscale: item 1, 3, 5 and 7. Peer Friendship (PF) subscale: item 2, 4, 6 and 8. *Italian version.*

I tuoi compagni di classe. *Metti una crocetta su un solo quadratino per ogni riga.*	Nessuno	Pochi	Alcuni	Molti	Tutti
1. Con quanti dei tuoi compagni di classe scambi due chiacchiere?	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
2. Con quanti dei tuoi compagni di classe ti vedi fuori dalla scuola?	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
3. Quanti dei tuoi compagni di classe parlano con te?	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
4. Con quanti dei tuoi compagni di classe studi fuori dalla scuola?	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
5. Con quanti compagni di classe ti telefoni o ti mandi messaggi al cellulare?	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
6. Con quanti dei tuoi compagni di classe fai delle attività insieme nel tempo libero?	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
7. Con quanti dei tuoi compagni di classe ti trovi bene?	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
8. Con quanti dei tuoi compagni di classe ti capita di uscire per andare a divertirti?	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$

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Riassunto

In letteratura è ampiamente riconosciuto l'impatto che le relazioni sociali degli adolescenti con i compagni di classe hanno sul benessere e sul successo scolastico. Lo studio, basato su un campione casuale di 36.712 studenti, ha indagato le proprietà psicometriche e la validità del Classmates Social Isolation Questionnaire for Adolescents (CSIQ-A), uno strumento breve e di veloce compilazione utile a misurare le relazioni sociali tra pari a scuola. Attraverso una analisi fattoriale di tipo confermativo è stata stabilita la struttura bidimensionale della misura che ha inoltre mostrato la sua invarianza rispetto al genere, al background migratorio e allo status socio-economico degli studenti. A supporto della sua validità di criterio è stata riscontrata una correlazione positiva tra l'essere accettati dai compagni di classe, l'amicizia tra pari e lo sperimentare emozioni piacevoli a scuola. Il CSIQ-A ha complessivamente mostrato di essere una misura con buone proprietà psicometriche, adatta a misurare le relazioni tra adolescenti con caratteristiche socio-demografiche e culturali differenti. Per concludere, attraverso il CSIQ-A è possibile valutare in modo diretto gli effetti di interventi in classe volti alla promozione dell'inclusione scolastica.