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Scholar and Clinical Maladjustment and Personal Adjustment in Adolescents Aged between 12 and 18 Years

Elena Bernaras, Joana Jaureguizar, Marian Soroa, and Marta Sarasa
Universidad del País Vasco/Euskal Herriko Unibertsitatea -University of the Basque Country

Abstract

Adolescence is characterised by an increased risk of personal maladjustment, which may be related to clinical symptoms and/or school maladjustment. This study analyses the prevalence of clinical and school maladjustment and of problems of personal adjustment in students in the Basque Country (Spain), using the S3 self-report version of the *Behavior Assessment System for Children (BASC)*, adapted and validated for the Basque language. The study sample was composed of 1,827 adolescents aged 12 to 18 years. Although some differences were found between male and female students in levels of maladjustment, the associated effect sizes were small. The Basque version of BASC-S3 has similar psychometric properties to those of the Spanish-language and original versions of the questionnaire, and so this instrument could be usefully implemented among Basque-speaking adolescents.

Keywords: Adolescence, Maladjustment, Adaptation, BASC, Basque language.

Resumen

La adolescencia se caracteriza por un mayor riesgo de desajuste personal, que puede ir unido a sintomatología clínica y desajuste escolar. En este estudio se analiza la prevalencia del desajuste clínico y escolar y del ajuste personal en estudiantes del País Vasco. Se adapta y valida al euskara el *Sistema de Evaluación de la Conducta de Niños y Adolescentes* (BASC) en su versión de Autoinforme S3. La muestra está compuesta por 1.827 adolescentes de 12 a 18 años. Aunque se han hallado algunas diferencias en los niveles de desajuste entre hombres y mujeres, los tamaños del efecto asociados son pequeños. Se ha puesto de manifiesto que la versión vasca del BASC-S3 presenta propiedades psicométricas similares a las de la versión española y la versión original de la prueba, por lo que puede ser un instrumento de gran interés a utilizar en población adolescente vascoparlante.

Palabras clave: Adolescencia, Desajuste, Adaptación, BASC, Euskara.

Corresponding author: Elena Bernaras. Dpto. de Psicología Evolutiva y de la Educación. Facultad de Educación, Filosofía y Antropología. Universidad del País Vasco/Euskal Herriko Unibertsitatea. Plaza Oñati, 3, 20018. Donostia-San Sebastián. Spain. E-mail: elena.bernaras@ehu.eus

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Introduction

Adolescence is one of the most difficult and critical stages of human development, due to the important physical, social and psychological changes that take place in this period. The transition from childhood to adulthood is characterised by an increased risk of emotional imbalance (Vink, Derks, Hoogendam, Hillegers, & Kahn, 2014) and of psychological disorder (Merikangas et al., 2010). The commonest types of maladjustment at this age are depression and anxiety (Donaldson, Gordon, Melvin, Barton, & Fitzgerald, 2014; Merikangas et al., 2010). In many cases, too, adolescents have low self-esteem and are more vulnerable to the stress associated with social relationships (Frost & McKelvie, 2004; Moksnes, Moljord, Espnes, & Byrne, 2010). All of these variables are related to two dimensions identified by Reynolds and Kamphaus (1992): *clinical maladjustment*, (including variables such as anxiety, atypicity, locus of control and somatisation) and *personal adjustment* (including variables such as interpersonal relationships, self-esteem, relationships with parents and self-reliance). Reynolds and Kamphaus (1992) also refer to another important dimension in the lives of adolescents: *school maladjustment* (viewed as negative attitudes to school and teachers, and sensation seeking). This study analyses the prevalence of these dimensions among adolescents and the differences in this respect by sex and age, areas in which, to date, very little research has been conducted.

Various studies have sought to analyse the prevalence of emotional disorders related to *clinical maladjustment* in adolescence. Thus, Polanczyk, Salum, Sugaya, Caye and Rohde (2015) conducted a meta-analysis to estimate the prevalence of mental disorders in children and adolescents in 27 countries, and reported a prevalence of 6.5% for anxiety and 2.6% for depression. However, other studies have recorded higher rates of depression, up to 17.9% (Essau, Conradt, & Petermann, 2000) and even 26% (Lazaratou, Dikeos, Anagnostopoulos, & Soldatos, 2010). Comparable studies in Spain have estimated a prevalence ranging from 2.3% (Jaureguizar, Bernaras, Soroa, Sarasa, & Garaigordobil, 2015) to 19.5% (Aláez, Martínez-Arias, & Rodríguez-Sutil, 2000) for depression and even higher values (26%) for anxiety (Orgilés, Méndez, Espada, Carballo, & Piqueras, 2012).

Most psychological disorders cause emotional, cognitive or social harm, and adolescents presenting such conditions are at greater risk of having a negative school experience, which can lead to early school leaving (Esch et al., 2014). Rodríguez-Fernández, Droguet and Revuelta (2012) reported that *school adjustment* is related, among other areas, to academic self-concept and adequate family support.

With respect to differences in adjustment/maladjustment by gender, studies have shown that adolescent boys have less tolerance to stress, but higher self-esteem than girls. On the other hand, girls present higher levels of anxiety and depression (Jaureguizar et al., 2015; Waite & Creswell, 2014). This greater prevalence of anxiety and depressive symptoms in females has been observed in many studies (Orgilés et al., 2012, Sanchís & Simón, 2012; Thapar, Collishaw, Pine, & Thapar, 2012). As regards *school maladjustment*, some studies have observed a higher level of maladjustment among boys (Johnson, Crosnoe, & Thaden, 2006; Wang, Chen, Sorrentino & Szeto, 2008), although others recorded no significant differences by gender (e.g., Oramah, 2014). Other studies have argued that such differences between boys and girls are minimal, and that their similarities are of more importance. For example, Álvarez (2015) analysed the results of students of different ages who completed the Behavior Assessment System for Children (BASC) questionnaire (Reynolds & Kamphaus, 1992) and noted that in the majority of scales

examined, there were no significant differences by sex, or if there were, the effect sizes were low. The scales where this study did find differences according to sex were those of *self-esteem* (greater in boys, with a difference that was significant but not substantial), *anxiety* (greater in girls) and *sensation seeking* (greater in boys). Álvarez (2015) held that these results supported the hypothesis of similarity between the sexes, in accordance with Hyde (2005), according to whom men and women are similar in most, but not all, psychological variables. Thus, Hyde (2005) reviewed 46 meta-analyses of psychological differences by sex, and found that 78% of the effect sizes in the reported differences were very small or close to zero.

Studies of personal adjustment, at different ages, also provide conflicting data. While some authors find that as age increases, so does the incidence of depression (Compas, Connor-Smith, & Jaser, 2004), others show that this increase is unremarkable (Moksnes et al., 2010) or that there are no age-related differences (Jaureguizar et al., 2015). However, Orgilés et al. (2012) indicated that generalised anxiety among adolescents also increases with age.

In view of the importance of adequately assessing the presence of disorders among children and adolescents, one approach that is coming into increasing use is that of the dimensional psychometric model, in which quantitative procedures are used to analyse the components of different syndromes. One such instrument is BASC (Reynolds & Kamphaus, 1992), which evaluates both positive (adaptive scales) and negative (clinical scales) dimensions of the behaviour and personality of children or adolescents. Merrell (2009) described BASC as one of the best scales available for behavioural assessment, with an important empirical basis and very few drawbacks (one such, however, being the length of the questionnaire).

In comparison with BASC, other multidimensional questionnaires address fewer dimensions (see the Spanish-language adaptation of BASC by González, Fernández, Pérez, & Santamaría, 2004). Thus, while the BAS-3 *Socialisation Tests* (Silva & Martorell, 1987) measure the subjects' behaviour, BASC also evaluates their emotions, perception and cognition. A similar contrast can be observed with the *Youth Self Report* (Achenbach, 1985). Another strength of BASC is that it assesses both adaptive and maladaptive aspects of adolescent behaviour, unlike other tests, which focus exclusively on clinical aspects (see, for example, the *Multifactor Self-Assessment Test of Infant Adaptation* [TAMAI] proposed by Hernández, 2002).

There are several versions of the BASC self-report of personality, according to the age of the subjects: S-2 is intended for boys and girls aged 8-11 years, while S-3 is designed for adolescents aged 12-18 years. S-2 has been adapted and validated for a Basque-speaking population aged 8-11 years (Jaureguizar, Bernaras, Ibabe, & Sarasa, 2012), but to date no such adaptation has been made of S-3. The justification for validating this type of instrument for Basque speakers is that the use of Basque in education has increased considerably in recent years. Thus, according to data from the Basque Institute of Statistics (EUSTAT, 2015-16), 88% of students in compulsory secondary education (ESO) follow a bilingual or totally Basque model, and this percentage remains high in pre-university education (66%). These very high rates of Basque speakers highlight the need to provide students with assessment instruments in their mother tongue.

Taking into account the above considerations, this study has two main objectives: (1) to adapt the self-reporting S-3 BASC into the Basque language and to validate it for use by

Basque-speaking students aged 12-18 years (S3); (2) to quantify the incidence of school maladjustment, clinical maladjustment and problems of personal adjustment in a sample of adolescents drawn from the Basque Autonomous Community, and to determine whether there are any differences in this respect according to sex and age.

Method

Participants

The study sample was composed of 1,827 Basque-speaking students from nine schools in the provinces of Álava, Vizcaya and Guipúzcoa, of whom 869 were boys and 956 were girls, aged 12 to 18 years (M_b = 14.43; *SDb* = 1.69; M_g= 14.60; SD_g = 1.61). To facilitate interpretation of the results, taking into account the developmental nature of the variables analysed, the participants were grouped into four categories by age, using the same categorisation as in the original version of the test and its later adaptations: 11-12 years (263 students), 13-14 years (615 students), 15-16 years (703 students) and 17-18 years (243 students). Of these students, 453 were in the first year of E.S.O, 474 in the second year, 303 in the third and 383 in the fourth, while 185 were in the first year of pre-university education and 29 in the second.

Subsequently, 25% of the cases were randomly extracted in order to analyse the psychometric properties of the questionnaire. Analyses of prevalence and differences by sex and age subgroups were carried out with the remaining 75%.

Instruments

Behavior Assessment System for Children (BASC, Reynolds & Kamphaus, 1992, Spanish adaptation by González et al., 2004), in the S3 self-report version for adolescents aged 12-18 years. BASC-S3 consists of 185 statements to be answered as true or false. Responses are measured on 14 clinical and adaptive scales. The clinical scales are *negative attitude to school, negative attitude to teachers, sensation seeking, atypicality, locus of control, somatisation, social stress, anxiety, depression and sense of inadequacy*. The four adaptive scales are *interpersonal relationships, relationships with parents, self-esteem and self-reliance*. These 14 scales are grouped into three global dimensions: *personal adjustment, clinical maladjustment* and *school maladjustment*. The subject is considered to present a risk in any of these dimensions if, after conversion of the direct score to a typified T-score, the resulting value is in the range 60-69; when the score is 70 or more, the situation is considered one of clinically significant maladjustment. The psychometric properties of the Spanish adaptation of the test were found to be acceptable. With respect to its reliability, high coefficients were obtained of internal consistency and of temporal stability after three months, for all the global dimensions: .85 and .81 for school maladjustment, .90 and .69 for clinical maladjustment and .84 and .77 for personal adjustment (González et al., 2004).

Children's Depression Scale (CDS, Lang & Tisher, 1978, Spanish adaptation by Seisdedos, 2003 and adaptation to Basque language by Balluerka, Gorostiaga, & Haranburu, 2012). The CDS is a global and specific instrument for evaluating depression in children between 8 and 16 years of age. It contains 66 elements, 48 relating to depression and 18 of a positive nature. These two sets of items are grouped into two independent

general scales: *total depressive* (TD) and *total positive* (TP). TD consists of six subscales: *affective response, social problems, self-esteem, preoccupation with sickness and death, guilt* and *miscellaneous items*. TP contains two subscales: *pleasure and enjoyment* and *miscellaneous items*. Acceptable values were obtained for reliability, evaluated by analysis of internal consistency and temporal stability (α = .95 and .79 and r = .73 and .59 for TD and TP, respectively). The mean extracted variance (MEV) and composite reliability (CR) for TD were 23.70% and .95 respectively; for TP, the corresponding values were 25.74% and .89.

Beck Depression Inventory (BDI-II: Beck, Steer, & Brown, 1996, adaptation by Sanz, Perdigón, & Vázquez, 2003). This test, consisting of 21 items, identifies and measures the severity of typical symptoms of depression in adults and adolescents from 13 years of age. Each item is answered on a 4-point scale, ranging from 0 to 3. In the present study, the MEV obtained for this test was low (20.66%), and its internal consistency was very high (α = .89, CR = .95).

Procedure

In this study, convenience or incidental sampling was performed (Coolican, 1994). To obtain a heterogeneous sample, we contacted public and semi-private schools in provincial capitals and smaller towns in the Basque Country, and held interviews with the schools' managers to explain the procedure. With those that agreed to participate, the conditions for sending the informed consent protocol to the students' families were decided upon. The tests were administered collectively during class time by members of the research team. Since the CDS can only be applied to adolescents up to 16 years of age, the older students were given the BDI. This study was approved by the Ethics Committee of the UPV/EHU.

Adaptation of the questionnaire items

In adapting the BASC-S3, we first confirmed the intellectual property rights for the instrument (TEA Ediciones, S.A.) and considered the characteristics of the construct to be measured with this population (Muñiz, Elosua, & Hambleton, 2013). Following the recommendation of Hambleton and Patsula (1999) regarding the adaptation of measurement instruments from one culture to another, the BASC-S3 items were then subjected to an inverse translation process. Subsequently, a pilot test was conducted to analyse the reactions of respondents, to ensure their understanding of the items, to detect content errors and to record the time needed to complete the questionnaire. With the data obtained, the directions and signs of the most significant psychometric indices were observed and compared with those of the original test (Muñiz et al., 2013).

Statistical analyses

An initial analysis was performed to test for absent or atypical values, and compliance or otherwise with the basic assumptions underlying the general linear model. Cases that did not meet the validity criteria for the BASC *F* and *V* indices were eliminated. As a first approximation to the properties of BASC-S3, descriptive statistics (loss to follow

up, mean values and 95% confidence interval, standard deviation, asymmetry, kurtosis and Kolmogrov-Smirnov test) and corrected homogeneity indices were obtained for each item. A validity study was then performed, through the analysis of internal and external aspects (Elosua, 2003). Internal analysis concerns the relationships between the elements of the test and their concordance with the theoretical model on which it is based; the relationships between the partial scales; confirmatory factor analyses; and the formal description of each of the 14 subscales and the 3 composite scales, including their internal consistency; mean extracted variance (MEV) and composite reliability (CR). Evidence of an external nature describes the relationship between the BASC scales and those of the CDS or BDI-II, depending on the age group. A pattern of moderate, positive Spearman correlations is hypothesised between symptoms of depression and *clinical and school maladjustment*, while a negative correlation with *personal adjustment* is expected.

Prevalence and differences by sex and age group were analysed in a two-step procedure. First, a progressive invariance analysis of BASC-S3 among the study groups was performed. Equivalence levels are defined in terms of the parameters constrained to be equal in each of the groups studied. The simplest model is that of configural invariance (pattern of factor loads). Constraints are then added, to evaluate metric invariance (magnitude of factor loads), scalar invariance (intercepts/thresholds) and strict invariance (residual variances). Confirmatory factor analysis is conducted by the adjusted maximum likelihood method (MLMV), which is robust to non-normal distributions. The degree of fit to the data, for each model, is evaluated by reference to the value of the chi-square/degrees of freedom ratio, and also to the incremental comparative fit index (CFI), the root mean square error of approximation (RMSEA) and its standardisation (SRMR), and the Akaike information criterion (AIC). Models with CFI $\geq$ 0.90 and RMSEA and SRMR $\geq$ 0.08 are considered acceptable (Browne & Cudeck, 1993; Hu & Bentler, 1999; Kenny, Kaniskan & McCoach, 2014; Tabachnick & Fidell, 2005). In the same line as Cheung and Resnsvold (2002), the acceptance criterion employed for the models of metric, scalar and strict invariance is that the difference in CFI between two immediate models should be $\leq$ .01. The clinical maladjustment, school maladjustment and personal adjustment values were then calculated, and the differences of the means, by sex, determined by the Mann-Whitney U test and its associated effect size [Z/root (n)]. All analyses were performed in the R environment using the psych and lavaan (R Development Core Team, 2015) packages.

Results

Validation of BASC-S3

Adaptation of the items

The adaptation was performed as follows: first, two expert translators (one of whom has extensive knowledge of psychological evaluation) translated the items from Castilian Spanish into Basque. These translations were then compared and a consensus version derived. Subsequently, another two translators, with similar characteristics to the first ones, translated the Basque-language version back into Spanish, on which a consensus version was also obtained. This new version was then compared with the original, Spanish-language version, to detect possible non-equivalences of meaning, noting that some common expressions in Spanish do not have a direct translation into Basque (for example,

"*to make a fool of*", "*to count on someone*"). For this reason, the experts were asked to reach a consensus view on the most appropriate translation.

Subsequently, a pilot test was conducted with 20 students (five in each age group) to analyse their reactions, to ensure the items were comprehensible, to detect content errors and to record the time needed to complete the questionnaire. This pilot test showed that, although at first the participants were surprised that the questionnaire contained so many items, when they begin to complete it they did so fairly quickly and easily. Comprehension was acceptable and the whole process took about 30 minutes.

Description of the items

The Table in Annex 1 summarises the formal description of the 185 items that comprise the test, ordered by subscales.

Validity

Internal structure

Relations between partial scales

Table 1 shows the Spearman correlations among the scales that comprise BASC-S3.

Table 1
Correlations among partial scales

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Neg. attitude to school	-													
2. Neg. attitude to teachers	.54**	-												
3. Sensation seeking	.29**	.31**	-											
4. Atypicality	.23**	.33**	.33**	-										
5. Locus control	.25**	.37**	.23**	.56**	-									
6. Somatisation	.16**	.23**	.09**	.47**	.36**	-								
7. Social stress	.10**	.28**	.09**	.54**	.51**	.39**	-							
8. Anxiety	.07*	.19**	-.04	.57**	.41**	.36**	.55**	-						
9. Depression	.25**	.38**	.15**	.51**	.51**	.41**	.60**	.45**	-					
10. Sense of inadequacy	.34**	.43**	.16**	.49**	.55**	.40**	.52**	.45**	.59**	-				
11. Interpersonal relations	-.06**	-.09**	-.01	-.26**	-.25**	-.23**	-.49**	-.25**	-.40**	-.29**	-			
12. Relations with parents	-.23**	-.35**	-.21**	-.28**	-.39**	-.21**	-.29**	-.10**	-.36**	-.35**	.22**	-		
13. Self-esteem	-.13**	-.23**	-.02	-.42**	-.38**	-.36**	-.52**	-.42**	-.48**	-.43**	.32**	.26**	-	
14. Self-reliance	-.17**	-.20**	.01	-.25**	-.30**	-.23**	-.31**	-.27**	-.36**	-.39**	.33**	.29**	.29**	-

** $p \leq .01$

The values shown in the correlation matrix between the 14 variables are all statistically significant ($p \leq .01$) except those for the correlations between *sensation seeking* and *anxiety*, *interpersonal relations*, *self-esteem* and *self-reliance*, none of which reach statistical significance ($p > .05$). In our analysis of the scales that theoretically form part of

school maladjustment, the largest correlation coefficient corresponds to *negative attitude to school* and *negative attitude to teachers* (r = .54). Analysis of the correlations among the scales evaluating *clinical maladjustment* revealed a noteworthy association between *depression* and *social stress* (r = .60) and *sense of inadequacy* (r = .59). Moreover, the *depression* and *social stress* scales also presented moderate correlations with the *self-esteem* variable belonging to the *personal adjustment* dimension, in which the scales have only low correlations with each other (maximum r =.33).

Dimensionality. Confirmatory factor analysis

Confirmatory factor analyses were performed to test the hypotheses of the theoretical model based on the creation of subscales. Once a possible fit to the single-factor model had been ruled out, confirmatory factor analyses were performed on the primary scales to evaluate three possible theoretical configurations. The first of these was that postulated in the original theoretical model (Reynolds & Kamphaus, 1992), in which each subscale belongs to a single first-order factor. The second corresponded to the final model obtained in the Spanish-language version of the questionnaire (González et al., 2004), and the third was the alternative model presented in this study of the internal structure of BASC-S3 adapted for a Basque-speaking population, inspired by the model achieving the best fit in BASC-S2 (Jaureguizar et al., 2012) (see Figure 1). The goodness of fit indices for each of the models are shown in Table 2.

Table 2

Goodness of fit indices for the theoretical models

Model	*N*	χ^2	df	χ^2/df	CFI	RMSEA	90%CI RMSEA	SRMR	AIC
1.BASC	415	285.01*	74	3.85	0.61	0.08	0.07-0.09	0.07	39675.06
2.Spanish	415	229.97*	69	3.33	0.71	0.07	0.06-0.08	0.06	39590.92
3.Basque	415	180.58 *	68	2.65	0.80	0.06	0.05-0.07	0.05	39527.74

*p < .001.

Table 2 highlights the poor fit achieved by Model 1, which is corroborated by the analyses performed on the Spanish-language version of the test. Model 2 offers better indices of fit, but remains unacceptable. Although the chi-square value is significant in all cases, the values for the chi-square/df ratio and the RMSEA and SRMR values lead us to accept the alternative model proposed, for the Basque-language adaptation of the test (Model 3). The lower AIC value and the statistically significant differences between the chi-square results also corroborate the better fit attained by Model 3, with respect to the other two.

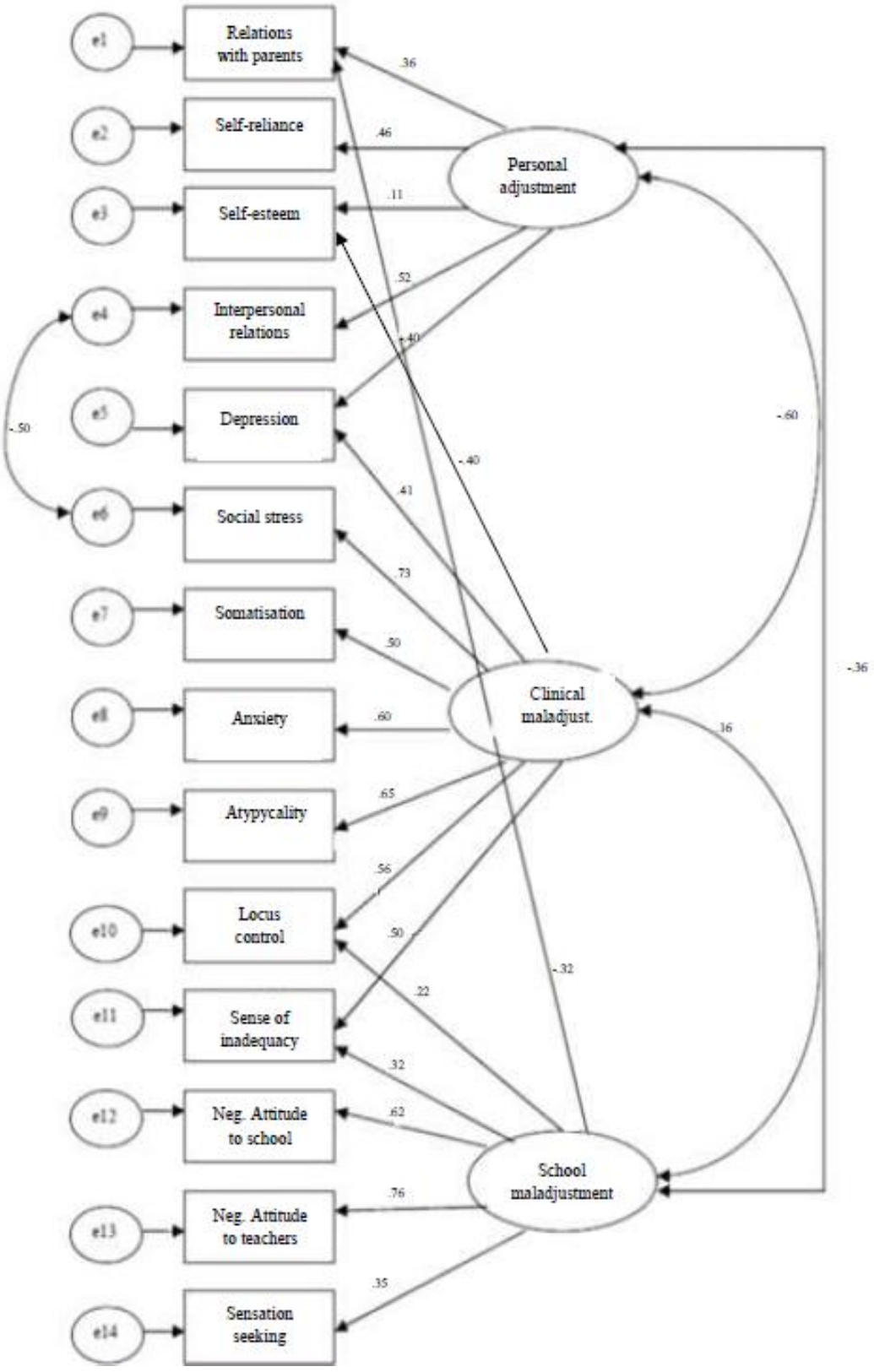

Figure 1. Final version of the model, Basque-language version

Description of the primary scales

Table 3 shows the descriptive statistics of the 14 primary scales and the 3 composite dimensions, and also includes information on the reliability of the scores obtained.

Table 3

Descriptive Statistics and Internal Consistency of the Primary Scales and Global Dimensions

Scales	Max.	%lost	%B	%C	*M*	*LL*	*UL*	*SD*	*As*	*K*	*KS*	α
Negative attitude to school	10	1.37	14.7	1.2	3.67	3.49	3.84	2.71	.31	-.95	.14**	.81
Negative attitude to teachers	9	1.59	15.5	1.8	3.08	2.93	3.24	2.41	.61	-.57	.16**	.76
Sensation seeking	14	1.37	2.9	.1	5.09	4.91	5.27	2.78	.28	-.59	.10**	.69
Atypicality	16	1.26	13.6	.1	3.73	3.53	3.93	3.10	.97	.66	.14**	.77
Locus of control	14	1.48	16.3	0	2.96	2.80	3.12	2.49	1.00	.67	.17**	.73
Somatisation	9	1.26	45.8	.1	1.17	1.07	1.27	1.51	1.69	3.14	.25**	.64
Social stress	13	1.53	30.5	.4	2.27	2.10	2.44	2.61	1.58	2.40	.20**	.82
Anxiety	15	1.48	4.5	1.1	6.29	6.05	6.52	3.63	.14	-.92	.10**	.82
Depression	14	1.31	43.6	.1	1.60	1.45	1.76	2.33	2.17	4.98	.27**	.81
Sense of inadequacy	13	1.37	13.2	.3	3.06	2.90	3.22	2.47	.94	.43	.17**	.69
Interpersonal relations	15	1.59	.1	47.1	14.65	14.51	14.80	2.31	-3.04	11.32	.30**	.79
Relations with parents	9	1.26	.3	46.5	7.80	7.70	7.91	1.62	-1.86	3.84	.25**	.68
Self-esteem	8	1.48	1.3	56.7	6.63	6.49	6.76	2.05	-1.48	1.16	.31**	.85
Self-reliance	9	1.20	.1	30.6	6.75	6.68	6.83	1.18	-1.08	1.54	.23**	.50
Personal adjustment	41	1.92	0	10.2	35.83	35.50	36.16	5.13	-2.04	5.93	.16**	.85
Clinical maladjustment	94	2.03	.5	0	21.11	20.20	22.03	14.09	1.08	1.31	.10**	.94
School maladjustment	33	1.81	.4	.1	11.82	11.42	12.21	6.08	.40	-.34	.07**	.83

Maximum score possible (Max), Percentage of values lost (%lost), Percentage of cases with a basal score (%B), Percentage of cases with a ceiling score (%C), Arithmetic mean (*M*), Lower limit of arithmetic mean at 95% confidence (LL), Upper limit of arithmetic mean at 95% confidence (UL), Standard deviation (*SD*), Index of asymmetry (As), Index of kurtosis (K), Kolmogrov-Smirnov statistic (KS), Internal consistency (Cronbach's α) and $p < .001$ (**).

In summary, the results show that the percentage of lost values is low for all the scales; that none are distributed in accordance with a normal curve; that there is positive asymmetry and a relatively high percentage of cases with a basal score for the scales that measure maladjustment (*depression, anxiety, atypicality*, etc.); and that there is negative asymmetry and a higher percentage of cases with a ceiling score for the scales that measure adjustment (*interpersonal relations, self-esteem and self-reliance*). In terms of composite reliability (CR) and mean extracted variance (MEV), the results indicate moderate levels of reliability for *personal adjustment* (CR = .49) and high ones for *school maladjustment* (CR = .89) and *clinical maladjustment* (CR = .96). The MEV results were 15.50%, 22.06%, and 30.84% respectively.

Agreement with other scales

Concurrent validity was assessed by studying the degree of agreement between the scores obtained in BASC-S3 and their counterparts in the Basque-language version of the CDS for students aged under 17 years, and in the BDI for older students.

The Spearman correlation between the BASC-3S scale for *depression* and the total BDI score is moderate and statistically significant (r_{134} = .39; p < .001). The same pattern was observed for the correlation with the CDS *total depressive* scale (r_{304} = .53; p < .001). The associations between the CDS and BASC-S3 scales measuring *lack of self-esteem* (r_{304} = .41; p < .001) and *social problems* (r_{304} = .66; p < .001) are also moderate and statistically significant, as expected.

Rates of school and clinical maladjustment and of personal adjustment; differential analyses by sex and age

The analysis made of 75% of the study sample shows that 4.1% of the students (n = 58) presented a clinically significant score for *clinical maladjustment*, and that 9.2% (n = 127) were at risk of this condition. Moreover, 5.9% (n = 83) presented clinically significant *school maladjustment* and 16.2% (n = 227) were at risk of this. Finally, 4.5% (n = 63) of the students presented clinically significant problems of *personal adjustment*, and 8.2% (n = 115) were at risk of such problems.

By subgroups, the factor invariance analyses (see Table 4) indicate that the only relevant comparisons are those between boys and girls, since strict invariance in the test structure was only observed by reference to the male/female subgroups.

Although there are statistically significant differences between the boys and girls in 13 of the 17 comparisons made, the associated effect size is low in all aspects except for *sensation seeking*, where the effect size (moderate) is greater for the boys than for the girls (see Table 5).

Table 4
Goodness of fit indices for factor invariance of BASC-3 (Basque-language version), by sex and age groups

Model	χ^2	*df*	CFI	RMSEA	$\Delta\chi^2$	Δd.f.	ΔCFI	ΔRMSEA
Sex								
Configural inv.	780.00	136	0.914	0.087				
Metric inv.	814.99	152	0.911	0.083	34.10*	16	0.002	0.004
Scalar inv.	922.16	163	0.905	0.086	107.17*	11	0.006	0.003
Strict inv.	942.10	166	0.896	0.086	19.94*	3	0.009	0.000
Age group								
Configural inv.	268	474.78	0.880	0.086				
Metric inv.	316	563.18	0.860	0.087	48	88.40	0.022	0.001
Scalar inv.	349	633.90	0.841	0.088	33	70.71	0.021	0.001
Strict inv.	358	663.31	0.830	0.090	9	29.40	0.011	0.002

*$p < .001$.

Table 5
Differences by sex

	M_{Males}	$M_{Females}$	*Z*	*p*	*Z/root(n)*
Neg. attitude to school	3.97	3.24	-4.97	<.001	-0.14
Neg. attitude to teachers	2.97	2.85	-1.11	.267	-0.03
Sensation seeking	5.82	4.02	-11.85	<.001	-0.33
Atypicality	3.21	3.78	-3.94	<.001	-0.11
Locus control	2.84	2.80	-.90	.366	-0.03
Somatisation	.87	1.28	-4.76	<.001	-0.13
Social stress	1.92	2.31	-3.50	<.001	-0.10
Anxiety	5.22	7.08	-8.78	<.001	-0.24
Depression	1.29	1.58	-2.35	.019	-0.07
Sense of inadequacy	2.66	3.08	-3.19	<.001	-0.09
Interpersonal relations	14.75	14.75	-.57	.571	-0.02
Relations with parents	7.84	7.97	-2.66	.008	-0.07
Self-esteem	7.17	6.25	-7.30	<.001	-0.20
Self-reliance	6.81	6.74	-.96	.337	-0.03
Personal adjustment	36.56	35.71	-3.00	.003	-0.08
Clinical maladjustment	17.99	21.90	-5.74	<.001	-0.16
School maladjustment	12.76	10.80	-7.62	<.001	-0.21

Discussion

Adolescence is the most critical stage of human development and it is young people who are most at risk of clinical, school and social maladjustment. To investigate this issue, we examined the incidence of *school* and *clinical maladjustment* and of *personal adjustment* in adolescents aged 12 to 18 years, together with the corresponding differences by sex and age groups, after adapting the Behavior Assessment System for Children (BASC-S3, Reynolds & Kamphaus, 1992) into a Basque-language version.

Our analysis of the Basque version of BASC-S3 shows that it contains three correlated but distinctive factors (as do the original and the Spanish-language versions), namely *personal adjustment, clinical maladjustment* and *school maladjustment*.

Some variables (such as *depression, relations with parents, atypicality, locus of control* and *sense of inadequacy*) were found to have factor loads on two latent factors, as in both the original and the Spanish versions. For example, the *depression* scale has a factor load in both *personal adjustment* and in *clinical maladjustment*, since depression reflects not only clinical maladjustment, but also the individual's satisfaction (or dissatisfaction) with social and/or family relationships, which are aspects of personal adjustment.

The present study also evaluates the internal consistency of the BASC-S3 instrument, which is shown to be acceptable regarding both the global dimensions and the scales, although five of these (*self-confidence, somatisation, relationships with parents, sense of inadequacy* and *sensation seeking*) present lower values, similar to those obtained with the Spanish and Basque-language versions of BASC-S2 (Jaureguizar et al., 2012). Accordingly, further research is needed to analyse in greater detail these scales and the items of which they are composed.

Finally, we sought evidence on the concurrent validity of the Basque-language version of BASC-S3, relating it to the CDS and the BDI. These questionnaires are widely used in clinical and school contexts for the study of depressive symptoms. The results of this analysis corroborate the concurrent validity of the BASC-S3 version. As expected, the dimensions of *depression, self-esteem* and *social stress* of BASC present a moderate and statistically significant relationship with the corresponding dimensions of the CDS. Nevertheless, it would be useful to further investigate this question, by assessing its association with other measurement instruments that evaluate constructs similar to (or different from) those examined by BASC-S3.

Taking the above considerations into account, we conclude that the Basque-language version of BASC-S3 has appropriate psychometric properties, and thus constitutes an instrument of great interest for use among the Basque-speaking teenage population, both in schools and in clinical settings.

Regarding problems of maladjustment/adjustment, the results obtained show that 4.1% of the adolescents who took part in this study had a clinically significant score for *clinical maladjustment*, and that 9.2% were at risk of suffering this condition (the results for problems of personal adjustment were very similar). These findings are in line with those reported elsewhere (Polanczyk et al., 2015), with the advantage that our study also provides information on "at risk" cases, which should not be overlooked.

For *school maladjustment*, the values obtained were even higher. Thus, 5.9% of the students presented a clinically significant degree of school maladjustment, and 16.2% were at risk. These findings highlight the degree of unease of many students in the school context; they do not consider themselves to be integrated into this setting and have a

negative attitude towards teachers and towards the school in general, which can lead to a serious risk of their leaving full-time education prematurely.

With respect to gender, few differences were observed. Although the female students obtained higher average scores for *clinical maladjustment* and some of its associated scales (*atypicity, somatisation, social stress, anxiety* and *sense of inadequacy*), the associated effect sizes were not significant. In the same line, the male students obtained higher scores for *school mismatch* and in two of its scales (*sensation seeking* and *negative attitude to school*) and in one of the adaptive scales (*self-esteem*). But once again, the effect sizes were low, except for *sensation seeking*, in which case it was moderate. The absence of major differences is in line with Alvarez (2015), and corroborates the hypothesis of the similarity of the sexes (Hyde, 2005). Future studies should consider this issue, as gender differences are relevant to important social and cultural stereotypes which are subsequently implemented in clinical and educational practice, even when they appear to have no scientific justification.

In summary, the present study provides valuable information on rates of maladjustment and adjustment among adolescent students and on differences (or absence of them) in this respect by sex. To this end, a test that is widely used in clinical and school settings (Merrell, 2009) was used, after its adaptation to the Basque language. This approach responds to an increasingly urgent need to devise psychological tests that are adapted to Basque language and culture.

This study has some limitations. Thus, the participants were selected exclusively among secondary education and pre-university students in the Basque Country (Spain). Future research should also include adolescents from clinical settings. As regards the procedure used to validate the test, it would be interesting to complement this by analysing the temporal stability of BASC-S3 (test-retest reliability) and to obtain more evidence of external validity. Finally (although this criticism would also be applicable to the original version of the questionnaire), certain limitations are inherent to a questionnaire with a dichotomous (true/false) response format, since with this type of measurement, the metric of the latent variable is uncertain.

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Elena Bernaras Iturrioz is a lecturer in the Department of Developmental Psychology and Education at the School of Education, Philosophy and Anthropology (University of the Basque Country). Her research and her publications focus on special education, in particular on visual disabilities, on good practice in university teaching, on the validation of Basque-language pyschometric testing and on the analysis of emotional maladjustment at school and in the family and on its prevention

Joana Jaureguizar Albonigamayor is a lecturer in the Department of Developmental Psychology and Education at the Bilbao University Teacher Training School (University of the Basque Country). Her research work focuses on the study of conflictive behaviour in children and adolescents (violent behaviour in the home and at school), family relations (expressed emotion, parental educational styles) and emotional maladjustment (especially infant-juvenile depression).

Marian Soroa is a lecturer in the Department of Developmental Psychology and Education at the School of Education, Philosophy and Anthropology (University of the Basque Country). Her research interests include special educational needs and inclusive education, emotional and behavioural difficulties at school, and psycho-social intervention to promote emotional well-being and social harmony in the school environment. She has published about a dozen articles, books and book chapters in these areas.

Marta Sarasa Maia is an assistant lecturer in the Department of Developmental Psychology and Education at the School of Education, Philosophy and Anthropology (University of the Basque Country). She has extensive experience in the field of inclusive education, with particular emphasis on special educational needs. She has studied, in particular, children with autism and generalised developmental disorders and their families. Her research is currently focused on the socio-personal adjustment of children and adolescents, analysing depressive symptoms and other aspects of family relationships, school adjustment, etc. At present, she is preparing her doctoral thesis.

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Annex 1. Description of the items that comprise the BASC-S3

		%lost	*M*	*LL*	*UL*	*SD*	*As.*	*K.*	*K-S*	*cIH*
Negative attitude to school	Item 146	.0%	.51	.47	.54	.50	-.029	-2.00	.34*	.69
	Item 18	.1%	.93	.91	.94	.26	-3.25	8.60	.53*	.43
	Item 120	.8%	.47	.44	.51	.50	.10	-1.99	.35*	.64
	Item 76	.0%	.11	.09	.13	.31	2.51	4.34	.52*	.28
	Item 3	.6%	.49	.46	.52	.50	.04	-2.00	.34*	.42
	Item 62	.2%	.86	.84	.89	.34	-2.10	2.43	.51*	.20
	Item 47	.2%	.78	.75	.80	.41	-1.32	-.24	.48*	.60
	Item 33	.1%	.46	.43	.50	.49	.15	-1.98	.36*	.43
	Item 91	.1%	.58	.55	.61	.49	-.32	-1.90	.38*	.49
	Item 171	.0%	.53	.50	.57	.49	-.13	-1.98	.35*	.69
Anxiey	Item 153	.0%	.84	.82	.87	.36	-1.88	1.53	.51*	.19
	Item 29	.0%	.49	.46	.52	.50	.04	-2.00	.34*	.40
	Item 93	.2%	.73	.70	.76	.44	-1.02	-.95	.45*	.45
	Item 77	.2%	.60	.57	.64	.49	-.41	-1.83	.39*	.30
	Item 64	.0%	.69	.66	.73	.46	-.84	-1.28	.44*	.33
	Item148	.2%	.32	.29	.35	.46	.76	-1.41	.43*	.43
	Item 122	.2%	.56	.53	.60	.49	-.25	-1.93	.37*	.47
	Item 19	.2%	.54	.51	.58	.49	-.17	-1.97	.36*	.30
	Item159	.2%	.80	.77	.82	.40	-1.48	.19	.49*	.34
	Item 48	.5%	.48	.45	.52	.50	.06	-2.00	.35*	.59
	Item 57	.1%	.39	.36	.42	.48	.44	-1.80	.39*	.41
	Item 105	.1%	.41	.38	.45	.49	.35	-1.88	.38*	.42
	Item 35	.4%	.72	.68	.75	.45	-.95	-1.08	.45*	.41
	Item 5	.8%	.69	.65	.72	.46	-.79	-1.36	.43*	.44
	Item 173	.5%	.63	.60	.66	.48	-.53	-1.71	.40*	.39
Negative attitude to teachers	Item 71	.4%	.80	.77	.83	.40	-1.49	.21	.49*	.52
	Item 82	.0%	.80	.77	.83	.40	-1.50	.26	.49*	.37
	Item 99	.1%	.46	.43	.50	.49	.15	-1.98	.36*	.37
	Item 12	.6%	.15	.13	.18	.35	1.94	1.79	.51*	.45
	Item 25	.2%	.34	.31	.38	.47	.65	-1.52	.42*	.45
	Item 42	.2%	.58	.55	.61	.49	-.32	-1.90	.38*	.36
	Item 128	.4%	.36	.32	.39	.47	.60	-1.64	.41*	.41
	Item 154	1.3%	.42	.38	.45	.49	.33	-1.89	.38*	.33
Atypicality	Item 53	.4%	.66	.63	.69	.47	-.68	-1.52	.42*	.36
	Item 143	.1%	.98	.97	.99	.13	-7.02	47.49	.53*	.17
	Item 41	.1%	.89	.87	.91	.30	-2.55	4.53	.52*	.31
	Item 98	.2%	.74	.70	.77	.44	-1.06	-.86	.46*	.22
	Item 116	.1%	.96	.95	.97	.19	-4.73	20.47	.54*	.19
	Item 11	.0%	.89	.87	.91	.31	-2.53	4.44	.52*	.22
	Item 81	.2%	.74	.71	.77	.44	-1.08	-.83	.46*	.25
	Item 138	.4%	.69	.66	.73	.46	-.84	-1.29	.44*	.17
	Item 110	.1%	.80	.78	.83	.39	-1.54	.37	.49*	.46
	Item 169	.0%	.96	.95	.97	.19	-4.65	19.75	.54*	.22
	Item 24	.2%	.95	.94	.97	.20	-4.36	17.10	.54*	.20
	Item 87	.1%	.66	.63	.69	.47	-.66	-1.56	.42*	.36
	Item70	.4%	.59	.56	.62	.49	-.36	-1.87	.38*	.40
	Item 164	.1%	.67	.64	.70	.47	-.71	-1.49	.42*	.34
	Item 58	.1%	.94	.92	.95	.24	-3.54	10.60	.53*	.28
	Item 174	.1%	.75	.72	.78	.43	-1.13	-.71	.46*	.48
e -	Item 147	.4%	.83	.81	.86	.37	-1.79	1.20	.50*	.49

	Item 63	.2%	.88	.86	.91	.31	-2.41	3.84	.52*	.40
	Item 92	.1%	.89	.86	.91	.31	-2.43	3.94	.52*	.66
	Item 121	.5%	.21	.18	.24	.40	1.41	.00	.48*	.78
	Item 4	.5%	.05	.04	.07	.22	4.05	14.49	.54*	.14
	Item 34	.4%	.81	.79	.84	.38	-1.61	.61	.49*	.73
	Item 134	.1%	.17	.15	.20	.38	1.71	.94	.50*	.64
	Item 177	.2%	.08	.06	.10	.27	3.12	7.77	.53*	.01
Sensation seeking	Item 160	.0%	.92	.90	.94	.27	-3.12	7.80	.53*	.23
	Item13	.5%	.91	.89	.93	.28	-2.89	6.38	.53*	.22
	Item 78	.0%	.67	.64	.71	.46	-.74	-1.44	.43*	.28
	Item 135	.2%	.68	.64	.71	.46	-.74	-1.44	.43*	.53
	Item 20	1.2%	.53	.49	.56	.50	-.11	-1.99	.35*	.24
	Item 6	.1%	.68	.64	.71	.46	-.75	-1.44	.43*	.29
	Item 36	.2%	.67	.64	.70	.47	-.72	-1.47	.42*	.51
	Item 106	.4%	.49	.46	.53	.50	.03	-2.00	.34*	.46
	Item 123	.0%	.34	.31	.37	.47	.68	-1.52	.42*	.26
	Item 49	.2%	.47	.43	.50	.49	.12	-1.98	.35*	.34
	Item 94	.2%	.41	.38	.44	.49	.37	-1.86	.38*	.35
	Item 149	.2%	.95	.94	.97	.21	-4.23	16.00	.54*	.15
	Item 65	.1%	.70	.67	.73	.45	-.87	-1.24	.44*	.12
	Item 175	.5%	.60	.57	.64	.48	-.42	-1.82	.39*	.30
Self-reliance	Item 144	.2%	.15	.12	.17	.35	2.01	2.08	.51*	.09
	Item 117	.7%	.17	.14	.19	.37	1.78	1.18	.50*	.18
	Item 59	.5%	.36	.32	.39	.47	.59	-1.64	.41*	.18
	Item 39	.1%	.45	.42	.48	.49	.20	-1.96	.36*	.16
	Item 30	.2%	.05	.03	.06	.21	4.17	15.49	.54*	.12
	Item 88	.2%	.15	.13	.18	.35	1.95	1.81	.51*	.22
	Item 167	.1%	.02	.01	.03	.13	7.27	50.99	.53*	.08
	Item 170	.2%	.02	.01	.03	.14	6.80	44.35	.53*	.09
	Item 178	.2%	.76	.73	.79	.42	-1.19	-.56	.47*	.08
Depression	Item 50	.1%	.93	.91	.94	.26	-3.28	8.82	.53*	.07
	Item124	.4%	.76	.73	.79	.42	-1.20	-.55	.47*	.24
	Item 100	.0%	.98	.98	.99	.12	-7.84	59.68	.53*	.28
	Item 79	.0%	.93	.91	.95	.25	-3.43	9.80	.53*	.34
	Item 21	.0%	.93	.91	.94	.26	-3.29	8.84	.53*	.23
	Item 95	.1%	.98	.97	.99	.12	-7.54	54.99	.53*	.19
	Item 107	.4%	.98	.97	.99	.15	-6.23	36.90	.53*	.12
	Item 66	.0%	.96	.94	.97	.20	-4.51	18.38	.54*	.15
	Item 7	.0%	.93	.91	.95	.25	-3.3	9.30	.53*	.31
	Item 161	.0%	.89	.87	.91	.31	-2.49	4.24	.52*	.35
	Item 150	.2%	.82	.79	.84	.38	-1.63	.68	.49*	.25
	Item37	.0%	.94	.93	.96	.23	-3.86	12.93	.54*	.03
	Item 179	.4%	.04	.03	.06	.20	4.57	18.96	.54*	.13
	Item 176	.1%	.91	.89	.93	.29	-2.77	5.71	.53*	.20
Social stress	Item 67	.2%	.78	.75	.81	.41	-1.35	-.15	.48*	.47
	Item 22	.1%	.67	.64	.71	.46	-.74	-1.44	.43*	.42
	Item 8	.4%	.94	.92	.96	.23	-3.7	11.80	.54*	.28
	Item 83	.0%	.90	.88	.92	.29	-2.73	5.46	.53*	.33
	Item 151	.4%	.78	.75	.81	.41	-1.34	-.20	.48*	.35
	Item 38	.1%	.98	.97	.99	.13	-7.27	50.99	.53*	.20
	Item 125	.1%	.57	.53	.60	.49	-.26	-1.93	.37*	.40
	Item 51	.1%	.97	.96	.98	.16	-5.78	31.52	.53*	.27
	Item 96	.4%	.92	.90	.94	.27	-3.06	7.39	.53*	.33
	Item 136	.1%	.93	.91	.95	.25	-3.35	9.29	.53*	.37

	Item 162	.7%	.86	.84	.88	.34	-2.09	2.40	.51*	.32
	Item 108	.2%	.94	.92	.95	.24	-3.54	10.58	.53*	.22
	Item 180	.2%	.95	.94	.97	.20	-4.36	17.10	.54*	.29
L	Item 109	.1%	.37	.34	.40	.48	.53	-1.71	.40*	.51
	Item52	.7%	.33	.30	.36	.47	.73	-1.47	.42*	.58
	Item 140	.7%	.37	.33	.40	.48	.55	-1.69	.41*	.18
	Item 68	.1%	.32	.28	.35	.46	.79	-1.37	.43*	.30
	Item 112	.4%	.83	.81	.86	.37	-1.79	1.20	.50*	.41
	Item 126	.0%	.70	.67	.73	.46	-.86	-1.26	.44*	.43
	Item 137	.2%	.77	.74	.80	.42	-1.26	-.39	.47*	.46
	Item 9	.0%	.66	.62	.69	.47	-.65	-1.57	.42*	.29
	Item 80	.2%	.32	.29	.35	.46	.76	-1.41	.43*	.32
	Item 163	.0%	.37	.34	.40	.48	.53	-1.71	.40*	.21
	Item 23	.2%	.69	.66	.72	.46	-.83	-1.30	.44*	.34
Locus control	Item 54	.2%	.93	.91	.95	.25	-3.31	9.03	.53*	.29
	Item 119	.2%	.65	.62	.68	.47	-.62	-1.61	.41*	.36
	Item 90	.1%	.92	.90	.94	.27	-3.00	7.07	.53*	.19
	Item 133	.4%	.92	.90	.94	.26	-3.15	7.95	.53*	.26
	Item 75	.1%	.83	.80	.86	.37	-1.76	1.09	.50*	.35
	Item 46	.7%	.65	.62	.68	.47	-.63	-1.60	.41*	.17
	Item 17	.6%	.53	.50	.56	.49	-.12	-1.99	.35*	.34
	Item32	.1%	.91	.90	.93	.27	-2.98	6.90	.53*	.22
	Item 158	.2%	.66	.63	.69	.47	-.68	-1.53	.42*	.43
	Item 2	.4%	.87	.84	.89	.34	-2.14	2.61	.51*	.16
	Item 61	.2%	.76	.73	.79	.42	-1.20	-.54	.47*	.26
	Item 104	.1%	.84	.81	.86	.36	-1.84	1.39	.50*	.19
	Item 181	.1%	.97	.96	.98	.17	-5.29	26.12	.54*	.04
	Item 60	.5%	.03	.02	.04	.16	5.64	29.88	.54*	.13
Interpersonal relations	Item 168	.0%	.97	.96	.98	.16	-5.92	33.23	.53*	.20
	Item 103	.6%	.04	.03	.06	.20	4.49	18.24	.54*	.32
	Item 118	.2%	.25	.22	.28	.43	1.13	-.70	.46*	.27
	Item 45	.1%	.05	.04	.07	.22	4.06	14.56	.54*	.19
	Item115	.2%	.99	.98	1.00	.10	-8.98	78.89	.53*	.18
	Item 132	.1%	.03	.02	.04	.17	5.52	28.60	.54*	.18
	Item 89	.2%	.10	.08	.12	.30	2.61	4.84	.53*	.47
	Item 145	.2%	.02	.01	.03	.14	6.59	41.61	.53*	.09
	Item 31	.1%	.96	.95	.97	.19	-4.65	19.72	.54*	.18
	Item 86	.5%	.95	.93	.96	.22	-4.05	14.49	.54*	.27
	Item 142	.0%	.99	.98	.99	.11	-8.18	65.07	.53*	-.01
	Item 1	1.0%	.12	.09	.14	.32	2.40	3.78	.52*	.45
	Item 16	.2%	.01	.01	.02	.11	8.55	71.26	.53*	.11
	Item 157	.1%	.86	.83	.88	.35	-2.03	2.14	.51*	.44
	Item 186	.1%	.93	.91	.95	.25	-3.35	9.29	.53*	.11
Relations with parents	Item 139	.4%	.09	.07	.11	.29	2.77	5.69	.53*	.22
	Item 152	.2%	.18	.15	.20	.38	1.68	.82	.50*	.27
	Item 10	.2%	.13	.11	.15	.33	2.22	2.96	.52*	.26
	Item165	1.3%	.14	.12	.17	.34	2.05	2.23	.51*	.27
	Item 69	.0%	.08	.06	.10	.27	3.09	7.61	.53*	.33
	Item127	.1%	.16	.13	.18	.36	1.86	1.48	.50*	.27
	Item 40	.1%	.05	.04	.07	.22	4.01	14.12	.54*	.21
	Item 97	.2%	.13	.11	.16	.34	2.14	2.62	.51*	.35
	Item 182	.1%	.07	.05	.08	.24	3.50	10.32	.53*	.11
in	Item 84	.0%	.51	.48	.54	.50	-.04	-2.00	.34*	.13
	Item 73	.5%	.62	.59	.66	.48	-.50	-1.74	.40*	.34

	Item 55	.2%	.98	.97	.99	.15	-6.23	36.95	.53*	.19
	Item 184	.2%	.06	.04	.08	.24	3.67	11.49	.54*	.29
	Item 14	.2%	.88	.86	.91	.31	-2.41	3.84	.52*	.29
	Item 113	.0%	.75	.72	.78	.43	-1.16	-.64	.46*	.15
	Item 111	.2%	.83	.81	.86	.37	-1.78	1.17	.50*	.28
	Item 155	.6%	.77	.74	.80	.42	-1.26	-.40	.47*	.17
	Item 44	.0%	.74	.71	.77	.43	-1.10	-.77	.46*	.28
	Item 130	.1%	.81	.78	.83	.39	-1.55	.40	.49*	.29
	Item 141	.1%	.79	.77	.82	.40	-1.45	.12	.48*	.19
	Item 101	.4%	.82	.79	.84	.38	-1.65	.75	.50*	.28
Somatisation	Item114	.1%	.91	.89	.93	.29	-2.77	5.71	.53*	.36
	Item 85	.1%	.91	.89	.93	.28	-2.90	6.42	.53*	.09
	Item 131	.0%	.85	.83	.88	.35	-1.99	1.98	.51*	.18
	Item 56	.5%	.85	.82	.87	.36	-1.92	1.69	.51*	.14
	Item 102	.4%	.92	.90	.93	.27	-3.00	7.04	.53*	.26
	Item 15	.1%	.05	.03	.06	.20	4.36	17.13	.54*	.11
	Item 74	.2%	.74	.71	.77	.44	-1.08	-.83	.46*	.20
	Item156	.2%	.97	.95	.98	.18	-5.08	23.94	.54*	.10
	Item 185	.0%	.91	.89	.93	.29	-2.77	5.72	.53*	.18

Percentage of values lost (%lost), Arithmetic mean (M), Lower limit of arithmetic mean at 95% confidence (LL), Upper limit of arithmetic mean at 95% confidence (UL), Standard deviation (SD), Index of asymmetry (As), Index of kurtosis (K), Kolmogrov-Smirnov statistic (KS), corrected Homogeneity Index (cHI) and *p<0.01