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Steps in the construction and verification of an explanatory model of psychosocial adjustment



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KEYWORDS

Perceived social support;
Self-concept;
Resilience;
Well-being;
School engagement

Abstract The aim of the present study was to empirically test an explanatory model of psychosocial adjustment during adolescence, with psychosocial adjustment during this stage being understood as a combination of school adjustment (or school engagement) and subjective well-being. According to the hypothetic model, psychosocial adjustment depends on self-concept and resilience, which in turn act as mediators of the influence of perceived social support (from family, peers and teachers) on this adjustment. Participants were 1250 secondary school students (638 girls and 612 boys) aged between 12 and 15 years (Mean = 13.72; SD = 1.09). The results provided evidence of: (a) the influence of all three types of perceived support on subject resilience and self-concept, with perceived family support being particularly important in this respect; (b) the influence of the support received from teachers on school adjustment and support received from the family on psychological wellbeing; and (c) the absence of any direct influence of peer support on psychosocial adjustment, although indirect influence was observed through the psychological variables studied. These results are discussed from an educational perspective and in terms of future research.

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PALABRAS CLAVE

Apoyo social percibido;
Autoconcepto;
Resiliencia;
Bienestar subjetivo;
Implicación escolar

Pasos en la construcción y verificación de un modelo explicativo sobre el ajuste psicosocial

Resumen El presente trabajo tiene como objetivo someter a comprobación empírica un modelo explicativo sobre el ajuste psicosocial en la adolescencia, entendiendo el ajuste psicosocial en esta etapa de la vida como la conjunción del ajuste escolar (o implicación en la escuela) y el bienestar subjetivo. Según este modelo hipotetizado, el ajuste psicosocial depende del

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autoconcepto y de la resiliencia, que a su vez funcionan como mediadores de la influencia del apoyo social percibido (de la familia, pares y profesorado) sobre dicho ajuste. Participaron en esta investigación un total de 1250 estudiantes de ESO (638 mujeres y 612 hombres) de entre 12 y 15 años ($M = 13.72$; $DT = 1.09$). Los resultados aportan evidencias de: a) la influencia de los tres tipos de apoyo percibido sobre la capacidad de resiliencia y sobre el nivel de autoconcepto, destacando el de la familia; b) del apoyo del profesorado sobre el ajuste escolar y de la familia sobre el bienestar psicológico; y c) del nulo influjo directo del apoyo de los amigos sobre el ajuste psicosocial, pero sí indirecto a través de las variables psicológicas. Estos datos se discuten tanto desde perspectivas educativas como en orden a futuras investigaciones.

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Introduction

The concept adjustment is closely related to adaptation and has been defined in terms of social competence manifested at a behavioral level, or in terms of success in the performance of developmental tasks during a specific development stage (Masten & Tellegen, 2012). Therefore, it is opposed to the concept of misfit at school and with it related variables: stress, burnout, bullying, etc. (Otero-López, Villardefrancos, Castro & Santiago, 2014). Given that the school context is an unquestionably important framework of reference for adolescents, of the many indicators that may be used to measure psychosocial adjustment, we can highlight school adjustment, as an index of social adaptation, and personal adjustment, understood as psychological wellbeing (Rodríguez-Fernández, Droguett, & Revuelta, 2012).

By school adjustment we mean subjects' adaptation to the demands and characteristics of the school system, as well as the degree to which they feel committed to and comfortable and accepted at school (Appleton, Christeson, & Furlong, 2008; Fredricks, Blumenfeld, & Paris, 2004; McMahon, Parnes, Keys, & Viola, 2008). For its part, psychological wellbeing is made up of life satisfaction and positive and negative affect (Diener, 1994; Rodríguez-Fernández & Goñi, 2011). The most desirable outcome would be to achieve both (school adjustment and psychological wellbeing), which is why it is important to identify the variables associated with each, in order to foster their optimization.

It is also important to remember that adaptive behavior during adolescence is better explained when a broad range of different factors are taken into consideration (Moreno & Vera, 2011). In this sense, an adequate explanation of psychosocial adjustment should bear in mind both contextual and psychological variables (De la Torre-Cruz, Casanova, Villa-Carpio, & Cerezo, 2013), both of which are involved in its determination (Rodríguez-Fernández et al., 2012).

The adjustment of young people and adolescents to the family and school environment is currently a source of concern for both educational institutions and society in general, with news items about behavioral problems among this age group in diverse interaction environments abounding in the media. Family, school and peers are young people's main

points of reference, and can fulfill either a protective function or, in some cases, can foster the emergence of situations of social maladjustment (Saldaña, 2001).

The importance of parental socialization in adolescents' school achievement is beyond doubt (Martínez, 2009), since the family is considered the main agent of socialization in children's development (Gavazzi, 2013). However, it is also closely related to adolescents' personal development (Cava, Musitu, & Murgui, 2007), since it plays a key role in children's psychological adjustment, serving as a protection factor (Lorence Lara, Hidalgo-García, & Dekovic, 2013). When relations between parents and their adolescent children are characterized by affection, support and positive communication, this fosters children's social acceptance and school (Gaylord, Kitzmann, & Lockwood, 2003) and personal adjustment (Rodríguez-Fernández et al., 2012).

Nevertheless, although relations with parents continue to be important during adolescence, during this developmental stage the peer group gradually becomes the most influential socializing context (Fernández & Bravo, 2000). As children progress from adolescence to young adulthood, their self-esteem and life satisfaction depend more and more on their peer relations and less and less on the support they receive from their parents (Oliva, Parra, & Sánchez-Queija, 2002). In relation to school adjustment, some studies indicate that peers have considerable influence on attitudes to school, school engagement, academic success, motivation and liking for school (Lubbers, Van Der Werf, Kuyper, & Offringa, 2006; Studsrød & Bru, 2011). However, other more recent studies refute the influence of peers on school adjustment, affirming that only family has an effect here, while peers only influence satisfaction with life (Rodríguez-Fernández et al., 2012).

There is a notable degree of consensus regarding the influence of the school context on the psychosocial adjustment of adolescents, particularly as regards the development of adaptive and maladaptive behaviors (Otero-López, 2001). Here, the figure of the teacher is especially important, particularly when we take into consideration the fact that the climate of the school is created mainly by the adults present in that environment (Woolley, 2006). It is therefore logical to assume that a good relationship between teachers and students will have multiple benefits

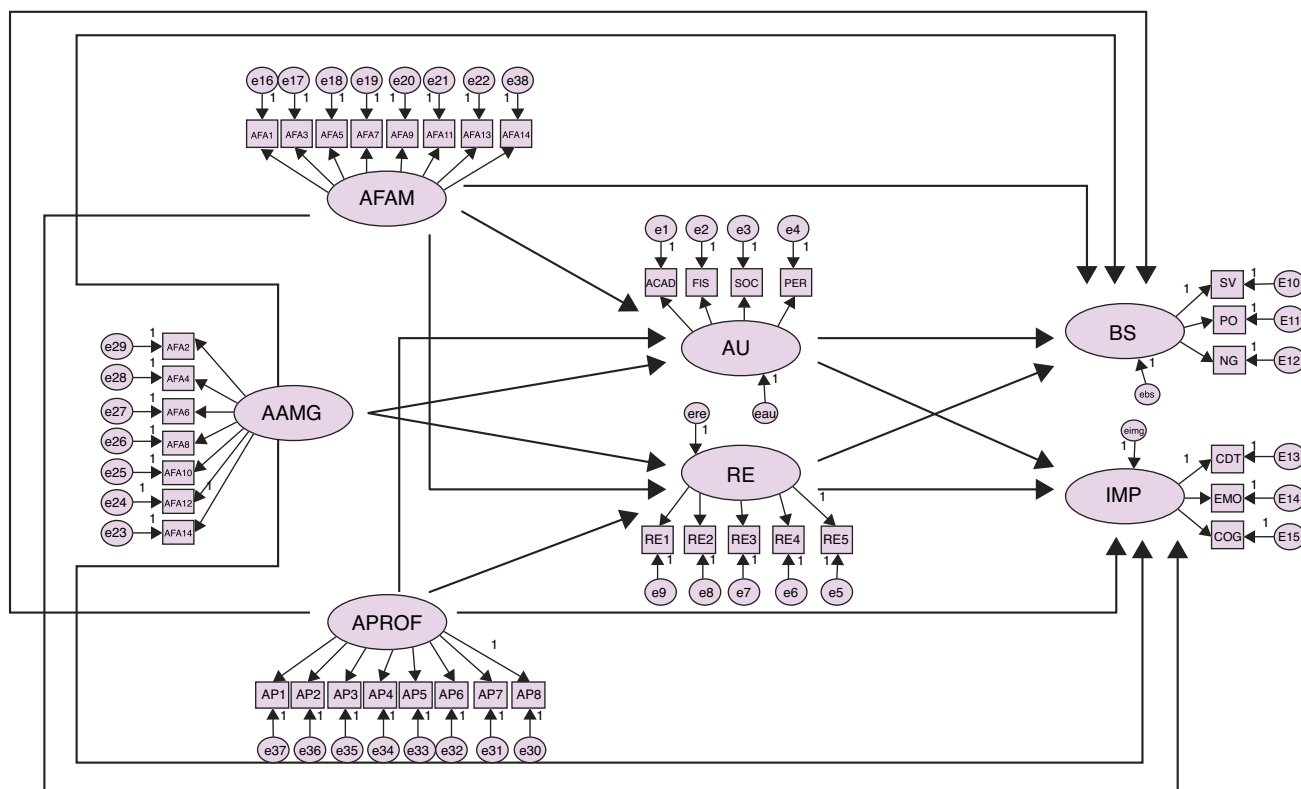


Figure 1 Initial diagram of the entire structural regression model proposed. *Note:* AFAM: family support, AAMG: friends' support, APROF: teachers' support, AU: self-concept, RE: resilience, BS: subjective wellbeing, IMP: school engagement.

for both school and personal adjustment (Hughes & Kwok, 2007; Hughes, Luo, Kwok, & Loyd, 2008).

Some of the mechanisms used to measure the relationship between context and adolescent adjustment are psychological variables (Rodríguez-Fernández et al., 2012). The relationship between social support and adolescents' self-concept is irrefutable, both as regards the support received from the family (Salazar et al., 2004) and that provided by peers (Skogbrott, Kyrre, & Wold, 2014). Similarly, teachers' support and appraisal have been related to academic self-concept, which in turn is associated with academic achievement (Santana & Feliciano, 2011).

The resilience is an intrasubject variable that allows to continue the psychosocial teenager adjustment despite the risk (Lerner et al., 2013). This variable has gained considerable importance in the field of educational psychology due to the important role of school in promoting wellness (Toland & Carrigan, 2011). Empirical evidence exists of its capacity to foster and benefit adolescent adjustment (Cunningham & Swanson, 2010) and academic achievement (Gaxiola, González, Domínguez, & Gaxiola, 2013; Kotzé & Kleynhans, 2013). Protective characteristics for resilience include: care (Masten, 2007), a warm family atmosphere, stimulation, and positive peer relations (Rueger, Kerres, & Klipatrick, 2010), and positive peer relations (Florenzano & Valdés, 2005; Krauskopf, 2007; Masten, 2007).

Although in recent times researchers are gaining new information on the relationship between the variables of this study, the joint analysis of indicators of psychological and social adjustment from environmental contingencies

and psychological characteristics is limited. Perhaps one of the most direct antecedents is a job (Rodríguez-Fernández et al., 2012), in which it was shown that psychological mechanisms mediate the relationship between context and sociopersonal adaptation.

This study aims to analyze psychosocial adjustment during adolescence in accordance with self-concept, resilience and perceived social support (from family, peers and teachers). It is hypothesized, therefore, that social support from family, friends and teachers, will have a direct impact on individual psychological variables (self-concept and resilience) and in turn, these will impact on school adjustment (school engagement) and subjective wellbeing, taking on a role of mediating variables. In turn, perceived social support also will have a direct influence on the psychosocial adjustment. The structural model being tested (cf. Fig. 1) is based on approaches that are widely supported by today's principal psychological theories, according to which any explanation of human behavior must necessarily include both individual psychological characteristics and environmental factors. The challenge, therefore, is to empirically verify the weight of the different contextual and psychological factors in the explanation of adjustment.

Method

Participants

A stratified random sampling was used, choosing the participating schools from the list of secondary schools in the

province of Alava. Initially, nine schools were contacted, but of these, two dismissed his involvement in the investigation, so we proceeded to the selection of two new centers randomly from the initial list of schools. Finally, from the nine schools, four were public school and semi-private schools (medium social-educational level) with a total sample of 1250 secondary school students aged between 12 and 15 ($M = 13.72$; $SD = 1.09$). Each school conformed about 11% of the sample. Of the total sample, 638 were girls and 612 were boys (51% and 49% respectively). A chi-square distribution test in accordance with sex in the different ages revealed no significant differences in the distribution ($\chi^2 = 4.66$; $p > .05$), indicating that the sample was well-balanced.

Variables and measurement instruments

Family and peer support were measured using the *Support from Family and Friends* questionnaire (AFA; Landero & González, 2008). This instrument comprises 15 items with two dimensions, one for each type of support, and participants respond on a 5-point Likert-type scale. The global internal consistency index is $\alpha = .84$, with this figure being $\alpha = .82$ for the *family support* and *peer support* scales.

The perceived support provided by teachers was assessed using the *Health Behaviour in School-aged Children (HSBC)* questionnaire, translated into Spanish by Moreno et al. (2012). The sub-scale used here was *support from teachers*, contained in the *perception of the school environment* dimension of the HSBC. This sub-scale comprises 8 items, to which participants respond on a 5-point Likert-type scale. The internal consistency index obtained in a recent study (Ramos-Díaz, 2015) was $\alpha = .84$.

The *CD-RISC Scale* was used to analyze resilience (Connor & Davidson, 2003). This questionnaire has good construct validity (Campbell-Sills, Cohan, & Stein, 2006) and a good internal consistency index: $\alpha = .89$ (Connor & Davidson, 2003). It comprises 25 items and although it is a five-dimensional scale (personal competence, trust in one's intuition tolerance of adversity, positive acceptance of change, control and spirituality), following the example set by other authors (Campbell-Sills et al., 2006; Ramos-Díaz, 2015), here we used the total score for the global questionnaire, which has an internal consistency index of $\alpha = .86$. Responses to the items are given on a 5-point Likert-type scale.

Self-concept was assessed using the *Multidimensional Self-Concept Questionnaire* (AUDIM; Fernández-Zabala, Goñi, Rodríguez-Fernández, & Goñi, in press), which consists of 33 items spread over 11 dimensions pertaining to the four domains of self-concept (physical, personal, social and academic). The global internal consistency of the questionnaire is $\alpha = .82$.

School adjustment was evaluated using the *School Engagement Measure* (SEM; Fredricks, Blumenfeld, Friedel, & Paris, 2005). This instrument comprises 19 items divided into 3 scales (*cognitive engagement*, *emotional engagement* and *behavioral engagement*), and responses are given on a 5-point Likert-type scale. The internal consistency indexes for each of the scales were: $\alpha = .74$ for behavioral engagement, $\alpha = .81$ for emotional engagement and $\alpha = .77$ for cognitive engagement.

Subjective wellbeing was measured using the *Satisfaction With Life Scale* (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) and the Positive and Negative Affect Scale (PNS; Bradburn, 1969), translated into Spanish by Barrio et al. (1989). The SWLS comprises 5 items, to which participants respond on a 7-point Likert-type scale. The reliability index for the Spanish version is $\alpha = .84$. The Positive and Negative Affect Scale consists of two dimensions (one for each type of affect), with a total of 9 items for each. Responses to all items are given on a 3-point scale. The internal consistency coefficients are $\alpha = .80$ (for positive affect) and $\alpha = .78$ (for negative affect).

Procedure

First of all we contacted the school management teams to ask if they were willing to participate in the study. Once they had given their consent, a letter was sent out to the students' parents or guardians asking for their permission for their children to participate. The battery of questionnaires was administered in lesson time in the classrooms themselves, with the aim of ensuring that all students in the class completed the instruments at the same time. The response time for the questionnaires varied between 20 and 30 min.

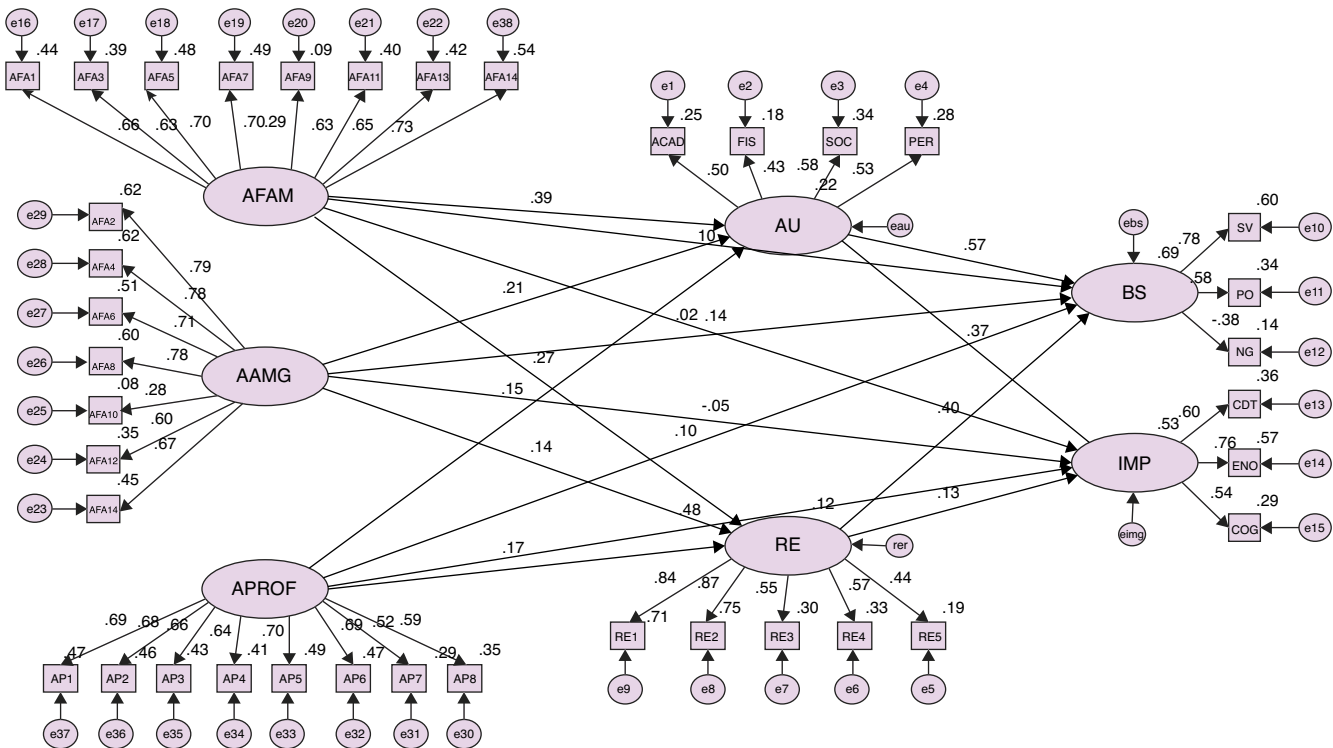
To avoid bias in the results that may call their validity into question, the following measures were adopted: (a) random intragroup equipose (different questionnaire sequences used in different selected classrooms), with the aim of preventing the responses to later questionnaires being contaminated by responses to the first ones; (b) single blind criterion, i.e. participants were not told what the aim of the study was in order to avoid responses which seek to confirm the researchers' hypotheses; and (c) total anonymity of responses and voluntary participation, in order to avoid social desirability bias.

Data analysis

The structural regression model analysis was conducted using the AMOS 21 program. Just like any other procedure subject to the structural model method, this procedure assumes multivariate normal distribution. Thus, after the multiple imputation of missing values (1%), outliers were examined using the SAS program for Windows, taking the computation of the Mahalanobis distance as a reference. Subsequently, univariate and multivariate normality was tested using Mardia's test. The results confirm the hypothesis of multivariate normal distribution. To test the model fit to the data, the maximum likelihood method was applied using as input for the data analysis the covariance matrix between the items. However, given the large number of observed variables used for testing the model, coupled with the fact that this type of method requires parsimony, the parcels technique was used for those variables measured through various facets or dimensions (self-concept, resilience, school adjustment and subjective wellbeing). This technique consists of taking the score in the dimension as the observed variable, instead of the score to each item.

Table 1 Setting rates for the structural model.

	χ^2 (g.l.)	RMSEA	SRMR	GFI	CFI
Structural model	4162 (649)	.066	.078	.856	.857

**Figure 2** Representation of standardized parameters of structural regression model. Note: AFAM: family support, AAMG: friends' support, APROF: teachers' support, AU: self-concept, RE: resilience, BS: subjective wellbeing, IMP: school engagement.

Results

Absolute fit indexes were used to verify the global fit of the proposed model. Although there are many possible goodness of fit indexes, and none on their own is sufficient to determine whether or not the model in question fits the data, the following combination of indexes is currently accepted as being the most reliable: χ^2 , RMSEA, SRMR, GFI and CFI (McDonald & Ho, 2002). Table 1 presents the goodness of fit data for the hypothesized structural model.

The resulting parameters indicate that the proposed model initially obtained a good RMSEA of $<.08$, although the result was not below RMSEA $<.05$, which is indicative of excellent fit and is therefore the most desirable outcome. A root mean square error of approximation (RMSEA) index of .066 indicates a moderate degree of fit and reflects the suitability of the model; an index of .08 or lower indicates a good fit in relation to the degrees of freedom (Browne & Cudeck, 1993). As regards the standardized root mean square residual (SRMR), the result was .078. This is below .08 and therefore indicative also of good fit. The comparative fit index (CFI = .857) and goodness of fit index (GFI = .856) should be as close as possible to 1, with values over .90 or .95 being considered indicative of excellent fit (Schumacker & Lomax, 2010). The chi-squared value

($\chi^2 = 4162.03$, $p = .000$), bearing in mind the degrees of freedom ($d.f. = 649$) is associated with a confidence interval which does not exceed $p = .05$. This rejects the null hypothesis that the model fits the empirical data. Despite this lack of significant fit in the chi-squared value, the rest of the indexes together do provide evidence that the model fits the data.

In short, the results of the structural regression model indicate a reasonable fit for the data, especially bearing in mind the complexity of model and the fact that the majority of indexes had values that were either on the limit or slightly above the values deemed acceptable.

Having analyzed the global fit of the model, we examined each of the regression coefficients proposed in the initial model individually (Fig. 2).

Of the sixteen relations proposed, fourteen were found to be significant with $p < .05$; the two exceptions were the peer support/subjective wellbeing and peer support/school engagement as a non-significant contextual variable in the direct explanation of the indicators of psychosocial adjustment.

Among the direct effects of the contextual variables on the psychological variables (see Table 2), the results show that teachers, peers and family have a direct and significant influence on self-concept and resilience, with

Table 2 Standardized direct and indirect effects between the variables considered in the initial model.

		A.PROF		A.AMIG		AFAM		RE		AU		IMP		BS
RE	D.	.166*	D.	.144*	D.	.270*	D.	.000	D.	.000	D.	.000	D.	.000
	I.	.000	I.	.000	I.	.000	I.	.000	I.	.000	I.	.000	I.	.000
AU	D.	.150*	D.	.208*	D.	.388*	D.	.000	D.	.000	D.	.000	D.	.000
	I.	.000	I.	.000	I.	.000	I.	.000	I.	.000	I.	.000	I.	.000
IMP	D.	.476*	D.	-.047	D.	.144*	D.	.128*	D.	.369*	D.	.000	D.	.000
	I.	.077**	I.	.095**	I.	.178**	I.	.000	I.	.000	I.	.000	I.	.000
BS	D.	.096*	D.	.017	D.	.101*	D.	.403*	D.	.574*	D.	.000	D.	.000
	I.	.153**	I.	.178**	I.	.331**	I.	.000	I.	.000	I.	.000	I.	.000

RE: resilience, AU: self-concept, IMP: school engagement, BS: subjective wellbeing, A.AMIG: friends' support, AFAM: family support, D: Direct effect, I: indirect effect.

* $p < .05$.

** $p < .01$.

the relationship between perceived support from parents and self-concept ($R^2 = .388$) being particularly strong. The second highest value was found also for family support, although in this case it was in relation to capacity for resilience ($R^2 = .270$). In the case of contextual effects on psychosocial adjustment, the highest value was found for support from teachers on school adjustment or engagement ($R^2 = .476$).

Finally, in relation to the indirect effects observed, perceived support from parents, peers and teachers had a direct positive effect on resilience and self-esteem, which in turn affected levels of school adjustment (school engagement) and person adjustment (subjective) wellbeing.

Discussion

There is widespread belief today that adaptive behavior during adolescence is better explained if seen from a multi-causal perspective, and studies that strive to explain adolescent adaptation have now started to consider intra-individual characteristics and environmental factors together (Moreno & Vera, 2011; Rodríguez-Fernández et al., 2012).

This study tests a structural regression model in which psychological (resilience and self-concept) and contextual factors (perceived support from family, peers and teachers) influence indicators of psychosocial adjustment (subjective wellbeing and school adjustment). The simultaneous consideration of these factors does justice to the complexity of human behavior, and the numerous influences involved in it, while at the same time highlighting the difficulties inherent in integrating so many factors in a global, comprehensive explanation.

The relationships and contexts which are closest to people (microsystems) have an indisputable influence on their psychosocial adjustment. Of the external correlates of subjective wellbeing, social support has been identified as a factor that has a particularly positive effect (Diener, 2009). Thus, various studies involving adolescents and young people have confirmed the close link which exists between feeling supported and being happy (Chou, 1999; Meehan et al., 2003; Ronen, Hamama, Rosebaum, & Mishely-Yarlap, 2014). Much the same thing can be said

of school adjustment, and indeed consensus regarding this association is even greater. Thus, various authors have confirmed the importance of the contextual factors closest to students (microsystems) in relation to their school engagement (Estell & Perdue, 2013; Fall & Roberts, 2012; Perdue, Manzeske, & Estell, 2009; Veiga et al., 2012), with the most influential of these factors being family, peers and the school context (Lam, Wong, Yang, & Liu, 2012; Ou, 2005), providing said relationships guarantee positive affective support (Hughes & Chen, 2011; Mercer & DeRosier, 2008).

Within this complex mesh of relations, the influence exerted simultaneously by the entire set of contextual variables on personal and school adjustment (psychosocial adjustment) has yet to be clarified. A previous study in this field (Rodríguez-Fernández et al., 2012) found that family support had both a direct and indirect effect (mediated by self-concept) on satisfaction with life and school adjustment, while peer support was found to have a significant influence on satisfaction, although not on school adjustment. The results of this present study partly confirm this finding, since they ratify the importance of family support for both subjective wellbeing and school adjustment, and confirm that peer support does not influence school adjustment. However, in contrast to that found in the previous study cited above, the results of this study indicate that peer support fails also to significantly influence psychological wellbeing. Moreover, this study includes a third kind of support, that provided by teachers, which is found to have both a direct and indirect effect on both facets of psychosocial adjustment.

Psychological variables have been found to be mediator mechanisms in the relationship which exists between context and psychosocial adjustment, although this analysis has to date focused more on the mediating role of self-concept (Rodríguez-Fernández et al., 2012). This present study not only confirms the mediating role of self-concept between contextual factors and school and personal adjustment, but also includes a new psychological variable in this relational structure, namely resilience. The fact that self-concept and resilience are directly influenced by the three types of contextual factors analyzed, and that they in turn have a direct effect on the two measures of psychosocial adjustment, indicates the need for schools and families to pay greater attention to the support provided by parents and teachers,

in the sense of ensuring the establishment of a close, warm and stimulating relationship between children and the adults that care for them (Masten, 2007; Rueger et al., 2010). However, the importance of peers should not be overlooked. As adults, it is our responsibility to ensure that our adolescent children/students engage in positive relationships with their friends and classmates, and we should strive to foster prosocial behavior within these relationships (Florenzano & Valdés, 2005; Krauskopf, 2007; Masten, 2007).

In short, the complete structural model that was empirically tested in this study revealed resilience and self-concept to be decisive psychological variables for predicting both subjective wellbeing and school engagement (adjustment). The most striking relationship is that observed between self-concept and subjective wellbeing, while the influence of resilience is particularly relevant in relation to personal adjustment and, albeit to a lesser extent, social adjustment also. The results also show that, through psychological variables, support from parents, peers and teachers determines both psychosocial adjustment indexes, while only support from teachers directly predicts school engagement. If the weight of the factors included in the model is compared in relation to their influence on adolescents' psychological adjustment, psychological variables clearly have a greater effect than contextual ones on general psychosocial adjustment in general, while school adjustment is determined mainly by support from teachers.

Although as stated above, the variables which best explain subjective wellbeing are psychological (resilience and self-concept), the same cannot be said in relation to school engagement, since in this case, the support provided by teachers is more influential than either resilience or self-concept. These results are interesting because they make an important contribution to enriching psychological intervention programs in the educational field, and highlight the importance of education based on the fostering of resilience and self-acceptance as a means of attaining happiness. They also underscore the importance of having good teacher/student relations in order to ensure good school adaptation. Therefore, given that for adolescent students the most decisive components of personal adjustment are resilience and self-concept, and the most influential component of school engagement is support from teachers, followed by psychological variables, the results have educational implications that point to the importance of fostering human psychosocial development in educational contexts above and beyond the efforts currently made to avoid factors that may have a negative influence on adolescent development. In general, the results obtained provide thought-provoking ideas for professional practice, particularly as regards how to improve school intervention programs by placing greater emphasis on the connection between context and intra-individual characteristics and psychosocial adjustment, with the aim of providing adolescents with the resources they require to improve their subjective wellbeing and school engagement.

Finally, as limitation of this study it should be noted that the presented results refer to school adolescents of 12–15 years. Therefore, the sample used in this study (randomly selected) limits the generalizability of the results to populations that are outside this age range and education level. Future research should try to overcome this limitation and

analyze how varying influence relations between the variables in this study (psychosocial adjustment, psychological variables and contextual variables) according to different age groups or educational levels.

It would also be appropriate to test other models of structural equations and recursive in which analyzing the covariates between contextual, psychological and psychosocial variables, and even consider resilience as mediating variable between self-concept and psychosocial adjustment.

Conflict of interest

The authors of this article declare no conflict of interest.

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