

Subjective well-being in adolescence and teacher connectedness. A health asset analysis.

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Abstract

Objectives: Teacher connectedness is an important factor for young people's well-being. The aim of this paper was to examine teacher connectedness in detail and its potential association with emotional well-being. More specifically, we set out to analyse whether teacher connectedness acted as a universal asset for boys and girls of different ages and countries as well as across adolescents with differing perceptions of their performance at school.

Methods: Sample consisted of 9,444 young people aged 11, 13 and 15 that had taken part in the WHO collaborative survey Health Behaviour in School-aged Children in Spain and England. After examining differences in teacher connectedness associated with demographic factors, we used general linear models to analyse the relationship between teacher connectedness and emotional well-being (including interactions teacher connectedness by country) across different age and performance-derived groups.

Results: Results indicated some significant differences in teacher connectedness associated with age, country, and perceived performance but a consistent positive association between teacher connectedness and emotional well-being regardless of demographic factors, country and perceptions of school performance. Older adolescents and low achievers reported lower level of connectedness to their teachers but the association between teacher connectedness and emotional well-being operated irrespective of adolescents' age and perceived performance at school.

Conclusions: Results support the perspective that teacher connectedness can act as a significant health asset that operates irrespective of key demographic factors, while they point to some inequalities in teacher connectedness associated to age and performance at school. These findings have significant implications for health promotion interventions.

Keywords

Teacher connectedness, well-being, adolescence, school, health assets

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Introduction

Promoting young people's well-being is a key goal for health promotion. Increasingly such efforts are conceptually framed by studies that focus on positive paradigms to understand adolescent health and development. Two such examples include positive youth development (Damon, 2004; Lerner, et al., 2009) and the health asset model (Morgan, 2010; Morgan, Davies and Ziglio, 2010). Such perspectives focus on enhancing the capacity and capabilities of young people to successfully negotiate every day stressors in order that a sense of well-being can be maintained. The health asset model in particular takes a life course approach to health. In doing so, it suggests that the more opportunities young people have in childhood and adolescence to experience and accumulate the positive effects of a range of protective factors or 'health assets' that outweigh negative risk factors, the more likely they are to achieve and sustain health and well-being through adolescence and beyond (Morgan, 2010; Oliva et al., 2010).

From a research perspective, promoting well-being can be challenging as it is variously defined in the literature (Cronin de Chavez et al., 2005). The World Health Organisation for example, expresses well-being as a further elaboration of its definition of mental health as one in which "the individual realises his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" (Herman et al., 2005: p.2). Others (Kim-Prieto et al., 2005) have defined it more broadly as encompassing a positive sense of life satisfaction and quality of life that includes a subjective evaluation of life which is both affective and cognitive. Essentially, in this context, subjective well-being (SWB) at the individual level is about personally feeling good and functioning well. SWB includes an individual's sense of how they evaluate their life or life satisfaction, positive emotional health and eudemonic states in terms of how far life is meaningful (Kim-Prieto et al., 2005).

Longitudinal studies have shown that SWB is a predictor of mortality. Diener and Chan (2011) found that those reporting high levels of SWB have an increased life expectancy of between 4 and 10 years compared to those reporting low levels. Richards and Huppert (2011) demonstrated that those achieving positive well-being in childhood and adolescence are more likely to have positive well-being in later life. Well-being in this study was characterised by participants having fewer emotional problems, positive satisfaction with work and strong social networks. Higher levels of well-being and life satisfaction have also been found to have significant associations with lower involvement in risk behaviours (Bonny et al., 2000) and better academic achievement (Fraser, 1994) during adolescence.

This study focuses on the school setting as an opportunity for promoting SWB, as positive experiences in educational settings have already been identified as key to overall life chances in later years (Department for Education, 2011; Suldo et al., 2011). Existing evidence shows that positive school experiences, greater school engagement and higher levels of academic achievement are associated with higher levels of SWB (Gilman and Huebner, 2006; Gutman and Vorhaus, 2012). Although regarding the latter, it is now believed that SWB and academic performance may reinforce each other (Gilman and Huebner, 2006; Quinn and Duckworth, 2007).

The premise for this current study is to further explore the contribution that relationships within the school can make to secure the SWB of young people. Because

SWB is defined as a multifaceted concept including affective and cognitive evaluations of one's life (Diener, Scollon and Lucas, 2009), it is important to note that this study will focus on the emotional dimension of SWB. This study uses a health assets framework (Morgan, Davies and Ziglio, 2010) to identify those specific external protective factors in the school environment that act as positive mechanisms for enhancing the capacity and capability of adolescents to secure SWB. Thereby, potentially providing a means to inform future health promotion interventions and actions that are set within a positive health paradigm.

The health assets model chimes with the WHO Ottawa Charter (1986) which states that health is created in the social contexts where people's lives take place. Health assets, defined as 'any factor or resource which enhances the ability to maintain and sustain health and well-being' (Morgan, Davies and Ziglio 2010), operate in the interaction between the individual and their environment (Morgan, Davies and Ziglio 2010; Granger, 2002). As such, the health asset model offers a means to contribute new sets of indicators and evidence to inform effective health promotion that enhances well-being (Brooks and Kendall, 2013).

Exploring the role of the educational setting as a health asset is fundamental, as the school is a key developmental context for adolescents (Eccles and Roeser, 2011). The role of educational settings in enhancing SWB within the taught elements of the curriculum is well evidenced (Brooks, 2013). In recent decades, an increasing body of evidence has indicated that the most effective programmes adopt a whole-school approach, that not only focus on taught components but encompass a more synergistic approach to the domains of the child outside of school, notably family and community as well as embedding a positive culture within the school that promotes pupil and staff well-being (Sisask et al., 2013). The relationships between all members of the school community are also seen to have a significant influence on pupil outcomes including their levels of SWB (Suldo et al., 2006).

School connectedness, defined as the result of an academic environment in which students believe that adults in the school care about their learning and about them as individuals (Blum and Libbey, 2004), has been seen to have a key role in determining the school as a health asset. School connectedness has been reported to have a significant role in reducing the likelihood that adolescents engage in risk behaviours and in increasing their likelihood of academic success (Blum, 2005; Connell et al., 1995; Gutman and Vorhaus, 2012). Connectedness as a construct also emphasises the importance of social relationships and networks and previous studies have shown that young people who have constructive supportive relationships with adults are more likely to have an overall sense of well-being (Chanfraeu et al., 2013; Parry-Langdon et al., 2008).

Among social relationships within the school, relationships with teachers seem to play an especially important part in fostering adolescents' SWB (Cotterel, 2007) and satisfaction with school (Samdal et al., 1998) and reducing the likelihood of initiation of health-risk behaviours (McNeely and Falci, 2004). Importantly, teacher connectedness has also been found to operate as a compensatory mechanism for lower parental support (Brooks et al., 2012).

McNeely and Falci (2004) highlight teachers' role as reinforcing behaviours that are sanctioned at school and related this to consistent positive health effects. This is in contrast to connections with peers which can have desirable or undesirable effects on

health behaviours depending on the norms in the peer group (McNeely and Falci, 2004). While peer connections are important, teacher connectedness seems to be a good place to start to build the capacities, skills and competencies highlighted by the health asset model.

One of the central analytic questions for assets based approaches is the identification of what assets works for who and in what context (Morgan, Davies and Ziglio 2010). Consequently, an important aspect at the heart of the model is incorporating social inequalities and understanding the nuanced mechanisms by which an asset can operate to positively impact on health and well-being. Understanding in more detail for who and when teacher connectedness might operate as a protective health asset can support more specifically how health promotion actions can promote improvements in well-being.

Previous studies have consistently reported significant differences in teacher connectedness associated with demographic factors. Specifically, perceived teacher support has been found to decrease as adolescents grow older (e.g., Bokhorst et al., 2010; Furman and Buhrmester, 1992; Demaray and Malecki 2003). This decrease is especially notable at the point of transition from primary to secondary school (Furman and Buhrmester, 1992). With respect to gender, some studies suggest that girls perceive higher levels of teacher support than boys (Bokhorst et al., 2010; Reddy et al., 2003), whilst others report non-significant differences between boys and girls during adolescence (Furman and Buhrmester, 1992). Additionally, girls' and younger adolescents' ratings on the importance of having supportive teachers in their lives have been found to be higher (Demaray and Malecki, 2003) compared to boys and older adolescents.

Although the aforementioned studies have provided valuable information about the extent to which adolescent boys and girls of different ages feel connected to their teachers and supported by them, studies that jointly examine differences both in perceived levels and in the impact of teacher connectedness have been rare and, as a result, the key question remains of whether teacher connectedness is equally important for all adolescents' well-being (also for the ones who usually report lower levels of connectedness, or even especially so for them). In a notable exception, Reddy et al. (2003) found that despite girls reporting higher levels of teacher support, the benefits of feeling supported by teachers on depression and self-esteem were similar for boys and girls. Therefore, it seems that overall low levels of teacher connectedness may not mean lower sensitivity to teacher connectedness potential positive impact on well-being.

One of the key questions that the health assets model seeks to answer is whether there are protective assets that operate irrespective of gender, age or geography or alternatively, particular assets are only significant in certain contexts or specific population groups. This study explores teacher connectedness with this in mind.

Aims and context

This paper sets out to examine teacher connectedness and its potential association with SWB in representative samples of Spanish and English adolescents. The main aim is to analyse whether teacher connectedness acts as a universal asset regardless of demographic factors (gender, age and country).

In addition, the study explores whether the impact of teacher connectedness on SWB is independent of the students' perceptions of their performance at school. Previous research has suggested that low performance at school is associated with lower school bonding, including lower levels of connection to school and to teachers, both at the beginning and through middle school years (Oelsner et al., 2011; Thompson et al., 2006). In line with the main objective of examining the extent to which teacher connectedness acts as a universal asset though, we wanted to explore whether the positive effects of teacher connectedness on SWB could be found both in adolescents who perceive they are doing well at school and in those who feel they are not doing so well.

Conducting this study in England and Spain is relevant for several reasons. Similar findings in both countries would provide evidence of cross-cultural homogeneous effects of teacher connectedness thereby supporting a likely 'universal' effect of this potential health asset on adolescent SWB. Whilst educational systems in Spain and England share some key foundations there are also differences. Both are divided into primary and secondary education and the majority of children in Spain and England attend the state funded system, with a small private sector. However, the timing of the transition to secondary education is different, with the majority of English students experiencing this transition at the age of 11 and Spanish adolescents doing so at the age of 13. These differences can be used to interpret the findings in more depth. Additionally, researchers from both Spain and England have expressed concern that the establishment of meaningful teacher-student relationships may become less likely in secondary education (García-Moya, 2014, Shepherd et al., 2013). In part this may be due to an increased and in many cases exclusive emphasis on academic outcomes that characterise the final years of compulsory education in both Spain and England. Exploring and testing similarities and differences between the two countries may provide fresh insights into the development of health promotion interventions and education policy.

Methods

Participants

Nationally representative samples of English and Spanish adolescents ($n = 4404$ and 5040 , respectively) were selected as part of the 2009-10 edition of the WHO international survey Health Behaviour in School-aged Children (HBSC). In accordance with the international HBSC protocol, the sample in both countries was selected by means of cluster sampling in which the school class was the primary sample unit and the specific population was school pupils. The sample consisted of 9,444 school pupils (46% boys and 54% girls) aged 11, 13 and 15 years ($M = 13.72$ years, $SD = 1.61$). Additional information regarding the HBSC sampling procedure and other aspects of data collection can be found in Roberts et al. (2009).

Measures

For the purpose of this study, the following measures were selected from the 2009-10 HBSC questionnaire:

Demographic variables. Sex, age and country were included in the analyses.

Perceived performance at school. Adolescents were asked to rate their performance at school in comparison to their classmates' as below average, average, good or very good by means of the question 'In your opinion, what does your class teacher(s) think about your school performance compared to your classmates?' This item has been used for more than 25 years in the HBSC study to monitor adolescents' perceived performance at school across countries and it is considered to be a consistent predictor of well-being (Currie et al., 2012). In the present study, the categories *good* and *very good* were collapsed and perceived performance at school was used as an ordinal variable with three levels: below average, average, above average.

Teacher connectedness. This content was measured by means of a well-known scale on supportive teacher-student relationships, which consists of 5 items (such as 'My teachers are interested in me as a person' and 'My teachers encourage me to express my own opinions in class') answered on a 5-point Likert scale, ranging from strongly disagree to strongly agree. This measure, calculated as the mean of the scores for each item, was originally developed and validated within the international HBSC network (see Torsheim et al., 2000) and showed good reliability (Dunn, 1989) in the present study (Cronbach's alpha = .848).

Emotional well-being. The *Kidscreen-10 Index* (Ravens-Sieberer and The European Kidscreen Group, 2006) was used to assess adolescents' SWB. More specifically, the Kidscreen-10 Index is an internationally known instrument that has been included in the Eurobarometer as an indicator of child and adolescent emotional well-being. Scores range from 10 to 50, with higher scores indicating higher levels of emotional well-being. Cronbach's alpha in this study was .808.

Procedure and statistical analyses

The questionnaires were filled in by the students during a regular school hour, in accordance with the HBSC international standardised procedure (Roberts et al., 2009). Participants' anonymity was guaranteed.

In the awareness of the challenges associated with ensuring the comparability of self-reported data in cross-national studies, the HBSC international protocol also includes specific measures to minimise potential bias associated with language, wording of the questions, participants recruited, etc. in the comparisons between countries. Further information in this respect can be found in Roberts et al. (2009).

Statistical analyses were performed using SPSS 16 (SPSS Inc., Chicago, IL) and included general linear models for the analyses of associations between demographic variables and teacher connectedness as well as separate general linear models for the analysis of the relationship between teacher connectedness and well-being across age groups and the groups for perceived performance at school (Mardia et al., 1979). Specifically, personalised models were estimated, including all direct effects and the first-order interaction effects of interest for the purpose of this study. In addition to the significance values, each effect was interpreted according to its effect size, represented by its partial eta square, on the basis of the following criteria: negligible effect (lower than .01), small effect (from .01 to .059), medium effect (from .06 to .149) and large effect (higher than .15). When relevant, the magnitude of the differences between mean pairs was assessed by means of Cohen's *d* using the

following criteria for social sciences (Cohen, 1988): negligible effects (lower than 0.19), small effects (from 0.20 to 0.49), medium effects (from 0.50 to 0.79) and large effects (0.80 or higher).

Ethics

The HBSC study gained ethics approval via the University Ethics Committee for Health and Human Sciences (NMSCC/07/09/19/A) in England and the Research Ethical Committee of the University of Seville in Spain. Therefore, both the employed instruments and research procedures are certified to comply with the current ethical requirements for human research.

Results

The results concerning teacher connectedness by sex, age and country are shown in Table 1. A general linear model including main effects and first-order interactions showed small differences in teacher connectedness between countries ($p < .001$, partial $\eta^2 = .025$), with Spanish adolescents reporting higher levels ($p < .001$, $d = 0.25$), as well as a significant effect with medium effect size of age ($p < .001$, partial $\eta^2 = .072$), with 13- and 15-year-old adolescents reporting lower levels of teacher connectedness than 11 years old ($p < .001$, $d = 0.54$ and 0.63). In contrast, differences in teacher connectedness between boys and girls were negligible ($p = .002$, partial $\eta^2 = .001$). Finally, the interaction country by age was significant and close to a small effect size ($p < .001$, partial $\eta^2 = .008$); the inspection of means showed that whereas close to small differences in teacher support were found between Spanish 15-year-old and 13-year-old adolescents ($d = 0.16$), no differences were apparent between English 15- and 13-year-old adolescents ($d = 0.01$).

(Table 1)

As a second step, general linear models on emotional well-being with country, teacher connectedness and the interaction country by teacher connectedness as predictors were conducted. Given the aforementioned moderate differences in teacher connectedness associated with age, models were separately estimated for 11-, 13- and 15- years old. Significant models were obtained in which teacher connectedness was positively associated with emotional well-being with a medium effect size in the three examined age groups (see Table 2). The first-order interaction teacher connectedness by country was either not significant or had a negligible effect.

(Table 2)

Finally, in line with the aim of exploring whether the association of teacher connectedness with emotional well-being differed depending on the adolescents' perceptions of their performance at school or whether it was consistent regardless of perceived performance levels, we conducted additional analyses across performance-derived groups. It is important to note that the small number of observations in the below average group made it impossible to include performance at school in the former separate models for age groups, so we separately conducted general linear models on emotional well-being for the three levels of perceived performance only

(see Table 3). Results showed significant effects of teacher connectedness on emotional well-being that reached moderate effect sizes in the three performance-derived groups. Again, the first-order interaction teacher connectedness by country was either not significant or had a negligible effect.

(Table 3)

In addition, an analysis was also undertaken to identify whether levels of teacher connectedness were different across these three school performance groups. Significant differences were found in teacher connectedness among performance levels ($p < .001$, partial $\eta^2 = .088$). All mean pair comparisons were significant ($p < .001$) and showed a small difference ($d = 0.29$) between above-average and average adolescents' reported level of teacher connectedness, which was lower in the latter, as well as significant differences with medium effect sizes between those two groups and the below average group ($d = 0.72$ and 0.50 , respectively), with the latter reporting the lowest level of teacher connectedness. The first-order interaction school performance by country was not significant ($p = .123$).

Discussion

The findings presented in this paper indicated a consistent positive effect of teacher connectedness on subjective emotional well-being that appeared to operate regardless of gender, country and age, thereby providing evidence to support the perspective that teacher connectedness can act as a significant health asset, and importantly one that operates irrespective of key demographic factors.

Although some minor differences in the levels of reported teacher connectedness among young people were identified, by country and age, the results overall suggested a positive association between teacher connectedness and SWB among English and Spanish adolescent boys and girls of different ages. More specifically, the results indicated significantly lower levels of teacher connectedness in older adolescents, in line with existing research (Bokhorst et al., 2010; Furman and Buhrmester, 1992; Demaray and Malecki 2003), and slightly higher levels of teacher connectedness among Spanish adolescents, but no significant differences associated to age nor country in the relation between teacher connectedness and SWB.

Interestingly, in relation to different school systems especially, differences in the usual school transition timing in Spain and England did not seem to affect the impact of teacher connectedness on SWB either. School transitions may however, contribute to understanding differences in levels of perceived teacher connectedness between Spanish and English adolescents of similar ages. In this respect, 13- and 15-year-old English adolescents reported similar levels of teacher connectedness whereas in Spain adolescents aged 15 years reported slightly lower levels of teacher connectedness than those aged 13 years, which may reflect the effect of the transition to secondary education that takes place at 13 years only in Spain.

Furthermore, the positive association between teacher connectedness and SWB was independent of adolescents' perceptions about their school performance. Specifically, our findings showed a significant association between perceived lower academic performance and lower levels of teacher connectedness. This aligns with previous research that suggests that low performance can hamper young people's

ability to bond with school (Oelsner et al., 2011). In addition, this study further provides that the positive effects of teacher connectedness on SWB can be found regardless of the students' performance.

In summary, results from this study reveal a remarkable consistency in terms of the positive effects of teacher connectedness on adolescent SWB, while pointing to individual differences in reported levels of teacher connectedness. The significant contribution of teacher connectedness to SWB coincides with the similarly important effects of teacher connectedness on ameliorating depressive symptoms and increasing self-esteem reported by Reddy et al. (2003), particularly in adolescent boys and girls who differed in their perceived levels of teacher support. Therefore, our findings provide further evidence that teacher connectedness can operate as a 'health asset' for adolescents' well-being and importantly, they suggest that teacher connectedness has a 'universality' characteristic, as the association with SWB was found irrespective of age, gender, country and perceived performance at school.

There are a number of implications for health promotion programmes that can be drawn from this study. Firstly, the findings add weight to the notion that teacher connectedness should be included as a priority on school agendas. Other studies have already shown that paying attention to teacher connectedness in the broader context of school connectedness can have a range of benefits including students' development, adjustment and school success (Klem and Connel, 2004; Samdal et al., 1998). In addition, the potential of teacher connectedness to act as a compensatory mechanism for low parental bonding has also been reported, which highlights the importance of adults others than parents for adolescents' SWB (Brooks et al., 2012). Secondly, this study adds to previous investigations by demonstrating the potential benefit that teacher connectedness can offer all adolescents thereby underlining the value of educational approaches that incorporate caring for the students' well-being as an integral part of education. Thirdly, the findings suggest that special attention should be paid to students reporting lower connectedness, i.e., older adolescents and those showing lower academic performance. Although the decrease on teacher connectedness across adolescence has mostly been seen as normative and a natural consequence of growing older and needing less support from adults (e.g., Demaray and Malecki, 2003), this study shows that the positive benefits of teacher connectedness for SWB remain regardless of age. Consequently, active efforts should be made to strengthen older adolescents' teacher connectedness by working to overcome the mismatch between adolescents' needs and school characteristics to which this "normative" decrease in school connectedness through adolescence has been attributed (Eccles, 2004; Eccles et al., 1993). Notwithstanding that the conjunction of normative features of adolescence and the increased emphasis on academic outcomes characteristic of secondary education may make promoting connectedness a more difficult challenge than in previous stages, the fact that potential benefits of teacher connectedness do not seem to change across the period justifies additional health promotion efforts in this area. Similarly, interventions should be implemented to strengthen lower achievers' bonding to school, since they seem to be at an increased risk of disconnection. In this respect, incorporating within-school activities not focused on academic work has been suggested as a potential useful strategy to strengthen teacher-student relationships and school bonding among low achievers (Oelsner et al., 2011).

There are some methodological limitations that should be taken into account when interpreting the findings. The cross-sectional design of the study does not allow conclusions to be drawn about the causal direction of the reported associations. Also, due to the small number of observations in the below average performance at school group, it was not possible to consider age and performance within school at the same time. It is also important to note that information came exclusively from adolescents self-reports, which could be viewed as a source of bias. Although, as mentioned in the methods, the HBSC protocol includes measures to maximise internal validity and minimise potential bias in cross-national comparisons, caution is still needed in the interpretation of the findings and replication in other contexts would be valuable.

Finally, our measure of performance at school was based on adolescents' reported perceptions of their own ability rather than their actual performance. A strong positive association has been found between perceived performance at school and academic attainment (Neuenschwander et al, 2007; Gregory and Huang, 2013). However, because assessment generally takes place following course completion it is difficult to relate actual performance to the students' perceptions throughout the learning process. Previous studies also indicate that perceived indicators tend to be stronger predictors of SWB than objective indicators, because the very nature of SWB involves the application of individual's internal standards (Gilman and Huebner, 2003).

One area for future research could be to refine and develop the understanding of the exact character of teacher connectedness. Future studies could enrich understanding of the role of teachers in supporting adolescent well-being by unpacking the concept of connectedness in order to make distinctions between different kinds of teacher support. For example, previous research suggests that academic support may be more important for boys' school well-being (Løhre et al. 2014). Additionally, the perception of performance used in this study relates to the overall school curriculum. Future research that distinguishes between specific elements such as academic study, sport, and the arts may identify the aspects of school life for which teacher connectedness is most critical. This may provide insight into the age specific differences reported in this paper. Finally, because the main focus of this paper was to explore the transferability of teacher connectedness as a health asset irrespective of country our discussion of findings is mainly focused on commonalities. Future studies performing a more in-depth exploration of cultural differences e.g., combining quantitative and qualitative research to further understand cultural differences in teacher connectedness would be undoubtedly beneficial.

Despite the aforementioned limitations, overall this study offers an important contribution to the study of teacher connectedness, moving beyond the exploration of individual differences to examination of the impact of teacher connectedness on SWB across subgroups of adolescents that differed significantly in their reports of teacher connectedness. This strategy is in line with building an evidence base about for who and in what circumstances assets exert their positive effects, which is a current fundamental question in asset based approaches (Morgan and Ziglio, 2010). In addition, because the obtained results highlighted the relevance of efforts to strengthen teacher connectedness and contributed to identifying adolescents at a higher risk of school disconnection, this study made it possible to infer a number of important implications for health promotion interventions and educational practice. Further evidence about the importance of teacher connectedness may also enhance

commitment via education policy and teaching and learning strategies to improve young people's SWB.

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Table 1. Teacher connectedness in Spanish and English adolescent boys and girls aged 11, 13 and 15 years.

Spain	M	SD	N
11-year-old boys	4.25	0.73	624
13-year-old boys	3.69	0.97	829
15-year-old boys	3.59	0.89	927
Total for boys	3.80	0.92	2380
11-year-old girls	4.31	0.67	605
13-year-old girls	3.79	0.80	887
15-year-old girls	3.61	0.76	1016
Total for girls	3.84	0.80	2508
Total for 11 years old	4.28	0.70	1229
Total for 13 years old	3.74	0.89	1716
Total for 15 years old	3.60	0.83	1943
Total for Spain	3.82	0.86	4888
England	M	SD	N
11-year-old boys	3.79	0.69	619
13-year-old boys	3.49	0.78	584
15-year-old boys	3.52	0.69	563
Total for boys	3.60	0.74	1766
11-year-old girls	3.90	0.67	768
13-year-old girls	3.52	0.71	914
15-year-old girls	3.52	0.68	752
Total for girls	3.64	0.71	2434
Total for 11 years old	3.85	0.68	1387
Total for 13 years old	3.51	0.74	1498
Total for 15 years old	3.51	0.69	1315
Total for England	3.62	0.72	4200

Table 2. General linear models of teacher connectedness and country on emotional well-being for adolescents aged 11, 13 and 15 years.

Source	SS	df	MS	F	p	partial η^2
11-year-old adolescents						
Corrected model	9294.762	3	3098.254	153.250	.000	.160
Intersection	47373.145	1	47373.145	2343.229	.000	.492
Country	492.555	1	492.555	24.363	.000	.010
Teacher connectedness	6465.630	1	6465.630	319.811	.000	.117
Country by teacher connectedness	339.973	1	339.973	16.816	.000	.007
Error	48884.796	2418	20.217			
Total	3181487.000	2422				
Corrected total	58179.558	2421				
13-year-old adolescents						
Corrected model	7512.425	3	2504.142	113.880	.000	.101
Intersection	108713.495	1	108713.495	4943.944	.000	.619
Country	107.023	1	107.023	4.867	.027	.002
Teacher connectedness	6256.477	1	6256.477	284.525	.000	.085
Country by teacher connectedness	34.040	1	34.040	1.548	.214	.001
Error	66957.184	3045	21.989			
Total	3661471.000	3049				
Corrected total	74469.609	3048				
15-year-old adolescents						
Corrected model	6581.230	3	2193.743	99.688	.000	.088
Intersection	88470.825	1	88470.825	4020.307	.000	.566
Country	758.526	1	758.526	34.469	.000	.011
Teacher connectedness	5030.404	1	5030.404	228.593	.000	.069
Country by teacher connectedness	430.143	1	430.143	19.547	.000	.006
Error	67910.469	3086	22.006			
Total	3501095.000	3090				
Corrected total	74491.699	3089				

Corrected $R^2 = .159, .100$ and $.087$ for adolescents aged 11, 13 and 15 years respectively.

Note: Significant effects with noticeable effect size in bold font.

Table 3. General linear models of teacher connectedness and country on emotional well-being in adolescents rating their performance at school as above average, average and below average.

Source	SS	df	MS	F	p	partial η^2
Above-average group						
Corrected model	5016.126	3	1672.042	72.676	.000	.104
Intersection	49954.177	1	49954.177	2171.285	.000	.536
Country	125.191	1	125.191	5.441	.020	.003
Teacher connectedness	4093.289	1	4093.289	177.917	.000	.086
Country by teacher connectedness	67.770	1	67.770	2.946	.086	.002
Error	43298.665	1882	23.007			
Total	2506992.000	1886				
Corrected total	48314.791	1885				
Average group						
Corrected model	8704.123	3	2901.374	147.830	.000	.103
Intersection	96374.313	1	96374.313	4910.433	.000	.560
Country	280.760	1	280.760	14.305	.000	.004
Teacher connectedness	6197.105	1	6197.105	315.753	.000	.076
Country by teacher connectedness	102.189	1	102.189	5.207	.023	.001
Error	75836.556	3864	19.626			
Total	4747820.000	3868				
Corrected total	84540.678	3867				
Below-average group						
Corrected model	6583.979	3	2194.660	96.035	.000	.096
Intersection	96194.252	1	96194.252	4209.302	.000	.608
Country	581.086	1	581.086	25.427	.000	.009
Teacher connectedness	4956.806	1	4956.806	216.902	.000	.074
Country by teacher connectedness	322.615	1	322.615	14.117	.000	.005
Error	62113.861	2718	22.853			
Total	2994865.000	2722				
Corrected total	68697.840	2721				

Corrected $R^2 = .102$, $.102$ and $.095$ for adolescents reporting above average, average and below average perceived performance at school respectively.

Note: Significant effects with noticeable effect size are highlighted in bold font.