

Abstract

Objective: In recent years, school belonging has been associated with optimal general health and wellbeing and has been targeted in mental health promotion programs in schools. However, less attention has been paid to the relationship between school belonging and loneliness, especially during primary school years. This study aimed to first analyse the relationship between socioemotional health, school belonging and loneliness during primary school years, and secondly, to examine the role of school belonging as a mediator of the relationship between socioemotional wellbeing and loneliness.

Methods: Children ($N = 517$) of primary school age were recruited from three schools in Greater London to participate in a mental health screening, which involved the completion of standardized self-reported scales for sense of school belonging, loneliness and socio-emotional health.

Results: Multinomial logistic regression analysis shows that school belonging has a predictive and direct effect on feelings of loneliness. Co-vitality (derived from the socio-emotional health survey) has, however, an indirect effect on loneliness, as it influences the children's sense of school belonging.

Conclusions: Sense of school belonging is an important dimension of wellbeing, in particular for its links with loneliness. This study suggests that promoting school sense of belonging is key and can be achieved by targeting dimensions of co-vitality. This has implications for practitioners working to promote health and wellbeing in schools.

RUNNING HEAD: School belonging on wellbeing and loneliness

Key words: school belonging, socioemotional wellbeing, loneliness, primary school age, mediation, mental health

Key points

What is already known about the topic

1. High levels of school belonging have been associated with academic success and better long-term developmental outcomes.
2. Loneliness has been recognised as a potential risk factor related to socioemotional wellbeing of children
3. The relationship between socioemotional wellbeing and loneliness has mostly been investigated in secondary school adolescents and young people.

What this topic adds

1. School belonging partially mediates the relationship between socioemotional wellbeing and loneliness in primary school age children.
2. The effect of school belonging on loneliness could reveal important pathways for the development of related evidence-based interventions.
3. Effects of school belonging on loneliness can be seen as early as in primary school age, which has implications for early intervention.

The mediating role of school belonging in the relationship between socioemotional wellbeing and loneliness in primary school age children

Introduction

In recent years, a considerable body of literature has emerged concerning mental health and wellbeing of children and young people, and the role that schools can play in providing well-rounded education, focusing not only on learning skills and academic achievement, but also on students' overall development, health and wellbeing (Bonell et al., 2014; Humphrey et al., 2013; Weare & Nind, 2011). School belonging has been put forward as a **key component** concerning several aspects of children's socioemotional wellbeing, including self-esteem and peer relationships, particularly during adolescence (Allen et al., 2016). Less is known about the relationship between socioemotional wellbeing, loneliness and school belonging during primary school years, although this is a period very often associated with the onset of loneliness feelings in children (Qualter et al., 2010). The present study could offer directions concerning the development of evidence-based early interventions to target loneliness.

Research reports indicate that nearly one in five children worldwide experience some form of mental health difficulty or problem, which are notably related to other long-term health issues and negative developmental outcomes such as lower academic attainment, substance abuse, and antisocial behaviour (Kieling et al., 2011; Patel et al., 2007). In a recent review of studies concerning child and adolescent mental health problems in the 21st century, a series of social changes that characterise the new millennium were highlighted as potential contributors to the increasing trend of mental health problems in children and youth, particularly in girls (Bor et al., 2014). For example, it has been suggested that changes in family configuration and increased rates of single parent families may contribute to the emergence of mental health symptoms in children (Eurostat, 2012), as well as the presence of mental health problems in parents (Fatori et al., 2013; Knapp et al., 2015; Schepman et al., 2011). Other studies have pointed to the increased pressure towards achieving high academic standards as being associated with mental health difficulties in children (Sweeting et al., 2010). In sum, evidence supports a multifactorial causal model for mental health difficulties in children and young people (Patel et al., 2007), with far-reaching implications – it has been reported that children with

mental health difficulties are more likely to face school exclusion than those without mental health problems (Green et al., 2005); individuals who face psychological problems during childhood are more likely to perceive lower income in adulthood than those without a history of mental health difficulties, have lower probabilities of being employed, and are less likely to have stable interpersonal relationships (Goodman et al., 2011).

In light of these findings, it is not surprising that the research community has turned its attention to developing proactive models of support for children and young people in order to strengthen those factors that would protect their healthy development and optimise life outcomes. For the vast majority of the 20th century, psychological research has focused on exploring human behaviour and mental illness, leading to the development of treatments and models of intervention destined to ameliorate psychopathology symptoms and improve quality of life of those experiencing mental health difficulties (Snyder & Lopez, 2007; Wilkins et al., 2015). The emergence of positive psychology has given a new focus to mental health and wellbeing by exploring human strengths – positive character traits reflected in the way an individual thinks, feels and behaves (Park et al., 2004). Related to this focus on positivity, a dual-factor model (DFM) of mental health has been advocated as a comprehensive system to address mental illness and wellbeing. In this model, mental illness and mental wellness do not constitute two extremes of a single continuum where wellness indicates the absence of illness; rather they represent two separate continua (Furlong, Dowdy et al., 2014; Suldo & Shaffer, 2008). Under this DFM system, assessment could assist in the identification of individuals who need interventions to remediate mental health symptoms, while also shedding light on those who might benefit from more proactive, preventive approaches to service provision (Dowdy et al., 2015; Suldo & Shaffer, 2008).

The DFM represents a shift in the design of services, traditionally associated with remediation of problems at the level of individual, towards a population-based preventive approach underpinned by universal screening (Dowdy et al., 2015; Gutkin, 2012; Humphrey, 2013). Incorporated in the school system, universal screening provides opportunities for potential early identification and service delivery (Dowdy et al., 2014), in contrast with risk or disorder-based screening instruments, which aim at identifying a much smaller proportion of students (15% to 20%) who are facing significant symptoms of distress or risk (Dowdy et al., 2015; Husky et al., 2011). Furthermore, incorporating strengths-based information in universal screening has been advocated as a comprehensive means to identify those positive character traits that could serve as steppingstones into achieving more optimal developmental outcomes,

regardless of an individual's degree of impairment or presence of risk factors (Dowdy et al., 2015).

The role of schools in this endeavour is crucial. Children spend a significant part of their day-to-day lives in schools; as multilevel organisations, schools can influence children's cognitive development and also foster their socioemotional and behavioural development through multi-tiered processes at organisational, social and instructional levels (Eccles & Roeser, 2011). As a result, schools constitute an apt context to work proactively in fostering children's overall wellbeing and mental health through whole-school programmes and universal screening (Bonell et al., 2014; Durlak et al., 2011). As strong academic, social and emotional environments, schools are 'the primary setting in which many initial concerns arise and can be effectively remediated' (Greenberg, 2010, p.28). In fact, findings from the child mental health survey in England revealed that almost three quarters of families and young people with mental health concerns, who sought help, had first approached a teacher (Green et al., 2005), highlighting the perception of schools as central places for the promotion of emotional wellbeing (Vostanis et al., 2013), and of the influential role of teachers in supporting children's development (Wagle et al., 2018).

Mental Health and Wellbeing in the English Education Context

In England, a series of changes have been observed with regards to the direction of the education agenda. With the marketisation of the education system and the raise in standards as the centre of the educational efforts, schools have been under pressure to increase student attainment, leaving in the background (and non-statutory) subjects that foster personal development, health and wellbeing (Bonell et al., 2014). However, the synergy between health and education has been — and continues to be — well documented in the literature. Research not only indicates that well educated individuals present better health and wellbeing outcomes (Bradley & Greene, 2013), but also those students with better health perform better in terms of academic attainment (Suhrccke & Nieves, 2011). Therefore, improving health and health outcomes have been recommended as a pathway to improve educational outcomes, reducing social inequality and further participation in society (Suhrccke & Nieves, 2011).

In England, the National Healthy Schools programme was introduced in 2007 as a joint initiative between the Department of Health (DoH) and the Department for Children, Schools and Families (DfCSF) during the last Labour government (1997 - 2010), in the scope of Every Child Matters Green Paper (2003). The programme aimed at improving health through supporting children and young people in developing healthy habits and behaviours, as well as

raising achievement, reducing health inequalities and fostering greater social inclusion (DoH & DfCSF, 2007), promoting a holistic view of health and wellbeing that could be reflected in and translated into better attainment in schools. This programme was removed from the government targets in 2010 with the Coalition government, and as a result it was no longer required for schools to acquire or work towards ‘healthy school’ status. The educational agenda shifted once more towards improving attainment and raising standards in provision. Nevertheless, mental health and wellbeing cropped up again in the policy agenda in light of the ‘mental health crisis’ emerging from calls for further funding of Children and Adolescent Mental Health Services (CAHMS).

The Office for Standards in Education (OFSTED) has recently introduced its new Education Inspection Framework (2019) for England, as part of their commitment to ensuring and improving the quality of education provided in both state-maintained and private schools. This document presents a series of guiding principles for school inspectors when making judgments about the quality of provision available in schools. While the previous common inspection framework for education, skills and early years (OFSTED, 2015) incorporated a section dedicated to personal development, behaviour and welfare, little room was dedicated in this domain to health and wellbeing. The new 2019 inspection framework introduced a small change in this regard, incorporating inspection indicators of personal development with particular emphasis on students’ resilience, confidence and independence (OFSTED, 2019). This introduction makes room for inspections to evaluate the quality of opportunities for growth in these domains offered by education providers through the curriculum, in line with proposals and action plans stemming from the government’s initiative to promote mental health and wellbeing and tackle loneliness in children and young people.

Over the past decades, research has shown that as contexts of development, schools play a significant role in students’ psychological and academic wellbeing (Wagle et al., 2018). In particular, a number of studies have focused on psychological constructs such as school belonging (also referred to in the literature as school connectedness and engagement) – that is, feeling part of and accepted by a school community (Furlong, Froh et al., 2014) and its links to positive health outcomes. Findings document a number of developmental advantages for individuals who experience a sense of belonging in their school, such as reduced mental health difficulties (Gaete et al., 2016), increased experiences of gratitude (Froh et al., 2008), better educational outcomes (Goodenow, 1993), as well as acting as a protective factor against high-risk behaviours (Marraccini & Brier, 2017). While these benefits are well documented in cross-national studies, a small number of studies have explored the effect of school belonging in

primary school-aged children (Wagle et al., 2018). In light of the dearth in research on school belonging in children of primary school age, current initiatives in the English context to tackle mental health difficulties and improve overall health outcomes for all children and young people through universal screening and proactive approaches to health promotion (Bonell et al., 2014; Durlak et al., 2011; HM Government, 2018; ONS, 2018), the present study has identified two main aims: (a) map socioemotional factors associated with loneliness during the primary school years, and (b) examine the role of sense of school belonging in mediating the effects of socioemotional wellbeing on loneliness.

Loneliness and School Belonging

The need to belong has been described as inherent to the human condition, comprising a ‘pervasive desire to form and maintain at least a minimum quantity of lasting, positive, and significant interpersonal relationships’ (Baumeister & Leary, 1995, p.497). In order to satisfy these needs, individuals require engaging in frequent and positive interactions with others (Baumeister & Leary, 1995). In consequence, those who experience enduring difficulties in forming and preserving satisfying relationships with other people would, in turn, experience difficulties in satisfying their needs to belong (Heinrich & Gullone, 2006). Leaving these needs unmet is likely to result in an overall sense of deprivation, manifested in disturbances such as loneliness, depression, anxiety and anger (Baumeister & Leary, 1995).

Loneliness has been characterized as a distressing feeling associated with perceived social isolation, whereby an individual sense that their social needs are not being met through the quantity or particularly the quality of one’s social relationships (Hawkley & Cacioppo, 2010). Notably, loneliness is not associated with objective, actual social isolation; individuals may lead relatively solitary lives and yet not experience loneliness, whereas some others may have socially active lives and still feel lonely. Thus, loneliness is a subjective experience of unsatisfying social relationships and needs greatly influenced by the individual’s own appraisals of these, remaining independent to the actual amount of social contact or solitude (Heinrich & Gullone, 2006; Junttila & Vauras, 2009). Loneliness has been reportedly associated with physical and mental health outcomes that can impact a wide range of life domains (Masi et al., 2011); indeed, research reported that loneliness constitutes a risk factor for a number of health conditions, such as increased blood pressure in older adults (Cacioppo et al., 2003; Hawkley & Cacioppo, 2010), increased vascular resistance in young adults (Cacioppo, Hawkley, & Bertson, 2003); it has also been associated with sleep difficulties, particularly with the restorative aspect of sleep (Hawkley et al., 2010). In terms of cognition, individuals experiencing chronic

loneliness are more likely to be affected by cognitive decline (Tilvis et al., 2004) and progression degenerative conditions such as Alzheimer's (Wilson et al., 2007). Furthermore, loneliness also triggers implicit hypervigilance for social threats, impairing executive functioning as heightened vigilance results in biases in attention and cognition towards negative aspects of the social context (Cacioppo & Hawkley, 2009). In addition, it has shown to be a predictor of depressive symptoms (Cacioppo, Hawkley, & Thisted, 2010), suicidal thoughts and behavior. (Rudatsikira et al., 2007).

In children and adolescents in particular, loneliness was linked to internalizing problems (Prinstein & LaGreca, 2002), and health risk behavior such as drug use, alcohol consumption and sexual risk behavior (Stickley et al., 2014). It has been suggested that children's experiences of loneliness are linked to feelings of peer acceptance at school (Baskin, Wampold, Quintana, & Enright, 2010). Rotenberg et al. (1997) noted that peer rejection and loneliness may be part of a self-reinforcing cycle, whereby the child experiencing chronic loneliness would be more likely to be rejected by their peers, while the feelings of school rejection could be linked to higher prospective levels of loneliness for that particular child. In this regard, Mallinckrodt and Wei (2005) regard social support and peer acceptance (and by that token, peer rejection) to have a passive connotation in the individual's engagement with the social environment, while belongingness or a sense of belonging reflects a stronger psychological connection to a group where individual perceives their own active presence as a requisite for the completeness of the social environment in which they interact (Baskin et al., 2010).

The Office for National Statistics (ONS) recently reported on a study conducted with children aged 10 to 15 years on their experiences of loneliness (ONS, 2018), as part of the government's loneliness strategy (HM Government, 2018). From this report, it emerged that 11.3% of children in the 10 to 15 age group reported feeling lonely 'often' (as opposed to 'some of the time' or 'hardly ever or never'), highlighting that the experience of loneliness was more salient in younger children (10 to 12, 14%) than those in the 13 to 15 group (8.6%). In addition, more than a fourth of children who received free school meals (27.5%) reported they were 'often' lonely, compared to only 5.5% of children who do not receive free school meals. Another interesting finding suggests that children who reported 'low' satisfaction with their overall health reported feeling lonely 'often' (28.3%), compared to those who reported being more satisfied with their health (medium, high or very high satisfaction). Another significant difference arose in levels of loneliness reported by children living in a city (19.5%) compared with just over 5% of those living in either towns or rural areas. Furthermore, evidence from the ONS' analysis suggests that those children who reported low levels of satisfaction concerning

their relationships with family and friends were more likely to report feeling lonely ‘often’. Indeed, this was the case for more than a third (34.8%) of children with low levels of satisfaction with their family relationships, and 41.1% for those reporting low levels of satisfaction with their friend relationships (ONS, 2018).

As previously described, the emergence of positive psychology led to the development of measures and programmes adopted by education settings through whole-school approaches to promote social and emotional skills in children and young people. School belonging have been reportedly identified as a **key component** that promoters of healthy development (Furlong et al., 2013; Masi et al., 2011; Wagle et al., 2018). While there is evidence that supports the role of school belonging in adolescents’ experiences of loneliness (Arslan, 2000; Baskin et al., 2010), there is little evidence about the relation of school belonging and loneliness in primary school-aged children.

Consequently, the aim of the present study was firstly to investigate the relationship between socioemotional development, school belonging and loneliness and secondly, given the importance of the school context on children’s socioemotional outcomes, to examine the effect of school belonging in the relationship between socioemotional development and loneliness. As school belonging has been put forward by previous research as **a key component** concerning various aspects of children’s socioemotional development (Allen et al., 2016; Furlong et al., 2013), we hypothesized that school belonging will mediate the relationship between socioemotional and loneliness. We chose to focus on primary school age as loneliness is rather under-investigated during childhood (Asher & Paquette, 2003), but also because the information concerning the relation between school belonging, socioemotional development and loneliness is surprisingly limited (Baskin et al., 2010).

Method

Participants

Children were recruited from three primary schools in Greater London, across four year groups ($N = 517$), ages 8 to 11 years old, $M_{age} = 9.2$, $SD = 1.0$. This was a convenience sample withdrawn from the existing network of research collaborations of the research team. There were slightly more females (51%) than males (49%). About half (51%) of the students

spoke English at home, with the remaining students indicating that they spoke another language at home, including Hindi, Arabic, and Polish. All students were proficient English speakers and were able to read and respond to the survey.

Measures

Socioemotional Wellbeing

The *Socio-Emotional Health Survey-Primary [SEHS-P]* (Furlong et al., 2013) is a 20-item school-based and strength-based socio-emotional health measure for use with primary school children. The version used in this study was adapted by Wagle et al., (2018), in particular the four sub-scales of gratitude (e.g. *Do you feel thankful that you have friends at your school?*), optimism (e.g. *Do you feel positive that you will have fun with your friends at school?*), zest (e.g. *Do you get excited about your school work?*) and persistence (e.g. *Do you keep working until you get your schoolwork correct?*), which comprise the co-vitality index. In order to increase understanding and engagement of primary-aged children with the survey, items originally expressed as statements were turned into questions, and were responded using a six-point scale (*No, never; No, almost never; Yes, sometimes; Yes, often; Yes, very often; Yes, always*). This measure was chosen due to its specificity for use with children in primary school settings and its excellent psychometric properties, with reliability values ranging from 0.66 to 0.88 (Furlong et al. 2013).

School Belonging

The *Psychological Sense of School Membership Scale-Primary [PSSM-P]* (Wagle et al., 2018) is a recently developed modification of the original 18-item PSSM (Goodenow, 1993), which has been extensively recognised for its reliability and validity as a measure of school belonging, suitable in various contexts (Cheung, 2004; Cowden et al., 2018; You et al., 2011). Subsequent studies examining the factor structure of the original scale found that negatively worded items formed their own factor; in consequence, these items were removed. With the removal of these items from the scale, a unidimensional factor structure of 11 items emerged (Gaete et al., 2016; Hagborg, 1998; Ye & Wallace, 2014; You et al., 2011).

In a recent cross-cultural study, a nine-item unidimensional factor structure has been found sufficient to accurately grasp the sense of school belonging in primary school children, across different contexts – United States of America, United Kingdom and China (Wagle et al., 2018). These findings point to a potentially much more effective way of screening for

levels of wellbeing in early years, allowing for screening in younger children. The nine-item version of the PSSM, designated as PSSM-P (primary) was used in this study to measure school belongingness as a predictor of profiles of socio-emotional health. The items included are:

- *Do you feel like you are a real part of your school?*
- *Are most teachers at your school interested in you?*
- *Do you belong at your school?*
- *Is there a teacher or other adult at school that you can talk to if you have a problem?*
- *Are people at school friendly with you?*
- *Are you included in a lot of school activities?*
- *Are you treated with as much respect as other students?*
- *Can you be yourself at school?*
- *Are you proud to be a part of your school?*

Procedures

The items of the two measures were merged into one single survey. In order to assess perceptions of loneliness, one item was added to this survey [*I feel lonely*], measured in a three-point scale (*never, sometimes and always*). Additionally, socio-demographic information was recorded, which included gender, main language spoken at home (recorded as English or other than English) and the IDACI of the area where the schools are located, which was recorded as either top 25% disadvantaged or top 25% affluent.

Approval for conducting the study was obtained by the University of Roehampton's ethics committee, after which the head-teachers of partner schools were contacted, and meetings arranged to brief them about the study. Once headteachers have confirmed their school's participation in the study, opt-out forms were made available to all children in all primary year groups and to their parents, alongside the study brief; no opt-out forms were received by the school or the research team. The paper-and-pencil survey was administered in the classrooms to whole groups, by trained researchers. Administration occurred on different days for each school, within one month.

Data Analysis

Internal consistency estimates were computed using Chronbach's Alpha for all measures administered. For the purpose of mapping the relations between the socioemotional

wellbeing, school belonging and loneliness, a co-vitality index was created based on composite scores of the four SEHS-P sub-scales, following an approach that has been adopted in other similar studies using the same scales (e.g. Castro-Kemp, Palikara, Gaona, Eirinaki & Furlong, 2019). Similarly, a composite variable based on average scores of the PSSM-P was created to illustrate school belonging. Multinomial Logistics regression analysis was conducted to first examine the predictive value of co-vitality and school belonging on loneliness. Assumptions for conducting the analysis were tested and met: independence of observations, nominal dependent variable, no outliers and no multicollinearity across predictors ($VIF < 10$). A main effects model was adopted with hierarchical constraint of entry and removal of items. A mediation model was tested for examining the indirect effect of co-vitality on loneliness, through school belonging. The Software AMOS SPSS version 26 was used for the analysis.

Results

The aim of this paper was to first, examine the predictive role of school belonging and co-vitality factors in predicting loneliness and second, to examine the role of school belonging as a mediator of the relationship between co-vitality and loneliness in primary school children in England.

Descriptive statistics and bivariate correlations between these variables are presented in **Table 1**. Results show that the variables were significantly associated with each other with the highest effect being that of the association between school belonging and the co-vitality index.

Chronbach's Alpha is .83 and .88 for the PSSM-P and SEHS-P, respectively.

The effect of co-vitality and school belonging on loneliness was tested via multinomial logistics regression analysis. The tested model significantly predicts the outcome better than the intercept alone [$\chi^2(2) = 59.76, p = .000$]. **Table 2** shows the results of this procedure. Results show that although correlated, co-vitality does not predict loneliness. School belonging was found to explain 39% of the variance of loneliness, especially for those with lower levels of loneliness. This suggests that children who feel more lonely are more likely to have lower levels of co-vitality associated variables.

It has been hypothesised that the effect of co-vitality on loneliness is an indirect one, via school belonging. In other words, school belonging can improve feelings of loneliness when it increases due to higher levels of school belonging. Therefore, the effect of school belonging as a mediator of the interaction between co-vitality and loneliness was tested. The

true value of b lies between $-.222$ and $-.113$, which does not include zero, denoting the presence of a mediating effect. Low scores on co-vitality might lead children to have a lower sense of school belonging, and this might create the feeling of loneliness, rather than the lower co-vitality scores *per se*. **Figure 1** illustrates the mediation model of school belonging on the interaction between co-vitality and loneliness.

Discussion

The goal of this paper was to examine and provide novel data concerning the relation between socioemotional wellbeing, loneliness and school belonging in primary school age children in England. The results of the study were generally consistent with our expectations. Although socioemotional wellbeing (as measured by the co-vitality index) is not directly associated with loneliness, there is an indirect effect via sense of school belonging. In other words, when developing interventions to promote socio-emotional wellbeing, these will only have an impact on the children's feelings of loneliness if they change the perceived sense of school belonging.

The findings of the present study contribute to the literature concerning the relation between socioemotional wellbeing and loneliness by highlighting the partial mediating effect of school belonging in the relation between those variables, in primary school age children. However, the cross-sectional design of the study is an inherited limitation. A longitudinal design would enable the examination of these complex relationships as they unfold overtime, including during transition period from primary to secondary education, which is a developmental period often associated with changes in children's socioemotional development (Riglin et al., 2013).

Another methodological limitation of the study concerns how loneliness was measured for the purposes of the current study as we relied on a single item from a self-report scale. Consequently, relevant findings concerning loneliness outcomes must be evaluated with caution. Future studies in the field should use well validated age appropriate scales of loneliness in order to provide a more detailed account of children's loneliness feelings during childhood.

Despite these limitations, the findings of this study provide important evidence regarding the importance of promoting sense of school belonging, which has been highlighted in other recent studies (e.g. Castro-Kemp et al., 2019). Additionally, the findings underline the important role that primary schools can play in preventing loneliness, which is known to be

closely associated with children's mental health. We argue that the role of primary school professionals in preventing loneliness and promoting socio-emotional health in general has been somewhat neglected in the scientific literature. It is well recognised that school sense of belonging is a key variable in mental health promotion and wellbeing of adolescents (e.g. Arslan, 2020), but little has been researched concerning the preventing power of earlier interventions for socio-emotional wellbeing in earlier developmental and educational phases. This study highlights the role of primary school as a key developmental context for prevention of loneliness amongst children. We suggest, based on our findings, that promoting socio-emotional wellbeing (and consequently sense of school belonging) as early as possible is one way to empower the children with the psychosocial and emotional strategies to cope with the challenges of loneliness.

Overall, the results of the study show that the relation between socioemotional wellbeing and loneliness during primary age school years is a complex one, with school belonging playing a partial mediating role. This relation during primary school age needs to be further researched, especially through the employment of longitudinal designs.

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Table 1.

Descriptive statistics and bivariate correlations of school belonging, co-vitality and loneliness.

	Loneliness	School Belonging	<i>M</i>	<i>SD</i>	Min	Max
Loneliness (L)	-	-.33**	1.59	.54	1	3
School Belonging (SB)	-.33**	-	4.25	.71	1.33	6
Co-vitality	-.20**	.67**	4.67	.75	1.88	6

**p < .001

Table 2.

Multinomial Logistics Regression Analysis for the Effect of Co-vitality and School Belonging on Loneliness

Predictors of loneliness	Loneliness	B	SE	Wald	95% CI		
					Lower Bound	Exp (B)	Upper Bound
Co-vitality	Sometimes	-0.12	.17	0.52	0.82	1.12	1.57
	Always	-0.05	.49	0.011	0.36	0.95	2.51
School Belonging	Sometimes	-0.92	.19	23.93	0.28	0.39**	0.58
	Always	-2.23	.55	16.50	0.04	0.11**	0.32

Note. *Value 'never' taken as indicator. Nagelkerke $R^2 = .14$

** $p < .001$.

Figure 1.

The Indirect Effect of Co-vitality on Feelings of Loneliness Via the Mediating Effect of School Belonging.

