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Accounting for the gender gap in adolescents' life satisfaction: evidence from nationally representative samples of school attendees in Luxembourg

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ABSTRACT

Research on gender differences in adolescents' life satisfaction has reported inconsistent findings to date. The present study aimed to (a) ascertain whether a gender gap in life satisfaction exists in Luxembourg, (b) estimate the predictive power of gender when controlling for well-identified predictors of life satisfaction, and (c) assess potential gender differences in our predictors' influence on life satisfaction. We used data from 2006 to 2022 pertaining to nationally representative samples of school attendees in Luxembourg ($n = 46,937$) to achieve our first research goal. We relied on data collected in 2022 ($n = 9,432$) to achieve our two other research goals. We found boys to consistently report higher life satisfaction than girls over time. However, gender did not predict life satisfaction when controlling for our other predictors. Moreover, the influence of most of the examined factors on life satisfaction did not vary with gender.

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Life satisfaction; gender gap; adolescents; Cantril's ladder; HBSC

Introduction

Life satisfaction (LS) is a key indicator of subjective well-being reflecting how individuals assess their overall quality of life (Diener et al., 1999; Park, 2004). LS has been shown to relate to positive economic, health, and social outcomes (Lombardo et al., 2018; Proctor et al., 2009). Historically under-investigated in adolescents, LS has been extensively examined in this population segment over the past few decades (Levin & Currie, 2014). Research suggests that adolescents' LS is positively associated with salutogenic factors such as social support or self-efficacy (Diener et al., 2018; Vecchio et al., 2007) and negatively associated with pathogenic factors such as anxiety or loneliness (Gilman & Huebner, 2006; Kong & You, 2013).

Because the abovementioned factors are partly gender-dependent (Zahn-Waxler et al., 2008), one could expect LS to vary with gender as well. However, research on gender differences in adolescents' LS has reported inconsistent results to date, with studies detecting (a) no gender gap (Huebner et al., 2000), (b) a higher LS in girls (Jackson et al., 2014), or (c) a higher LS in boys (Moksnes et al., 2013). Recent findings emanating from a meta-analysis of 46 studies ($n = 11,772$) dedicated to gender differences in adolescents' LS echoed such discrepancies and suggested that national context may partly account for these inconsistencies (Chen et al., 2020). In a similar

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vein, two recently published cross-national studies investigated the relation between LS and national gender equality. Here again, findings differed substantially: de Looze et al. (2018) observed 'that the association between societal gender equality and life satisfaction [was] equally strong for boys and girls' (see p. 1081); Guo et al. (2022), who attempted to replicate de Looze et al.'s study, found that gender equality at a national level was associated with gender inequality in LS at an individual level, since 'the effect of gender equality [on LS] was stronger for boys than for girls' (see p. 12). In addition, studies examining potential gender differences in the predictive power of factors known to affect LS are lacking both in adolescents and adults (Joshanloo, 2018). In sum, whether and how gender affects adolescents' LS remains open to question.

The present study investigated gender differences in adolescents' LS. We pursued three specific goals: first, to ascertain whether a gender gap in LS exists in Luxembourg, a high-income country ranking relatively high in diverse gender equality indexes (e.g., the Global Gender Gap from the World Economic Forum; the Gender Equality Index from the European Institute for Gender Equality); second, to estimate the predictive power of gender on LS when controlling for factors having been found to affect LS; third, to examine whether these factors' influence on LS varied with gender.

We relied on data from the Health-Behavior in School-aged Children (HBSC) study. The HBSC study aims to monitor and promote adolescents' health and well-being through surveys administered quadrennially to nationally representative samples. About 50 countries are currently collaborating with the World Health Organization Regional Office for Europe on the HBSC research program. In Luxembourg, the first HBSC survey was carried out in 2006.

We exploited the data pertaining to the five HBSC waves conducted thus far in Luxembourg (i.e., 2006, 2010, 2014, 2018, 2022) to achieve our first research goal. We used the data pertaining to the 2022 HBSC wave to achieve our two other research goals. By contrast with the previous surveys, the 2022 survey involved a special focus on mental health and comprised several measures of factors known to affect LS (e.g., anxiety, depression). Thus, because the literature on adolescents' LS reported associations between LS and psychological distress (Diener et al., 2018), LS and perceived poor health (Zullig et al., 2005), LS and perceived social support (Bi et al., 2021), LS and school environment (Suldo et al., 2006), LS and perception of body size (Valois et al., 2003), LS and substance (ab)use (Zullig et al., 2001), LS and violent behaviors (Valois et al., 2006), and because the HBSC survey conducted in 2022 assessed those variables, we investigated the extent to which these factors bear on LS.

Methods

Study sample

We relied on the HBSC nationally representative samples of school attendees in Luxembourg. The samples involved 9,882 participants in 2006 ($M_{AGE} = 14.4$; $SD_{AGE} = 2.1$; age range = 9–18; 49.5% female), 10,128 participants in 2010 ($M_{AGE} = 14.9$; $SD_{AGE} = 2.3$; age range = 9–19; 49.9% female), 7,757 participants in 2014 ($M_{AGE} = 14.8$; $SD_{AGE} = 2.3$; age range = 9–19; 51.5% female), 9,738 participants in 2018 ($M_{AGE} = 14.7$; $SD_{AGE} = 2.4$; age range = 9–20; 50.2% female), and 9,432 participants in 2022 ($M_{AGE} = 14.8$; $SD_{AGE} = 2.4$; age range = 10–20; 48.6% female).

Sampling strategy and survey administration

All Luxembourg HBSC surveys relied on a one-stage cluster sample involving a random selection of school classes from the eponym national register. The sampling procedure targeted grades ranging from 'Cycle 4, première année' (equivalent to US grade 5) to the highest grades of both general and vocational secondary schools. The paper-and-pencil questionnaire was self-administered in class.

Ethics approval

HBSC surveys were approved by the *Comité National d'Éthique de Recherche* and, since 2018, by the *Ethics Review Panel of the University of Luxembourg* as well. Both the students and their parents provided informed consent.

Dependent variable

LS was assessed using the Cantril ladder (Cantril, 1965), a measure that has been extensively employed in cross-national studies (e.g., the World Values Survey). Participants were asked to answer the following question: 'Here is a picture of a ladder. The top of the ladder "10" is the best possible life for you and the bottom "0" is the worst possible life for you. Where on the ladder do you feel you personally stand at the present time?'

Independent variables

Sociodemographic factors

We relied on five sociodemographic factors, namely, gender, age, country of birth (i.e., 'born in Luxembourg' [74.3%] vs. 'born abroad' [25.7%]), family structure, and family socio-economic status.

Family structure was delineated based on a question asking participants to indicate who they currently lived with. We distinguished between 'traditional nuclear family' (66%) and 'other family structures' (e.g., single-parent family, stepfamily; 34%).

We employed the Family Affluence Scale (FAS-III) to estimate family socio-economic status (Boyce et al., 2006). The FAS-III evaluates households' material living conditions based on six items related to car and dishwasher ownership, the number of computers and bathrooms at home, the fact of having a personal bedroom, and the frequency of holidays abroad. Redit scoring was carried out to discriminate between three levels of affluence corresponding to the lowest 20%, the middle 60%, and the highest 20%.

Health factors

Anxiety was gauged with the two-item version of the Generalized Anxiety Disorder scale (GAD-2; see Kroenke et al., 2007). The GAD-2 measures two anxiety symptoms on a 0–3 rating scale. The instrument covers the previous two weeks. In the present study, we used a mean score.

Depression was assessed based on the WHO-5 Well-Being Index (WHO-5-WBI; see World Health Organization, Regional Office for Europe, 1998). Originally used to estimate mental well-being, the instrument has been found to be a valid and reliable screening tool for depression as well (Allgaier et al., 2012; Löwe et al., 2004; Topp et al., 2015). The WHO-5-WBI is a 5-item inventory (e.g., 'Over the last two weeks, my daily life has been filled with things that interest me'). Each item relies on a 0–5 rating scale (McDonald's $\omega = .84$). A sum score ranging from 0 to 25 was computed. Following Löwe et al.'s and Allgaier et al.'s recommendations, we used age-adjusted cut-off values to pinpoint adolescents at risk for depression. These values were 10 for adolescents aged 12 or less; 9, for adolescents aged 13 to 16; and 7, for adolescents aged 17 or more.

We assessed loneliness with a single item asking participants to report on a 1–5 rating scale how often they had felt lonely over the elapsed year (from 'never' to 'always').

Perception of body size was measured with a single item on a 1–5 rating scale (ranging from 'much too thin' to 'much too fat'). The response option 'right size' was coded 0; the options 'a bit too thin' and 'a bit too fat' were coded 1; the options 'much too thin' and 'much too fat' were coded 2.

Self-efficacy was measured with two items on a 0–4 rating scale (Meilstrup et al., 2016). We relied on a mean score.

Self-rated health was measured with a single item involving a 1–4 rating scale ranging from 'poor' to 'excellent.'

Perceived social support

Both family and friend support were estimated with the corresponding subscales from the Multidimensional Scale of Perceived Social Support (MSPSS; see Zimet et al., 1988). The MSPSS dedicates four items to family support (e.g., 'My family is willing to help me make decisions') on a 1–7 rating scale (McDonald's $\omega = .92$). The instrument also comprises four items assessing friend support (e.g., 'My friends really try to help me') on a 1–7 rating scale (McDonald's $\omega = .91$). Mean scores were computed and employed in the conducted analyses.

Academic factors

We assessed academic achievement with an item asking participants to report on a 1–4 rating scale their teachers' view on their own school performance (from 'below average' to 'very good').

School satisfaction was measured with a single item on a 1–4 rating scale ranging from 'I do not like school at all' to 'I like school a lot.'

We estimated work pressure at school with an item on a 1–4 rating scale asking respondents to indicate how pressured they felt (from 'not at all' to 'a lot').

Substance use

Alcohol, cigarette, and e-cigarette consumption over the elapsed month was assessed with corresponding items on a 1–7 rating scale ranging from 'never' to 'daily.'

Bullying and physical fighting

We used two items on a 1–5 rating scale to assess in-school bullying victimization and cyberbullying victimization over the past two months (from 'never' to 'several times per week').

We relied on a single item on a 1–5 rating scale to estimate the number of times participants had been involved in physical fights over the past 12 months (from 'never' to 'at least four times').

Data analysis

First, we computed *t*-tests and Cohen's *d*s to assess the extent to which LS varied with gender in our study samples. Second, we estimated our predictors' influence on LS based on a 3-step regression analysis with pairwise deletion. Step 1 only involved gender. Step 2 involved our sociodemographic factors. Step 3 involved all our predictors. This multi-step process allowed us to compare the extent to which gender bears on LS when ignoring well-identified predictors of LS and when including such predictors. Third, to ascertain whether the predictive power of the examined factors on LS varied with gender, we reran the same analysis using mean-centered data and included interaction terms involving gender and every single predictor. We did not identify any multicollinearity issue. All variance inflation factors were < 1.8 . To further appreciate the predictive power of the examined factors on LS separately in boys and in girls, an online Supplementary Material provides the reader with a similar analysis split by gender. This Supplementary Material also reports descriptive statistics pertaining to the gendered distribution of our set of predictors.

Results

As shown in Table 1, participants were on average quite satisfied with their life ($7.34 < Ms < 7.58$). We found adolescents' LS to significantly vary with gender since 2006 (all $ps < .001$). Boys consistently reported a higher LS than girls. Between-gender differences were small ($M_d = 0.20$; $SD_d = 0.06$). The observed gender gap reached its peak in 2022 ($d = 0.29$).

Table 1. Dynamics of the gender gap in adolescents' life satisfaction in Luxembourg [0–10].

	2006		2010		2014		2018		2022	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Boys	7.59	1.85	7.72	1.82	7.57	1.95	7.69	1.81	7.60	1.79
Girls	7.26	1.95	7.32	1.92	7.14	1.98	7.48	1.83	7.07	1.88
Sample	7.42	1.91	7.52	1.88	7.35	1.97	7.58	1.82	7.34	1.86
Cohen's <i>d</i>	0.17		0.21		0.21		0.12		0.29	

All the gender differences reported here were statistically significant at $p < .001$.

Table 2. Summary of linear regression analysis predicting life satisfaction in adolescents.

	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>	95% CI	
Step 1 [Adjusted $R^2 = .021$]							
Gender	−0.534	0.040	−.143	−13.234	<.001	−0.613	−0.455
Step 2 [Adjusted $R^2 = .123$]							
Gender	−0.532	0.038	−.143	−13.928	<.001	−0.607	−0.457
Age	−0.185	0.008	−.235	−22.724	<.001	−0.201	−0.169
Country of birth	0.242	0.044	.057	5.455	<.001	0.155	0.329
Family structure	0.481	0.041	.123	11.793	<.001	0.401	0.561
Socio-economic status	0.387	0.031	.130	12.418	<.001	0.326	0.448
Step 3 [Adjusted $R^2 = .475$]							
Gender	0.034	0.033	.009	1.032	.302	−0.030	0.098
Age	−0.081	0.008	−.103	−10.644	<.001	−0.096	−0.066
Country of birth	0.149	0.035	.035	4.278	<.001	0.081	0.217
Family structure	0.203	0.032	.052	6.350	<.001	0.140	0.266
Socio-economic status	0.171	0.025	.058	6.939	<.001	0.123	0.220
Anxiety	−0.134	0.022	−.063	−6.024	<.001	−0.178	−0.091
Depression	−0.599	0.044	−.129	−13.597	<.001	−0.685	−0.512
Loneliness	−0.305	0.018	−.178	−17.124	<.001	−0.340	−0.270
Perception of body size	−0.061	0.024	−.021	−2.512	.012	−0.108	−0.013
Self-efficacy	0.183	0.023	.072	7.840	<.001	0.137	0.229
Self-rated health	0.466	0.024	.186	19.789	<.001	0.419	0.512
Family support	0.207	0.011	.189	18.911	<.001	0.186	0.229
Friend support	0.034	0.011	.028	3.217	.001	0.013	0.055
Academic achievement	0.048	0.020	.022	2.433	.015	0.009	0.087
School satisfaction	0.140	0.019	.067	7.225	<.001	0.102	0.177
Work pressure at school	−0.003	0.018	−.002	−0.179	.858	−0.038	0.032
Alcohol consumption	0.009	0.016	.005	0.544	.586	−0.023	0.041
Cigarette consumption	−0.009	0.013	−.006	−0.667	.504	−0.034	0.017
E-cigarette consumption	0.002	0.017	.001	0.110	.913	−0.031	0.034
Bullying victim	−0.026	0.020	−.011	−1.293	.196	−0.064	0.013
Cyberbullying victim	−0.071	0.026	−.024	−2.705	.007	−0.123	−0.020
Physical fight	−0.016	0.015	−.009	−1.070	.284	−0.045	0.013

Nonsignificant differences are italicized. Gender was coded 0 for 'boys' and 1 for 'girls.' Country of birth was coded 0 for 'adolescents born abroad' and 1 for 'adolescents born in Luxembourg.' Family structure was coded 0 for 'nontraditional nuclear family' and 1 for 'traditional nuclear family.' Depression was coded 0 for 'not at risk for depression' and 1 for 'at risk for depression.'

As shown in Table 2, gender alone (i.e., without any control variable; step 1) was linked to a 0.53-point gap in LS. The model explained about 2% of the variance in LS.

The inclusion of the other sociodemographic factors (step 2) revealed a statistically significant effect of each predictor on LS. Gender's influence on LS was still reflected in a 0.53-point differential. The model accounted for about 12% of the variance in LS.

Gender no longer had any effect on LS when the predictors were comprehensively considered (step 3). Self-rated health, family support, loneliness, self-efficacy, risk for depression, and age were

Table 3. Summary of linear regression analysis with interaction terms predicting life satisfaction in adolescents.

	B	SE	β	<i>t</i>	<i>p</i>	95% CI	
Gender	0.033	0.033	.009	0.993	.321	-0.032	0.097
Age	-0.082	0.008	-.104	-10.732	<.001	-0.098	-0.067
Country of birth	0.149	0.035	.035	4.257	<.001	0.080	0.217
Family structure	0.208	0.032	.053	6.471	<.001	0.145	0.271
Socio-economic status	0.169	0.025	.057	6.799	<.001	0.120	0.217
Anxiety	-0.136	0.022	-.064	-6.040	<.001	-0.180	-0.092
Depression	-0.624	0.045	-.134	-13.712	<.001	-0.713	-0.534
Loneliness	-0.306	0.018	-.179	-16.995	<.001	-0.341	-0.271
Perception of body size	-0.056	0.024	-.020	-2.294	.022	-0.103	-0.008
Self-efficacy	0.182	0.023	.071	7.741	<.001	0.136	0.228
Self-rated health	0.468	0.024	.187	19.788	<.001	0.421	0.514
Family support	0.205	0.011	.187	18.489	<.001	0.183	0.227
Friend support	0.036	0.011	.030	3.363	.001	0.015	0.057
Academic achievement	0.045	0.020	.020	2.255	.024	0.006	0.084
School satisfaction	0.139	0.019	.067	7.167	<.001	0.101	0.178
Work pressure at school	-0.005	0.018	-.003	-0.308	.758	-0.040	0.030
Alcohol consumption	0.011	0.016	.007	0.683	.494	-0.021	0.043
Cigarette consumption	-0.006	0.013	-.004	-0.429	.668	-0.031	0.020
E-cigarette consumption	-0.001	0.017	-.001	-0.067	.946	-0.034	0.032
Bullying victim	-0.019	0.020	-.008	-0.947	.344	-0.058	0.020
Cyberbullying victim	-0.075	0.027	-.025	-2.844	.004	-0.128	-0.023
Physical fight	-0.026	0.016	-.015	-1.676	.094	-0.057	0.004
Gender (G)*Age	0.011	0.015	.007	0.717	.473	-0.019	0.041
G*Country of birth	-0.070	0.070	-.008	-1.005	.315	-0.207	0.067
G*Family structure	0.007	0.064	.001	0.116	.908	-0.119	0.133
G*Socio-economic status	-0.002	0.050	.000	-0.048	.961	-0.100	0.095
G*Anxiety	0.024	0.045	.005	0.525	.600	-0.064	0.112
G*Depression	0.292	0.090	.031	3.230	.001	0.115	0.470
G*Loneliness	-0.044	0.036	-.012	-1.219	.223	-0.115	0.027
G*Perception of body size	-0.056	0.049	-.010	-1.144	.253	-0.151	0.040
G*Self-efficacy	0.049	0.047	.009	1.041	.298	-0.043	0.141
G*Self-rated health	0.024	0.047	.005	0.501	.616	-0.069	0.117
G*Family support	0.033	0.022	.015	1.470	.142	-0.011	0.076
G*Friend support	-0.024	0.021	-.010	-1.107	.268	-0.066	0.018
G*Academic achievement	-0.020	0.040	-.005	-0.509	.611	-0.098	0.058
G*School satisfaction	-0.028	0.039	-.007	-0.715	.475	-0.104	0.049
G*Work pressure at school	-0.001	0.036	.000	-0.026	.980	-0.071	0.069
G*Alcohol consumption	0.029	0.033	.009	0.885	.376	-0.035	0.093
G*Cigarette consumption	0.040	0.026	.014	1.516	.130	-0.012	0.091
G*E-cigarette consumption	0.030	0.034	.008	0.900	.368	-0.036	0.096
G*Bullying victim	-0.077	0.040	-.017	-1.920	.055	-0.155	0.002
G*Cyberbullying victim	-0.134	0.054	-.022	-2.493	.013	-0.239	-0.029
G*Physical fight	-0.063	0.032	-.018	-1.976	.048	-0.125	0.000

Adjusted $R^2 = .477$. Nonsignificant differences are italicized. Gender was coded 0 for 'boys' and 1 for 'girls.' Country of birth was coded 0 for 'adolescents born abroad' and 1 for 'adolescents born in Luxembourg.' Family structure was coded 0 for 'nontraditional nuclear family' and 1 for 'traditional nuclear family.' Depression was coded 0 for 'not at risk for depression' and 1 for 'at risk for depression.'

the best predictors of LS. Gender, bullying victimization, involvement in physical fight, substance use (alcohol, cigarette, e-cigarette), and work pressure at school did not predict LS. The model explained about 47% of the variance in LS.

As shown in Table 3, the influence of most predictors on LS was quite similar among boys and girls. Only three interaction terms involved a statistically significant difference, namely, gender and depression ($p = .001$), gender and cyberbullying victimization ($p = .013$), and gender and physical fighting ($p = .048$). Because of the relatively low B coefficient pertaining to the interaction between gender and physical fighting, the latter can be considered of minor importance.

Discussion

The present study had three main research goals. First, to examine whether a gender gap exists in the LS of adolescents in Luxembourg; second, to estimate the extent to which gender predicts LS when controlling for factors that have been shown to affect LS in past research; third, to ascertain whether these factors' influence varies with gender.

Our findings are indicative of a small gender gap in adolescents' LS. The gap was consistently observed from 2006 to 2022. In keeping with Guo et al.'s (2022) results, we found that the effect of gender on LS remained statistically significant when other sociodemographic factors were controlled for. Crucially, however, the effect of gender vanished when well-identified psychosocial predictors of LS were factored in. These findings suggest that LS is not explained by gender. Self-rated health, family support, loneliness, self-efficacy, risk for depression, and age appeared as the best predictors of LS. With the obvious exception of age, these factors involved gender differences in their respective levels within our sample. Our findings thus support the view that the gender LS gap partly reflects gender differences in health profiles and social support.

Most of our predictors' influence on LS was similar across genders. Overall, our findings are in line with the (scarce) literature available (Joshnloo, 2018). Interestingly, being at risk for depression affected boys' LS to a greater extent than it affected girls' LS. This finding may reflect males' tendency to euphemize depressive symptoms (American Psychiatric Association, 2022; Seidler et al., 2016): the reliance on a general measure of LS, with no explicit mention of health issues, cobbled with the use of the WHO-5-WBI, a positively worded scale, might have bypassed the social stigma pertaining to classical depression items and indirectly captured the distress in question. In addition, we found cyberbullying victimization to erode girls' LS to a greater extent than boys' LS. This result mirrors previous research findings (Turner et al., 2013). Because our model explained about 47% of the variance in LS, we cannot exclude that other predictors of LS may show gender-specific effects. Notably, the HBSC survey does not include items related to personality traits in general and neuroticism in particular. Since personality has been found to predict LS in adolescents and to involve gender differences in the way specific traits affect LS (Suldo et al., 2015), future research may further investigate the extent to which personality determinants of LS vary with gender.

Unlike most studies of adolescents' LS, our study examined a rather large array of potential determinants of LS and involved a relatively large age range. Such a comprehensive coverage allows us to address two general points regarding LS dynamics. First, our analyses revealed that externalizing behaviors (e.g., substance use) and work pressure at school did not predict LS. These findings contradict previous research (Cosma et al., 2020; Valois et al., 2006; Zullig et al., 2001) and suggest that internalizing behaviors and, more generally, (mental) health factors should be systematically controlled for in research on the determinants of LS. Second, our study found a negative effect of age on adolescents' LS, echoing Orben et al.'s (2022) findings. The latter underscored an earlier and steeper decrease in LS in females, probably due to puberty and its developmental correlates (e.g., endocrine system, brain connectivity, social perception). Because females physically mature earlier than males, and because adolescence has long been considered a pivotal period in the onset of internalizing disorders (Pfeifer & Allen, 2021), a gender gap in adolescents' LS may be reflective of such processes (Orben et al., 2022). The remanence of this gender gap through the lifespan is unclear, however: research in adults has reported inconsistent findings in that respect (Montgomery, 2022; Orben et al., 2022; Zweig, 2015). In addition, whether the criteria used by individuals to rate their own LS vary with gender, age, social position, and national context remains understudied. In sum, further research is needed to better pinpoint the determinants and dynamics of LS.

Finally, we note that our study relied on a binary gender scheme. We did not seek to identify, for instance, transgender, gender nonconforming, and nonbinary identifying adolescents. As a result, we are unable to ascertain whether our findings apply to these population segments. Although past research has found transgender and gender nonconforming adolescents to exhibit a higher prevalence of internalizing and externalizing behaviors and disorders than their counterparts (e.g., see

Eisenberg et al., 2017), the extent to which these factors bear on LS in these gender categories has seldom been investigated based on representative samples and on large sets of control variables. Future studies may address such questions by covering a larger gender spectrum. This may allow researchers to better understand the relation between gender and adolescents' LS.

Limitations

At least four limitations to the present study should be mentioned. First, its cross-sectional design prevents causal inferences from being drawn. Potential bidirectional relationships between some of our predictors (e.g., substance use) and LS may be examined in the future. Second, we relied on self-reported data. Studies using other types of data (e.g., observational) should be carried out. Third, the HBSC survey does not include measures of personality traits. Controlling for personality traits (e.g., neuroticism, extraversion) would have improved the understanding of the influence of some of our predictors (e.g., anxiety, loneliness, family support). Fourth, the HBSC survey does not include tools (e.g., anchoring vignettes) allowing investigators to estimate potential differences in individuals' response style. As a result, we were not able to ascertain whether boys and girls rely on similar criteria to rate the extent to which they are satisfied with their life.

Disclosure statement

The authors reported no potential conflict of interest.

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