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Self-esteem and life satisfaction in adolescents—gender and age as potential moderators

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Abstract
Purpose The present paper investigated gender differences on life satisfaction and self-esteem as well as the association between self-esteem and life satisfaction in Norwegian adolescents aged 13–18 years. The potential moderating role of gender and age in the relation between self-esteem and life satisfaction was also investigated.
Methods A total of 1,239 adolescents from public elementary and secondary schools in mid-Norway participated in the school-based survey study. Mean score differences on the variables used in the study were tested using *t* tests. Hierarchical multiple regression analysis was used to evaluate the association between self-esteem and life satisfaction, controlled for gender, age, stress, subjective health, and chronic health conditions.
Results The results showed that boys scored higher than girls on both self-esteem and life satisfaction. Self-esteem was positively associated with life satisfaction, explaining 24 % of the variance. However, no interaction effect of gender × self-esteem or age × self-esteem was found in relation to life satisfaction.
Conclusion The results give support for that boys report higher self-esteem and life satisfaction than girls. Self-esteem has a positive role in association with adolescents' life satisfaction, and this relationship is equally strong for both genders and across age.

Keywords Subjective well-being · Youth · Quality of life · Self-esteem

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Introduction

Theory and research support the notion that *subjective well-being*—an umbrella term concerned with an individual's evaluation of his or her life—is an important construct for understanding psychological well-being and overall mental health. These aspects are central cornerstones in health promotion, seeking to empower people to improve their overall health [1, 2]. Over the years, much research has been devoted to examining the determinants of successful development and subjective well-being during adolescence, and reviews have highlighted the importance of identifying factors promoting life satisfaction [2]. Adolescence is clearly a distinct and change-related time in the context of life satisfaction, due to the multitude of biological, psychological, social, and cognitive changes occurring during this phase [2, 3], and global self-esteem may act as an indicator of how adolescents face and manage these challenges, which further may effect on adolescents' life satisfaction. Much of the research conducted to date on subjective well-being in general and life satisfaction in particular has been carried out primarily on adult populations, although research investigating life satisfaction in children and adolescents is increasing [2, 4, 5].

The construct "satisfaction with life" presents the cognitive component of the multidimensional construct

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subjective well-being [4]. Pavot and Diener [6] define life satisfaction as "a judgemental process, in which individuals assess the quality of their lives on the basis of their own unique criteria (p. 164)." Evaluation of life satisfaction is thus based on a cognitive appraisal of the overall quality of a person's life, based on self-selected standards [6]. Studies report that similar to findings based on adult populations, most adolescents are satisfied with life, although there are inconsistent findings regarding the level of life satisfaction during the adolescent years [3, 7–9]. Further, demographic variables (e.g. gender, socioeconomic status) appear to play a very modest role in relation to life satisfaction in children and adolescents [2]; however, studies that have found gender differences generally report that boys score higher on life satisfaction than girls [3, 7].

Life satisfaction is considered to be a central construct in relation to other emotional, social, and behavioural constructs, and one of the variables that may have an impact on life satisfaction during adolescence is self-esteem [2, 10]. Rosenberg [11] defined self-esteem as an individual's set of thoughts and feelings about his or her own worth and importance. This definition reflects the notion of "global" or "general" self-esteem or self-worth. Self-esteem is a large part of adolescents' self-understanding and is likely to be a fluctuating and dynamic construct, susceptible to internal and external influences during adolescence [12, 13]. According to Diener and Diener [14], both self-esteem and life satisfaction indicate one's global evaluations, yet the direction of these evaluations is different [15]. Self-esteem reflects an individual's perceptions and evaluations of himself or herself, whereas life satisfaction involves the individual's evaluation of one's life as a whole including different areas of life such as school, family, and friends as well as oneself [15].

The trend in research has been that boys report higher self-esteem than girls [16, 17] and that girls to a greater extent than boys report decrease and fluctuations in self-esteem [18]. However, a study by Erol and Orth [12] found no significant gender differences in the level of self-esteem. Studies have also shown that self-esteem seems to increase during the adolescent years [12, 19], whereas other studies have reported that self-esteem is a stable characteristic that does not change [20] or even seems to decrease during adolescence [21].

The importance of self-esteem is underscored by decades of theory development and research supporting its link with a range of positive outcomes including psychological health and well-being during adolescence [2, 10, 15, 22, 23]. Conversely, low self-esteem has been related to symptoms of depression and anxiety [24, 25]. In the face of challenging life circumstances, high self-esteem may serve a role as a coping resource and protective factor in that individuals with high self-esteem are assumed to show more positive coping and better adjustment in relation to adverse life events, which may further promote health and well-being (and, conversely, individuals with relatively low self-esteem are more vulnerable to this effect) (Orth et al. [25] and Boden [26] have addressed these issues in more detail). Previous studies have also shown that self-esteem is positively associated with life satisfaction both in adult [4, 22] and in adolescent samples [2, 10, 26], with correlations ranging between .38 and .50 [10, 22]. Self-esteem therefore seems to play an important role in relation to how adolescents judge their life as a whole. Meanwhile, it is not clear whether the strength of this association differs between gender and age during adolescence.

As described, self-esteem and life satisfaction are related constructs which are likely to change and vary with gender and age during adolescence based on the impact of developmental shifts, transitions, and challenges occurring in this period [3, 17]. Generating a more thorough understanding of the association between self-esteem and life satisfaction may therefore also require investigating whether the strength of the association differs between gender and age during adolescence. The review of Proctor et al. [2, 5] underlines the need for more cross-cultural research on life satisfaction in adolescents as though the majority of past research in this area has been conducted in North America, and mainly on adults. The collection of systematic information on this issue is central to public health professionals in the planning of primary health care for the adolescent group and may lead to better intervention efforts to promote adolescents' optimal development, in reference to focusing on resources for health and positive development.

The aim of the present study was to investigate gender differences on self-esteem and life satisfaction as well as the association between self-esteem and the outcome of life satisfaction, when controlling for gender, age, stress, subjective health, and chronic health conditions. The following hypotheses were proposed:

1. There are gender differences on life satisfaction and self-esteem, where boys score higher than girls.
2. Self-esteem is significantly associated with life satisfaction, where a positive association will be found.
3. There are interaction effects of gender × self-esteem and age × self-esteem in relation to life satisfaction. We assume that a stronger association would be found for girls than for boys and that this association will vary across age groups.

Methods

Participants

The sample came from a cross-sectional survey of public elementary (school grade 8–10) and secondary schools (school grade 1–3) in mid-Norway. A total of 1,924 students were asked to participate and 1,289 completed questionnaires, giving a response rate of 67 %. Non-responses were mainly due to the lack of cooperation by individuals, students being absent from school when the questionnaire was administered, or students who declined to answer the questionnaire. No detailed information is available for students who did not participate in the study. The age range of the sample in the present study was 13–18 years, and the data analyses were undertaken for $n = 1{,}239$ (790 in elementary school and 449 in secondary school). In the sample, 636 (51.2 %) were girls and 603 (48.7 %) were boys. Distribution of gender and age in the sample is presented in Table 1. The mean age for the entire sample was 15.00 (SD = 1.62): for boys 14.99 (SD = 1.63) and for girls 15.02 (SD = 1.63).

Procedure

The data collection was approved by the Regional Committee for Medical Research Ethics (REK) and the Norwegian Social Science Data Services (NSD). The headmaster at each school approved the content of the questionnaire prior to agreeing to participate in the survey. The students (and parents of students younger than 16 years) received an information letter that briefly explained the purpose of the study. It was emphasized that participation was voluntary and anonymous, that participants were free to withdraw from the study at any time, and that the collected information would remain confidential. In line with research ethical guidelines, written consent was requested from all participants and, in addition, from their parents when students were younger than 16 years. Questionnaire administration was completed in whole class groups during one regular school period of 45 min. The data were collected between October and November 2011.

Table 1 Frequency of gender and age in the sample

	Girls	Boys	Total
13 years	145	148	293
14 years	130	117	247
15 years	132	117	249
16 years	90	89	179
17 years	70	79	149
18 years	67	53	120
Missing			2
N	634	603	1,239

Measures

Life Satisfaction was assessed using the Satisfaction With Life Scale (SWLS) [27]. This five-item instrument is rated on a seven-point Likert scale, ranging from (1) strongly disagree to (7) strongly agree, where a higher score indicates higher life satisfaction. Examples of some items are as follows: "In most ways my life is close to my ideal" and "The conditions of my life are excellent." The SWLS has been extensively used and is found to be appropriate for assessing life satisfaction both in adult [4] and in adolescent samples [5]. The internal consistency assessed by Cronbach's α has been found to exceed values of .80 [4, 5]. The internal consistency of the SWLS in the present study showed Cronbach's alpha α .87.

Self-esteem: Self-esteem was measured using the Rosenberg Self-Esteem Scale [11], a 10-item questionnaire measuring global self-esteem. The items are rated on a four-point Likert scale, ranging from (0) strongly disagree to (3) strongly agree, where higher sum score on the scale indicates higher levels of global self-esteem. RSE is found to be a reliable (Cronbach's α coefficient .86) [16] and valid measure for global self-esteem through all ages, including adolescence [28, 29]. The scale has been used in Norwegian studies, with Cronbach's α coefficient varying from .80 to .88 [16, 30]. Cronbach's α coefficient for the present study was .88.

Adolescent stress was assessed using the Adolescent Stress Questionnaire (ASQ-N). This is originally a 56-item scale concerning common adolescent stressors, rated on a 5-point Likert scale: 1 (not at all stressful or is irrelevant to me) to 5 (very stressful). The ASQ has been continuously developed and validated since the mid-1990s [31], and the instrument has been successfully tested for use in a Norwegian adolescent sample [32]. Further validations of the instrument have reduced the scale to 30 items, with high internal consistency and construct validity [33]. For the present study, the 30-item scale was used, and items were summarized to give a total stress score (range 37–174). Cronbach's α coefficient for the scale was .95.

Subjective health was measured by one item, "How is your health now?" The response options were as follows: 1 (bad), 2 (not so good), 3 (good), 4 (very good), and 5 (extremely good). Measuring health among adolescents using one item has previously been validated [34].

Chronic health conditions were measured with one item, "Do you have any prolonged illness or handicap?" The response options were 1 (No) and 2 (Yes).

Statistics

All statistical analyses were carried out using SPSS, version 20.0 (SPSS 2003). Cronbach's α was computed to estimate the internal consistency of all employed instruments. Descriptive statistics of frequencies, means, and standard deviation were calculated for all instruments, and independent sample t test was used to compare gender mean scores on the scales. To evaluate the strength of the gender differences on the continuous variables, effect sizes were calculated, and Cohen [35] has presented some guidelines for the strength of effects: small (.20), medium (.50), and large (.80+). Pearson product–moment correlation was used to test bivariate associations between the variables in the study separately for gender.

Hierarchical multiple regression analysis was used to evaluate the association between self-esteem and life satisfaction, controlled for gender, age, stress, subjective health, and chronic health conditions. The interaction effect of gender × self-esteem and age × self-esteem in relation to life satisfaction was also tested. The continuous variables in the interaction term were centred before being entered in the regression analysis. Adolescents' report on stress experience, subjective health status, and chronic health conditions was controlled for in the regression analysis as scores on life satisfaction are likely to be affected by these variables. Socioeconomic variables such as family income and parental education were not included in the questionnaire and could therefore not be controlled for in the analyses. The predictor variables were included in four steps: (1) gender, age; (2) stress, subjective health, chronic health conditions; (3) self-esteem; and (4) gender × self-esteem and age × self-esteem. P values $\leq .05$ were considered statistically significant.

Results

Correlations and gender differences on the variables used in the study

Mean scores on life satisfaction, self-esteem, stress, and subjective health as well as frequency distribution on chronic health conditions between genders are reported in Table 2. The results from the independent-samples t test showed that boys scored significantly higher than girls on self-esteem, life satisfaction, and subjective health, whereas girls scored higher on stress; the strongest gender difference was found on self-esteem. The results of the correlation analyses of the scales in the study are presented separately for gender in Table 3. There were significant, strong, and positive correlations between self-esteem, life satisfaction, and subjective health, and inverse significant correlations were found between stress and each of self-esteem, life satisfaction, and subjective health for both boys and girls. Further, age showed a positive and significant association with stress and an inverse association with subjective health for girls. For boys, age was only significantly associated with life satisfaction, showing an inverse association.

Table 2 Gender differences on life satisfaction, self-esteem, stress, and health

	Boys mean (SD) (n = 529)		Girls mean (SD) (n = 569)		Range	t value	Cohen's d
Self-esteem	30.93 (5.22)		27.30 (5.56)		10–40	−10.66***	0.67
Life satisfaction	24.14 (6.21)		22.31 (6.01)		5–35	−4.78***	0.3
Stress	61.20 (23.37)		68.44 (24.07)		37–174	5.16***	0.31
Subjective health	3.92 (0.96)		3.67 (0.96)		One item	−4.41***	0.26
Chronic health conditions	Yes	No	Yes	No			
Frequency (n)	131	431	162	460			

Cases are excluded listwise. *** $p \leq .001$

Table 3 Correlations between age, life satisfaction, self-esteem, stress, and subjective health

	Age	Life satisfaction	Self-esteem	Stress	Subjective health
Age	–	−.19**	−.01	−.00	−.03
Life satisfaction	−.09	–	.62**	−.17**	.37**
Self-esteem	.01	.68**	–	−.28**	.42**
Stress	.16**	−.39**	−.42**	–	−.16**
Subjective health	−.09*	.46**	.46**	−.15**	–

Correlations for girls are below the diagonal, and correlations for boys are above the diagonal. * $p \leq .05$; ** $p \leq .01$

Regression analysis for variables predicting life satisfaction

Table 3 presents the results following the hierarchical multiple regression analysis investigating the association between self-esteem and life satisfaction, controlled for gender, age, stress, subjective health, and chronic health conditions. Gender and age were significantly associated with life satisfaction, where boys scored higher than girls, whereas age showed a weak, negative association with life satisfaction in all steps of the model. In the second step, subjective health showed a significant positive association and stress showed a significant negative association with life satisfaction. The variable "chronic health conditions" was not significantly associated with life satisfaction. Totally, the covariate variables explained 20 % of the variance in life satisfaction. In the third step, self-esteem made a significant and strong increment to the model controlled for the other variables, showing a positive association with life satisfaction. Totally, self-esteem explained 24 % of the variance in life satisfaction. Finally, the interaction effect of gender × self-esteem and age × self-esteem was non-significant, showing that the strength of the association between self-esteem and life satisfaction does not differ significantly between genders or across age for adolescents. In sum, the model explained 47 % of the variance in life satisfaction (Table 4).

Discussion

This paper furthers our understanding of the role of self-esteem in association with life satisfaction in adolescents aged 13–18 years as well as the potential moderating role of gender and age on the relation between self-esteem and life satisfaction. In line with the positive psychology movement, investigations of adolescents' life perceptions may add valuable information in understanding their achievement and maintenance of happiness and well-being and self-esteem has been found to be an important characteristic in this context [2]. However, much of the research conducted on the role of self-esteem in relation to life satisfaction has been carried out primarily with adult populations [2, 3, 9]. Increasing the understanding of this particular association in adolescents and how it may differ between gender and age is important in the evaluation of strategies aimed at promoting positive psychological adjustment in children and adolescents.

The results of the present study supported our first hypothesis which showed that there were gender differences on life satisfaction and self-esteem, where boys scored higher than girls. In line with the second hypothesis, there was a strong and positive relation between self-esteem and life satisfaction, controlled for gender, age, stress, subjective health, and chronic health conditions, where self-esteem explained 24 % of the variance in life satisfaction. Meanwhile, the third hypothesis was not supported by showing that the interaction effect of gender × self-esteem and age × self-esteem was not significant in association with life satisfaction.

Life satisfaction is an important construct in positive psychology and assesses an individual's overall appraisal of quality of life based on his or her chosen criteria, including the perception that one is progressing towards important life goals [2, 4, 5]. Measures of life satisfaction are sensitive to the entire spectrum of personal, behavioural, psychological, and social outcomes, and is an important construct for understanding well-being and overall mental health [2]. The present findings showed that gender seems to be an important correlate to investigate in relation to life satisfaction as gender differences begin to increase during adolescence due to psychological and biological hormonal changes [3, 9, 36]. Previous studies have reported that the relationship between demographic variables and life satisfaction is weak and that those variables contribute only modestly to the prediction of adolescent life satisfaction [2, 37]. However, research that has found gender differences has generally shown that boys report higher scores than girls [3, 9]. During adolescence, there is also an increase in self-consciousness and self-esteem is typically understood to reflect the feeling of being satisfied with oneself and believing that one is a person of worth [18, 26]. Self-esteem is shaped by individuals' appraisals of their own self and how they are perceived by significant others and is likely to vary between genders during adolescence as a function of individual and environmental changes and transitions [12, 38]. The relationship between gender and self-esteem has been well researched, and in line with the present findings, studies have typically revealed that boys have a higher self-esteem than girls during adolescence [16, 17].

Overall, the findings in the present study provide support for and further our understanding of self-esteem as an important resource in association with adolescents' life satisfaction. However, in contrast to our hypothesis, the association was equally strong in both genders and seemed to be stable across age when controlling for relevant covariates of stress, subjective health, and chronic health conditions. The results thus indicate that whereas the levels of self-esteem and life satisfaction differ substantially between genders during adolescence, self-esteem seems to be an equally positive and strong resource in association with life satisfaction in both boys and girls. The association found between self-esteem and life satisfaction in the present study is supported by previous findings [2, 10, 19] and the study of Boden et al. [26] which found a positive

Table 4 Summary of the hierarchical regression analysis for variables predicting life satisfaction

	Life satisfaction				
	B	SE *B*	*β*	*F*	Adjusted R^2
Step 1					
Constant	29.09	1.85			
Gender	−1.90	.39	−.15***		
Age	−.33	.12	−.09**	15.42***	.03
Step 2					
Constant	21.68	1.94			
Gender	−.75	.35	−.06*		
Age	−.16	.11	−.04		
Subjective health	2.43	.18	.38***		
Stress	−.06	.01	−.23***		
Chronic health conditions	−.77	.40	−.05	68.05***	.23
Step 3					
Constant	24.78	1.65			
Gender	.82	.31	.07**		
Age	−.31	.09	−.08***		
Subjective health	1.03	.17	.16***		
Stress	−.02	.01	−.06*		
Chronic health conditions	−.16	.34	−.01		
Self-esteem	.63	.03	.58***	143.36***	.47
Step 4					
Constant	24.80	1.65			
Gender	.83	.31	.07**		
Age	−.31	.09	−.08***		
Subjective health	1.03	.17	.16***		
Stress	−.02	.01	−.07*		
Chronic health conditions	−.16	.34	−.01		
Self-esteem	.64	.05	.59***		
Self-esteem × gender	−.01	.06	−.01		
Self-esteem × age	.00	.02	.01	107.33***	.47

Gender: value 0 = boys, 1 = girls

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

association between self-esteem at age 15 and life satisfaction at ages 18, 21, and 25. However, to the authors' knowledge, previous studies have not investigated the moderating role of gender and age in the relation between self-esteem and life satisfaction.

Self-esteem has been found to be an important factor for retaining psychological health and well-being as well as positive functioning during adolescence [19, 26, 38]. Individuals with high self-esteem are assumed to have better coping resources and are more likely to show better adjustment in relation to challenges and adversities, which ultimately may promote subjective well-being [26]. Individuals with high self-esteem may also seek and receive more social support, which may facilitate more adaptive coping behaviours and overall adjustment [2, 8, 10, 15]. On the other hand, individuals with low self-esteem may experience to have no comfort in themselves and their capabilities and to be more challenged regarding the ability to identify coping resources, and to use them for intended purposes. This may lead to more vulnerability for negative health outcomes and lower life satisfaction [24, 25, 38]. Notwithstanding the genetic and heritable effects of personality, such as positive and negative affect and temperament, there are many environmental, familial, and social variables, besides self-esteem and the covariates included in the present study that also may explain variance in adolescents' life satisfaction [2, 23].

Although utilizing a positive psychology framework in order to promote adolescents' well-being is a complex and multifaceted task, it is a worthy and important endeavour. Public health professionals have begun to give greater attention to the assessment and promotion of youth developmental assets and the positive aspects of psychological well-being and adaption [1]. Although the present

study does not allow for conclusions regarding causality, the findings have the potential to inform practices that self-esteem is an important characteristic to promote in association with adolescents' life satisfaction. Previous studies suggest that effective health promotion targeting adolescent populations must be multifaceted and tends to be most successful when integrated into several settings, such as school and family, as well as afterschool programmes [1, 34, 39]. These are all settings where adolescents meet with peers and adults and can therefore facilitate intrapersonal and interpersonal functioning through connectedness and perceived social support and thereby facilitate self-esteem and life satisfaction [1, 10, 23]. Systematic approaches that aim to develop and strengthen adolescents' resources will therefore promote positive developmental outcomes in adolescence.

Limitations

The study should be considered with some limitations in mind. All findings were based on self-reports and therefore subjected to potential self-reporting bias. First, self-reports require that adolescents are at a level of cognitive development where they are able to reflect and understand concepts of health and illness. Second, there is a challenge regarding the adolescents' ability to evaluate and report reliably on feelings and complaints through self-report (e.g. social desirability). This is especially so in the youngest ones where the abstract concepts might be difficult to reflect over and therefore be subject to over- or underreporting. However, the study of Haugland and Wold [34] concluded that adolescents aged 14–16 years are able to evaluate and give reliable information about their subjective health by the use of questionnaires. The large sample size of the present study can partially protect against the influences of potential random error related to self-reporting [34]. Further, it is reasonable that there are other factors, not included in the present study (e.g. coping, socioeconomic status, personality, social support, peer status), that are equally relevant in explaining life satisfaction during adolescence. More information is needed about the nature and directionality of the relationship between life satisfaction and self-esteem beyond the cross-sectional design which was used in the present study, and it is likely that the associations found are likely to represent reciprocal associations. A longitudinal design would have strengthened the study by allowing changes to be assessed and compared over time, and this is contemplated for future research.

Conclusion

The present study supports the theoretical and empirical understanding of self-esteem as strongly and positively related to life satisfaction although the strength of this association does not differ between genders or across age. Further, boys scored higher on both life satisfaction and self-esteem compared to girls. Although longitudinal studies are needed to explain causal relations between the variables in the present study, the gender differences found on life satisfaction and self-esteem may require gender-specific strategies to support the development of these in girls. It would also be logical to assume that intervention efforts facilitating self-esteem, as one target area among an array of forces, may be central for promoting life satisfaction and positive functioning in the adolescent group. Longitudinal research investigating the reciprocal and dynamic relations between self-esteem and life satisfaction is needed to investigate causality and the generalizability of the results.

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