Life satisfaction in light of self-efficacy and stressor experience in adolescents: Self-efficacy as a potential moderator

Aim: This paper reports associations among socio-demographic variables, stressor experience, self-efficacy and life satisfaction among Norwegian adolescents aged 15–21 years and the potential moderating role of self-efficacy on the association between stressor experience and life satisfaction.

Methods: The cross-sectional school-based survey study involved 1,816 upper-secondary school students from Mid-Norway. Data were analysed with independent samples *t* test, Pearson's product moment correlation and multiple linear regression analysis.

Results: Bivariate results showed that boys scored higher than girls on life satisfaction and self-efficacy, whereas girls scored higher than boys on all stressor domains. Multiple linear regression analysis showed that life satisfaction declined weakly with age, whereas stronger family economy and having parents who work full-time associated with higher life satisfaction. Stress with teacher interaction, peer pressure, home life, school attendance, school–leisure conflict and school performance were all negatively associated with life satisfaction, whereas self-efficacy associated positively and strongly with life satisfaction. Self-efficacy moderated the association between both interpersonal and school-related stressors and life satisfaction.

Conclusion: The results provide support for the unique roles of stressor experience and self-efficacy in association with adolescents' life satisfaction as well as the role of self-efficacy as a stress moderator in relation to life satisfaction.

Keywords: Adolescents, subjective wellbeing, moderator, stress, self-efficacy, life satisfaction

Introduction

Subjective wellbeing (SWB) is an important construct for understanding an individual's overall functioning and quality of life (1, 2). Research has suggested a three-dimensional structure of SWB, comprising high positive affect, low negative affect and life satisfaction (LS). LS represents the cognitive component of SWB and refers to an individual's cognitive appraisal of his or her overall quality of life according to self-defined criteria (1).

Research has consistently suggested that demographic variables such as gender, age and socio-economic status (SES) correlates weakly with LS in adolescents (2, 3, 4). However, noted differences indicate that boys tend to score higher on LS than girls (2, 3, 5), and that LS tends to decrease weakly with age (3, 4), although most adolescents report their LS to be in the positive range (2, 6). Furthermore, adolescents with higher SES report higher LS than those with lower SES (2, 4).

Adolescents' LS is sensitive to the entire spectrum of functioning and, given the many developmental changes and challenges during adolescence, research on factors correlating with LS is particularly worthy of attention (2, 3, 7). Compared to research on LS in the adult population, research on adolescents' LS has begun to receive attention during the last decade (2, 8–10). Adolescence is recognized with numerous normative, chronic and acute stressors that interact with varying frequency and intensity (11, 12). Although research on the role of LS in relation to adolescent stress remains limited, along with major life events (2), minor chronic everyday stressors correlate negatively with LS (8, 10, 12–14). In the school context, experience of academic stress and negative interactions with teachers correlate with lower LS (9, 12, 13, 15). LS also correlates with several interpersonal factors in adolescents' lives, including the quality of parent and peer relationships (2, 7, 16). A broader base of evidence suggests that girls perceive higher levels of stress than boys do and tend to be more

emotionally vulnerable than boys when exposed to stressors, especially interpersonal ones (17–19).

Theoretical perspectives on coping indicate that the situational context and personal characteristics such as self-efficacy affect an individual's perception of potential stressors as well as the perceived choice of coping strategies (20, 21). In Bandura's social cognitive theory, self-efficacy is a core concept that refers to an individual's overall belief in his or her coping abilities, which are closely intertwined with his or her experiences, competencies and motivation in different contexts at different stages in life (22, 23). Self-efficacy can thus be regarded as an important coping resource in the face of different stressors, that affects emotional and cognitive processes as well as choice of coping strategies (14, 20, 21, 24); potentially this may reduce the negative impact of stress on health and wellbeing (23, 25). In studies with adults and adolescents, self-efficacy has been shown to relate negatively with mental health problems such as depression, anxiety and perceived helplessness (25, 26) and positively with quality of life (27, 28) and LS (2, 9, 29–32). Moreover, when gender-related differences are found, males score higher than females do on self-efficacy (21, 25, 32).

In line with the positive psychology movement, research on how adolescents achieve and maintain positive levels of wellbeing and happiness remains necessary (2). Stress, LS and self-efficacy are related constructs that are likely to vary during adolescence based on the impact of individual and contextual changes and transitions during the period. Generating a more thorough understanding of those associations may require investigations into the role of socio-demographic characteristics, as well as different normative stressors and self-efficacy in association with LS and how self-efficacy might potentially interact on the association between different normative stressors and LS.

The aims of the study were therefore to investigate:

(1) The association between socio-demographic variables (i.e. gender, age and SES), stressor experience, self-efficacy and life satisfaction (LS);
(2) The association between stressor experience, self-efficacy and LS; and
(3) The moderating role of self-efficacy on the association between stressor experience and LS.

Method

Participants

The study bases on a cross-sectional survey of adolescents from five public upper-secondary schools in an urban area in Norway. The school size ranged from 260 to 1,087 students. The questionnaire was administrated to 2,145 of totally 3,281 students, with 2,087 providing a valid response (response rate of 97.3%). Some students were excluded from participation because their questionnaires were blank (n = 58) or had missing data (n = 11), whereas others lacked written consent from parents (n = 166) or were potentially younger than 16 years of age and lacked written consent (n = 3), leaving 1,907 students eligible for inclusion in the sample. The reported age of questionnaire respondents was 15–37 years, and 91 were excluded to ensure an age range of 15–21 years, which was deemed representative of students in upper-secondary school. The net sample size was thus 1,816; 934 participants were girls (51.5%), 871 (48.0%) were boys, and 11 (0.5%) did not report their gender (Table 1). The mean age of the sample was 17.02 years (SD = 1.04); the mean age for boys was 17.00 years (SD = 1.14) and for girls mean age was 17.03 years (SD = 1.07).

Procedure

Data collection was approved by the Regional Committee for Medical Research Ethics Mid-Norway (REK 2014/1996). Prior to data collection, an informative letter and video about the study were available to all students and parents on the school's e-learning platform (i.e. itslearning). In addition, all first-year students received an informative letter about the study with a consent form for parents to sign if the students were younger than 16 years old. Students 16 years and older gave consent to participate by answering the questionnaire. Written information about study participation was also given to all students in the questionnaire. It was emphasised prior to participation in the study that participation was voluntary and anonymous, that participants were free to withdraw from the study and that the collected data would be treated confidentially. Adolescents who opted to not participate were permitted to complete schoolwork instead of the questionnaire. Prior to administering the questionnaire, a supervising teacher read aloud an informative letter provided by the research group that stated the aim of study and the voluntariness of adolescents' participation. Questionnaire administration was completed with the help of teachers in whole class groups during a regular 45-minute school session of the teachers' choice in September 2016.

Measures

Life satisfaction (LS) was assessed with the Satisfaction with Life Scale (SWLS, 33), a five-item instrument rated on a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*), on which higher sum scores in the total range of 5–35 points indicate higher LS. The SWLS has been extensively used and found to be appropriate for assessing LS in adult and adolescent samples, both cross-culturally and in Norway (12, 33), with Cronbach's α exceeding values of .80 (2, 34). Cronbach's α for the SWLS in the study reported here was .89.

Stress was assessed with the Norwegian version of the Adolescent Stress Questionnaire (ASQ-N, 11, 35, 36), a 30-item scale assessing normative stressors that adolescents may experience in their daily lives (36). On the ASQ-N, adolescents report the extent to which any recent stressor experience has constituted a psychological challenge for them during the last year on a 5-point Likert scale (1 = *not at all stressful or irrelevant to me*, 5 = *very stressful*), on which higher sum scores in the total range of 30–150 indicate higher stress levels. The ASQ-N has been shown to be a valid, reliable instrument for use with Norwegian adolescents (35, 36). The ASQ-N comprises five stressor domains, and Cronbach's α coefficients for subscales in the study reported here were .88 for teacher interactions, .84 for peer pressure, .84 for home life, .87 for romantic relationships, .73 for school attendance, .84 for school–leisure conflict and .86 for school performance.

Self-efficacy was assessed with the General Self-Efficacy Scale (GSE, 37), a 10-item instrument rated on a 4-point Likert scale (1 = *not at all true*, 4 = *exactly true*), on which higher sum scores in the total range of 10–40 indicate higher self-efficacy. The GSE has been validated in different samples cross-culturally (38) and found to be a valid, reliable one-dimensional construct (25, 39). The internal consistency of the GSE assessed with Cronbach's α has been high, with values exceeding .90 (39). Cronbach's α for the GSE in the study reported here was α .93.

Socio-demographic variables included gender, age and SES. SES was measured in terms of mother's and father's education, employment status and adolescents' perception of their family's economic situation. Mother's and father's education were assessed separately with the item `What is the highest level of education that your parents have attained?` (1 = *primary and lower-secondary school*, 2 = *upper-secondary school*, 3 = *university, up to 4 years*, 4 = *university, more than 4 years*, 5 = *I don't know*). Mother's and father's employment status was assessed separately with the item `What is your parents' professional

position or employment status?` (1 = *stay-at-home parent*, 2 = *unemployed*, 3 = *part-time job*, 4 = *full-time job*, 5 = *other*). Last, the family's economic situation was assessed with the item `How has your family's economic situation been during the last 2 years?` (1 = *We have had a bad economic situation the whole time*, 2 = *We have had a more or less bad economic situation*, 3 = *We have had neither a bad nor good economic situation*, 4 = *We have had a more or less good economic situation*, 5 = *We have had a good economic situation the whole time*).

Statistical analyses

Statistical analyses were conducted using the Statistical Package for the Social Sciences version 24.0 and Stata version 14.2. An independent samples *t* test was used to test the significance of gender mean differences on the scales. To evaluate the strength of the gender mean differences, effect sizes were calculated following Cohen's (40) guidelines for small (.20), medium (.50) and large (.80+) effect sizes. Bivariate associations of the independent variables and LS were tested with Pearson's product–moment correlation and bivariate linear regression analysis. Multiple linear regression analysis tested associations among gender, age, SES, stress domains, self-efficacy and LS, whereas moderation effects were tested with interaction terms including combinations of stressor domains and self-efficacy. Continuous variables in the interaction terms were centred by subtracting the mean on each scale (41). The proportions of missing values for the continuous variables of stress, self-efficacy and LS varied in the range of 12–25%, and for the demographic variables, the highest proportion of missing values was 5%. In the construction of scale sum scores, cases with missing responses in the proportion of 20% or less for each scale were included. SES variables including mother's and father's education level and employment status were used as summed indexes. In the survey, the values for "I don't know" and "Other" were included for the SES variables

to ensure valid responses from the participants. In the multivariate analysis, however, the values were excluded, because continuous variables constitute an assumption for conducting linear regression analysis. Model assumptions for linear regression analysis were tested, and no indications of multicollinearity or heteroscedasticity emerged in the results. In eight cases, standardised residuals ranged from -4.55 to 3.19. Multivariate linear regression analysis was conducted with a list-wise deletion of cases, which excluded 38.6% of the sample, resulting in a sample of 1,115 students. All *p* values equal to or less than .05 were considered to be statistically significant.

Results

Descriptive statistics

The distribution of gender, age and SES is presented in Table 1. Concerning parents' education reported by the participants, 50% of mothers and 41.9% of fathers had attended university for up to 4 years or more, whereas 20.5% of mothers and 24.5% of fathers had attended primary, lower-secondary or upper-secondary school. The majority of the sample also reported that parents (69.5% of mothers and 78.9% of fathers) were employed full-time and that only 2.6% of mothers and 2.9% of fathers were unemployed or on occupational leave. Regarding the family's economic situation during the past 2 years, 69.5% of the sample reported perceiving that their family had a good or more or less good economic situation, whereas only 6.1% reported perceiving that their family had a bad or more or less bad economic situation.

Gender differences in stress, self-efficacy and life satisfaction (LS) and correlation analysis of variables

Results from the independent samples *t* test revealed that boys scored significantly higher than girls on LS and self-efficacy, whereas girls had significantly higher mean scores than boys on all stressor domains (Table 2). Gender differences presented small to medium effect sizes, in which the strongest differences occurred for stress related to school performance, peer pressure and school–leisure conflict. Pearson's product–moment correlation (Table 3) showed that LS correlated positively and significantly with all SES variables and self-efficacy, as well as negatively and significantly with all stressor domains and age. Self-efficacy correlated negatively and significantly with all stressor domains as well as positively and significantly with parents' employment status and the family's economic situation. All stressor domains except school–leisure conflict correlated negatively and significantly with the family's economic situation. Stress from teacher interactions, home life and romantic relationships correlated negatively and significantly with parents' employment status. Age correlated negatively and significantly with all SES variables as well as positively and significantly with stress from romantic relationships. All SES variables inter-correlated positively and significantly.

Multiple linear regression analysis for the association between socio-demographic variables, stressor domains, self-efficacy and life satisfaction (LS) (adjusted associations)

Results from multiple linear regression analysis showing adjusted associations between gender, age, SES, stress domains, self-efficacy and LS is presented in Table 4. Concerning the demographic variables, only age showed a significant but weak negative association with LS. Of the SES variables, the family's economic situation and parents' employment status showed significant, positive but weak associations with LS. Of the stress domains, all except

stress from romantic relationships were negatively and significantly associated with LS and explained 15% of the variance in LS. Self-efficacy showed the strongest positive and significant association with LS and explained 18% of the variance. Regarding the interaction effects, significant interactions emerged between self-efficacy and each of the stressor domains (i.e. teacher interactions, peer pressure, home life, school attendance and school performance), thereby indicating that associations of those stressors with LS were moderated by self-efficacy. However, the interaction terms explained only 2% of the variance in LS. Overall, the regression model explained 45% of the variance in LS.

Discussion

The main findings of the study indicated that all stressor domains except romantic relationships associated negatively and significantly with LS in adolescents. Self-efficacy showed the strongest positive and significant association with LS. Self-efficacy also significantly interacted on the association between LS and stressor experience related to school attendance, school performance, teacher interaction, peer pressure and home life. Of the socio-demographic variables, age showed a weak but significant negative association with LS. Moreover, adolescents who reported that their parents worked in full-time positions and who reported that their family's economic situation was good associated weakly but significantly with higher LS. Although no significant gender differences were found for LS in the multivariate analyses, the results of bivariate analyses showed that boys reported significantly higher LS and self-efficacy than girls and that girls reported significantly higher stress levels than boys in all stress domains.

The findings correspond with the results of previous studies showing that the socio-demographic variables of gender, age and SES contribute modestly to adolescents' reported LS (2). Gender differences in stressor experience also correspond with the results of previous

studies showing that girls tend to report higher stress levels than boys and are more likely than boys to internalise the causes of stress (11, 17–19). The individual experience of different stressors also relates to the experience and development of self-efficacy. The findings of the study presented here align with those of previous studies showing that boys report higher self-efficacy than girls (20, 32).

The significant negative relationships found between interpersonal and school-related stressors and LS align with the results of studies showing that experience of simultaneous and cumulative stressors negatively affect LS (8, 12, 13, 42). Regarding the role of interpersonal stressors, previous studies have shown that adolescence may be a time of heightened stress in parent–child relationships resulting, for example, from the adolescent's need for increased independence and autonomy from parents and parents` reluctance to acknowledge this independence (11, 12). At the same time, the importance of establishing peer friendships is an important psychosocial developmental task during adolescence, and any perception of conflict or pressure with peers and friends may be perceived as increasingly stressful during adolescence (12, 19). The results of the study reported here also correspond with those of studies emphasising that experiences with higher demands at school are significant to adolescents' mental health and wellbeing (2, 11). Over time, the overall impact of the stressor(s) could exceed adolescents' coping abilities and negatively affect their health and wellbeing.

The results provide support for the idea that self-efficacy is a relevant resource for adolescents' experiences with LS. Additionally, the significant interaction effects suggest that self-efficacy is a potential stress buffer in relation to LS, which aligns with theory about self-efficacy, maintaining that people with high self-efficacy are considered to be not only more realistic but also more positive in their evaluations of their resources and action competence. That dynamic could promote motivation and more positive coping processes as well as

consequently function as a relevant buffer to stress (21, 24), which positively affects LS. Interestingly, however, to the authors` concern, no studies have investigated the moderating role of global self-efficacy in relation to different normative stressors and LS, although baseline self-efficacy has been found to mitigate how baseline school-related stress affects LS (9). The findings of the study reported here also corroborate other findings that self-efficacy is an important resource for quality of life (27, 28), LS (2, 29–32) and stressor experience (14). However, because the interaction effects did not explain much variance in LS, the substantive significance of self-efficacy as a stress moderator should not be overstated.

The findings contribute to the research field by providing insights into the significant, unique role of interpersonal and school-related stressors as well as self-efficacy as a coping resource and stress moderator in association with LS when socio-demographic variables are controlled for. Nevertheless, self-efficacy should be investigated in longitudinal studies to clarify its potential moderator effect on the stress–LS relationship. The findings also indicate the more modest role of socio-demographic variables in association with adolescents' reported LS when stressor experience and self-efficacy are controlled for. Following the findings of the study, it would be logical to assume that self-efficacy is a relevant resource for adolescents' capacity to cope with normative stressors as well as their perception of LS. LS is a key indicator for wellbeing during adolescence, and the overall promotion of conditions promoting LS among adolescents cannot be understated (6). The main goal of health-promoting strategies among adolescents is to facilitate coping resources that prepare them to navigate life's challenges. Implementing such actions is multifaceted and most successful when integrated into different developmental contexts in adolescents' lives (45). In that sense, the school context may especially be important to facilitating numerous intrapersonal and interpersonal resources in adolescents given the school`s role as a meeting place for students, school professionals and school health services (46).

Strengths and limitations

The strengths of the study were its large sample size and use of validated instruments. Whereas the cross-sectional design precluded causal interpretation, a longitudinal design would have strengthened the study by allowing associations to be assessed over time. Other factors not included in the study (e.g. coping strategies, personality and social support) could be equally relevant in explaining LS during adolescence. In the multivariate regression analysis, 38.6% of the sample was excluded, and the potentially reduced variance in the sample should be noted for its possible impact on the results. All findings were based on self-report and are therefore subject to potential self-report bias. Although self-report is a valid and well-used method for assessing subjective health, it also presents challenges (e.g. social desirability) for adolescents when evaluating and reporting reliably on their feelings and perceptions. The large sample size of the study can partly protect against the influences of potential random errors resulting from the limitations of self-report.

Conclusion

The results provide support for the significant role of age, perceived economic situation in the family, parents' employment status, stressor experiences and self-efficacy for adolescents' perception of LS. Self-efficacy had a moderating role on the relationship between interpersonal and school-related stressors and LS. Longitudinal studies are suggested to investigate the moderating effect of self-efficacy on the relation between stressor experience and LS as well as to investigate associations over time.

References

1 Pavot W, Diener E. Review of the satisfaction with life scale. P*sychol Assess* 1993; 5: 164-172.

2 Proctor CL, Linley PA, Maltby J. Youth life satisfaction: A review of the literature. *J Happiness Stud* 2009; 10: 583-630.

3 Goldbeck L, Schmitz TG, Besier T, Herschbach P, Henrich G. Life satisfaction decreases during adolescence. *Qual Life Res* 2007; 16: 969-979.

4 Shek DTL, Liu TT. Life satisfaction in junior secondary school students in Hong Kong: A 3-year longitudinal study. *Soc Indic Res* 2013; 117: 777–794.

5 Moksnes UK, Espnes GA. Self-esteem and life satisfaction in adolescents-gender and age as potential moderators. *Qual Life Res* 2013; 22: 2921-2928.

6 Proctor C, Linley AP, Maltby J. Life Satisfaction. In *Encyclopedia of Adolescence*, (Levesque RJR eds), 2018, Springer, New York.

7 Oberle E, Schonert-Reichl KA, Zumbo BDJ. Life Satisfaction in early adolescence: Personal, neighbourhood, school, family, and peer influences. *J Youth Adolesc* 2011; 40: 889-901.

8 Proctor CL, Linley PA, Maltby J. Very happy youths: Benefits of very high life satisfaction among adolescents. *Soc Indic Res* 2010; 98: 519–532.

9 Burger K, Samuel R. The role of perceived stress and self-efficacy in young people`s life satisfaction: A longitudinal study. *J Youth Adolesc* 2017; 46: 78-90.

10 Suldo SM, Huebner S. Is extremely high life satisfaction during adolescence advantageous? *Soc Indic Res* 2006; 78: 179–203.

11 Byrne DG, Davenport SC, Mazanov J. Profiles of adolescent stress: The development of the adolescent stress questionnaire (ASQ). *J Adolesc* 2007*;* 30: 393-416.

12 Moksnes UK, Haugan G. Stressor experience negatively affects life satisfaction in adolescents - the positive role of sense of coherence. *Qual Life Res* 2015; 24: 2473–2481.

13 Gilman R, Huebner S. Characteristics of adolescents who report very high life satisfaction. *J Youth Adolesc* 2006; 35: 311-319.

14 McKay MT, Dempster M, Byrne D. An examination of the relationship between self-efficacy and stress in adolescents: the role of gender and self-esteem. *J Youth Stud* 2014; 17: 1131-1151.

15 Salmela-Aro K, Tuominen-Soini H. Adolescents' life satisfaction during the transition to post-comprehensive education: Antecedents and consequences. *J Happiness Stud* 2010; 11: 683-701.

16 Piko BF, Hamvai C. Parent, school and peer-related correlates of adolescents` life satisfaction. *Child Youth Serv Rev* 2010; 32: 1479-1482.

17 Charbonneau AM, Mezulis AH, Hyde JS. Stress and emotional reactivity as explanations for gender differences in adolescents' depressive symptoms. *J Youth Adolesc* 2009; 38: 1050-1058.

18 Grant KE, Compas BE, Thurm AE, McMahon SD, Gipson PY, Campbell AJ, Krochock K, Westerholm RI. Stressors and child and adolescent psychopathology: Evidence of moderating and mediating effects. *Clin Psychol Rev* 2006; 26: 257-283.

19 Shih JH, Eberhart NK, Hammen CL, Brennan PA. Differential exposure and reactivity to interpersonal stress predict sex differences in adolescent depression. *J Clin Child Adolesc Psychol* 2006; 35: 103-115.

20 Cicognani E. Coping strategies with minor stressors in adolescence: Relationships with social support, self-efficacy, and psychological well-being. *J Appl Soc Psychol* 2011; 41: 559-578.

21 Frydenberg E. Self-efficacy. In: *Encyclopedia of Adolescence*. (Levesque RJR eds) 2018, Springer, New York.

22 Bandura A. Self-efficacy: Toward a unifying theory of behavioral change. *Psychol Rev* 197; 84: 191-215.

23 Bandura A. *Self-efficacy: The exercise of control*. 1997; New York: Freeman.

24 Tsang SKM, Hui EK, Law BCM. Self-efficacy as a positive youth development construct: A conceptual review. *The Scientific World Journal* 2012; 2012: 1–7.

25 Luszczynska A, Gutierrez-Dona B. General self-efficacy in various domains of human functioning: Evidence from five countries. *Int J Psychol* 2005; 40: 80–89.

26 Parto M. Problem solving, self-efficacy, and mental health in adolescents: Assessing the mediating role of assertiveness. *Procedia – Soc Behav Sci* 2011; 30: 644–648.

27 Cramm JM, Strating MMH, Roebroeck ME, Nieboer AP. The importance of general self-efficacy for the quality of life of adolescents with chronic conditions. *Soc Indic Res* 2013; 113: 551–561.

28 Kvarme LG, Haraldstad K, Helseth S, Sørum R, Natvig GK. Associations between general self-efficacy and health-related quality of life among 12-13 year-old school children: a cross-sectional study. *Health Qual Life Outcomes* 2009; 7: 1-8.

29 Marcionetti J, Rossier J. Global life satisfaction in adolescence. *J Individ Differ* 2016; 37: 135-144.

30 Veccio GM, Gerbino M, Pastorelli C, Bove GD, Capara GV. (2007). Multi-faceted self-efficacy beliefs as predictors of life satisfaction in late adolescence. *Pers Individ Dif* 2007; 43: 1807-1818.

31 Cikrikci Ö, Odaci H. The determinants of life satisfaction among adolescents: The role of metacognitive awareness and self-efficacy. *Soc Indic Res* 2016; 125: 977–990.

32 De Caroli ME, Sagone E. Generalized self-efficacy and well-being in adolescents with high vs. low scholastic self-efficacy. *Procedia – Soc Behav Sci* 2014; 141: 867–874.

33 Pavot W, Diener E. The satisfaction with life scale and the emerging construct of life satisfaction. *J Posit Psychol* 2008; 3: 137–152.

34 Moksnes UK, Løhre A, Byrne DG, Haugan G. Satisfaction with life in adolescents: Evaluation of the factor structure in a Norwegian sample. *Soc Indic Res* 2014; 118: 657-671.

35 Moksnes UK, Byrne DG, Mazanov J, Espnes GA. Adolescent stress: Evaluation of the factor structure of the adolescent stress questionnaire (ASQ- N). *Scand J Psychol* 2010; 51: 203-209.

36 Moksnes UK, Espnes GA. Evaluation of the Norwegian version of the Adolescent Stress Questionnaire (ASQ-N): Factorial validity across samples. *Scand J Psychol* 2011; 52: 601-608.

37 Schwarzer, R., Jerusalem, M. Generalized Self-Efficacy scale. In J. Weinman, S. Wright, & M. Johnston, *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35-37). 1995, Windsor, UK: NFER-NELSON.

38 Scholz U, Dona BG, Sud S, Schwarzer R. Is general self-efficacy a universal construct? *Eur J Psychol Assess* 2002; 18: 242-251.

39 Löve J, Moore CD, Hensing G. Validation of the Swedish translation of the General Self-Efficacy scale. *Qual Life Res* 2012; 21: 1249-1253.

40 Cohen J. *Statistical power analysis for the behavioural sciences.* 1988*,* 2nd edn Hillsdale, NJ, Lawrence Earlbaum Associates.

41 Tabachnik, B.G. & Fidell, L.S. *Using multivariate statistics*. 2007, 5th edn Boston, MA, Allyn & Bacon/Pearson Education.

42 McKnight CG, Huebner ES, Suldo S. Relationships among stressful life events, temperament, problem behaviour, and global life satisfaction in adolescents. *Psychol Sch* 2002; 39: 677–687.

43 Mezulis AH, Funasaki KS, Charbonneau AM. Gender differences in the cognitive vulnerability-stress model of depression in the transition to adolescence. *Cognit Ther Res* 2010; 34: 501-513.

44 Moksnes UK, Moljord IEO, Espnes GA, Byrne DG. The association between stress and emotional states in adolescents: The role of gender and self-esteem. *Pers Individ Dif* 2010; 49: 430-435.

45 Sawyer SM, Afifi RA, Bearinger LH, Blakemore SJ, Dick B, Ezeh AC, Patton GC. Adolescence. A foundation for future health. *Lancet* 2012; 379: 1630-1640.

46 Weare K, Nind M. Mental health promotion and problem prevention in schools: what does the evidence say? *Health Promot Int* 2011; 26: 29-41.