Negative Life Events, Social Support, and Self-Efficacy in Anxious Adolescents

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Abstract

Purpose: To examine the prevalence and correlates of anxiety in a community sample of adolescents. Knowing the prevalence and characteristics of anxious adolescents is valuable to improve anxiety prevention strategies and interventions.

Design: Cross-sectional data about anxiety were collected via a school survey from a community sample of Norwegian adolescents aged 12–17 ($N = 1719$).

Methods: Based on scores from the Spence Children's Anxiety Scale, the adolescents were categorized as not anxious or anxious. Logistic regression analysis was performed to access the impact of each factor on the likelihood that participants would report an elevated level of anxiety.

Results: A total of 22% of the adolescents were categorized as anxious. Female gender, experienced negative life events, low social support, and low self-efficacy were associated with elevated level of anxiety.

Conclusions: The high prevalence of anxiety in adolescents demonstrates the importance of improved prevention interventions targeting anxious adolescents. We argue that addressing is the responsibility of not only the individual adolescents and their families but also schools, school health services, and policy makers. School-based interventions that increase social support and self-efficacy would probably be particularly beneficial for anxious adolescents.

Keywords

Anxiety, adolescent, negative life events, self-efficacy, social support

Introduction

Anxiety disorders are among the most frequent mental health problems in adolescence (Merikangas et al., 2010). These disorders are disabling for the individual (Copeland, Angold, Shanahan, & Costello, 2014) and costly to society (Gadermann, Alonso, Vilagut, Zaslavsky, & Kessler, 2012). To develop anxiety prevention strategies and interventions, high emphasis should be placed on investigation of prevalence rates and identification of characteristics of anxious adolescents. Preventing the onset of youth anxiety disorders is critical to avoid or at least reduce the adverse effects of anxiety on development, social functioning, and school performance (Beesdo, Knappe, & Pine, 2009). In addition to adolescents with anxiety disorders, a population for whom prevention would be beneficial is adolescents with elevated anxiety symptoms who do not yet meet diagnostic criteria for an anxiety disorder. These adolescents are regarded as having subthreshold anxiety disorders (Judd, Rapaport, Paulus, & Brown, 1994) and are important to identify and intervene with in order to minimize the burden of disease associated with anxiety in adolescents (Balazs et al., 2013; Institute for Health Metrics and Evaluation, 2016).

Genetics, ethnicity, socioeconomic status, negative life events, and cognitive factors have all been associated with the development and maintenance of

anxiety in adolescents (Rapee, Schniering, & Hudson, 2009). Girls consistently report higher prevalence of anxiety symptoms than boys do (Copeland et al., 2014; Holly, Little, Pina, & Caterino, 2015; Leikanger, Ingul, & Larsson, 2012). Age is also found to be related to level of anxiety (Kinderman, Schwannauer, Pontin, & Tai, 2013). In the age-span 11–16 years, boys report decreasing levels of anxiety, whereas girls report increasing levels (Copeland et al., 2014; Merikangas et al., 2010). Studies have found that ethnic minorities report elevated levels of anxiety more often than ethnic majorities (Holly et al., 2015; Kinderman et al., 2013). In addition, poor family economic status has further been found to be a predictor of anxiety in adolescents (Bøe, Øverland, Lundervold, & Hysing, 2012), while other studies have reported no relation between anxiety and family economic status (Merikangas et al., 2010).

Adolescents whose parents have an anxiety disorder, more often report elevated level of anxiety (Micco et al., 2009) as well as adolescents whose parents have other chronic illnesses (Pai et al., 2007). Furthermore, the experience of negative life events, such as bullying, personal losses (e.g., death of family member), parent's divorce, living in exile, single traumas (e.g., major accident and rape), and multiple traumas (e.g., family violence and sexual abuse), are all associated with anxiety (Kinderman et al., 2013; Merikangas et al., 2010; Montgomery, 2011).

Cognitive models on the development and maintenance of anxiety disorders emphasize social support and self-efficacy as important (Beck, 2011). Social support might influence the adolescent's appraisals of situations, and improve problem-solving skills and promote adaptive behaviour (Cohen & Wills, 1985). Meta-analyses have accordingly reported that social support seems to be an important protective factor with regard to developing anxiety disorders in adults (Ehlers & Clark, 2000) as well as internalizing problems in adolescents (Buchanan & Bowen, 2008). The adolescent's amount and type of social support can be affected by their own efforts and efforts made by others in the adolescent's environment and are therefore particularly interesting in consideration of anxiety prevention strategies. At any rate, as far as we know, no study has investigated the role of social support in relation to anxiety in adolescents when other central psychological factors associated with anxiety are taken into account.

Self-efficacy represents the individuals' perceptions that he or she will be able to execute the actions necessary to achieve desired outcomes (Bandura, 1993). According to social cognitive theory, perceived self-efficacy to exercise control over potential threats plays a central role in anxiety arousal. As a result, individuals with lower perceived self-efficacy more often develop and maintain higher levels of anxiety than individuals with higher perceived self-efficacy. Studies on the relationship between levels of anxiety and self-efficacy have reported associations between low self-efficacy and self-reported level of anxiety in adolescent community-samples (Dupere, Leventhal, & Vitaro, 2012;

Fitzpatrick & Bussey, 2014; Landon, Ehrenreich, & Pincus, 2007; Mancini, Bowen, O'Neal, & Arnold, 2015; Muris, 2002; Rudy, Davis, & Matthews, 2012; Warner, Gutierrez-Dona, Villegas Angulo, & Schwarzer, 2015). Self-efficacy as a mediator of anxiety has been reported in a study of adults with panic disorder (Fentz et al., 2013). Self-efficacy has also been found to have a greater impact on changes in anxiety symptom later than earlier in treatment, which is consistent with the notion that exposure tasks predominantly occur towards the end of treatment (Gallagher et al., 2013). The finding is consistent with self-efficacy theory as mastery experiences are assumed to be the most effective way to increase self-efficacy (Bandura, 2001).

Purpose of the study

The aims of this article were to examine the prevalence of anxiety among adolescents in lower secondary schools and to explore characteristics of this group. Based on previous research, we hypothesized that elevated level of anxiety would be associated with female gender, higher age, ethnic minorities, lower parental education, poor family economic status, negative life events, lower social support, and lower self-efficacy.

Methods

Sample and procedure

The present study is based on a survey investigating anxiety symptoms in adolescents aged 12–17 years. Ten municipalities in different parts of Norway participated, comprising 18 lower secondary schools. A total of 4361 adolescents attending 8th to 10th grade comprised the target group of this study. Caregivers were asked to provide written informed consent for the adolescents to participate in the survey. The adolescents, whose caregiver provided permission, were invited to complete the survey in the classroom during school hours. Information about the survey was conveyed through the school's communication system with parents in terms of letters through satchel mails, e-mails, SMS, and meetings for parents and several reminders. A total of 1795 (41%) of the adolescents were given informed consent from parents to participate. Among these, 1719 adolescents (96%) participated. Data were collected school-wise from October 2014 to June 2015. All presented data are based on the adolescents' self-reports.

Measures

Level of anxiety was measured by the Spence Children's Anxiety Scale (SCAS) (Spence, 1998), child version. The participants were categorized as "not

anxious'' or ''anxious'' based on the overall level of anxiety symptoms indicated by the SCAS composite score. SCAS is a 38-item scale covering symptoms of panic/agoraphobia, social phobia, separation anxiety, generalized anxiety, obsessions/compulsions, and fear of physical injury (e.g., ''I feel scared when I have to take a test'' or ''I worry about being away from my parents''). Each item is scored on a four-point scale (0=''never''; 1 = ''sometimes''; 2 = ''often''; 3 = ''always''). Spence (1998) reported a six-month test–retest reliability of 0.60 for the total SCAS score, and significant correlations of 0.71–0.75 have been found between SCAS total scores and the scores on the Revised Children's Manifest Anxiety Scale (Reynolds & Richmond, 1979; Spence, 1998; Spence, Barrett, & Turner, 2003), reported to be reliable cross-culturally (Orgiles, Fernandez-Martinez, Guillen-Riquelme, Espada, & Essau, 2016). Norwegian norms for SCAS are not available. However, since Norwegian and Swedish cultures are similar, we used the established and validated Swedish norms and the suggested clinical cut-off point for elevated level of anxiety (Olofsdotter, Sonnby, Vadlin, Furmark, & Nilsson, 2016). ''Anxious'' was accordingly defined by a SCAS score of 33 or higher. In this study, Cronbach α for the SCAC was 0.93.

To measure life interference and impairment associated with anxiety, the Child Anxiety Life Interference Scale (CALIS) (Lyneham et al., 2013) was administered. The scale for youth consists of nine items (e.g., ''Do fears and worries upset you?''). All items are rated on a five-point scale from 0 (not at all) to 4 (a great deal). The score on each item was added and a composite score was reported. Higher scores reflect a higher degree of overall interference with life. The scale has shown adequate psychometric properties (Lyneham et al., 2013). In this study, Cronbach α was 0.89.

To measure ethnicity, the adolescent was asked, ''Where were you born?'' Identical questions were asked about the parents. Ethnicity was defined as ''Norwegian'' if both parents or at least one parent and the adolescent were born in Norway, ''Western immigrant'' if both parents or at least one parent and the adolescent were born in another Western country, and ''Non-western immigrant'' if both parents or at least one parent and the adolescent were born in a non-western country. Parents' education was measured by the question ''What education has your mother/father completed?'' The response categories comprised ''lower secondary school,'' ''upper secondary school,'' ''higher education,'' and ''I don't know.'' Family economic status was assessed by the question ''How would you rate your family's economic status?'' The response categories were ''like most families,'' ''better off than most families,'' and ''worse off than most families.''

Information about experienced negative life events was collected in the form of responses to five questions. One question about bullying from the Olweus bully/victim questionnaire (Solberg & Olweus, 2003) was administered with a definition of bullying presented first, followed by the question ''How often have

you been bullied at school in the past couple of months?'' Response categories were coded on a five-point scale (1 = I have not been bullied''; 2 = a few times; 3 = two or three times a month; 4 = about once a week; 5 = several times a week). The next four questions about negative life events have previously been used in The Bergen Child Study (Nordanger et al., 2014). The question ''Have you experienced any of the following?'' were continued by ''(1) a catastrophe or serious accident? (2) violence from an adult? (3) seen or heard anybody you care for be victim of violence from an adult?'' (4) unwanted sexual acts?'' The first question was coded on a three-point scale (1 = no, never; 2 = yes, once; 3 = yes, more than once). The questions about violence and sexual abuse were coded on a four-point scale (1 = no, never; 2 = yes, one time; 3 = yes, a few times; 4 = yes, number of times). Responding ''no'' or ''never'' to all five questions about negative life events was coded as ''0 = no reported negative life events'' whereas responding at least ''yes'' to any of the items was coded ''1 = experienced bullying or other negative life events.''

Social support was measured by the subscale ''social resources'' from the Resilience Scale (READ) (Hjemdal, Friborg, Stiles, Martinussen, & Rosenvinge, 2006). The social resources subscale consists of five questions (e.g., ''I have some friends and relatives who frequently encourage me'' and ''I always have somebody available when I need it''). The response alternatives are ranked on a five-point scale, from ''1 = totally disagree'' to ''5 = totally agree.'' The score on the five items were added and the average score from the items is reported. Higher scores reflect a higher degree of social resources. The subscale has shown adequate psychometric properties (Askeland & Reedtz, 2015). In this study, Cronbach α of the subscale was 0.80.

Self-efficacy was assessed by the General Self-Efficacy Scale (GSE) (Schwarzer & Jerusalem, 1995). The scale consists of 10-items (e.g., ''I can always manage to solve difficult problems if I try hard enough'' and ''I can usually handle whatever comes my way''). The response alternatives range from ''1 = not at all true'' to ''4 = exactly true.'' The score of each item was added and the average score from items answered is reported. Higher scores reflect a higher degree of self-efficacy. The scale has shown adequate psychometric properties (Scholz, Gutiérrez-Dona, Sud, & Schwarzer, 2002). In this study, Cronbach α of the GSE was 0.90.

Statistical analysis

Data were analyzed using SPSS 22. Missing data varied from 2.2% to 7.1% depending on question asked. Descriptive statistics for the continuous variables are shown in Table 1. Due to the large sample size, skewness and kurtosis were deemed to have no substantive impact on the analyses (Tabechnick & Fidell, 2013). Preliminary analyses were conducted and revealed no violation of the assumptions of normality, linearity, and homoscedasticity, and absence of

high multicollinearity. Based on the total scores on the SCAS, each case was dummy coded as "0 = not anxious" (SCAS ≤ 32) or "1=anxious" (SCAS≥33). Chi-square tests were conducted to examine whether sociodemographics, interference of anxiety, and negative life experiences were significantly associated with the status of being anxious. Logistic regression analysis was performed to access the impact of each factor on the likelihood that participants would report an elevated level of anxiety. The model contained eight predictors (gender, age, ethnicity, parents' education, family economic status, negative life events, social support, and self-efficacy). First, the predictors were entered in separate analyses. Then, an adjusted logistic regression analysis was conducted in which all the predictors were entered simultaneously.

Results

Prevalence of anxiety

The estimated prevalence of anxiety was 22.6% (95% confidence interval (CI) = 20.6%–24.6%).

Anxiety status, sociodemographics, and negative life events

The mean score on SCAS for the total sample was 23.19 ($SD = 15.60$). Cross-tab analyses and revealed that the presence of anxiety was associated with the interference of the anxiety, female gender, low family economic status, and various types of negative life experiences, see Tables 1 and 2 for details.

Predictors of anxiety

Table 3 shows the results from logistic regression analysis for elevated level of anxiety. The full model containing all predictors was statistically significant,

Table 1. Descriptive statistics for the continuous variables.

	M	*SD*	Range		Skewness	Kurtosis
Spence Children's Anxiety	23.2	15.6	0	98	1.34	2.35
Social support	4.58	0.59	1	5	−2.23	6.05
Self-efficacy	2.95	0.52	1	4	−0.44	1.14

Note. The Spence Children's Anxiety Scale (Spence, 1998), child version, was used to measure anxiety symptoms, Swedish norms were used to categorize adolescents as anxious or not anxious. Social support was measured by the subscale *social resources* from the Resilience Scale (Hjemdal et al., 2006). Self-efficacy was measured by the General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995).

Table 2. Associations Between Sociodemographic Profiles, Negative Life Events, and Status of Anxiety in a Community Sample of Adolescents.

	Not anxious	Anxious	SCAS	Chi-square value	*df*	*p*-value
	n (%)	*n* (%)	*M*	.		
All ($N = 1699$)	1292 (77)	377 (23)	23.2			
Gender*				159.7	1	.000
Male	717 (56)	70 (19)	16.6			
Female	575 (45)	307 (81)	29.1			
Age				4.3	5	.501
12	14 (1)	5 (1)	21.4			
13	493 (38)	130 (35)	22.2			
14	422 (33)	126 (33)	23.5			
15	347 (27)	109 (27)	24.0			
16	13 (1)	7 (1)	30.7			
17	3 (0)	0 (0)	11.7			
Ethnicity				6.2	2	.045
Norwegian	1232 (96)	352 (94)	23.0			
Western immigrant	35 (3)	9 (2)	23.5			
Non-western immigrant	19 (2)	13 (4)	29.6			
Mother's education				1.1	3	.773
Lower secondary school	21(2)	8 (2)	28.2			
Upper secondary school	247 (19)	65 (17)	22.5			
Higher education	583 (46)	176 (47)	23.4			
I don't know	426 (33)	125 (33)	23.2			
Father education				4.6	3	.203
Lower secondary school	37 (3)	14 (4)	25.6			
Upper secondary school	326 (26)	78 (21)	22.2			
Higher education	406 (32)	117 (31)	22.7			
I don't know	508 (40)	165 (44)	24.0			
Family economic status*				38.5	2	.000
Like most families	1014 (79)	271 (72)	22.6			
Better than most	236 (18)	63 (17)	22.5			
Worse than most	40 (3)	41 (11)	35.4			
Bullying*				115.3	4	.000
Not bullied	1125 (91)	252 (70)	21.4			
Some few times	81 (6)	79 (22)	34.7			
2 or 3 times a month	17(1)	14 (4)	34.7			

(continued)

Table 2. Continued.

	Not anxious	Anxious	SCAS	Chi-square value	*df*	*p*-value
About once a week	6 (1)	12 (3)	40.6			
Several times a week	8 (1)	3 (1)	26.6			
Single trauma*				53.9	2	.000
No, never	999 (80)	229 (63)	21.4			
Yes, one time	217 (17)	101 (27)	27.9			
Yes, more than once	39 (3)	36 (10)	31.9			
Violence from adult*				64.2	3	.000
Never	1197 (96)	304 (83)	22.3			
One episode	30 (2)	30 (8)	33.5			
Yes, some few times	19 (2)	20 (6)	37.1			
Yes, number of times	7 (1)	11 (3)	37.2			
Observing violence*				91.2	3	.000
Not observed	1152 (92)	278 (77)	21.9			
Yes, one time	74 (6)	41 (11)	28.5			
Yes, some few times	17 (1)	33 (9)	38.0			
Often observed	7 (1)	12 (3)	49.6			
Unwanted sex*			1616	39.1	3	.000
Never	1231 (98)	337 (92)	22.7			
Yes, one time	11 (1)	21 (6)	42.1			
Yes, some few times	5 (1)	4 (1)	28.2			
Yes, number of times	4 (0)	4 (1)	39.6			
Negative life events*				102.2	1	.000
No negative life event	845 (67)	139 (38)	19.6			
Negative life event	408 (33)	226 (62)	28.7			
Anxiety interference*				173.5	1	.000
Not at all	485 (37)	9 (2)	24.4			
Only a little	438 (34)	37 (10)	29.3			
Sometimes	329 (25)	131 (36)	36.9			
Quite a lot	35 (3)	127 (34)	61.6			
A great deal	5 (1)	67 (18)	44.0			

Note. *$p < .005$. The Spence Children's Anxiety Scale (Spence, 1998), child version, was used to measure anxiety symptoms and to categorize each adolescent as "Not Anxious" or "Anxious." "No negative life event" was defined by responding "no" or "never" to all questions about negative life events. Anxiety interference was measured by the Child Anxiety Life Interference Scale (Lyneham et al., 2013).

Table 3. Logistic Regression Analysis of Predictors of Anxiety in a Community Sample of Adolescents.

	Odds ratios (95 % confidence interval)	
Variables	Crude	Adjusted[a]
Gender		
Male	1.00[b]	1.00[b]
Female	5.47 (4.13–7.25)	5.93 (4.20–8.37)*
Age (12–17)	1.09 (0.95–1.24)	0.98 (.81–1.17)
Ethnicity		
Norwegian	1.00[b]	1.00[b]
Western immigrant	0.90 (0.42–1.89)	0.57 (0.22–1.47)
Not-western immigrant	2.40 (1.17–4.90)*	2.49 (0.97–6.37)
Mother's education		
I don't know	1.00[b]	1.00[b]
Lower secondary school	1.28 (0.56–3.00)	0.58 (0.19–1.82)
Upper secondary school	0.90 (0.63–1.26)	1.09 (0.65–1.82)
Higher education	1.03 (0.79–1.24)	1.21 (0.79–1.85)
Father's education		
I don't know	1.00[b]	1.00[b]
Lower secondary school	1.17 (0.62–2.21)	1.21 (0.52–2.83)
Upper secondary school	0.74 (0.54–0.99)	0.88 (0.55–1.40)
Higher education	0.89 (0.68–1.16)	1.00 (0.65–1.54)
Family economic status		
Like most families	1.00[b]	1.00[b]
Better than most	0.99 (0.73–1.36)	1.39 (0.94–2.04)
Worse than most	3.84 (2.43–6.05)*	1.86 (0.99–3.49)
Negative life events	3.37 (2.64–4.29)*	2.56 (1.91–3.45)*
Social support	0.24 (0.20–0.30)*	0.39 (0.30–0.52)*
Self-efficacy	0.13 (0.10–0.17)*	0.24 (0.17–0.33)*

Note. *$p < .05$. The Spence Children's Anxiety Scale (Spence, 1998) was used to classify each adolescent as "Anxious" or "Not Anxious." "No negative life events" was defined by responding "no" or "never" to all questions about negative life events. "Negative life event" was defined as responding yes to at least one of these. Social support was measured by the subscale "social resources" from the Resilience Scale (Hjemdal et al., 2006). Self-efficacy was measured by the General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995).
[a]Odds ratios adjusted for all other variables in the table.
[b]Reference class.

$\chi^2(df = 14,\ N = 1598) = 463.4,\ p < .001$, indicating that the model was able to distinguish between anxious and not anxious adolescents based on the predictors. The model as a whole explained between 25.2% (Cox and Snell R square) and 38.4% (Negelkerke R squared) of the variance, and correctly

classified 77.5% of the cases. Gender, negative life events, social support, and self-efficacy made unique statistically significant contributions to the model. Adjusted logistic regression analyses found that gender was a strong predictor of elevated level of anxiety with an odds ratio of 5.93 (95 % CI = 4.20–8.37). This indicated that girls were about six times more likely to report anxiety than boys when controlling for all other factors in the model. Negative life situations or events had an odds ratio of 2.56 (95% CI = 1.91–3.45) for anxiety. The odds ratio of 0.39 (95% CI = 0.30–0.52) for social support and 0.24 (95% CI = 0.17–0.33) for self-efficacy, indicated that these two factors independently and substantially contributed to anxiety.

Discussion

Elevated level of anxiety was significantly associated with female gender, negative life events, low social support, and low self-efficacy, which were in line with our hypotheses. Contrary to our hypotheses, age, ethnicity, parental education, and family economic status did not significantly predict anxiety status in adolescents. In the present study, we found that the prevalence of anxiety among adolescents in lower secondary schools was 22%. This estimate is similar to the normative Australian data for total SCAS scores for adolescents 12–15 years (Spence et al., 2003), and a little higher than found in Danish children 7–17 years (Arendt, Hougaard, & Thastum, 2014). Anyhow, compared to most studies of anxiety among adolescents, the prevalence of elevated anxiety in the present study is high (Copeland et al., 2014; Leikanger & Larsson, 2012). This can be partly explained by the fact that different self-report scales have been administered across studies. Furthermore, the present study was embedded in a school-based project related to a prevention programs for anxious adolescents. Hence, there might have been some self-selection of high anxious subjects to the present survey, which might have contributed to inflated prevalence rates. Another interpretation is that the cut-off point we used (Olofsdotter et al., 2016) was more liberal than those used in other studies (DeSousa et al., 2014; Nauta et al., 2004; Spence, 1998; Whiteside & Brown, 2008).

In the present study, girls were estimated to have about six times higher odds of having elevated status of anxiety than boys. This result is in line with previous studies both from Norway and other Western communities (Arendt et al., 2014; Aune & Stiles, 2009; Copeland et al., 2014; Leikanger et al., 2012; Merikangas et al., 2010), but the gender difference is larger than in the Australian normative sample (Spence et al., 2003). Adolescents who reported negative life events had 2.5 times higher odds of reporting anxiety than adolescents who did not report such experiences. The association between negative life events and level of anxiety has been demonstrated previously in several studies of adults (Kessler et al., 2010; Sareen et al., 2013). We also found that social support provides a unique contribution to level of anxiety among adolescents. This is consistent with

previous studies on the beneficial effects of social support on health in general (Berkman, Glass, Brissette, & Seeman, 2000), and with studies that suggest that social support is a buffer for the development of anxiety and other psychological problems (Cohen & Wills, 1985; Dyregrov & Dyregrov, 2008). Furthermore, we found that the adolescent's general self-efficacy was inversely related to anxiety among adolescents when controlling for other variables. Our results are in line with social cognitive perspectives that regard individuals as proactive social agents, who actively adapt to environmental stressors (Bandura, 2001). Bandura claims that self-efficacy is situational-specific (Bandura, 1993). Our findings, however, suggest that the adolescent's general self-efficacy, not only the adolescent's self-efficacy related to specific anxiety-provoking situations, is associated to anxiety.

Implications

Several implications and suggestions for prevention initiatives and interventions targeting anxious adolescents can be drawn from our findings. First, in public education about health, our findings can be used to disseminate knowledge about the high frequency of elevated level of anxiety symptoms in adolescence. This can be valuable for adolescents, parents, and teachers by lessening the stigma related to anxiety and could be beneficial for anxious adolescents, their families, and school environments (Dudley, Silove, & Gale, 2012). Furthermore, given the high proportion of anxious adolescents reporting negative life events, interventions for anxious adolescents should consider including examples, explanations, and suggestions on how to cope with challenging negative life events. Interventions for anxious adolescents could communicate clearly that after negative life experiences such as single traumas, bullying, and witnessing violence, dealing with anxiety triggers can be more challenging, instead of focusing on coping styles exclusively.

Also, enhancing the adolescent's self-efficacy and social support are school related as well as health-related tasks. If adolescents more often were offered to reflect upon helpful coping styles in difficult situations, and supported to face and master anxiety provoking challenges, the level of anxiety in adolescents would probably decrease. Since higher social support and self-efficacy are inversely related to level of anxiety, such initiatives would be particularly beneficial for anxious adolescents. And interventions for anxious adolescents should consider including standard sessions for teachers and not sessions for adolescents and parents exclusively. Given the high prevalence of elevated anxiety symptoms in adolescents, and building on a public health approach underscoring preventions and early interventions (Major et al., 2011; Neuner et al., 2011; Stiffman et al., 2010; WHO, 2014), we argue that addressing anxiety is a responsibility of not only the individual adolescents and their families but also schools, school health services, and policy makers.

Limitations and strengths

Due to the low response rate and the sampling method where our community-based survey was embedded in a treatment study of anxiety, generalization of the current findings to a more general population of adolescents must be exercised with caution. The reasons for the low response rate may be parental scepticism and low priority of mental health surveys for their adolescents, in addition to technical challenges with the electronic system for collecting informed consent. The cross-sectional study design makes conclusions about the directionality of the associations between study variables impossible to draw. The sole use of self-report measures might have led to a common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). It should also be noted that when comparing self-reports and parents reports of adolescents' anxiety, previous research has shown that adolescents often report more severe symptoms than their parents (Beesdo et al., 2009). Further, there are factors associated with anxiety that were not considered in the current study, such as temperament, parental style, and academic achievements that could change the results from the investigated model. Moreover, we did not include questions about early losses, death, or illness in the adolescent's family among our questions about negative life events. If questions of such negative life events had been included, the influence of negative life events on anxiety could have been even higher than we were able to demonstrate.

The particular strengths of the current study are the high number of adolescents included, and the use of well-established questionnaires. The study provides data on the associations between status of anxiety and central associated factors that can be targeted through school-based anxiety prevention strategies and initiatives.

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Compliance With Ethical Standards

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The study was approved by the Regional Committee for Medical and Health Research Ethics, Region West, Norway (Ethics approval No: 2013/2331 REK Vest).

Declaration of Conflicting Interests

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