

The effects of individual factors and school environment on mental health and prejudiced attitudes among Norwegian adolescents

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Abstract

Introduction The aim was to examine the prevalence of mental health difficulties and prejudices toward mental illness among adolescents, and to analyze possible school and school class effects on these issues.

Methods The sample comprised 4,046 pupils (16–19 years) in 257 school classes from 45 Norwegian upper secondary schools. The estimated response rate among the pupils was about 96%. Self-reported mental health difficulties were measured with a four-item scale that covered emotional and behavioral difficulties. Prejudiced attitudes toward mental illness were assessed using a nine-item scale. Multilevel regression analysis was used to estimate the contribution of factors at the individual level, and at the school and class levels.

Results Most of the variance in self-reported mental health difficulties and prejudices was accounted for by individual level factors (92–94%). However, there were statistically significant school and class level effects ($P < 0.01$), confounded by socioeconomic factors. Mental health difficulties were commonly reported, more often by females than males ($P < 0.01$). Difficulties with emotions

and attention were the two main problem areas, with definite to severe difficulties being reported by 19 and 21% of the females, and by 9 and 16% of the males, respectively. Prejudices were reported more often by males than females ($P < 0.01$). Both self-reported mental health difficulties and prejudiced attitudes were related to educational program, living situation, and parental education ($P < 0.01$). **Conclusion** The relatively high prevalences of mental health difficulties and prejudiced attitudes toward mental illness among adolescents indicate a need for effective mental health intervention programs. Targeted intervention strategies should be considered when there is evidence of a high number of risk factors in schools and school classes. Furthermore, the gender differences found in self-reported mental health difficulties and prejudices suggest a need for gender-differentiated programs.

Keywords Mental health · Prejudiced attitudes · Adolescents · School · Multilevel regression analysis

Introduction

High levels of behavioral and emotional problems among adolescents have been reported from many European countries [1–7]. The prevalence rates indicate that many adolescents face significant challenges to their mental health. However, the seriousness of their symptoms may vary. Some adolescents have serious conditions and need professional help and treatment, whereas those with fewer symptoms might receive appropriate help from family, a close friend and peers.

Mental health problems may carry the additional burden of negative labeling [8]. It has been well documented that adults tend to stigmatize people with mental health

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problems [9]. Discriminatory attitudes and behavior toward those with mental health problems have also been observed among children [10, 11]. Individuals who endorse stigmatizing attitudes are inclined to avoid and refuse to help people with mental health problems [8]. Thus, the stigma from mental health problems may influence both the course and outcome of a mental illness. Despite this, research concerned with European adolescents' attitudes toward mental illness is scarce.

Mental health problems and prejudiced attitudes toward mental illness have common risk factors. Gender and social background have been identified as individual factors related to both the prevalence of mental health problems and to prejudiced attitudes toward mental illness. Studies have found a preponderance of externalizing disorders in males whereas females have a higher prevalence of affective disorders [5, 12]. Girls are more likely to seek help for their emotional problems [13] and have less prejudiced attitudes toward mental health problems [14–17]. The latter may be explained by social gender construction and gender roles, as the cultural expectations of our emotional behavior may differ according to gender [18]. Gender balance at the school class level is found to influence the academic performance of both boys and girls so that both genders perform better in school classes that contain greater numbers of girls than boys [19]. A higher proportion of females in a school class may have a positive effect on the pupils' disciplinary standards and attitudes. Identified social risk factors for mental health problems include socioeconomic adversity [20, 21] and living in a single-parent household [22, 23]. It has also been suggested that prejudiced attitudes toward mental illness are more common among people with lower socioeconomic status [15] and such attitudes may vary among cultures [24, 25].

The school is a central place for adolescents' social interactions and an important setting for promoting pupils' health and well-being [26–29]. The importance associated with the opportunity to promote mental health through the school has received increased attention in Norway during the last few years [30]. Universal school-based mental health initiatives and information campaigns have been developed and implemented in the upper secondary schools. National reports suggest that such efforts have increased the adolescents' knowledge and openness about mental health, so that they began to accept people with a mental illness. However, negative attitudes toward people with a mental illness are still evident [31]. In order to develop effective programs and initiatives for mental health prevention and promotion, more information is needed about the extent to which mental health and its accompanying attitudes are associated with various aspects of the school environment.

Several researchers have suggested the importance of considering the hierarchical structure of data when analyzing the effect of school environment on pupils' outcomes [32, 33]. Furthermore, it is important to distinguish between *compositional* and *contextual* explanations of the differences between schools and school classes. A compositional explanation of such differences would indicate that schools and school classes contain pupils with different risks for mental health problems and prejudiced attitudes. For instance, a higher prevalence of mental health problems in some schools could be because of the concentration of pupils with a high risk of mental health problems in these schools. In contrast, a contextual explanation focuses on the shared organizational, cultural, social, and physical factors within the schools and school classes. It is important to provide a better understanding of the extent to which differences between schools and school classes are because of a compositional effect or to contextual effects. In order to avoid overestimation of the importance of schools and school classes because of their selective entry, relevant variables at the pupil level must be included in the analyses. Thus, the demonstration of a school effect or a school class effect depends on the extent to which studies are able to control for the characteristics of individuals making up the school and class intakes.

Only a few studies meet the criteria required to demonstrate that school differences exist in pupils' outcomes, over and above their intake characteristics. A recent review of multilevel studies concluded that there is a school effect on pupils' outcomes [33]. However, the variation explained by school level factors differed substantially between studies and according to the type of outcome measured. The effect of school environment on smoking habits and alcohol use, academic achievement and physical activity was substantially higher than it was on well-being [33]. Such findings are in accordance with previous research suggesting that school characteristics act differently on different outcome measures [34]. Typically, research concerned with outcome measures related to pupils' well-being and psychosocial adjustment has reported that about 1–3% of the variance occurs at the school level [33, 35–37]. Whether school classes differ with respect to their effect on the pupils' outcomes has received little attention. However, research carried out on 4- and 5-year-old children suggests that the classroom effect on psychosocial adjustment may be higher than the school effect [34]. No previous European studies have investigated school and school class effects on adolescents' mental health and their prejudiced attitudes toward mental health illness.

The main aim of the present study was to investigate whether school and school class factors account for Norwegian adolescents' mental health status and their prejudiced attitudes toward mental illness. After 10 years of

mandatory school attendance, all Norwegian adolescents have the right to continue an upper secondary education that provides 3 years of general education or vocational training. Typically, this training is given in classes of 15–30 pupils administered by one or two contact teachers. We employ an analytic approach that takes into account both individual and contextual level factors for studying differences in adolescents' self-reported mental health difficulties and prejudiced attitudes toward mental illness. Thus, this study may provide an important basis for further planning and development of school mental health programs. Our research questions were: (1) What are the prevalences of self-reported mental health difficulties and prejudices among adolescents? (2) To what extent are self-reported mental health difficulties and prejudices explained by individual factors (gender, age, and social background) and contextual factors (school and school class level)?

Methods

Sample and data collection

This paper is based on data from an evaluation of a national initiative, “Mental Health in Schools”. The program invited upper secondary schools to take part in specific action to increase openness, reduce myths and taboos, and provide basic knowledge on mental health. All 101 upper secondary schools in seven Norwegian counties, as well as 31 schools that had requested participation in the “Mental Health in Schools” program activities in 2007/2008, were invited to participate in the study. The data were collected in September–October 2007 and the Regional Committee for Medical and Health Research Ethics approved the study.

School administrators who agreed to participate in the study were asked to select two classes per grade at random for participation in the study. The pupil survey, which was administered in the classroom, used an anonymous self-completed written questionnaire distributed by an instructed teacher. The survey covered the following topics: demographic background, lifestyle and behavioral adjustment, knowledge about mental health and local health services, attitudes toward mental health problems, perceived mental health difficulties, and self-efficacy. The questionnaires were returned to the teacher in a closed envelope and an ID number was added to all envelopes from the same class to identify the pupils in that class. The teachers recorded the number of questionnaires that was distributed to, and returned from the pupils in each school class. The estimated pupil response rate was 96%.

The questionnaires were completed by 4,046 pupils from 257 different school classes, of whom 39, 30, and

31% were from the first grade (16–17 years), the second grade (17–18 years) and the third grade (18–19 years), respectively. A total of 45 schools participated in the study, of which 11 had requested participation in the “Mental Health in Schools” program activity in 2007/2008.

Measures

Self-reported mental health difficulties

Emotional and behavioral difficulties represent the main types of mental health problems among adolescents that are commonly included when measuring self-reported mental distress [e.g., 38]. For the assessment of self-perceived mental health difficulties, we formulated four separate questions related to these types of problems. The respondents were asked if they had difficulties with (a) emotions, (b) attention, (c) behavior, and (d) their ability to get along with other people. The respondents were given the opportunity to answer each question in these four problem domains using the responses “no”, “little”, “quite a lot” and “a great deal”. Factor analysis produced a one-factor solution, with an eigenvalue of 2.17 that included all four items. The factor loadings ranged from 0.70 to 0.76, and the internal consistency reliability (α) was 0.70.

Self-reported prejudiced attitudes

Prejudiced attitudes toward mental illness were assessed by nine statements answered on a four-point scale that ranged from “strongly disagree” to “strongly agree”. The scale was a slightly extended and modified version of an instrument previously used in two studies of mental health attitudes among lower secondary pupils in Norway [39–41]. The scale contained statements related to central aspects of mental health considered by a humanitarian mental health organization (the Norwegian Council for Mental Health) to be prejudiced attitudes characteristic of the stigma associated with mental illness. Factor analysis produced a one-factor solution representing six of the nine items. The solution explained 47.7% of the total variance, had an eigenvalue of 2.9 and internal consistency reliability (α) equal to 0.78. Factor loadings ranged from 0.61 to 0.75. Two items (“depression is not a normal part of the aging process” and “everyone can get a mental disorder”) were excluded after the first analysis as their loadings exceeded 0.3 on more than one component. A third item (“most people recover from a mental disorder”) was excluded in the second analysis as it was the only item loading more than 0.5 on a possible second component.

Independent variables

Based on the previous research on factors related to mental health and prejudiced attitudes toward mental illness [5–7, 14, 15, 19, 20, 31], the following variables were included as independent variables: gender, grade (first year student, second year student, and third year student), educational program (general studies; vocational education), living situation (with mother and father, with mother or father, alone, and other living situation), and parents' educational level (compulsory schooling, upper secondary education, and lower/higher university education). Furthermore, as previous research has suggested that the number of females in the class may influence academic and disciplinary standards in the classroom [19], we used the mean percentage of girls in the class to adjust for this possible effect on the outcome measures. The correlation between the independent variables was moderate to low (Pearson's r absolute value <0.3).

Statistical analysis

As a preliminary analysis, exploratory factor analysis (principal component) with varimax rotation was used to reduce the number of variables and to identify the main dimensions for each assessment battery. The retained components must satisfy the Kaiser criterion of an eigenvalue greater than 1, and contain items with factor loadings greater than 0.5. Items loading greater than 0.3 on more than one component were excluded. Internal consistency reliability was assessed using Cronbach's Alpha (criterion: $\alpha > 0.6$). The index scores were calculated from the means of items included in each index and rescaled to a 0–100 score. If a respondent reported more than half of the items in an index as missing or "no opinion", the case was excluded from the index score.

Multilevel regression analysis was performed using the MLwiN software. This analysis simultaneously examines the contribution of school, school class, and individual pupil characteristics [42]. The regression intercepts were allowed to vary randomly across schools and school classes, making possible an estimation of the variance attributed to the school, school class, and pupil levels. The intraclass correlation coefficient (ICC) is a measure of the degree of clustering of pupils belonging to the same school and class. When multiplied by 100, the ICC can be interpreted as the percentage of variance attributed to the given level. The dependent variables were assumed to be continuous so that linear regression analyses could be performed. Differences were denoted significant when $P < 0.05$.

First, we analyzed the variance attributable to differences between schools and school classes, without and with

adjustment for the independent variables mentioned above. Next, we analyzed each independent variable's association with the outcome variables (unadjusted) as well as with the full model (adjusted).

Results

Sample characteristics

Sample characteristics are presented in Table 1. Females constituted 56% of the sample. Fifty-nine percent of the pupils followed programs for general studies, whereas 41% followed a vocational education program. About half of the sample (56%) lived with both their mother and father.

Mental health difficulties and prejudiced attitudes toward mental illness

Table 2 shows the frequency of item responses for the two scales: self-reported mental health difficulties and prejudiced attitudes toward mental illness.

About 19% of the female pupils and 9% of the male pupils reported definite to severe difficulties with their emotions. About 21% of the female pupils reported definite to severe difficulties with attention, compared to 16% for the male pupils. About 4–5% of both female and male pupils reported definite to severe difficulties with behavior and their ability to get along with others (Table 2). The summated mental health difficulties scale had a mean value of 18.4 scale points (SD 17.3) for female pupils and 14.4 for males ($P < 0.01$).

Table 1 Descriptive statistics

Variables	<i>N</i>	%
Individual variables		
Females	2,139	56
Males	1,672	44
General education program	2,199	59
Occupational program	1,525	41
Living with mother and father	2,205	56
Living with mother or father	852	22
Living alone	568	14
Other living situation	321	8
Parents with only compulsory schooling	296	8
Parent with only upper secondary education	1,518	42
Parents with college/university education	1,790	50
First year student	1,455	39
Second year student	1,120	30
Third year student	1,188	32
Mean females in school class	246	54.4

Table 2 Number of respondents, means (standard deviation) and frequencies for items

Scale/item	Sex	N	Mean (SD)	P ^a	Frequency (%)			
					1	2	3	4
Mental health difficulties scale ^b	Female	2,113	18.4 (17.3)	<0.001				
	Male	1,647	14.4 (17.2)					
Emotions ^c	Female	2,105	1.8 (0.8)	<0.001	867 (41)	839 (40)	303 (14)	96 (5)
	Male	1,637	1.5 (0.7)		1,063 (65)	427 (26)	107 (7)	40 (2)
Attention ^c	Female	2,109	1.9 (0.9)	<0.001	786 (37)	879 (42)	336 (16)	108 (5)
	Male	1,643	1.8 (0.8)		750 (46)	627 (38)	183 (11)	83 (5)
Behavior ^c	Female	2,105	1.2 (0.5)	0.399	1,638 (78)	381 (18)	59 (3)	20 (1)
	Male	1,636	1.2 (0.6)		1,325 (81)	226 (14)	44 (3)	35 (2)
Getting along with others ^c	Female	2,098	1.3 (0.6)	<0.001	1,638 (78)	381 (18)	59 (3)	20 (1)
	Male	1,630	1.3 (0.6)		1,325 (81)	226 (14)	44 (3)	35 (2)
Prejudiced attitudes scale ^d	Female	2,103	21.4 (15.0)	<0.001				
	Male	1,594	30.4 (18.8)					
Most people with a mental disorder must be committed ^e	Female	1,995	1.5 (0.6)	<0.001	1,065 (53)	833 (42)	79 (4)	18 (1)
	Male	1,456	1.7 (0.7)		621 (43)	676 (46)	112 (8)	47 (3)
All sufferers of schizophrenia are violent ^e	Female	1,585	1.7 (0.6)	<0.001	631 (40)	902 (57)	33 (2)	19 (1)
	Male	1,151	1.8 (0.7)		404 (35)	630 (55)	79 (7)	38 (3)
People with a mental illness are weak ^e	Female	1,912	1.6 (0.7)	<0.001	962 (50)	797 (42)	118 (6)	35 (2)
	Male	1,411	1.9 (0.8)		478 (34)	641 (45)	213 (15)	79 (6)
It is difficult to talk to people with mental health problems ^e	Female	1,729	2.1 (0.8)	<0.001	366 (21)	848 (49)	454 (26)	61 (4)
	Male	1,277	2.4 (0.8)		147 (12)	516 (40)	524 (41)	90 (7)
You must have a severe problem to go to a psychologist ^e	Female	1,992	1.6 (0.7)	<0.001	971 (49)	821 (41)	156 (8)	44 (2)
	Male	1,467	2.0 (0.8)		445 (30)	717 (49)	228 (16)	77 (5)
ADHD is caused by bad manners ^e	Female	2,006	1.3 (0.6)	<0.001	1,500 (75)	444 (22)	42 (2)	20 (1)
	Male	1,440	1.6 (0.8)		807 (56)	474 (33)	93 (7)	66 (5)

^a Chi-squared test/two-tailed *t* test

^b 0, no problems; 100, highest reported level of problems

^c 1, no problems; 2, minor problems; 3, definite problems; 4, severe problems

^d 0, lowest level of reported prejudiced attitudes; 100, highest reported level of prejudiced attitudes

^e 1, totally disagree; 2, disagree; 3, agree; 4, totally agree

A majority of the pupils reported disagreement with the prejudiced statements about mental health issues (79–97% disagreement with the various statements), except for the statement regarding difficulty in talking to people with mental health problems (70 and 52% of female and male pupils, respectively, disagreeing with the statement). The mean level of reported prejudiced attitudes measured on a 0–100 scale was 21.4 for males and 30.4 for females, a higher score indicating a lower prevalence of prejudiced attitudes ($P < 0.01$).

Multilevel regression analysis

Table 3 shows the results from the multilevel regression analysis, including the unadjusted variances in mental health difficulties and prejudiced attitudes that could be attributed to the school and school class levels. About 2%

of the variance in mental health difficulties could be attributed to the school level ($P < 0.01$) and about 4% to the class level ($P < 0.01$), leaving 94% of the variance attributable to the pupil level ($P < 0.01$). After adjustment for the independent variables, the between school variance was reduced to about 1% of the total variance ($P < 0.05$) and the between class variance was reduced to about 2% of the total variance ($P < 0.05$).

In the empty model without explanatory variables, about 2% of the unadjusted total variance in prejudiced attitudes was attributable to the school level ($P < 0.05$) and about 6% to the class level ($P < 0.01$), leaving about 92% of the variance accounted for by the pupil level ($P < 0.01$). In the adjusted model, the between school variance, which was reduced to less than 1% of the total variance, was not statistically significant. The between class variance was also reduced in the full model, showing that less than 3% of

Table 3 Results of multilevel regression analysis

Variables	Mental health				Prejudiced attitudes			
	Unadjusted		Adjusted		Unadjusted		Adjusted	
	<i>b</i> ^a	<i>P</i>	<i>b</i> ^a	<i>P</i>	<i>b</i> ^a	<i>P</i>	<i>b</i> ^a	<i>P</i>
Females compared with males	3.74	<0.001	3.34	<0.001	-7.86	<0.001	-7.67	<0.001
% females in class	0.01	0.607	0.01	0.723	-0.04	0.003	-0.04	0.003
General education program compared with other	-3.78	<0.001	-2.66	0.001	-3.54	0.001	-2.78	<0.001
Living with mother and father (reference)								
Living with mother or father	3.03	<0.001	2.80	<0.001	-2.12	0.003	-2.65	<0.001
Living alone	4.92	<0.001	4.10	<0.001	-0.44	0.625	-0.64	0.480
Other living situation	7.69	<0.001	7.47	<0.001	-1.99	0.067	-1.43	0.221
Parents without education (reference)								
Parents with only upper secondary education	-4.63	<0.001	-4.47	<0.001	-3.14	0.005	-3.59	0.002
Parents with college/university education	-5.74	<0.001	-5.05	<0.001	-3.29	0.003	-3.87	0.001
1st year student (reference)								
2nd year student	-0.37	0.251	-0.95	0.251	-1.23	0.185	-1.44	0.086
3rd year student	-1.05	0.247	-0.99	0.247	-3.38	<0.001	-2.13	0.013
Constant	17.03	<0.001	19.19	<0.001	25.72	<0.001	39.04	<0.001
School level variance	6.33	0.01	3.02	0.049	4.64	0.044	1.18	0.222
School class level variance	12.02	<0.001	6.47	0.011	19.51	<0.001	7.52	0.005
Student level variance	280.73	<0.001	269.50	<0.001	283.49	<0.001	264.10	<0.001
ICC school	2.1% ^b		1.1%		1.5%		0.4%	
ICC school class	4.0% ^b		2.3%		6.4%		2.8%	
<i>N</i>	3,889 (max)		3,346		3,321 (max)		3,293	

^a Unstandardized regression coefficients

^b The percentage of the total variance attributable to the school/school class level in an empty model without explanatory variables

the variance could be attributed to the school class level ($P < 0.01$).

The following results were obtained for both the unadjusted and adjusted models. Females reported higher levels of mental health difficulties and lower levels of prejudiced attitudes toward mental illness than males ($P < 0.01$). Furthermore, prejudiced attitudes were lower when there was higher percentage of females in the class. A separate gender analysis revealed that this association was strongest for males. In particular, the females' attitudes were not affected by the percentage of females in the school class.

Compared with those following an occupational program, pupils following a general education program reported lower levels of mental health difficulties ($P < 0.01$) and lower levels of prejudiced attitudes toward mental illness ($P < 0.05$). Pupils living with both their mother and father reported lower levels of mental health difficulties than those living either with their mother or with their father, living alone or living in other situations ($P < 0.01$). Pupils living with mother or father reported lower levels of prejudiced attitudes toward mental illness when compared with pupils living with both of their parents ($P < 0.01$). Pupils of parents with only compulsory

schooling reported higher levels of mental illness and prejudice than those whose parents had higher educational qualifications ($P < 0.01$). There were no statistically significant differences in the prevalence of mental health difficulties among first, second, and third year pupils. Scores on the prejudiced attitudes scale were significantly lower for third year pupils than first year pupils ($P < 0.05$).

Discussion

The main aim of the present study was to investigate the extent to which school and school class affect adolescents' perceived mental health difficulties and prejudiced attitudes toward mental illness. Without adjustment for compositional differences among schools and school classes, about 6–8% of the variance in mental health difficulties and prejudices could be attributed to school and school class level factors. After adjusting for confounding factors, the contextual differences decreased to about 2–3%, indicating a substantial compositional explanation for differences between schools and school classes. Nevertheless, the results indicated a significant effect of shared context at

school and particularly at the school class level, for both outcome variables.

The school is acknowledged as important for promoting health and well-being [26–30]. However, the evidence for a school effect in these domains is limited. Our results are in line with previous research suggesting that school level factors have only a small effect on a pupil's adjustment [35] and well-being [36, 37]. Furthermore, our results are in concordance with findings indicating that contextual aspects of the school class may be more important than school level variables for explaining the pupils' outcomes [35]. The significant school class effect found in this study suggests that pupils in some classes were exposed to different contextual factors than those experienced by pupils in other classes. These contextual factors may be related to the teachers' educational practices as well as to characteristics of each pupil's classmates. The school class variance might also be explained by network structures and subcultures within the class. Thus, aspects of the interpersonal relations among adolescents in the classroom could be determinants of differences between school classes in subjective mental health and in attitudes toward people with mental health problems.

It is interesting to note that male pupils' prejudiced attitudes toward mental illness depended on the percentage of females in each class. This may indicate that a higher proportion of females in a school class has a positive impact on male attitudes. Boys not only perform better academically in classes containing more girls than boys [19], but also have higher mental health literacy than their peers in classes with more boys than girls. If this is a valid finding, its explanation may result from the fact that boys in girl-dominated classes are better read and better informed, and so are less prejudiced about mental health issues.

Our finding that 15–20% of adolescents have definite to serious mental health difficulties is consistent with prevalence rates reported in previous studies based on adolescents' self-reports [1–7]. Difficulties with emotions and attention were the main types of mental health difficulties, with at least minor difficulties experienced by almost 50% of the adolescents. The high prevalence of minor difficulties may reflect the nature of adolescence, with the occasional difficulty being in response to salient developmental challenges, for example, developing intimacy, autonomy, and identity. About 4–5% of the adolescents reported serious difficulties within these problem domains. Behavioral difficulties and peer difficulties were relatively less prevalent, having been reported by about 20% of the sample. In this subgroup, 4% experienced definite to serious difficulties. Recent research carried out on a large Norwegian population of 10- to 19-year olds using the self-report version of the Strength and Difficulties

Questionnaire found that one-third of the sample reported at least minor mental health difficulties [7]. As mental health problems may be more frequently reported in late adolescence [5, 7], it is reasonable to suggest that the somewhat higher overall prevalence rate found in the present study may be because of the participants' higher mean age. Differences in reported prevalence rates may also be because of the use of different instruments in these studies.

Females more frequently reported mental health difficulties than males, in particular more internalizing difficulties. Such gender differences, which are repeatedly reported in the research literature [5–7], may be explained by the different behavior patterns among females and males resulting from their respective gender roles. Furthermore, the results showed that perceived mental health difficulties were associated with pursuing a vocational education program, having a single-parent family and low parental education. These associations may have a common explanation related to socioeconomic status and family background factors. Previous research has shown that pupils pursuing vocational education programs often have parents with a lower socioeconomic status [43]. In addition, studies suggest that children from low socioeconomic families have more health problems than those from families with a high socioeconomic status [44–46], and that familial background factors may influence adolescents' adjustment and mental well-being [18, 19].

Prejudiced attitudes toward mental illness were more frequent among males than females, and more common among adolescents from lower socioeconomic status families. These associations are in accordance with previous research [14, 15]. Gender roles and gender stereotypes may explain the gender difference in the strength of prejudiced attitudes. That is, behavioral patterns associated with being mentally ill, such as being depressed, passive, tearful, and helpless, may conflict more with socially defined and appropriate male than female gender roles. Studies showing that, when compared to males, females are more likely to seek help for emotional problems [47], and females are more accepting of people with psychiatric disorders [48] support this possible explanation of gender differences in prejudiced attitudes. Expressing emotion and problems associated with confiding in others may have different effects for boys and girls within the peer group. For girls, discussing problems with friends may serve to consolidate friendship by encouraging intimacy [18].

The association found between prejudiced attitudes toward mental illness and the level of parental education may indicate that prejudiced attitudes are related to one's knowledge of mental health. Based on the current finding, it is suggested that parents who complete more years of education gain a greater knowledge of mental illness,

which in turn is passed on to their children. The results may also indicate that the extent of the parents' education is a proxy for an ability and interest in reading, which form the basis for a greater exposure to mental health issues from the media and the literature. The finding that pupils in general studies programs had lower levels of prejudiced attitudes than those in vocational programs may have a related explanation. Pupils in general studies programs may have both better-educated parents [43] and a greater interest in reading. Thus, when compared with those on vocational programs, they may have a better background for acquiring relevant knowledge about mental health.

Our study has some limitations that deserve attention. Our main aim was to investigate whether there are school and school class effects on adolescents' mental health difficulties and their prejudiced attitudes toward mental illness. As a result, we did not examine the potential school and school class factors that may have direct or mediating effects on the measured outcomes. Further research is needed to identify possible school-related stressors (for example, relationships with teachers, difficulties with the curriculum, relationships with peers and subcultures, bullying) that are related to mental health and prejudices among adolescents. In addition, the measure used to identify adolescents with mental health difficulties has not been validated. However, the levels of perceived mental health difficulties found in the present study correspond well with findings from previous research [1–7] indicating that our prevalence rates are relatively representative. Because the study was based on a school survey, it cannot be ruled out that pupils' responses to the questionnaire were biased by the classroom environment when the questionnaires were filled out. The pupils' responses may be influenced by the class atmosphere as well as by their teachers' attitudes to the study. The teachers' reports showed that the extent of the adolescents' nonresponse was low, although those who are often sick or truant were less likely to be included in the study. The possible exclusion of adolescents with characteristics associated with a risk for mental health problems may bias the results, leading to the lower observed mental health difficulty rates among the adolescents. Moreover, the study was carried out in the middle of the semester. The environmental effects of school and school class on the prevalence of mental health difficulties and prejudices should also be measured at the end of the semester when the pupils would be better acquainted with each other.

An increased knowledge of factors related to mental health difficulties and prejudiced attitudes toward mental illness among adolescents is important for the development of programs that may diminish such problems. Improved understanding of the influence of contextual factors at school may indicate where resources might be focused. Our

results suggest that targeted intervention strategies should be considered when there is evidence for a high number of risk factors in schools and school classes. Gender differences found in both self-reported mental health difficulties and prejudiced attitudes toward mental illness suggest the need for gender-differentiated programs.

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