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Promoting positive social classroom environments to enhance students' mental health? Effectiveness of a school-based programme in Norway

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ABSTRACT

VIP partnership is a universal school-programme designed to strengthen the social classroom climate. This quasi-experimental study examined whether the effectiveness of VIP partnership on students' happiness, joint depression/anxiety symptoms, and loneliness was moderated by baseline level of social anxiety (no, low, and high). Participants were upper secondary students from 10 test schools ($n = 1101$) and seven control schools ($n = 734$) in Norway. Data were collected at baseline, post-test (10 weeks) and six-month follow-up. Result at post-test indicated a significant main effect of participation in VIP partnership on happiness ($d = .12$), and simple effects on joint depression/anxiety symptoms among students with no ($d = -.30$) or low ($d = -.14$) social anxiety at baseline. No significant effects were found for post-test loneliness or either outcome measures at six-month follow-up. A universal programme targeting social participation may not be sufficiently intensive to generate substantial and lasting improvements in adolescent mental health and loneliness.

1. Introduction

Adolescence is a developmental period characterized by an increasing vulnerability to mental health challenges like depression and anxiety (Costello et al., 2005; Kessler et al., 2005; Reneflot et al., 2018), and related problems such as loneliness (Goosby et al., 2013; Heinrich & Gullone, 2006; Vanhalst et al., 2013). Among youths aged 15-16 in Norway, it is estimated that 11 % of boys and 29 % of girls experience high depression and anxiety symptoms, and that 8 % of boys and 16 % of girls are severely bothered by loneliness (Bakken, 2020). Such ailments may affect adolescents' daily functioning, quality of life, and motivation for learning in school (Major et al., 2011). In Norway and internationally, recognition of the importance of a "good mental health" has fostered the development of a range of interventions aimed at youth. School, being an arena in which most young people spend a large amount of their time, has been emphasized as an ideal setting to support the delivery of such efforts (Hendren et al., 1994).

School-based mental health (SBMH), referring to promotion or prevention strategies for mental health within the school context, can be divided into indicative, selective and universal approaches, depending on the target group. Indicated prevention are services directed at individuals at high-risk for mental problems, while selective prevention addresses individuals or subgroups with known and increased risk of developing problems. Last, universal prevention strategies target all students within a school irrespective of their health risk (WHO, 2002). Compared to indicated and selective approaches, universal strategies offer the benefits of avoiding potential

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stigma and labelling associated with being “at risk”, and the ability to target multiple risk factors at the same time (Offord, 2000; Shochet & Ham, 2004).

VIP (Veiledning og Informasjon om Psykisk helse i skolen) partnership is a universal prevention and promotion programme for mental health that was initialised by the VIP School Programme (VSP) in 2015 (VIP School Programme, [VSP], 2017a, 2020). The acronym VIP can be translated into English as “Guidance and Information on Mental Health in School”. In the school year 2020/2021, VIP partnership was used by approximately 23,000 students in 133, out of a total of 415, upper secondary schools in Norway. The programme is implemented on the students’ first day of upper secondary school and involves the use of student partnerships and various social exercises with the aim of strengthening the social and collaborative climate in the classroom. The foundation of the programme is described by VSP (2015, 2016) as a response to schools’ reports of psychosocial challenges, such as social exclusion, loneliness, and students’ social uncertainty in the move from lower to upper secondary school.

The transfer to a new school level involves new social school and classroom environments, and many students describe various social concerns before transitioning (Akos, 2006; Hanewald, 2013; Rice et al., 2011; Strand, 2019). Studies have moreover documented heightened levels of loneliness and social anxiety following the transition (Benner & Graham, 2009). Researchers have accordingly emphasized the importance of offering students with opportunities for social support during the transition to a new school, for example by facilitating activities that allow them to get to know each other and develop positive relationships with other students (e.g., Mac Iver, 1990).

2. Theoretical background and theory of change

In a period of life when relationships and social interaction with peers are highly important to adolescents (Furman & Buhrmester, 1992), the move to upper secondary school disrupts established peer networks and can leave relationships in a state of flux (Topping, 2011). A theoretically elaborated explanation of the influence of school transitions on students’ wellbeing is the “stage-environment fit” hypothesis (Eccles et al., 1993). This hypothesis suggests that some of the negative developments that take place during adolescence, for example in terms of mental health problems, in part result from a poor fit between the needs of the developing adolescent and the opportunities provided by their social environment (Eccles et al., 1993; Gutman & Eccles, 2007). Specifically, if young people are within a social school context that does not satisfy their need for belonging, they are likely to experience difficulties in adjustment (Eccles et al., 1993; Gutman & Eccles, 2007). While deficits in belongingness needs are hypothesized to lead to unpleasant emotional states like anxiety, depression, and loneliness, experiencing a sense of belonging is expected to lead to positive emotions like happiness, calm, and contentment (Baumeister & Leary, 1995).

It can thus be theorized that students who experience positive, caring, and stable relationships with peers after the transition to upper secondary school are more likely to feel welcome, included, and a sense of belonging, which can further lead to positive emotions. Conversely, those who encounter low-quality relationships or feel excluded in the new social setting are more likely to develop negative emotional states (Baumeister & Leary, 1995).

The *buffering hypothesis* proposes that social support resources are important to mental health primarily during stressful events, by acting as buffers against the adverse effects of these stresses (S Cohen & Wills, 1985.). Empirical studies have suggested that perceived support from peers and other peer resources like friendship quality, can shield against some of the potentially negative consequences associated with transitioning, such as depressive symptoms (Newman et al., 2007) and loneliness (Benner et al., 2017; Kingery et al., 2011). From the buffering hypothesis it can be theorized that students who have more positive perceptions of social support will be better protected against the strains of the transition, for example through increased resistance to depressive symptoms and loneliness.

A proposed theory of change relating to VIP partnership is that interaction with fellow students through participation in partnerships and social tasks right after starting a new school, can facilitate increased perceptions of social support and a sense of belonging in the classroom. This is in turn hypothesized to promote positive emotions such as happiness and overall mental health. Further, as risk and promotive factors for mental health and wellbeing are frequently opposites of the same phenomenon, such efforts can also be regarded as prevention. As such, it can be theorized that VIP partnership can help prevent mental health problems and loneliness by reducing risk factors like social exclusion in the classroom.

Taken together, the presented theoretical perspectives provide a strong rationale that efforts to maximize the fit of the social school environment to adolescents’ need for belongingness and positive relationships with others, will work as important stress buffers and favourably impact students’ mental health, loneliness and wellbeing following the move to a new school level. VIP partnership was accordingly designed to help create a secure and inclusive classroom environment for students starting a new school level (VSP, 2020).

3. VIP partnership

Before using VIP partnership for the first time, schools and teachers are advised to undertake a half-day training session delivered by VSP staff (VSP, 2020). Teachers receive a booklet containing information about VIP partnership and how to organise and implement the programme, as well as a collection of tasks and exercises that can be used for the purpose of making students better acquainted and connected to the classroom environment (VSP, 2017a). One example of such an exercise is “Fruit names”, which is carried out as follows: All students sit in a circle. Students are asked to find a fruit that starts with the same letter as their name (Ex: Anna - Apple). Everyone says their name and the fruit they have chosen in turn (VSP, 2017a).

The contact teachers are responsible for the practical implementation of the programme in each class. On the first day of school, students are assigned into two- or three-person partnerships. Two such partnerships in turn form a partner group. VIP partnership has a duration of 9 weeks, with a change of partnerships after 3 and 6 weeks. The teacher information guide advises teachers to put the

partnerships and groups together randomly, but also suggests that the partners should come from different lower secondary schools to avoid the formation of potential cliques (VSP, 2017a).

As part of the start-up, teachers prepare name tags on the student's desks, and students receive a three-page information booklet and a partner group phone list (VSP, 2017b). Students in the partnerships should: sit together and work together in all common-core subjects; greet each other when they meet and ask each other how the weekend has been; be attentive to whether the partner thrives; notify each other in the event of absence, and; take notes for the partner if they are not present in class (VSP, 2017b). The partner groups moreover formulate a group contract with rules that they believe can lead to good teamwork in their group (VSP, 2017a). Finally, the students participate in various of the mentioned exercises led by teachers (VSP, 2016, 2020).

In the teacher booklet, VSP (2017a) informs teachers about how to carry through VIP partnership for students with social anxiety (VSP 2017a). points out that practicing what one is afraid of has a subduing effect on anxiety, and that participation in partnerships and partner groups can function as a training arena in which the teacher can assist the student and confirm mastery. They further suggest that for students with high social anxiety it may be a good idea to have a conversation in advance, where the teacher explains what VIP partnership is about. They also propose that students who are unsure whether they can go through with the programme can be allowed to choose where to sit in the classroom, leave the classroom in case of severe anxiety, and have freedom of choice regarding participation in the tasks and exercises (VSP, 2017a).

To summarise the content of VIP partnership, students are divided into partnerships and partner groups from the first day of upper secondary school, and then change partners and groups after three and six weeks. The students also participate in various exercises and tasks to get to know each other better and to strengthen collaboration in the class.

3.1. Previous evaluations of VIP partnership

Since VIP partnership started, VSP has conducted annual evaluations of the programme using self-report questionnaires (VSP, 2015, 2016, 2019). Students are for instance asked to indicate the extent to which they think that VIP partnership has: helped them feel less excluded at school; contributed to a better start of school than if they did not use the programme, and; made it feel more secure to be at school. Based on the results of these evaluations, VSP has concluded that the programme seems to contribute to a more inclusive classroom where fewer students feel left out (VSP, 2016, p. 19).

While these results are promising, it should be noted that the evaluations are cross-sectional, do not involve pre-test measurements or control groups, and are based on the participants' own accounts of effects. This design has some shortcomings that make it challenging to draw valid conclusions about programme effects. It is therefore necessary to evaluate the impact of VIP partnership using pre-post-test measurements and control groups, as will be done in the current study.

4. The present study

Based on the proposed theory of change presented earlier, the current study will examine the effect of VIP partnership on students' self-reported happiness, depression/anxiety symptoms and loneliness. Moreover, universal prevention strategies often target heterogeneous groups, and previous research has suggested that these can work differently for youths with different mental health characteristics (Joshi et al., 2019; Spilt et al., 2013). As such, the current study will examine whether the effectiveness of VIP partnership on happiness, depression/anxiety symptoms, and loneliness varies as a function of students' social anxiety level at baseline.

Social anxiety is characterized by a fear of a variety of everyday social situations in which embarrassment may occur or there is a risk of negative evaluations or rejection, leading to elevated distress and potential avoidance of those situations (National Collaborating Centre for Mental Health (UK), 2013). Examining whether baseline level of social anxiety impacts the efficacy of the programme is interesting for two, somewhat contradictory reasons. First, VIP partnership involves a form of social exposure, which is an established critical element for effective treatment of social anxiety (Gould et al., 1997). This may suggest that participation will be beneficial for students with higher social anxiety symptoms. However, research has also shown that activities typically taking place at school, like group work, oral presentations, reading aloud and writing on the board, can cause considerable distress for adolescents with social anxiety (Blöte et al., 2015; Cantwell & Andrews, 2002). Group work and participation in social tasks are central elements of VIP partnership, and this could mean that participation will be disadvantageous for students with high symptoms of social anxiety. As such, no specific hypothesis was formulated about which, if any, of the subgroups may benefit the most from participation in the programme.

The following research question is addressed in this article: *Are there differences in mean scores for happiness, depression/anxiety symptoms, and loneliness associated with participation in VIP partnership, as measured immediately after and 6 months after participation in the programme, and is the effectiveness of the programme moderated by baseline level of social anxiety?*

5. Method

5.1. Design

This study is a collaborative venture between the Norwegian University of Science and Technology (NTNU), Vestre Viken Hospital Trust, and two Norwegian counties. A longitudinal, quasi-experimental test-control group design was employed, with condition as first between-subjects factor (test: participation in VIP partnership, versus control: non-participation), social anxiety level as second between-subjects factor (no vs. low vs. high), and time as within-subjects factor (baseline, post-test, and six-month follow-up).

Due to practical reasons, it was not possible to randomly assign participants into the two conditions. Test and control schools were therefore recruited through convenience sampling by contact persons in the two collaborative counties. The schools that already used VIP partnership or planned to implement it the school year 2017/2018, were recruited as test schools. The control schools were recruited from schools that did not use VIP partnership and are based on them being as similar as possible to the test schools in terms of geographical location and size (see [Table 1](#)). A flow chart showing enrolment, number of participants, and attrition is displayed in [Fig. 1](#).

In addition to the student sample, 89 contact teachers in the test schools were invited to participate in an electronic survey three months after VIP partnership had ended. The purpose of this survey was to collect data on programme fidelity.

5.2. Procedure and participants

All schools appointed a contact person who acted as a liaison between the school and NTNU, and who had the overall responsibility for conducting the surveys at their schools. Teachers, students, and parents were informed in writing that participation was voluntary, that they could exit the survey or withdraw from participation at any time without penalty, and that completing the surveys was considered as consent to participate. The data were collected by means of electronic self-reporting questionnaires during school hours.

The author had recorded an information video which was shown to all students before they started responding to the survey. This video explained what the study was about and encouraged the students to answer the questions properly. Parental permission was obtained from students under the age of 16, and the research project was approved by the Norwegian Centre for Research Data (NSD).

Because VIP partnership starts on the first day of school after the summer holidays, a pre-test could not be conducted prior to implementation. The first data collection (baseline) was therefore carried out during the second school week after the holidays and was open for approximately one week. The second data collection (post-test) started right after VIP partnership had ended, approximately ten weeks into the school year, and was accessible for two weeks. The third data collection (follow-up) started approximately six months into the school year and was open for two weeks.

[Table 1](#) summarises participation figures and other sample characteristics by group (test vs. control). The test and control groups are similar in terms of school size, gender, mother's level of education and participants born in Norway. The proportion of participants attending general studies education programmes is higher than the national average of 61 %, and the gender imbalance is mainly due to the female predominance in these programmes ([Statistics Norway, 2017](#)). The complete response rate is somewhat higher in the control group, while a higher proportion of students in the test group were enrolled in general studies education programmes.

5.3. Measures

All items were administered in Norwegian and translated into English for the present article. The items were averaged for scale scores. Information about reliability (Cronbach's Alpha) and number of items for each scale can be found in [Table 2](#).

5.3.1. Happiness

This scale comprises four items intended to measure general feelings of happiness. The scale was developed by Federici and Skaalvik as part of a larger data collection in a previous research project (e.g., [Skaalvik & Federici, 2015](#)), but has not been employed in earlier publications. The respondents were asked to think back on the last two weeks and respond to what extent they had, e.g.: "Felt like life is great" and "Felt happy" Response categories were 1 = Not at all, 2 = A little bit, 3 = Somewhat, 4 = Quite a lot and 5 = Very much.

5.3.2. Depression/anxiety symptoms

This measure encompasses nine adapted items derived from the Hopkins Symptom Checklist (HSCL; [Derogatis et al., 1974](#)). The HSCL has shown sound psychometric properties in previous studies and is a widely used instrument for measuring joint anxiety and depression symptoms ([Glaesmer et al., 2014](#); [Rodríguez-Barragán et al., 2021](#); [Schmalbach et al., 2021](#)). Depression refers to an emotional state involving feelings of sadness, worthlessness, and loss of interest, whereas anxiety involves feelings of unease, worry,

Table 1
Participation Figures and Student Sample Characteristics* by Group (Test vs. Control).

	Test		Control	
	N	%	N	%
Number of schools	10		7	
Average school size (number of students)	562		606	
Participated at baseline	1582		1026	
Participated in all surveys (final sample)	1101	70 %	734	72 %
Female	669	61 %	440	60 %
Enrolled in general studies education programmes	867	78 %	531	72 %
Born in Norway	975	89 %	646	88 %
Mother's educational attainment				
Primary or upper secondary school	364	33 %	270	37 %
Higher education (College/University)	720	65 %	453	61 %

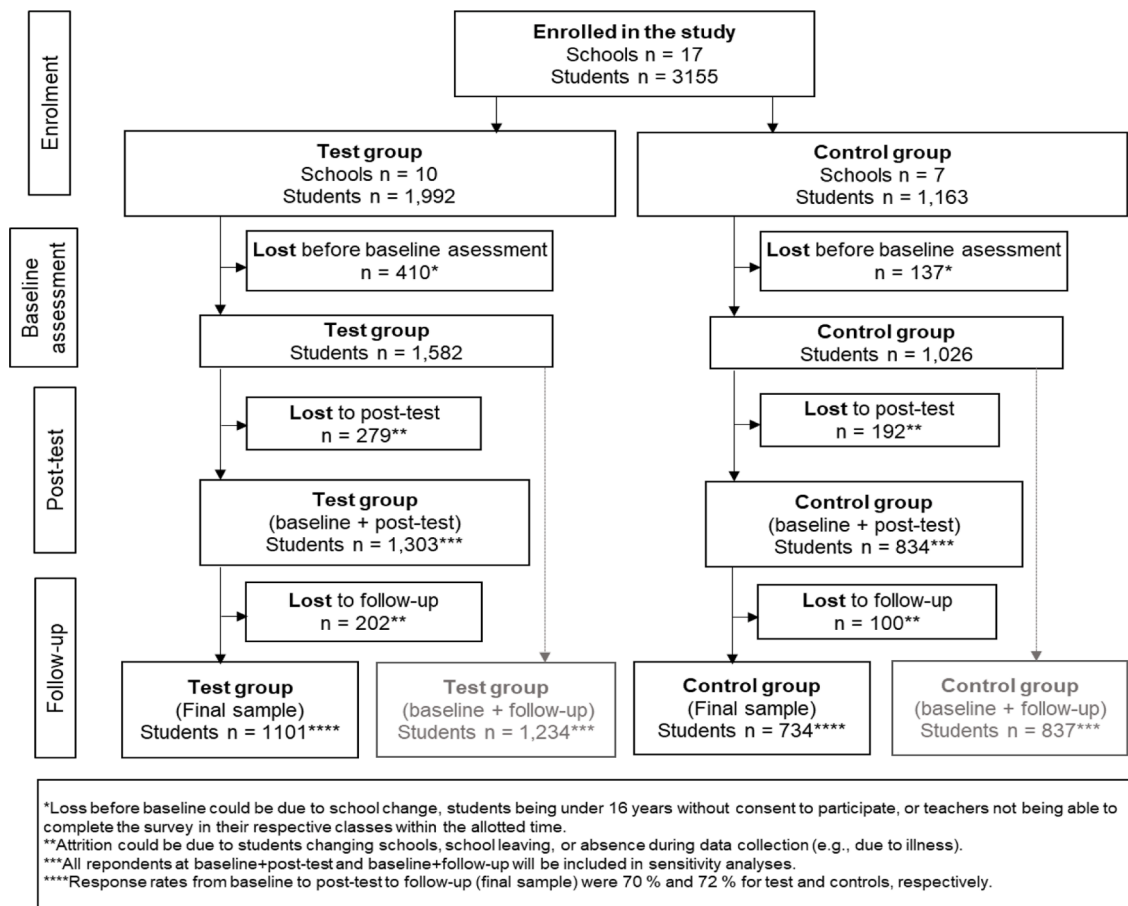


Fig. 1. Flow Chart.

tension and restlessness (Reneflot et al., 2018). The respondents were asked to think back on the last two weeks and respond the extent to which they had, e.g.: “Worried a lot”, “Cried easily”, or “Felt blue or depressed”. Response categories were 1 = Not at all, 2 = A little bit, 3 = Somewhat, 4 = Quite a lot and 5 = Very much.

5.3.3. School loneliness

Loneliness was measured by using a Norwegian version of the Loneliness and Social Dissatisfaction Questionnaire (LSDQ; Asher & Wheeler, 1985; Valås, 1999). LSDQ is a validated and widely applied instrument that measures feelings of social isolation and loneliness of young people at school (Bagner et al., 2004; Maes et al., 2017). Example items are: “I have no friends at school” and “I feel lonely at school”. As the baseline survey was carried out only a week into the school year, it was at this measurement point considered appropriate to measure loneliness retrospectively as perceived loneliness in 10th grade (their last year of lower secondary school), e.g., “I had no friends at school”. The response categories for the five items designed to measure loneliness were on a 6-point scale, ranging from 1 = *strongly disagree* through 6 = *strongly agree*.

5.3.4. Social anxiety level

Social anxiety was measured by using a Norwegian version of the Mini-Social Phobia Inventory (mini-SPIN) (Connor et al., 2000). This scale comprises three items about avoidance and fear of embarrassment that were rated based on the past week, including: “Fear of embarrassment causes me to avoid doing things or speaking to people”. The items were evaluated along a 5-point scale, where 1 = Not at all, 2 = A little bit, 3 = Somewhat, 4 = Very much and 5 = Extremely. Previous studies have assessed Mini-SPIN as a reliable and valid screening tool for social anxiety disorder (e.g., Garcia-Lopez & Moore, 2015; Seeley-Wait et al., 2009; Wiltink et al., 2017), and a mean score of 3 has been used as a cut-off to distinguish people with social anxiety disorder from those without the disorder (e.g., Seeley-Wait et al., 2009). In the present study, the sample was divided into three groups based on whether they reported average baseline scores for social anxiety = 1 (no social anxiety), > 1 - < 3 (low social anxiety), or ≥ 3 (high social anxiety).

Gender. A dichotomous variable specified whether the adolescent is female (1) or male (2).

5.3.5. Mother's level of education

This was measured on a four-level scale. The lowest level (1) was primary and lower secondary school, and the highest level (4) was tertiary education beyond three years. This measure was transformed into a dichotomous variable where 1 = education until upper secondary level, and 2 = higher education at college or university level.

5.3.6. Grades

Grades were measured by averaging students' self-reported final assessment grades in Norwegian, mathematics and English from 10th grade. The measure ranged from 1 (lowest) through 6 (highest).

5.3.7. Fidelity assessments

The teachers who had used VIP partnership were asked to indicate whether they had: received training in VIP partnership; divided the students into partnerships from the first day of school; changed partnerships and groups every three weeks; used exercises from the teacher information guide, and; the extent to which the students had worked together in partnerships or groups in their classes. In addition to the teacher survey, students in the test schools were asked to indicate whether on the first day of school they had: been assigned a partner; participated in exercises to get better acquainted with their classmates, and; received name tags on their desks.

5.3.8. Analyses

The analyses were conducted in SPSS 26. Data were examined for systematic differences in attrition based on gender, mother's level of education, and dependent variables at baseline. No significant differences were found for mother's level of education or gender. Statistically significant differences were identified for mean grades, happiness, depression/anxiety symptoms, loneliness, and social anxiety, where dropouts displayed poorer health and grades than those who remained in the study. This difference could be a result of students with mental health challenges avoiding the survey or leaving school before the post-test. Among dropouts, there were no statistically significant differences between the test and control schools in terms of gender, mother's level of education, or dependent variables at baseline. The characteristics of the sample units who dropped out were thus comparable across the test and control groups.

Multivariate analysis of covariance (MANCOVA) was chosen to test the hypotheses because it can account for pre-test scores as covariates of the dependent variables (Tabachnick & Fidell, 2013). Two separate two-way MANCOVA's were run to determine post-test (10 weeks) and follow-up (six months) effects of VIP partnership and social anxiety level (no vs. low vs. high) on happiness, depression/anxiety symptoms, and school loneliness, while adjusting for baseline scores. Two separate MANCOVA's were chosen over a repeated measures MANCOVA with time as within-subjects factor, for two main reasons: First, examining between-subject effects are considered the most central to answering the research question of this research paper, rather than examining the development of the dependent variables in the two conditions across time. Second, the baseline scores of the variables of interest are used as covariates and thus cannot be included as a within-subjects factor.

In addition to baseline scores, gender, mean grades and mother's level of education were included as covariates due to their associations with mental health outcomes. As for gender, research has unequivocally shown that adolescent girls are overrepresented in the incidence of internalizing problems such as social anxiety and depressive symptoms (Reneflot et al., 2018). Adolescents with mental health problems are also found to be at higher risk of poorer grades (Burnett-Zeigler et al., 2012; Goodsell et al., 2017; Rothon et al., 2009). Last, some research has found a connection between lower parental educational attainment and higher levels of internalizing problems among adolescents (Park et al., 2013).

The independent variables were participation in VIP partnership (test vs. control) and social anxiety (no, low, and high social anxiety) while dependent variables were post-test and follow-up scores of happiness, depression/anxiety symptoms, and loneliness. Baseline variables, gender, mother's education level and students' mean grades served as covariates.

To assess the robustness of the findings, *post hoc* sensitivity analyses were performed for each MANCOVA. The purpose was to examine whether the results from the analyses that included data from occasional dropouts (baseline + post-test, and baseline + follow-up, respectively) matched those that were based on the final sample (baseline + post-test + follow-up).

The use of MANCOVA depends on some assumptions that need to be tested. There should be no unequal pre-treatment measures between groups, as this can bias the effect-estimates (Field, 2018; Miller & Chapman, 2001). Independent samples t-tests indicated no statistically significant differences in the groups' baseline-scores (see Table 2). Results of evaluations of assumptions of homogeneity of variance-covariance matrices, linearity, multicollinearity, normality, and univariate outliers were satisfactory. There were 7 multivariate outliers in the data both at the baseline and six-month follow-up measurements, as assessed by Mahalanobis distance > 16.27 ($p < .001$). Separate MANCOVA's were performed with and without these outliers, but the results were not substantially different. All cases were therefore retained in the further analyses. Prior to the MANCOVA, the factor structure of the latent variables was assessed using factor analyses (Maximum likelihood with Oblimin rotation).

6. Results

6.1. Student surveys

Results from factor analyses of data from the student questionnaires showed that all items loaded on the expected latent variable ($> .5$), and none of the items cross-loaded $> .3$ with any other latent variables.

Table 2 reports descriptive statistics and *p*-values for mean differences between test and control groups for the study variables. All the latent constructs display high reliability. There were significant differences in the unadjusted scores for happiness and depression/

anxiety symptoms between test and control groups at post-test, and for loneliness at six-month follow-up.

Table 3 shows correlations between the study variables. All latent variables are significantly correlated with one another ($p < .001$). The significant correlations between gender and all variables except loneliness at post-test, mother's level of education, and school type, indicate that, relative to girls, boys in this study on average report significantly lower grades, higher happiness, and lower depression/anxiety symptoms scores at all measurement points, well as lower social anxiety scores at baseline and lower loneliness scores at baseline and six-month follow-up.

Results from the MANCOVA analyses indicated a statistically significant two-way interaction effect between condition (participation/non-participation) and social anxiety level on depression/anxiety symptoms at post-test, $F(2, 1717) = 3.191, p = .042$. The sensitivity analysis produced similar results, $F(2, 1968) = 3.656, p = .026$. This suggests that the effect of VIP partnership on students' depression/anxiety symptoms as measured at post-test, depends on participants' level of social anxiety at baseline, whilst adjusting for the covariates.

There were no statistically significant interaction effects between participation in VIP partnership and social anxiety level on post-test happiness, $F(2, 1717) = 0.102, p = .903$, or loneliness, $F(2, 1717) = 0.187, p = .830$. The sensitivity analysis produced similar results for happiness, $F(2, 1968) = 0.729, p = .482$ and loneliness, $F(2, 1968) = 0.281, p = .755$. Further, *post hoc* tests for main effects indicated an overall significant effect of participation in VIP partnership on post-test happiness, $F(1, 1717) = 6.852, p = .009$, but a non-significant main effect on loneliness, $F(1, 1717) = 0.014, p = .906$. Corresponding results were found in the sensitivity analysis for happiness, $F(1, 1968) = 9.085, p = .003$, and loneliness, $F(1, 1968) = 0.032, p = .859$ Table 4. shows a comparison of adjusted mean differences for happiness and loneliness between test and control schools, and a comparison of adjusted mean differences for depression/anxiety symptoms at post-test and follow-up for each social anxiety level, at post-test and follow-up. Effect sizes were calculated by dividing the adjusted mean differences by unadjusted standard deviation scores.

Results of simple effects analyses, shown in Table 4, revealed that adjusted mean depression/anxiety symptoms were significantly lower in the test schools compared to controls in the no social anxiety group ($d = .30$), and the low social anxiety group ($d = .14$), but not significantly different in the high social anxiety group. Taken together, these results indicate that at post-test, VIP partnership is associated with a main effect on students' self-reported happiness, with no main effect on loneliness scores, and with simple effects on depression/anxiety symptoms among students with no or low symptoms of social anxiety at baseline.

At six-month follow-up, there were no significant two-way interaction effects between participation in VIP partnership and social anxiety level on adjusted mean depression/anxiety symptoms, $F(2, 1710) = 1.396, p = .248$, happiness, $F(2, 1710) = 0.180, p = .836$, or loneliness, $F(2, 1710) = 0.884, p = .413$. The sensitivity analyses produced coincident results at six-month follow-up, both for depression/anxiety symptoms, $F(2, 1924) = 2.333, p = .097$, happiness, $F(2, 1924) = 0.614, p = .641$, and loneliness, $F(2, 1924) = 0.412, p = .662$. There were also no significant main effects of participation in VIP partnership at the follow-up measurement, neither for adjusted mean depression/anxiety symptoms, $F(1, 1710) = 0.371, p = .539$, happiness, $F(1, 1710) = 0.376, p = .540$, or loneliness, $F(1, 1710) = 0.870, p = .351$. The sensitivity analysis produced similar results for depression/anxiety symptoms, $F(1, 1924) = 0.208, p = .648$, happiness, $F(1, 1924) = 0.175, p = .675$, and loneliness, $F(1, 1924) = 1.440, p = .230$.

In summary, significant programme effects at post-test were found for happiness in the overall test group ($d = .12$), and for depression/anxiety symptoms among students with no ($d = -.30$) and low ($d = -.14$) symptoms of social anxiety at baseline, but not among students with high symptoms. No significant effects were found for loneliness at post-test. At six-month follow-up there were no statistically significant differences in happiness, depression/anxiety symptoms, or loneliness scores between the test and control groups, within any level of social anxiety.

6.2. Teacher Survey and Programme Fidelity

The teacher questionnaire was completed by 60 of the potentially 89 contact teachers who had used VIP partnership. This gives a response rate of 67 % (of which 68 % were female). From these, a total of 57 teachers (95 %) reported that they had received training in VIP partnership whereas 5 % had not. Most had received training that lasted one (23 %), two (45 %) or three (10 %) hours. Moreover, 88 % of the contact teachers reported having divided the students into partnerships from the first day of school, and 92 % had changed

Table 2
Descriptive Statistics, Cronbach's Alpha's (α), p-values for Mean Differences Between the Variables, by Group (test vs. control).

	No. of items	Range	α	Test		Control		T-test
				N	Mean (SD)	N	Mean (SD)	p
Happiness1 (C)	4	1-5	.87	1088	3.63 (.69)	731	3.57 (.71)	.075
Depression/anxiety1 (C)	9	1-5	.92	1086	2.18 (.86)	731	2.23 (.90)	.268
Loneliness1 (C)	5	1-6	.93	1093	1.41 (.88)	731	1.49 (.96)	.072
Happiness2 (DV)	4	1-5	.89	1082	3.58 (.75)	723	3.45 (.76)	.001
Depression/anxiety2 (DV)	5	1-5	.89	1081	2.36 (.93)	723	2.51 (.92)	.001
Loneliness2 (DV)	5	1-6	.87	1093	1.47 (.81)	732	1.55 (.88)	.063
Happiness3 (DV)	4	1-5	.91	1076	3.50 (.79)	724	3.51 (.79)	.858
Depression/anxiety3 (DV)	9	1-5	.93	1074	2.43 (.93)	725	2.43 (.91)	.993
Loneliness3 (DV)	5	1-6	.89	1088	1.50 (.83)	726	1.60 (.99)	.019
Gr (C)	3	1-6	-	1087	4.36 (.87)	722	4.31 (.81)	.254

Note. Significant findings in bold. C = Covariate, DV = Dependent Variable. 1 = baseline, 2 = post-test, and 3 = follow-up.

Table 3
Correlation Matrix for Covariates, Dependent Variables, and Factors

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Happiness1 (C)	1												
2. Depression/anxiety1 (C)	-.63***	1											
3. Loneliness (C)	-.19***	.30***	1										
4. Happiness2 (DV)	.56***	-.46***	-.19***	1									
5. Depression/anxiety2 (DV)	-.47***	.66***	.24***	-.61***	1								
6. Loneliness2 (DV)	-.27***	.29***	.38***	-.32***	.32***	1							
7. Happiness3 (DV)	.49***	-.38***	-.16***	.56***	-.46***	-.23***	1						
8. Depression/anxiety3 (DV)	-.36***	.57***	.21***	-.45***	.69***	.22***	-.60***	1					
9. Loneliness3 (DV)	-.20***	.24***	.31***	-.22***	.26***	.57***	-.25***	.26***	1				
10. Gender (C) ^a	.18***	-.34***	-.09***	.18***	-.36***	.00	.17***	-.37***	-.05*	1			
11. Mother's Level of Education (C)	.03	-.03	-.06*	.01	-.01	-.07**	.01	-.01	-.06*	-.03	1		
12. Grades (C)	.01	.02	-.08**	-.03	.03	-.09***	-.04	.05**	-.11***	.15***	.30***	1	
13. Social anxiety level ^b (F)	-.36***	.47***	.24***	-.32***	.39***	.24***	-.26***	.35***	.19***	-.17***	-.01	.04*	1
14. School type ^c (F)	-.04	.03	.04	-.08***	.08**	.04	.00	.00	.06*	.01	-.04**	-.03	-.00

Table 4

Results of Main Effects Analyses for Participation in VIP Partnership and Simple Effects by Social Anxiety Level. Adjusted Means (MANCOVA) and Standard Errors for Happiness, Depression/Anxiety Symptoms, and Loneliness at Post-test and Follow-up, and Comparison of Test and Control Schools using M_{adj} Difference and Cohen's d .

Post-test	SA	Test		Control		Test vs. Control			
		n	M_{adj} (SE)	n	M_{adj} (SE)	M_{adj} Diff.	p	[95 % CI]	d
Happiness									
Main effect ^a		1035	3.57 (.02)	698	3.48 (.03)	.09**	.006	 [.02, .15]	.12
Depression/anxiety									
Main effect		1035	2.38 (.02)	698	2.49 (.03)	-.11**	.003	 [-.19, -.04]	-.12
Simple effects ^b	No	227	2.18 (.05)	165	2.42 (.06)	-.24**	.003	 [-.38, -.10]	-.30
	Low	665	2.37 (.03)	419	2.49 (.03)	-.12*	.024	 [-.20, -.03]	-.14
	High	209	2.58 (.05)	150	2.56 (.06)	-.02	.765	[-.12, .17]	n/a
Loneliness									
Main effect		1035	1.50 (.03)	698	1.51 (.03)	-.01	.906	[-.09, .08]	n/a
Follow-up									
Happiness									
Main effect		1023	3.49 (.02)	699	3.51 (.03)	-.02	.540	[-.10, .05]	n/a
Depression/anxiety									
Main effect		1023	2.43 (.03)	699	2.41 (.03)	.03	.539	[-.06, .10]	n/a
Loneliness									
Main effect		1023	1.52 (.03)	699	1.56 (.04)	-.04	.351	[-.13, .05]	n/a

Note. * = $p < .05$, ** = $p < .01$. Significant findings in bold. SA = Social Anxiety level. Covariates were evaluated at the following values (post-test and follow-up, respectively): Depression/anxiety Symptoms = 2,20, 2.18, Happiness = 3,61, 3.61, Loneliness = 1.42, 1.43, Mean Grades = 4,34, 4.32, Mother's level of education = 1,66, 1.64, Gender = 1,38, 1.40. ^a Main effect of participation in VIP partnership. ^b p -values for simple effects are Bonferroni adjusted.

partnerships and groups every three weeks. Most teachers (88 %) reported having used exercises from the teacher guidelines, whereas 12 % had not. Furthermore, 80% reported that the students had "mostly" or "always" worked together in partnerships or groups in their classes.

Of the 1101 students in the test schools who had participated in all three surveys, 92 % stated that they had been assigned a partner on the first day of school, 93 % reported having participated in social exercises, and 93 % had received a name tag on their desk. Further investigations of these data showed there were no whole classes that lacked these programme elements. Rather, this applied to a few individual students spread over several classes.

7. Discussion

Healthy social relationships are a necessary prerequisite for adolescents' wellbeing and mental health (e.g., Baumeister & Leary, 1995). The present study sought to examine whether students' participation in a programme designed to create a socially secure learning environment could impact their self-reported happiness, depression/anxiety symptoms, and loneliness, and whether baseline level of social anxiety moderated the results. Attempts were made to ensure transparency and methodological robustness by providing detailed descriptions of the intervention, addressing programme fidelity, and making use of sensitivity analyses.

Results of the fidelity appraisals showed that most of the contact teachers had received training in VIP partnership and used key elements of the programme. These data corresponded to those from the student questionnaire, where most of the students reported having received key programme elements on the first day of school. Overall, these findings suggest that VIP partnership was largely implemented as intended by the programme developers.

A significant programme effect was found for happiness in the overall test group at the post-test measurement ($d = .12$). In accordance with the study's theoretical framework, this finding suggests that efforts to facilitate interaction with fellow students through partnerships and social exercises at the start of a new school, can stimulate positive emotions among students, at least in the short-term. The associated effect size must however be characterised as very small and is therefore likely to be of limited practical significance.

As for depression/anxiety symptoms, significant effects at post-test were found among students with no ($d = -.30$) and low ($d = -.14$) symptoms of social anxiety at baseline, but not among students with high symptoms. In view of the study's theoretical framework, these findings indicate that students who participated in partnerships and tasks to become better acquainted with classmates displayed higher resistance to depression/anxiety symptoms following the transition to secondary school, compared to students who did not participate in VIP partnership. The fact that the programme's effect on this outcome variable only applied to the groups with no or low levels of social anxiety at baseline, suggests that students who are less concerned with how they appear to others at the start of the school year, are also those who benefit the most from participation in VIP partnership in the form of lower depression/anxiety symptoms. It is conceivable that students with low or absent symptoms, more than those with higher symptom levels, will be more comfortable with the social components that participation in VIP partnership entails, and that this in turn can contribute to preventing negative psychological states such as depression/anxiety symptoms.

Again, the effect sizes for the depression/anxiety symptoms outcome can be characterised as small according to Cohen's standards

(J Cohen & Steinberg, 1992.), and the results should be interpreted with caution. They are, however, comparable to post-test effect sizes reported in previous studies of universal SBMH interventions to strengthen students' mental health (e.g., Cohen's d /Hedge's g = .14, .13 and .19, respectively: Corrieri et al., 2014; Franklin et al., 2017; Werner-Seidler et al., 2017).

The lack of significant findings at post-test in the high social anxiety groups could be seen in the context of previous research, which has shown that involvement in social school activities may cause considerable distress for individuals with social anxiety (Blöte et al., 2015). Considering that group work and participation in social tasks are central elements of VIP partnership, it is not unexpected that this can contribute to preventing a potentially positive impact of the programme. Moreover, although VIP partnership involves social interactions and activities, this does not ensure that students will engage in those interactions and activities in ways that are cognitively effective (Kochenderfer-Ladd & Ladd, 2016). This may be particularly true for individuals with social anxiety, who are often characterised by focusing on themselves (e.g., symptoms of anxiety and their own internal experience) rather than the situation (Stopa & Clark, 1993). It is also possible that some of the students with social anxiety did not participate in all the programme components, which would also prevent a possible effect of the programme.

The lack of significant programme effects for loneliness at both measurement points is somewhat surprising, given that VIP partnership is aimed at strengthening social relationships in the classroom. Ample research has however suggested that quantitative aspects of relationships, such as number of friends and social interactions are less predictive of loneliness than the quality of relationships (Masi et al., 2011). It is therefore probable that efforts to increase opportunities for social participation, which is the main component of VIP partnership, address social isolation and quantitative aspects of relationships, more than loneliness (Masi et al., 2011).

The fact that the overall happiness scores and the level of depression/anxiety symptoms in the "no" and "low" social anxiety groups had levelled with controls by the follow-up measurement, suggests that VIP partnership has primarily served as a brief "boost" for students' feelings of happiness, and buffered short-term against depression/anxiety symptoms among students with no and low symptoms of social anxiety following the transition to upper secondary school. Overall, the results provide limited support for the theoretical proposal that offering students opportunities to form positive peer relationships when they start a new school, can promote positive emotions such as happiness and prevent depression/anxiety symptoms and loneliness in the longer term. The overall effect of the programme on the included outcome variables can be summarised as short-lived and limited. The lack of significant effects at follow-up is largely consistent with previous research within SBMH, which has shown that intervention effects on students' mental health tend to decrease or disappear over time (Dray et al. 2017; Werner-Seidler et al. 2017).

7.1. Limitations and future research

The study was not a randomised trial, and the significant effects at post-test may have been produced by confounding variables other than students' participation in VIP partnership. For example, it is possible that the effects at post-test could be attributed to schools being recruited on a voluntary basis. While the students in the test and control school matched well on various sample characteristics, it may be that the schools and teachers using VIP partnership were already particularly concerned with topics such as the social classroom climate and students' mental health. As such, it could potentially be the teachers' commitment to these topics that produced the significant effects, rather than the programme.

Next, while the fidelity assessments indicated that the programme had largely been implemented as intended on the first day of school, no assessments were made regarding how the programme was followed up in the subsequent nine weeks. Moreover, baseline level of loneliness was measured retrospectively, and may as such be misrepresentative of the students' feelings of loneliness when they started upper secondary school.

Another possible limitation of the study was the dropout-rate. Considering the small mean score differences between the test and controls group both at post-test and follow-up, the outcomes might have turned out slightly different had the dropout been lower. However, this is somewhat counterbalanced by the fact that sample characteristics of those who dropped out were similar in the test and control groups. Furthermore, results from the sensitivity analyses matched those found in the main analyses, which strengthens the robustness of the findings.

Further, although the control schools did not participate in VIP partnership, they may have carried out other programmes targeting students' social relationships and/or mental health. This was not controlled for in the current study.

This study moreover employed a universal screening method to identify students with subthreshold social anxiety symptoms. The finding that VIP partnership was seemingly ineffective on depression/anxiety symptoms in these students could indicate a need for schools to work more systematically with identifying and following up students at risk (Fazel et al., 2014).

Finally, considering the proposed theory of change related to VIP partnership, future studies should investigate whether participation in the programme can have a beneficial effect on students' perceptions of social support from teachers and fellow students, and on their sense of belonging in the classroom. It would also be of relevance to include other outcome measures which may be linked to the content of VIP partnership, such as students' social skills and competence. Replication using a randomization procedure is required, and effectiveness should be evaluated among students in lower age groups.

8. Conclusion

In conclusion, while the current study found a significant short-term effect of VIP partnership on overall happiness, and on depression/anxiety symptoms in the groups of students with low or absent social anxiety symptoms at baseline, no long-term impact could be established. The fact that the effects had diminished at the six-month measurement when the programme was no longer used, may suggest that it would be beneficial to incorporate elements of the programme into schools' weekly routines.

Moreover, findings from literature reviews in the field of SBMH have shown that whole-school intervention strategies (e.g., those aimed at modifying multiple risk- or protective factors for mental health and involving cooperation between multiple agencies) tend to produce stronger and longer-lasting effects on students' mental health than single-factor programmes (e.g., Green et al., 2017; O'Reilly et al., 2018; Wells et al., 2003). Given that VIP partnership addresses only a few environmental risk and protective factors for mental health (e.g. by increasing social participation among students), it would perhaps be beneficial to use the programme in combination with more holistic and longer-lasting strategies, to change institutions as well as individuals (Green et al., 2017; Greenberg et al., 2001).

9. Declarations

9.1. Ethical approval

The study was approved by the Norwegian Centre for Research Data.

9.2. Informed consent

Informed consent was obtained from all participants. Parental consent was obtained from students under the age of 16.

9.3. Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Declaration of Competing Interest

The author reports no conflict of interest.

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