

Master Thesis

The Effect of School Social Environment on the Relation Between Neighbourhood  
Deprivation and Mental Health Problems.

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Vlissingen

### Samenvatting

In deze studie werd het effect van de sociale schoolomgeving op de associatie tussen buurtdeprivatie en mentale gezondheid bij Nederlandse adolescenten onderzocht. Contextuele factoren, zoals de buurt- of schoolcontext, lijken een steeds belangrijkere rol te spelen in de mentale gezondheid van adolescenten. In dit onderzoek werden drie hypothesen getoetst. Allereerst, de relatie tussen buurtdeprivatie en mentale gezondheid. Ten tweede, de relatie tussen de sociale schoolomgeving en mentale gezondheid. Als laatste werd het mogelijke modererende effect van de sociale schoolomgeving op de relatie tussen buurtdeprivatie en mentale gezondheidsproblemen onderzocht. In deze studie is gebruik gemaakt van resultaten van de *Health Behaviour in School-aged Children* dataset uit 2017. Met behulp van een grote nationale representatieve steekproef van Nederlandse kinderen tussen de 12 en 16 jaar zijn regressieanalyses en een moderatieanalyse uitgevoerd. Deze resultaten suggereren dat buurtdeprivatie niet geassocieerd was met mentale gezondheidsproblemen. Daarentegen was de sociale schoolomgeving een significante voorspeller van mentale gezondheidsproblemen; zowel op de schaal van steun van leeftijdsgenoten, als steun van docenten. Deze resultaten suggereren dat leerlingen die meer steun ervoeren van leeftijdsgenoten en leraren, minder mentale gezondheidsproblemen rapporteerden. Er is in deze studie geen bewijs gevonden voor een modererend effect van de sociale schoolomgeving op de associatie tussen buurtdeprivatie en mentale gezondheidsproblemen. Deze resultaten suggereren dat buurtdeprivatie een minder belangrijke rol speelt voor mentale gezondheidsproblemen wanneer men naar contextuele factoren kijkt. De resultaten geven echter wel aan dat de sociale schoolomgeving een belangrijk aandachtspunt is voor het aanpakken van mentale gezondheidsproblemen bij Nederlandse adolescenten.

### **Abstract**

This study investigated the effect of school social environment on the association between neighbourhood deprivation and mental health problems among Dutch adolescents. Contextual factors such as the neighbourhood- or school context might play a significant role in the mental health of adolescents. In this study, three main hypotheses were tested. Firstly, the relationship between neighbourhood deprivation and mental health problems. Secondly, the relationship between school social environment and mental health problems, and finally the possible moderation effect of school social environment on the relationship between neighbourhood deprivation and mental health problems. Using Health Behaviour in School-aged Children (HBSC) data from 2017, a large nationally representative sample of Dutch children aged 12 – 16 was analysed using regression analyses and moderation analysis. These results suggest that neighbourhood deprivation was not associated with mental health problems. In contrast, the school social environment was a significant predictor for mental health; both on the subscale for peer support as well as teacher support. These results suggested that adolescents who reported more peer support and adolescents who reported more teacher-support reported fewer mental health problems. However, no moderating effect has been found of the school social environment on the relationship between neighbourhood deprivation and mental health problems. The results seem to suggest that neighbourhood deprivation matters less to adolescent mental health when looking into contextual factors. The results do however indicate that the school social environment is an important focus point for efforts to address mental health problems among Dutch adolescents.

*Keywords:* neighbourhood deprivation, adolescent mental health, school social environment, adolescent emotional problems

## **The Effect of School Social Environment on the Relation Between Neighbourhood Deprivation and Mental Health Problems.**

The prevalence of mental health problems among adolescents has been on the rise in recent years (Bor et al., 2014). It is estimated that 13% of children and adolescents are affected by mental health problems, which translates to approximately 241 million children worldwide (Polanczyk et al., 2015). With such a striking number of children being affected by mental health problems, it seems of societal importance to identify the risk and protective factors associated with mental health problems among adolescents (World Health Organization: WHO, 2021).

Most research aiming to identify these factors has looked at personal and family characteristics, but it has become increasingly evident that contextual factors such as the residential neighbourhood might play a significant role in mental health problems among adolescents (Galster, 2011; Huang et al., 2020; Jakobsen et al., 2022). Recent findings increasingly suggest that neighbourhood deprivation can result in negative outcomes for young people, including their mental health (Jakobsen et al., 2022; Lawler et al., 2016; Roux, 2016; Visser et al., 2021). A probable pathway explaining this phenomenon lies within Bronfenbrenner's (1977) ecological system theory. This theory emphasizes how adolescent development takes place within interacting systems from immediate (microsystems) to more broad (macrosystems). Both the neighbourhood context and school context fall within the immediate developmental contexts in which adolescent development takes place (Aldridge & McChesney, 2018).

The residential neighbourhood and the school environment are critical out-of-home contexts in which adolescents participate, especially when taking into consideration compulsory school attendance (Brons et al., 2022). The residential neighbourhood is one of the primary contexts in which adolescents participate. Research in the residential context suggests that residents of deprived neighbourhoods have higher levels of emotional disorders, such as depressive symptoms or anxiety (Huang et al., 2020; Kim & Ross, 2009). Additionally, the school is an important context for adolescents as they spend almost a third of their lives in this environment. Dutch adolescents attending high school minimally spend an average of 1040 hours of school per year, spread out over at least 189 days, as dictated by Dutch Law (Ministerie van Onderwijs, Cultuur en Wetenschap, 2022). These contexts play a crucial part in adolescents' lives as they are overlapping social contexts where development takes place; as children typically attend schools located in their neighbourhoods, the school context may reflect the neighbourhood characteristics (Huang et al., 2020). It seems of vital

importance that scholars focus on identifying risk and protective factors for the neighbourhood and school context (World Health Organization: WHO, 2021), thus leading to the following research question: *“To what extent does school social environment moderate the relation between neighbourhood deprivation and mental health problems among adolescents?”*

### **Neighbourhood Deprivation and Adolescent Mental Health Problems**

Neighbourhood deprivation refers to an accumulation of various factors such as socio-economic status (SES), social and physical resources, the level of physical or social disorder, and unemployment rates (Visser et al., 2021). A theoretical framework explaining one major probable pathway linking neighbourhood deprivation and mental health problems draws from the Family Stress Model. This model illustrates mainly how economic stress can influence family functioning, but it has also been suggested that it can be applied to various environmental stressors, such as stress caused by living in a deprived neighbourhood (Jocson & McLoyd, 2015). Stress can influence the parental relationship and cause parents physiological stress in such ways that it disrupts parenting practices causing children to be maladjusted (Masarik & Conger, 2017). A review of neighbourhood effects found that lack of social-interactive resources, (e.g. the level of community involvement) was an indicator of negative outcomes for mental health; lack of safety in the neighbourhood, increased social disorder and lower social cohesion were among the factors that link neighbourhood deprivation with negative mental health outcomes for children, specifically emotional outcomes (Minh et al., 2017).

### **School Social Environment and Mental Health Problems**

Adolescence is a period of significant development during which individuals outside of the direct family become important. Teens spend their time with peers at local sports clubs, youth centers, and other unsupervised settings (Frederiksson et al., 2018). Aside from this, adolescents are quite restricted to their school environment, as it is where they spend a significant amount of their time. The school social environment envelops the culture, norms, expectations, and beliefs within a school that together create an environment that determines to what extent adolescents feel emotionally, physically, and socially safe in a school (Cohen et al., 2009). A review by Aldridge and McChesney (2018) of the relation between school social environment and adolescent mental health found that positive relationships with teachers promote student well-being, feeling safe at school promotes healthy development, and school-wide efforts can improve mental health problems and possibly lessen the negative effects of individual socio-economic status. These results seem to indicate that there is a

significant relation between the school social environment and adolescent mental health problems (Aldridge & McChesney 2018).

### **School Social Environment Moderating the Relation Between Neighbourhood Deprivation and Mental Health**

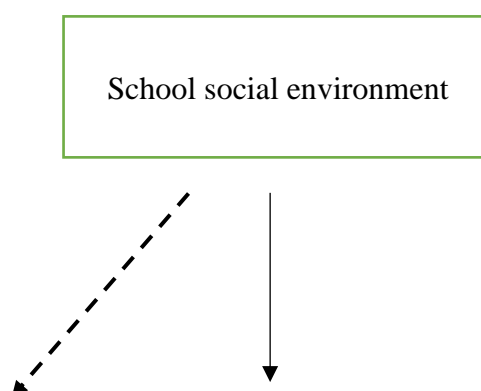
Additionally, it is possible that a positive school social environment can mitigate the negative effects of either living in a deprived urban city or attending an economically disadvantaged school on mental health problems. Indeed, an extensive review of 200 studies, reviewing over three decades worth of school social environment research, found this to be the case (Thapa et al., 2013). A possible theoretical framework supporting these results is the resiliency theory (Garmezy, 1993). The theory of resilience refers to the possibility to adapt despite significant adversity. Within this theory exist *promotive factors*, which can help youth overcome the negative effects of risk exposure (Ruiz et al., 2018; Zimmerman, 2013). Promotive factors (e.g. self-esteem) are defined as assets; parental support or a positive teacher-pupil relationship are defined as resources. A positive school social environment can act as a resource for those children experiencing the negative effects of growing up in a deprived neighbourhood (Minh et al., 2017).

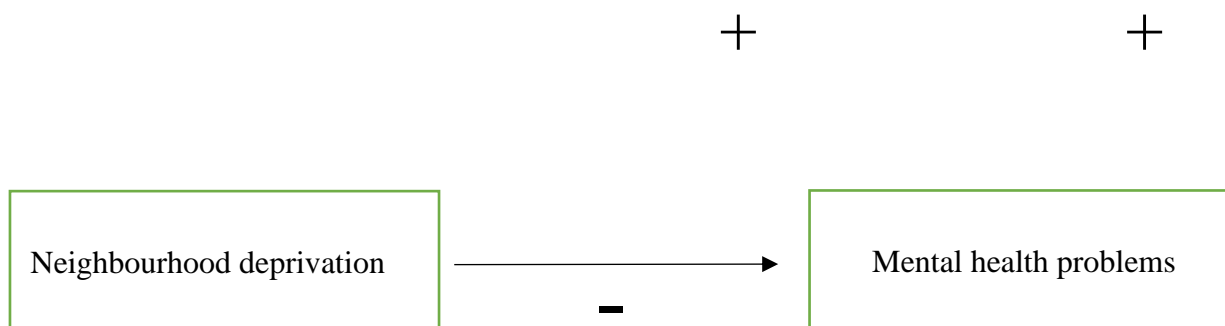
#### **This Study**

Within this study, the aim is to explore the potential moderating effect of the school social environment on the relation between neighbourhood deprivation and mental health problems among Dutch adolescents. Based on the previously described literature I hypothesize that a higher level of neighbourhood deprivation will be linked with mental health problems among adolescents. Additionally, it is hypothesized that a positive school social environment is related to fewer mental health problems. Based on the resilience theory (Garmezy, 1993) and a review by Thapa and colleagues (2013) it is expected that a positive school social environment can mitigate the negative effects that growing up in a deprived neighbourhood can have on Dutch adolescents' mental health (Figure 1)

#### **Figure 1**

*Visualization of the Conceptual Model Linking Neighbourhood Deprivation and Adolescent Mental Health Problems, With School Social Environment as a Moderator.*





## Method

### Study Population and Design

This quantitative study used data from the Dutch Health Behaviour in School-Aged Children (HBSC) study from 2017/2018 ( $N = 8,980$ ) (Stevens et al., 2018). The HBSC is a cross-sectional survey that is conducted every four years with a nationally representative sample consisting of children aged 11-16 years who attend primary and secondary school. The sample was obtained using a two-stage random cluster sampling procedure. A random sample of schools in the Netherlands was drawn and stratified based on levels of urbanization. For each participating school, two to five random classes were selected (the number of classes depended on the school size). Self-report questionnaires, led by research assistants from the Trimbos Institute, were administered in the classroom and completed within approximately 40 – 50 minutes. The surveys were conducted using computers unless this was impossible due to a shortage of computers. The surveys took place in October or November of 2017.

All participants were ensured of their anonymity. Adolescents gave active consent to participate in the study, parents/carers gave passive consent to the child's participation. The participants were not compensated for their participation in the study. Ethical approval was obtained from the Ethics Assessment Committee of the Faculty of Social Sciences at Utrecht University (FETC17-079).

### Respondents

The school-level response rate for secondary schools was 37% with a student response rate of 92%. For this study, only secondary school students (aged 12-16) with complete data on all study variables were included. After the exclusion of participants who did not meet the required criteria to be included, the total number resulted in 6428 participants. Within this sample, 48.1% identified as male with a mean age of 13.9 years old ( $SD = 1.35$ ). Most (79%) of the participants were categorized as Dutch.

## Measures

*Neighbourhood deprivation* was measured using a score based on participants' home addresses. For each address, a composite score based on person-level register data obtained from CBS was aggregated per 4-digit postal code (Roberts et al., 2021). Neighbourhood deprivation was based on the unemployment rate, the standardized median household income, and the share of households with a standardized income below the poverty line. Scores were summed and z-scored, with higher scores indicating more neighbourhood deprivation (see Roberts and colleagues (2021) for a more detailed description of the variable).

*The school social environment* was measured using the individual-level Teacher and Classmate Support scale (TCMS) (Torsheim et al., 2000). This scale consists of two subscales with three items each; with one scale focussing on teacher support (e.g. "My teachers are nice and friendly") and one scale focussing on peer support (e.g. "My classmates are kind and helpful"). Both scales used a five-point Likert scale from (0) *totally agree* to (4) *totally disagree*. This five-point Likert scale was reversely coded in such a way that they ranged from 1 to 5. Total scores per subscale ranged from a minimum score of 3 to a maximum score of 15. These scores were summed to create an individual score per subscale; higher scores indicated more support. The Cronbach's alpha for the teacher support subscale was .86; the Cronbach's alpha for the peer support subscale was .82.

The Strength and Difficulties Questionnaire (SDQ) was used to assess *mental health problems*. In this study, only the emotional problems subscale was used. This subscale consisted of five items (e.g., "I am restless, I cannot stay still for long") and regarded questions about experienced emotions within the last six months. The items were measured on a three-point scale with (0) indicating *not true*, (1) *somewhat true*, and (2) *definitely true*. In this study, the scores of the five items were summed. The total score on this subscale ranged from 0 to 10 with higher scores indicating more emotional problems. The use of the emotional problems subscale of the SDQ proved to be valid and reliable according to research by Theunissen et al., (2019) The Cronbach's alpha of mental health problems was .71.

## Control Variables

Throughout the questionnaire, multiple questions regarded demographical variables that were used as control variables. *Sex* was measured by asking the participants to report either a (0) *boy* or a (1) *girl*. Furthermore, *migration origin* was dictated by either being Dutch or not. This study coded the values as (0) *Dutch* (both parents report that they are Dutch) or (1) *not Dutch*.



*Socio-Economic Status (SES)* was measured using the individual-level Family Affluence Scale (FAS) (Currie et al., 2008). The FAS consisted of six items that indicated family material assets: “Does your family own a car/van?” (1 = *no*, 2 = *yes*, 3 = *two or more*); “Do you have your own bedroom?” (1 = *no*, 2 = *yes*); “How many computers/laptops/tablets does your family own?” (1 = *none*, 2 = *one*, 3 = *two*, 4 = *more than two*); “How many bathrooms (with shower/tub) are there in your house?” (1 = *none*, 2 = *one*, 3 = *two*, 4 = *more than two*); “Is there a dishwasher in your house?” (1 = *no*, 2 = *yes*); “How many times in the last twelve months did you go on holiday outside of the Netherlands?” (1 = *not at all*, 2 = *once*, 3 = *twice*, 4 = *more than twice*). Scores on the FAS were summed and ranged from 0 to 13, with higher scores indicating higher individual socio-economic status. The FAS has proven to be a valid tool to measure SES (Currie et al., 2008).

### **Statistical Analysis.**

Statistical analyses were conducted using IBM SPSS (2021) version 29.0. The moderation analysis was performed using the PROCESS tool in SPSS (Hayes, 2017). First, the dataset was checked for outliers, missing values, or values that fall out of the possible range of answers. No outliers were detected within this sample.

Furthermore, all assumptions required for the statistical analysis were checked. To verify whether the data were distributed normally, Q-Q plots were created. Residual plots were used to check for linearity, homoscedasticity, and independence of independent variables. Secondly, descriptive statistics and correlation were examined. Both the moderator and predictor variables were centered to enhance the coefficients' interpretation and prevent structural multicollinearity. A significance level of 0.05 was used to answer all research questions in this study.

To answer the main research question four separate analyses were performed: 1) regression analysis with neighbourhood deprivation as a predictor for mental health problems amongst adolescents, 2) regression analysis with school social environment (for each subscale a separate regression analysis was performed) as a predictor for adolescent mental health problems, 3) regression analysis with both subscales of the school environment, and 4) both neighbourhood deprivation and school social environment and their interaction term (for both subscales measuring school social environment) as predictors for adolescent mental health problems.

## **Results**

### **Descriptive Statistics**

Table 1 shows the descriptive characteristics of the participants and gives the means, standard deviations, minimum, and maximum of the measures used to test teacher support, peer support, neighbourhood deprivation, and mental health problems.

**Table 1**

*Descriptive Statistics of Participants and Measurements*

	Minimum	Maximum	Mean	Std. Deviation
Sex <sup>a</sup> %			48.8	
Migration origin <sup>b</sup> %			78.5	
Peer support	3.00	15.00	12.07	2.15
Teacher support	3.00	15.00	11.15	2.60
Mental health problems	.00	10.00	2.52	2.28
Neighbourhood deprivation	-9.39	13.52	.33	2.38

<sup>a</sup>Reference category: boy

<sup>b</sup>Reference category: Dutch

Table 2 gives the correlations between the dependent, independent, and control variables. Neighbourhood deprivation correlated positively with mental health problems ( $r = .03$ ) but negatively with both peer support and teacher support ( $r = -.05$  and  $r = -.03$ ). Peer support and teacher support were moderately correlated ( $r = .45$ ) with both variables correlating negatively with mental health problems ( $r = -.21$  and  $r = -.18$ ). Regarding the control variables, boys had fewer mental health problems ( $r = .32$ ). Socioeconomic status correlated negatively with mental health problems ( $r = .10$ ), indicating that higher SES participants reported fewer mental health problems. Migration origin was not significantly correlated to mental health problems in this study.

**Table 2***Correlations*

	Mental health problems	Socio- economic status	Sex	Migration origin	Neighbourhood deprivation	Peer support	Teacher support
Mental health problems	--						
Socio-economic status	-.103**	--					
Sex <sup>a</sup>	.321**	-.061**	--				
Migration origin <sup>b</sup>	.010	-.140**	.025*	--			
Neighbourhood deprivation	.026*	-.242**	.032*	.311**	--		
Peer support	-.212**	.088**	-.014	-.026*	-.046**	--	
Teacher support	-.181**	.000	-.020	-.055**	-.029*	.447**	--

Note: *socio-economic status*, *sex*, and *migration origin* are control variables.

<sup>a</sup>Reference category: boy

<sup>b</sup>Reference category: Dutch

\* $p < .05$  \*\* $p < .01$

### Neighbourhood Deprivation and Mental Health Problems

The results from model 1 (table 3) show that boys and higher SES participants had fewer mental health problems. However, neighbourhood deprivation was not significantly associated with mental health problems and there was no change in the amount of variance explained when the independent variable of neighbourhood deprivation was added (adjusted  $R^2 = .112$ ).

**Table 3**

#### *Regression Analysis with Neighbourhood Deprivation and Mental Health Problems*

Model		Unstandardized		Standardized	t	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
1	(Constant)	2.74	.14		19.45	<.001
	Migration origin <sup>a</sup>	-.06	.07	-.01	-.83	.405
	Socio-economic status	-.10	.01	-.09	-7.22	<.001
	Sex <sup>b</sup>	1.47	.05	.32	27.09	<.001
2	(Constant)	2.75	.14		19.15	<.001
	Migration origin <sup>a</sup>	-.05	.07	-.01	-.71	.478
	Socio-economic status	-.11	.01	-.09	-7.12	<.001
	Sex <sup>b</sup>	1.47	.05	.32	27.09	<.001
	Neighbourhood deprivation	.00	.01	.00	-.29	.771

Dependent Variable: Mental health problems

<sup>a</sup>Reference category: Dutch

<sup>b</sup>Reference category: boy

### The School Social Environment and Mental Health Problems

In model 2 (Tables 4 and 5), two regression analyses were conducted, using the school social environment subscales as predictors for mental health problems. Firstly, adolescents who reported more peer support reported fewer mental health problems ( $F(4, 6424) = 288.089$ ,  $p < .001$ ). Peer support explained 5% of the explained variance in the model.

**Table 4*****Regression Analysis with Peer Support and Mental Health Problems***

Model		Unstandardized		Standardized	t	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
1	(Constant)	5.13	.19		26.37	<.001
	Migration origin <sup>a</sup>	-.07	.07	-.01	-1.11	.267
	Socio-economic status	-.08	.01	-.07	-5.82	<.001
	Sex <sup>b</sup>	1.46	.05	.32	27.66	<.001
	Peer support	-.21	.01	-.20	-17.38	<.001

Dependent Variable: Mental health problems

<sup>a</sup>Reference category: Dutch

<sup>b</sup>Reference category: boy

Secondly, teacher support also showed a significant negative linear association with mental health problems. Adolescents who reported more teacher support reported fewer mental health problems ( $F(4, 6424) = 267.939, p < .001$ ). Teacher support explained 3% of the explained variance in the model.

**Table 5*****Regression Analysis with Teacher Support and Mental Health Problems***

Model		Unstandardized		Standardized	t	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
1	(Constant)	4.49	.18		24.93	<.001
	Migration origin <sup>a</sup>	-.12	.07	-.02	-1.82	.068
	Socio-economic status	-.11	.01	-.09	-7.44	<.001

Sex <sup>b</sup>	1.46	.05	.32	27.39	<.001
Teacher support	-.16	.01	-.18	-15.19	<.001

Dependent Variable: Mental health problems

<sup>a</sup>Reference category: Dutch

<sup>b</sup>Reference category: boy

Model 2 shows that both subscales of the school social environment measurement have a significant negative relation with mental health problems. When both subscales of the school environment measurement are used simultaneously in a multiple linear regression analysis, they significantly explain 4.9% of the explained variance in the model. Both peer support ( $\beta = -.15$ ) and teacher support ( $\beta = -.11$ ) show to have slightly lower standardized beta values than when used as individual predictors.

**Table 6**

***Regression Analysis with Peer Support, Teacher Support and, Mental Health Problems***

Model		Unstandardized		Standardized	t	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
1	(Constant)	5.63	.20		27.80	<.001
	Migration origin <sup>a</sup>	-.11	.07	-.02	-1.66	.098
	Socio-economic status	-.09	.01	-.07	-6.27	<.001
	Sex <sup>b</sup>	1.46	.05	.32	27.70	<.001
	Peer support	-.16	.01	-.15	-11.84	<.001
	Teacher support	-.10	.01	-.11	-8.39	<.001

Dependent Variable: Mental health problems

<sup>a</sup>Reference category: Dutch

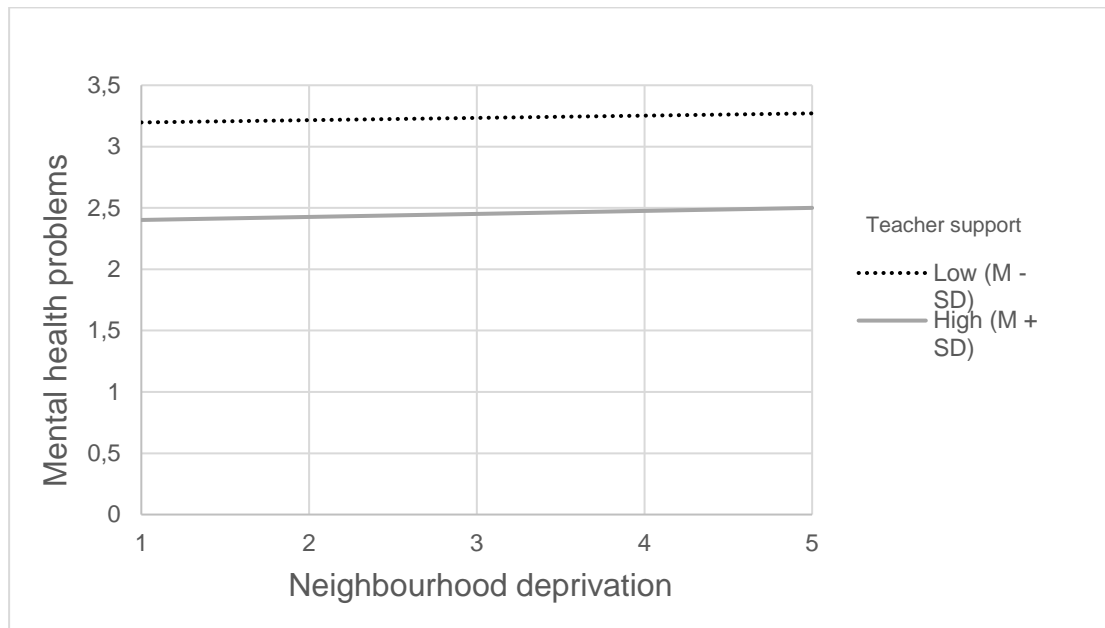
<sup>b</sup>Reference category: boy

**The School Social Environment as Moderator for Mental Health Problems**

Model 3.1 (figure 2) includes an interaction term of neighbourhood deprivation and peer support as a predictor for mental health problems alongside both variables separately. The interaction term of neighbourhood deprivation and peer support did not have a moderating effect ( $b = .005$ ,  $p = .27$ ). The association between neighbourhood deprivation and mental health problems was not moderated by peer support.

**Figure 2.**

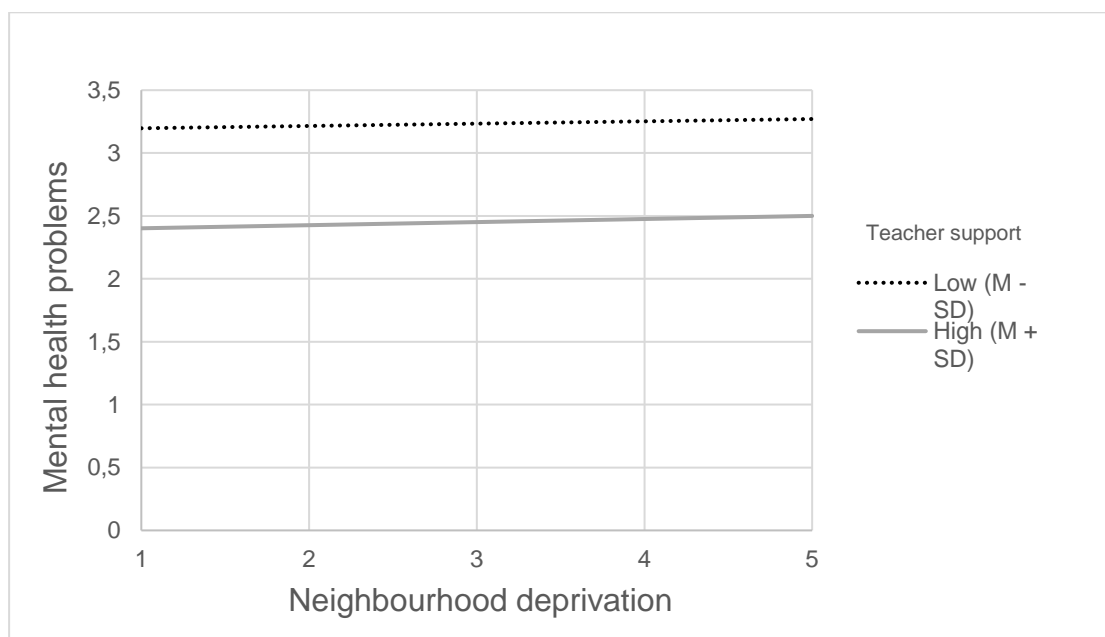
*Moderation Effect of Peer Support on the Association Between Neighbourhood Deprivation and Mental Health Problems*



In model 3.2 (figure 3), an interaction term of neighbourhood deprivation and teacher support has been created as a predictor for mental health problems alongside both variables separately. Similar to model 3.1, the interaction term was not significant ( $b = -.001$ ,  $p = .55$ ). The interaction term of neighbourhood deprivation and teacher support did not moderate the association between neighbourhood deprivation and mental health problems.

**Figure 3.**

*Moderation effect of teacher support on the association between neighbourhood deprivation and mental health problems.*



## Discussion

### Main Findings

This study aimed to investigate associations between neighbourhood deprivation, the school social environment, and mental health problems among adolescents in the Netherlands. This study used a nationally representative sample from the HBSC study (2017) (Stevens et al., 2018). The results suggest that neighbourhood deprivation was not associated with mental health problems. In contrast, the school social environment was a positive predictor for mental health; my results suggested that adolescents who reported more peer- and teacher-support reported fewer mental health problems. However, no moderating effect was found of the school social environment on the relation between neighbourhood deprivation and mental health problems. The results do however indicate that the school social environment is a predictor of mental health problems among adolescents.

### Interpretation of the Findings

#### *Neighbourhood Deprivation and Mental Health Problems*

The results did not support the first hypothesis in this study, which predicted that neighbourhood deprivation would have a negative association with mental health problems. This was unexpected because previous studies have found evidence indicating that neighbourhood deprivation may affect mental health problems among adolescents. The lack of association in this study might be explained by the absence of severely deprived neighbourhoods in the Netherlands. The Netherlands is a wealthy country with a strong welfare system including the redistribution of housing and income. These factors might make this study incomparable to studies that are conducted within countries with more severe levels of deprivation (Sykes & Kuyper, 2009).

Another possible pathway explaining the discrepancy between the reviewed literature and the results might be found in the assessment of neighbourhood deprivation itself. Neighbourhood deprivation as measured in this study, was based on an objective measure that assessed the rate of unemployment, the standardized median household income, and the share of households with a standardized income below the poverty line (Roberts et al., 2021). Subjective means of measuring a neighbourhood, such as perceived neighbourhood safety, the perceived quality of housing, and the perceived social support/social cohesion (Weden et al., 2008), are more likely to relate to mental health. Perceived neighbourhood safety has been shown to be positively associated with children's psychopathology, particularly emotional disorders (Meltzer et al., 2007). Children who thought their neighbours were trustworthy or honest, and who felt safe walking through the neighbourhood alone were associated with



lower levels of emotional disorders (Breedvelt et al., 2022). This once again implies that objective measures of neighbourhood deprivation may not capture the important aspects of adolescents' neighbourhoods.

Additionally, this study focussed on emotional problems as a measure of mental health problems. It is possible that a different measure of mental health problems would uncover a different relationship between mental health and neighbourhood deprivation (Huang et al., 2020). Future research could aim to integrate both objective and subjective forms of measurement to further study which factors play a role in adolescents' mental health problems. Additionally, a more complete measure of mental health might reveal different findings than currently present in this study.

### ***The School Social Environment and Mental Health Problems***

The results supported the second hypothesis in this study; the school social environment, which was measured using a peer-support scale and a teacher-support scale, was negatively associated with mental health problems. This study adds to already present findings that both peer- and teacher-support are important for Dutch adolescents. Support has been shown to protect individuals against hardships throughout life. It is an especially valuable tool during times of major transitions, such as the transition into young adulthood (Lee & Goldstein, 2015). Not only can support from various sources (family, peers, teachers) act as a buffer against stressful periods, support from teachers may help students engage in and be more connected to the school, leading to increased student success (Takakura et al., 2019). Support from peers has proven to be a potentially effective countermeasure against feelings of loneliness among youth (Klem & Connell, 2004). Above all, it seems pertinent to remember that adolescents require support during their transition into adulthood; both from their peers and their teachers (Coyle et al., 2021).

### ***The School Social Environment as Moderator for Mental Health Problems***

My results did not support the third hypothesis in this study, which predicted that the negative relation between neighbourhood deprivation and mental health problems might be moderated by the school social environment. As mentioned above, no main effect between neighbourhood deprivation and mental health problems was found in this study, therefore, it is perhaps unsurprising that there was no moderation by the predicted protective assets (peer- or teacher-support).

### **Strengths and Limitations**

A key strength of this study lies in using a large, nationally representative sample and a reliable measurement of mental health problems (Duijnhof et al., 2020). This study also

contributes to an increasingly larger number of studies that looks at both the neighbourhood context and the school context simultaneously. However, limitations must also be emphasized. Firstly, it is possible that this study did not fully capture the variation in neighbourhoods when using the aggregated score within a four-digit postal code. My dataset did not include the six-digit postal code, which might have resulted in a less clear representation of neighbourhood deprivation. Additionally, the four-digit postal code might not accurately represent the spatial context in which adolescents are active.

Secondly, caution should be exercised when looking at the findings for the school social environment as this study did not consider many school factors (e.g. school organization, classroom climate, or teacher instruction) when assessing the school social environment. The measurement of the school social environment used in this study might not envelop the whole of the school social environment present in schools.

Lastly, this study did not shine a light on the underlying mechanisms of contextual factors that play a significant role in Dutch adolescent mental health. Further research is needed to properly identify the role that context plays when assessing Dutch adolescent mental health problems.

## **Conclusions**

Overall, this study aimed to contribute to the understanding of the associations between neighbourhood deprivation, the school social environment, and mental health problems. My findings suggested that the school social environment matters to adolescents' mental health – higher levels of perceived peer- and teacher support indicated fewer mental health problems – but neighbourhood deprivation does not. There was also no evidence for a moderating role of the school social environment on the relation between neighbourhood deprivation and mental health problems. These findings imply that the school context can play a large role in intervening and monitoring mental health problems on behalf of Dutch adolescents.

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**Bijlage I: plagiaatverklaring****BIJLAGE 4. PLAGIAATVERKLARING**

Met ondertekening van deze overeenkomst verklaar ik kim Janse student Pedagogische Wetenschappen van de Erasmus Universiteit Rotterdam, dat ik bij het schrijven van mijn scriptie over het onderwerp neighbourhood deprivation, school social environment & mental health geen plagiaat heb gepleegd en dat de scriptie het resultaat is van mijn eigen werk en verwoord is in mijn eigen woorden, behoudens citaten. Daar waar mijn scriptie gebaseerd is op informatie dan wel ideeën van een ander zal ik die ander recht doen door naar diens geraadpleegde werk te verwijzen. Tevens verklaar ik dat ik te allen tijde verantwoordelijk blijf voor het bovenstaande.\*

Datum, plaats: Wissingen, 08-06-2023

Handtekening: Janse

**Bijlage II: SPSS Script**

```

USE ALL.
COMPUTE filter_$=(lft = 12 or lft = 13 or lft = 14 or lft = 15
or lft = 16).
VARIABLE LABELS filter_$ 'lft = 12 or lft = 13 or lft = 14 or
lft = 15 or lft = 16 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
FILTER OFF.
USE ALL.
SELECT IF (lft = 12 or lft = 13 or lft = 14 or lft = 15 or lft
= 16).
EXECUTE.
RECODE v2 (1=0) (2=1) INTO V2_recode.
EXECUTE.
RECODE etngroep (1=0) (ELSE=1) INTO Mig_org.
EXECUTE.
DESCRIPTIVES VARIABLES=V2_recode Mig_org
  /STATISTICS=MEAN STDDEV MIN MAX.

COMPUTE FAS_sum=SUM.6(v73 TO v78) - 6.
EXECUTE.
COMPUTE SDQ_EM=(MEAN3.(v56_02, v56_06, v56_10, v56_13,
v56_19)-1)*5.
EXECUTE.
RECODE v68a v68b v68c v68d v68e v68f (1=5) (2=4) (3=Copy)
(4=2) (5=1) INTO V68A_recode V68B_recode
  V68C_recode V68D_recode V68E_recode V68F_recode.
EXECUTE.
COMPUTE TCSM_peer=Sum3(V68A_recode to V68C_recode).
EXECUTE.
COMPUTE TCSM_teacher=Sum3(V68D_recode to V68F_recode).
EXECUTE.
USE ALL.
COMPUTE filter_$=(NOT NMISS (TCSM_teacher) AND NOT NMISS
(TCSM_peer) AND NOT NMISS (neigh_SES) AND
  NOT NMISS (SDQ_em)).
VARIABLE LABELS filter_$ 'NOT NMISS (TCSM_teacher) AND NOT
NMISS (TCSM_peer) AND NOT NMISS '+
  '(neigh_SES) AND NOT NMISS (SDQ_em) (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
FREQUENCIES VARIABLES=V2_recode Mig_org

```

```

/STATISTICS=STDDEV MEAN
/ORDER=ANALYSIS.

```

## Frequencies

		Notes
Output Created		05-JUL-2023 09:50:24
Comments		
Input	Data	/Users/kimjanse/Downloads /KJ1.0 (3).sav
	Active Dataset	DataSet1
	Filter	NOT NMISS (TCSM_teacher) AND NOT NMISS (TCSM_peer) AND NOT NMISS (neigh_SES) AND NOT NMISS (SDQ_em) (FILTER)
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	6476
	Missing Value Handling	Definition of Missing
	Cases Used	Statistics are based on all cases with valid data.
Syntax		FREQUENCIES VARIABLES=V2_recode Mig_org /STATISTICS=STDDEV MEAN /ORDER=ANALYSIS.
Resources	Processor Time	00:00:00,01
	Elapsed Time	00:00:00,00

## Statistics

		V2_recode	Mig_org
N	Valid	6476	6476
	Missing	0	0
Mean		.5188	.2102
Std. Deviation		.49968	.40745

## Frequency Table

		V2_recode			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	3116	48.1	48.1	48.1
	1.00	3360	51.9	51.9	100.0
Total		6476	100.0	100.0	

		Mig_org			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	5115	79.0	79.0	79.0
	1.00	1361	21.0	21.0	100.0
Total		6476	100.0	100.0	

```
DESCRIPTIVES VARIABLES=V2_recode Mig_org TCSM_peer
TCSM_teacher neigh_SES SDQ_EM
  /STATISTICS=MEAN STDDEV MIN MAX.
```

## Descriptives

### Notes

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	Weight	<none>
	Split File	<none>

	N of Rows in Working Data File	6476
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	All non-missing data are used.
Syntax		DESCRIPTIVES VARIABLES=V2_recode Mig_org TCSM_peer TCSM_teacher neigh_SES SDQ_EM /STATISTICS=MEAN STDDEV MIN MAX.
Resources	Processor Time	00:00:00,02
	Elapsed Time	00:00:00,00

### Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
V2_recode	6476	.00	1.00	.5188	.49968
Mig_org	6476	.00	1.00	.2102	.40745
TCSM_peer	6476	3.00	15.00	12.0641	2.14546
TCSM_teacher	6476	3.00	15.00	11.0863	2.58773
deprivation of the neighbourhood in 2016	6476	-9.39	13.52	.3282	2.38112
SDQ_EM	6476	.00	10.00	2.5368	2.29181
Valid N (listwise)	6476				

### CORRELATIONS

```

/VARIABLES=SDQ_EM FAS_sum V2_recode Mig_org neigh_SES
TCSM_peer TCSM_teacher
/PRINT=TWOTAIL NOSIG LOWER
/MISSING=PAIRWISE.

```

### Correlations

### Notes

Output Created	05-JUL-2023 09:54:59
Comments	

Input	Data	/Users/kimjanse/Downloads/KJ1.0 (3).sav
	Active Dataset	DataSet1
	Filter	NOT NMISS (TCSM_teacher) AND NOT NMISS (TCSM_peer) AND NOT NMISS (neigh_SES) AND NOT NMISS (SDQ_em) (FILTER)
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	6476
	Missing Value Handling	Definition of Missing
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=SDQ_EM FAS_sum V2_recode Mig_org neigh_SES TCSM_peer TCSM_teacher /PRINT=TWOTAIL NOSIG LOWER /MISSING=PAIRWISE.
Resources	Processor Time	00:00:00,04
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### Correlations

		SDQ_EM	FAS_sum	V2_recode	Mig_org	deprivation of the neighbourhood in 2016	TCSM_peer	TCSM_teacher
SDQ_EM	Pearson Correlation	--						
	N	6476						
FAS_sum	Pearson Correlation	-.104**	--					

	Sig. (2-tailed)	<.001						
	N	6429	6429					
V2_recode	Pearson Correlation	.322**	-.060**	--				
	Sig. (2-tailed)	<.001	<.001					
	N	6476	6429	6476				
Mig_org	Pearson Correlation	.012	-.144**	.031*	--			
	Sig. (2-tailed)	.326	<.001	.013				
	N	6476	6429	6476	6476			
deprivation of the neighbourhood in 2016	Pearson Correlation	.023	-.243**	.030*	.315**	--		
	Sig. (2-tailed)	.059	<.001	.015	<.001			
	N	6476	6429	6476	6476	6476		
TCSM_peer	Pearson Correlation	-.211**	.092**	-.009	-.027*	-.045**	--	
	Sig. (2-tailed)	<.001	<.001	.463	.028	<.001		
	N	6476	6429	6476	6476	6476	6476	
TCSM_teacher	Pearson Correlation	-.180**	.004	-.013	-.064**	-.029*	.448**	--
	Sig. (2-tailed)	<.001	.751	.295	<.001	.019	<.001	
	N	6476	6429	6476	6476	6476	6476	6476

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

#### REGRESSION

```

/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT SDQ_EM
/METHOD=ENTER V2_recode Mig_org FAS_sum
/METHOD=ENTER V2_recode Mig_org FAS_sum neigh_SES.

```

## Regression

## Notes

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	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	6476
	Missing Value Handling	Definition of Missing
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Syntax		REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA CHANGE /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT SDQ_EM /METHOD=ENTER V2_recode Mig_org FAS_sum /METHOD=ENTER V2_recode Mig_org FAS_sum neigh_SES.
Resources	Processor Time	00:00:00,04
	Elapsed Time	00:00:00,00
	Memory Required	6480 bytes
	Additional Memory Required for Residual Plots	0 bytes



### Variables Entered/Removed<sup>a</sup>

Model	Variables Entered	Variables Removed	Method
1	FAS_sum, V2_recode, Mig_org <sup>b</sup>		. Enter
2	deprivation of the neighbourhood in 2016 <sup>b</sup>		. Enter

a. Dependent Variable: SDQ\_EM

b. All requested variables entered.

### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.335 <sup>a</sup>	.112	.112	2.16327	.112	270.686	3	6425	<.001
2	.335 <sup>b</sup>	.112	.112	2.16342	.000	.085	1	6424	.771

a. Predictors: (Constant), FAS\_sum, V2\_recode, Mig\_org

b. Predictors: (Constant), FAS\_sum, V2\_recode, Mig\_org, deprivation of the neighbourhood in 2016

### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3800.211	3	1266.737	270.686	<.001 <sup>b</sup>
	Residual	30067.241	6425	4.680		
	Total	33867.452	6428			
2	Regression	3800.606	4	950.152	203.007	<.001 <sup>c</sup>
	Residual	30066.845	6424	4.680		
	Total	33867.452	6428			

a. Dependent Variable: SDQ\_EM

b. Predictors: (Constant), FAS\_sum, V2\_recode, Mig\_org

c. Predictors: (Constant), FAS\_sum, V2\_recode, Mig\_org, deprivation of the neighbourhood in 2016

		<b>Coefficients<sup>a</sup></b>				
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.738	.141		19.454	<.001
	V2_recode	1.466	.054	.319	27.095	<.001
	Mig_org	-.056	.067	-.010	-.832	.405
	FAS_sum	-.105	.015	-.086	-7.222	<.001
2	(Constant)	2.746	.143		19.149	<.001
	V2_recode	1.466	.054	.319	27.094	<.001
	Mig_org	-.050	.070	-.009	-.710	.478
	FAS_sum	-.106	.015	-.087	-7.122	<.001
	deprivation of the neighbourhood in 2016	-.004	.012	-.004	-.291	.771

a. Dependent Variable: SDQ\_EM

		<b>Excluded Variables<sup>a</sup></b>				
Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
1	deprivation of the neighbourhood in 2016	-.004 <sup>b</sup>	-.291	.771	-.004	.860

a. Dependent Variable: SDQ\_EM

b. Predictors in the Model: (Constant), FAS\_sum, V2\_recode, Mig\_org

```
REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA CHANGE
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT SDQ_EM
  /METHOD=ENTER V2_recode Mig_org FAS_sum TCSM_peer.
```

## Regression

## Notes

Output Created		05-JUL-2023 09:58:08
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Input	Data	/Users/kimjanse/Downloads /KJ1.0 (3).sav
	Active Dataset	DataSet1
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	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	6476
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Syntax		REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA CHANGE /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT SDQ_EM /METHOD=ENTER V2_recode Mig_org FAS_sum TCSM_peer.
Resources	Processor Time	00:00:00,03
	Elapsed Time	00:00:00,00
	Memory Required	6000 bytes
	Additional Memory Required for Residual Plots	0 bytes

### Variables Entered/Removed<sup>a</sup>

Model	Variables Entered	Variables Removed	Method
-------	-------------------	-------------------	--------

1	TCSM_peer, V2_recode, Mig_org, FAS_sum <sup>b</sup>	. Enter
---	--	---------

a. Dependent Variable: SDQ\_EM

b. All requested variables entered.

### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.390 <sup>a</sup>	.152	.152	2.11427	.152	288.089	4	6424	<.001

a. Predictors: (Constant), TCSM\_peer, V2\_recode, Mig\_org, FAS\_sum

### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5151.208	4	1287.802	288.089	<.001 <sup>b</sup>
	Residual	28716.244	6424	4.470		
	Total	33867.452	6428			

a. Dependent Variable: SDQ\_EM

b. Predictors: (Constant), TCSM\_peer, V2\_recode, Mig\_org, FAS\_sum

### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.131	.195		26.367	<.001
	V2_recode	1.463	.053	.318	27.655	<.001
	Mig_org	-.073	.065	-.013	-1.110	.267
	FAS_sum	-.083	.014	-.068	-5.817	<.001
	TCSM_peer	-.214	.012	-.201	-17.385	<.001

a. Dependent Variable: SDQ\_EM

REGRESSION  
/MISSING LISTWISE

```

/STATISTICS COEFF OUTS R ANOVA CHANGE
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT SDQ_EM
/METHOD=ENTER V2_recode Mig_org FAS_sum TCSM_teacher.

```

## Regression

### Notes

Output Created		05-JUL-2023 09:58:28
Comments		
Input	Data	/Users/kimjanse/Downloads /KJ1.0 (3).sav
	Active Dataset	DataSet1
	Filter	NOT NMISS (TCSM_teacher) AND NOT NMISS (TCSM_peer) AND NOT NMISS (neigh_SES) AND NOT NMISS (SDQ_em) (FILTER)
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	6476
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Syntax	REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA CHANGE /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT SDQ_EM /METHOD=ENTER V2_recode Mig_org FAS_sum TCSM_teacher.	

Resources	Processor Time	00:00:00,03
	Elapsed Time	00:00:00,00
	Memory Required	6000 bytes
	Additional Memory Required for Residual Plots	0 bytes

### Variables Entered/Removed<sup>a</sup>

Model	Variables Entered	Variables Removed	Method
1	TCSM_teacher, FAS_sum, V2_recode, Mig_org <sup>b</sup>	.	Enter

a. Dependent Variable: SDQ\_EM

b. All requested variables entered.

### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.378 <sup>a</sup>	.143	.142	2.12561	.143	267.939	4	6424	<.001

a. Predictors: (Constant), TCSM\_teacher, FAS\_sum, V2\_recode, Mig\_org

### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4842.424	4	1210.606	267.939	<.001 <sup>b</sup>
	Residual	29025.028	6424	4.518		
	Total	33867.452	6428			

a. Dependent Variable: SDQ\_EM

b. Predictors: (Constant), TCSM\_teacher, FAS\_sum, V2\_recode, Mig\_org

### Coefficients<sup>a</sup>

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
-------	-----------------------------	---------------------------	---	------

		B	Std. Error	Beta		
1	(Constant)	4.494	.180		24.931	<.001
	V2_recode	1.456	.053	.317	27.388	<.001
	Mig_org	-.120	.066	-.021	-1.823	.068
	FAS_sum	-.106	.014	-.087	-7.442	<.001
	TCSM_teache r	-.156	.010	-.176	-15.188	<.001

a. Dependent Variable: SDQ\_EM

REGRESSION

```

/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT SDQ_EM
/METHOD=ENTER V2_recode Mig_org FAS_sum TCSM_peer
TCSM_teacher.

```

## Regression

### Notes

Output Created	05-JUL-2023 09:59:00	
Comments		
Input	Data	/Users/kimjanse/Downloads /KJ1.0 (3).sav
	Active Dataset	DataSet1
	Filter	NOT NMISS (TCSM_teacher) AND NOT NMISS (TCSM_peer) AND NOT NMISS (neigh_SES) AND NOT NMISS (SDQ_em) (FILTER)
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	6476
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.





1	.402 <sup>a</sup>	.161	.161	2.10294	.161	247.04 6	5	6423	<.001
---	-------------------	------	------	---------	------	-------------	---	------	-------

a. Predictors: (Constant), TCSM\_teacher, FAS\_sum, V2\_recode, Mig\_org, TCSM\_peer

### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5462.629	5	1092.526	247.046	<.001 <sup>b</sup>
	Residual	28404.823	6423	4.422		
	Total	33867.452	6428			

a. Dependent Variable: SDQ\_EM

b. Predictors: (Constant), TCSM\_teacher, FAS\_sum, V2\_recode, Mig\_org, TCSM\_peer

### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	5.627	.202		27.805	<.001
	V2_recode	1.457	.053	.317	27.704	<.001
	Mig_org	-.108	.065	-.019	-1.656	.098
	FAS_sum	-.089	.014	-.073	-6.272	<.001
	TCSM_peer	-.163	.014	-.152	-11.842	<.001
	TCSM_teache r	-.095	.011	-.108	-8.392	<.001

a. Dependent Variable: SDQ\_EM

Run MATRIX procedure:

\*\*\*\*\* PROCESS Procedure for SPSS Version 4.2  
\*\*\*\*\*

Written by Andrew F. Hayes, Ph.D.  
www.afhayes.com  
Documentation available in Hayes (2022).  
www.guilford.com/p/hayes3

\*\*\*\*\*  
\*\*\*\*\*

Model : 1  
Y : SDQ\_EM  
X : neigh\_SE  
W : TCSM\_pee

Covariates:

V2\_recod Mig\_org FAS\_sum

Sample

Size: 6429

\*\*\*\*\*  
\*\*\*\*\*

OUTCOME VARIABLE:

SDQ\_EM

Model Summary

df2	R	R-sq	MSE	F	df1
	p				
6422.0000	.3903	.1523	4.4704	192.3237	6.0000
		.0000			

Model

	coeff	se	t	p	
LLCI	ULCI				
constant	5.1963	.2012	25.8207	.0000	
4.8018	5.5908				
neigh_SE	-.0714	.0589	-1.2123	.2255	-
.1867	.0440				
TCSM_pee	-.2181	.0128	-17.0890	.0000	-
.2432	-.1931				
Int_1	.0053	.0048	1.1013	.2708	-
.0041	.0148				
V2_recod	1.4633	.0529	27.6655	.0000	
1.3596	1.5670				
Mig_org	-.0611	.0685	-.8928	.3720	-
.1953	.0731				
FAS_sum	-.0850	.0146	-5.8359	.0000	-
.1135	-.0564				

Product terms key:

Int\_1 : neigh\_SE x TCSM\_pee

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0002	1.2130	1.0000	6422.0000	.2708

\*\*\*\*\* ANALYSIS NOTES AND ERRORS  
\*\*\*\*\*

Level of confidence for all confidence intervals in output:  
95.0000

WARNING: Variables names longer than eight characters can  
produce incorrect output

when some variables in the data file have the same first eight characters. Shorter variable names are recommended. By using this output, you are accepting all risk and consequences of interpreting or reporting results that may be incorrect.

----- END MATRIX -----

Run MATRIX procedure:

\*\*\*\*\* PROCESS Procedure for SPSS Version 4.2  
\*\*\*\*\*

Written by Andrew F. Hayes, Ph.D.  
www.afhayes.com  
Documentation available in Hayes (2022).  
www.guilford.com/p/hayes3

\*\*\*\*\*  
\*\*\*\*\*

Model : 1  
Y : SDQ\_EM  
X : neigh\_SE  
W : TCSM\_tea

Covariates:  
V2\_recod Mig\_org FAS\_sum

Sample  
Size: 6429

\*\*\*\*\*  
\*\*\*\*\*

OUTCOME VARIABLE:  
SDQ\_EM

Model Summary					
	R	R-sq	MSE	F	df1
df2	p				
	.3782	.1430	4.5194	178.6247	6.0000
6422.0000		.0000			

Model					
	coeff	se	t	p	
LLCI	ULCI				
constant	4.4962	.1856	24.2299	.0000	
4.1325	4.8600				
neigh_SE	.0082	.0455	.1796	.8574	-
.0811	.0974				

TCSM_tea	-.1550	.0106	-14.6597	.0000	-
.1757	-.1342				
Int_1	-.0012	.0040	-.3044	.7608	-
.0090	.0066				
V2_recod	1.4565	.0532	27.3852	.0000	
1.3523	1.5608				
Mig_org	-.1111	.0689	-1.6119	.1070	-
.2462	.0240				
FAS_sum	-.1074	.0146	-7.3513	.0000	-
.1360	-.0787				

Product terms key:

Int\_1 : neigh\_SE x TCSM\_tea

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0000	.0927	1.0000	6422.0000	.7608

\*\*\*\*\* ANALYSIS NOTES AND ERRORS \*\*\*\*\*

Level of confidence for all confidence intervals in output:  
95.0000

WARNING: Variables names longer than eight characters can produce incorrect output when some variables in the data file have the same first eight characters. Shorter variable names are recommended. By using this output, you are accepting all risk and consequences of interpreting or reporting results that may be incorrect.

----- END MATRIX -----