This thesis has been written as a study assignment under the supervision of an Utrecht University teacher. Ethical permission has been granted for this thesis project by the ethics board of the Faculty of Social and Behavioral Sciences, Utrecht University, and the thesis has been assessed by two university teachers. However, the thesis has not undergone a thorough peer-review process so conclusions and findings should be read as such.

Impact of the shift to online distance learning during COVID-19 on the mental wellbeing of VET-students

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Abstract

Following the COVID-19 pandemic, it is crucial to comprehensively understand the sociological and psychological consequences of the social distancing measures. This study focuses on the at-risk mental wellbeing of Vocational Education Training (VET) students during the transition from traditional to online distance education (ODL). Practical courses and internships, integral to this hands-on education, faced challenges transitioning to ODL. Furthermore, the study delves into the distinct impact on students with neurodevelopmental conditions and students with varying levels of social support. This study's significance lies in examining these distinct groups to understand their responses to the shift to ODL, considering the potential additional challenges they may face during such crisis situations. Utilizing the Youth Got Talent dataset (N=436), the study examines the relationship between the extent of participation in ODL and mental wellbeing, specifically future emotions. Multiple linear regression reveals no significant overall effect of ODL on future emotions. However, a notable exception is found for students experiencing ADHD without a doctor's diagnosis, indicating to have significantly fewer positive emotions about the future with increased ODL participation. This emphasizes the need to address potential educational inequalities for students with ADHD during crisis times in policymaking. As well as unravel the unique challenges faced by students with ADHD in online education settings in further research. Interestingly, no moderation effect of social support is identified, suggesting a need for additional research to explore the mediating role of social support.

1. Introduction

The COVID-19 pandemic, while largely under control, has heightened the risk of future pandemics due to factors like climate change and encroachment on animal habitats (Juhas, 2023). Addressing this, there's a need to reassess pandemic risks, ethics, and readiness (Marani et al., 2021; Savulescu & Wilkinson, 2023). Social distancing measures, effective in lowering virus transmission, have left a lasting impact on mental wellbeing, especially for adolescents and students (Holmes et al., 2020; Xiong et al., 2020). This phase in life is crucial for the transition into adulthood, which is characterized by a strong need for social connections and support (Smetana et al., 2006). During COVID-19, the opportunities for social connections were limited because social distancing measures made schools, colleges, and universities shut down their campuses (Toquero, 2020). This triggered a rapid change into the introduction of Online Distance Learning (ODL). When comparing different educational institutions, the transition to ODL posed a significant challenge for Vocational Education Training (VET). Many practical courses and internships could not transition to online formats due to the hands-on nature of this education (Ministerie van Onderwijs, Cultuur en Wetenschap, 2021). Leaving students at home with a gap in their education program and less opportunity to connect (online) with their fellow students compared to, for instance, university students. Moreover, VET students, identified as a high-risk subgroup (Atorkey et al., 2021), felt neglected and lacked specific guidance during the pandemic (Goedhart et al., 2022). Consequently, to address this problem, this study's main objective is to enhance the understanding of the pandemic risk of ODL on VET students' mental wellbeing. Furthermore, the shift to ODL possibly intensifies challenges for students with motivation issues, focus issues, or inadequate home facilities, potentially widening academic and mental wellbeing inequalities. Two indicators are included in this study. The first indicator considers students with neurodevelopmental conditions, who have an increased academic difficulty to begin with. The second indicator considers social

support, a potential alternative mean for social connection during the pandemic. Thus, the additional objective is to understand how the responses to the shift to ODL may be different for these groups of students. Ultimately, contributing to improved policy preparedness for future pandemics, enabling policymakers to assess the consequences and benefits of social distancing measures and consider at-risk groups more effectively. The problem statement resulted in the following empirical research question: "*What is the relation between online distance learning and mental wellbeing, of VET-students during the COVID-19 pandemic?"* And the following sub-question: "*How is this relation impacted by neurodevelopmental conditions and different levels of social support?"*

1.1 Overview of the literature

Mental wellbeing – future emotions

Adolescent wellbeing is of utmost importance for public health and society, with positive wellbeing linked various positive outcomes such as lower levels of aggression, depressive and anxiety symptoms and increased resilience, health, and school outcomes (Gilman & Huebner, 2006; Huebner et al., 2003; McKnight et al., 2002; Suldo & Huebner, 2004; Lewis et al., 2010). Subjective wellbeing (SWB), as defined by Diener et al. (1999), encompasses positive emotions, absence of negative emotions, and satisfaction with life. An element influencing SWB within the realm of positive and negative emotions is the way individuals anticipate these emotions (Dunn et al., 2007; Buchanan et al., 2019). These so-called future emotions refer to emotions that one feels when they think about the future. More positive future emotions are linked to increased wellbeing (Liebenberg et al., 2014), and envisioning future feelings is a strategy for emotion regulation and building resilience (Goodhart, 1985; Aronowitz, 2005). Within SWB the components on emotions are typically influenced by situational factors, while

satisfaction with life involves the cognitive evaluation of one's own life. Given that the transition to ODL during COVID-19 can be viewed as a situational factor, this study primarily focuses on the presence of positive and negative emotions.

Impact of ODL on mental wellbeing

The pandemic-induced shift to learning from home led to a reduction in the quality and frequency of contact between students and teachers. According to the Transactional Distance Theory (Moore, 2015), the spatial and temporal separation between teacher and learner can hinder understanding, potentially posing challenges for success. Hands-on courses faced disruptions as the physical presence of both professors and students is essential for effective interaction and teaching (Han et al., 2020). Furthermore, the social contact was limited between classmates and friends. Educational institutions serve as focal points for social activities (Aspelin, 2010), the suspension of in-person activities can deprive students of crucial social interactions necessary for growth and learning (Adnan, 2020).

Among the extensive research on the effects of ODL during COVID-19, limited attention has been given to positive and negative future emotions as part of mental wellbeing, specifically for VET students. Earlier research did find a rise in anxiety and depression levels for university students (Ahmad et al., 2022; Al-Kumaim et al., 2021; Maulana, 2021) due to the challenges of distance from campus and peers (Husky et al., 2020; Villani et al., 2021). Additionally, studies on VET-students, found a negative impact due to the shift to ODL on VET students' attitudes and self-efficacy (Zwart et al., 2020; Pano, 2021). In the Netherlands, a decrease in motivation, less autonomy, digital skills, and parental support during ODL is noted (De Jong & Lans, 2020). However, the influence of ODL on mental wellbeing varies across student groups, which is not addressed in the current literature. Thus, there exists a gap in understanding these effects, including potential variations among groups with differing social

support or neurodevelopmental conditions. Filling this gap in the literature will contribute theoretical insights, enhancing our understanding of the role of social support and how neuroatypical students navigate the transition to ODL.

Impact ODL for students with different levels of social support

According to the dynamic systems theory (Thelen & Smith, 2007), diverse social dynamics contribute to unique developmental trajectories. Following that theory, students in supportive social environments may find it easier to maintain mental wellbeing during ODL. Therefore, social support has the potential to moderate the relationship between ODL and mental wellbeing. Research indicates that three social support constructs are important: friend, family, and school support. Effective student-teacher communication and a positive family atmosphere foster an encouraging home learning environment (Lawrence & Fakuade, 2021Paizan et al., 2022). While increased parental conflicts pose a risk for higher mental wellbeing issues (Magson et al., 2020). Friend support proves beneficial in preventing internalizing problems during crises like the COVID-19 pandemic (Bernasco et al., 2021). Thus, it's essential to consider the impact of the social environment, including teacher-student, parent-child relationships, and relationships between friends when assessing the influence of ODL on students' mental wellbeing.

Impact ODL for students with neurodevelopmental conditions

Regular education often neglects diverse learning styles, particularly for vulnerable student groups. This study delves into revealing potential vulnerabilities and increased inequalities for students with neurodevelopmental conditions. Students with attention deficit hyperactivity disorder (ADHD), faced increased academic difficulties during ODL due to loss of routine, reduced concentration on home-based schoolwork and challenges in organizing compared to

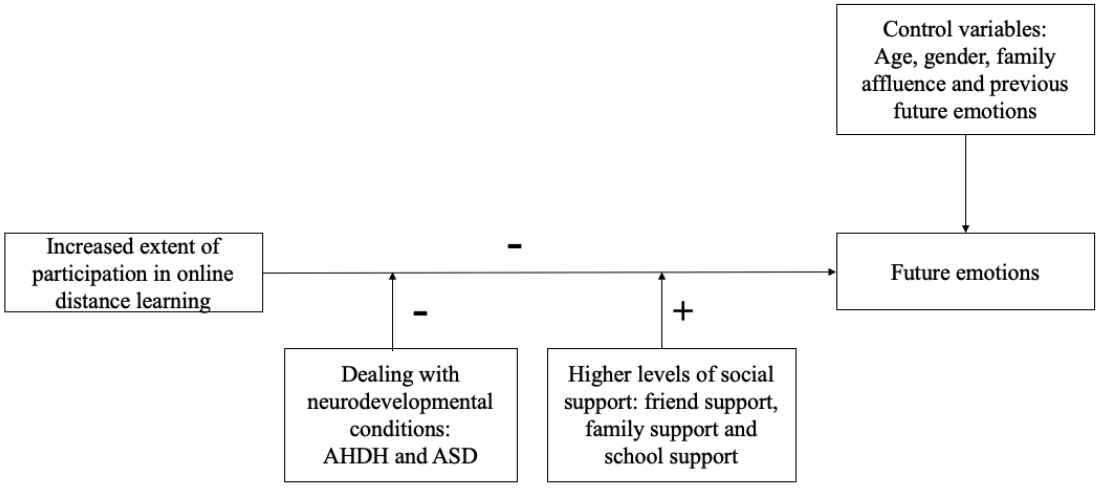
peers without ADHD (Tessarollo et al., 2021). Alongside, children with ADHD who experienced difficulty during ODL also showed depressive and anxious problems (He et al., 2021). Similarly, adolescents with autism spectrum disorder (ASD) faced difficulties adapting to the loss of school routine predictability, impacting their functioning and wellbeing (Lindor et al., 2019; Staff et al., 2022) leading to increased anxiety and behavioral issues (Da Cruz Amorim et al., 2020; Núñez et al., 2021; Pai et al., 2022). To conclude, students with neurodevelopmental conditions may face greater negative mental impacts from the shift to ODL due to heightened sensitivity to changes in structure, routine, and the organization of schoolwork. Therefore, it is important to consider this potential moderating effect.

In summary, incorporating sociology and psychology insights such as the transactional distance theory, the dynamic systems theory, subjective wellbeing, and the importance of recognizing neuroatypical students as a distinct group, enhances our understanding of ODL's impact during crises times. Thereby this research contributes to interdisciplinary scholarship and lays the foundation for future investigations.

1.2 The current study

Figure 1

Model of the dependent, independent, moderating and control variables in the present study



The relationship that is tested is made visible in figure 1. This had led to the following hypothesizes:

H1: A greater extend of participation in ODL is negatively related to VET student's future emotions.

H2: Friend support moderates the relationship between ODL and future emotions positively.

H3: Family support moderates the relationship between ODL and future emotions positively.

H4: School support moderates the relationship between ODL and future emotions positively.

H5: Experiencing ADHD moderates the relationship between ODL and future emotions negatively.

H6: Experiencing ASD moderates the relationship between ODL and future emotions negatively.

2. Method

Design and procedure

A quantitative approach was chosen for precision in comparing and understanding the relationship between variables, and particularly valuable when addressing contemporary policy concerns (European science foundation, 2012). This study utilized data from the 2016 YOUth Got Talent (YGT) project at Utrecht University, exploring the SES-health gradient in adolescents. The longitudinal project consisted of self-report questionnaires, administered either in-person or online. Data covers three waves: pre-COVID-19 (T1, n=1,231), during the first lockdown (T2, n=830), and during the second lockdown (T3, n=530). Attrition occurred, partially due to entire classes discontinuing participation, given the online data collection method.

Participants and recruitment

The sample consists of VET students aged 16+, specifically from VET programs in the Netherlands, where the target population includes all VET students in the country. Following approval from the Ethical Review Board, the YGT project reached out to VET schools to secure their participation. Ultimately, three VET schools, encompassing various fields of education agreed to take part in the project. A total of 72 classes participated in the data collection, distributed fairly among the schools. This study uses third-wave data for ODL measurement and first-wave data to address variables measured exclusively in that wave and control for specific factors. The inclusion for the study's sample was participants who answered the question about how much online education they received during T3. Additionally, individuals with missing data for the other variables relevant to the study were excluded during the analysis, leading to a sample size of approximately 436 participants.

2.1 Variables of interest and operationalization

Dependent variable – Future emotions (T3)

One variable for the total future emotions was available in the dataset ($\alpha = .843$), which was created by combining three items from the positive (trust, enthusiasm, achievement) and four items from the negative (worries, empty feeling, doubts, loneliness) future emotions scale. The negative and positive future emotion scales were previously confirmed through the use of exploratory factor analysis and confirmatory factor analysis (Liebenberg et al., 2014). The self-report questions were framed as followed: 'If you think about the future, how do you feel about the following things?' with answers ranging from 1 'totally not' to 5 'very much'. Higher scores on the total future emotion scale represent more positive emotions and fewer negative emotions.

Future emotions at T1

To control for the future emotions the participants had prior to the pandemic, future emotions at T1 (α = .818) was included as control variable, which was measured the same way as at T3. This approach ensures greater confidence that any change in future emotions observed in the analyses is attributed to the predictor or moderating variables rather than pre-existing variability among participants.

Independent variable – Online distance learning (T3)

ODL consists of one item measuring whether the participant was receiving online education with the statement: 'I receive distance learning'. There were five answer categories ranging from 1 '(almost) never' to 5 'always'. Dummy variables were created to include the five categories. The category 'almost always' is chosen as reverence category because it contains the biggest percentage of the answers (51%).

Moderators

Friend and family support (T3)

The Friend Support Scale (α = .924) and the Family Support Scale (α = .924), which are part of the multidimensional scale of perceived social support (Zimet et al., 1988), were available in the dataset. Both scales consist of four items with answer options that range from 1 'totally disagree' to 7 'totally agree'. Examples of items are: 'My friends are really there to help me' and 'At home I can talk about my problems'. A higher score indicated a higher sense of support.

School support (T1)

One scale for school support (α = .832) was created with three items from the teacher and three items on the classmate support scale by taking the mean score, where a higher score indicates

a higher sense of support. Examples of items include: ‘I have the feeling that my teachers accept me as I am’ and ‘Most of my classmates are kind and helpful’. Answers ranged from a score between 1 ‘totally disagree’ and 7 ‘totally agree’. Because classmate support and friend support possibly measure the same phenomenon, the correlation between these variables is checked, and not found significant ($r = .060$, $p = .213$). Therefore, classmate and friend support are both included in the study. The data on school support was only measured at T1 and not at T3. Nevertheless, because school support could be an important factor for how someone deals with ODL it is still considered.

Students with neurodevelopmental conditions (T1)

The moderator neurodevelopmental includes students with ADHD and students ASD and both items were measured similar with a self-report question: ‘Would you like to check whether you have the following diseases and conditions or have had them in the past 12 months?’ Participants had the option to choose between ‘no’, ‘yes but not determined by a doctor’ and ‘yes determined by a doctor’. Dummy variables were created to keep the three categories, with ‘no’ as the reverence category. Noted is that a couple cases are possibly missing as this variable was only measured at T1 and there could be participants who got their diagnose between T1 and T3. However, the participants who did select ‘yes determined by a doctor’ at T1 stayed at least the same over time.

Control variables

Age (T3)

Age was measured by filling in the birth year and month and was converted into a variable of years.

Sex (T3)

Sex was measured by asking the sex of the participants choosing between girl, boy and other.

Family SES (T1)

The 6-item Family Affluence Scale (FAS) was used to measure family material socioeconomic status (SES) and was only measured at T1. However, since family affluence is less likely to change over time and is considered an important control variable the variable is still used in the analysis. The scale contains six items related to family material possessions and is a dependable and valid assessment tool (Torsheim et al., 2015). To calculate the total FAS score for each participant, the scores for individual items were summed, and participants were then categorized into one of three groups: low (FAS $\leq$ 7), medium (7 < FAS $\leq$ 9), or high (FAS > 9).

2.2 Data analysis

Prior to performing a statistical test, the assumptions were checked. The relation between ODL and future emotions was tested with a multiple linear regression analysis using IBM SPSS Statistics (version 28). To test the first hypotheses the control variables (age, sex, family affluence and previous future emotions at T1) were included in the first regression model and the ODL dummies in the second model. Subsequent, to analyze if the relation between ODL and future emotions is impacted by social support and neurodevelopmental conditions, moderation analyses were conducted to test the second through fifth hypotheses. After centralizing all the continues moderation variables (social support constructs), the interaction of each moderator variable and each dummy of ODL were added as different regression models. At last, the Syntax function was used to document the course of the analysis.

3. Results

Descriptive statistics

Table 1 shows the mean scores of future emotions from wave 1 and 3 and the social support constructs by the extent of participation in ODL. Future emotions at T1 (M = 3.749) were slightly higher comparing to T3 (M = 3.558). Furthermore, future emotions decrease as the extent of participation in ODL increases (at T3: M = 3.655 for almost never ODL; M = 3.490 for always ODL), yet still staying above average. The perceived friend support decreases as ODL increases (M = 6.250 for almost never ODL; M = 5.589 for always ODL. This relation is not specifically found for family and school support. Remarkable is that there is overall more perceived friend and family support compared to school support. Moreover, table 1 demonstrates the mean scores of future emotions from wave 1 and 3 and the social support constructs by the neurodevelopmental conditions ADHD and ASD. Future emotions seem to be the least positive for the group where the neurodevelopmental condition is determined by a doctor (at T3: M = 3.252 for ADHD; M = 2.960 for ASD). Nonetheless, when it comes to social support the group that experience the neurodevelopmental condition, but it is not diagnosed by a doctor seems to feel the least supported.

Table 1

Mean scores of future emotions and social support by extent of ODL and neurodevelopmental conditions

Variable	*n* (listwise)	%	Future emotions T1 (*M*)	Future emotions T3 (*M*)	Friend support (*M*)	Family support (*M*)	School support (*M*)
Online distance learning (total)	569	100	3.749	3.558	5.856	5.563	3.783
1: (almost) Never	17	3	3.910	3.655	6.250	5.667	3.821
2: Sometimes	111	19.5	3.870	3.643	5.931	5.780	3.877

3: Mostly	86	15.1	3.703	3.507	5.791	5.382	3.573
4: Almost always	291	51.1	3.673	3.494	5.717	5.571	3.858
5: Always	64	11.2	3.589	3.490	5.589	5.419	3.785
ADHD							
1: No	374	89.0	3.707	3.571	5.787	5.643	3.743
2: Yes, not determined by doctor	12	2.9	3.513	3.518	5.271	5.021	3.535
3: Yes, determined by doctor	34	8.1	3.449	3.252	5.727	5.508	3.657
ASD							
1: No	383	91.8	3.713	3.586	5.812	5.668	3.730
2: Yes, not determined by doctor	7	1.7	3.260	3.119	5.286	4.500	3.613
3: Yes, determined by a doctor	27	6.5	3.249	2.960	5.306	5.009	3.763

Regarding the control variables, demonstrated in appendix 1, the participants at T3 were between 16 and 26 years old (M = 18.5) and 57.1% were female. The female's future emotions (M = 3.478) were overall less positive than the males (M = 3.630). And the higher the family affluence the more positive the future emotions (M = 3.405 for low SES; M = 3.609 for high SES).

Primary analyses for the multiple linear regression

First, normality was checked with histograms. Because of the (left) skewed distribution of the future emotion scales, this variable was converted with a (reversed) square root transformation. Still with a minimum score of 1 but a new maximum score of 2.24. Second, the DFBeta's were checked for influential cases, this assumption was not violated as these values were < 1. Third, cook's distance was used to check outliers, the assumption was not violated as the maximum value was .118. At last, multicollinearity was tested among the predictor variables and results showed that there were no correlations stronger than r = .23 and the highest VIF value was 1.456.

Multiple linear regression

The first hypotheses propose that a greater extent of participation in ODL negatively affect future emotions when controlling for certain variables. Model 1 with merely the control variables, presented in appendix 2, was found statically significant (F = 87.778, p <.001). The control variables explain about 45% (R^2 change) of the variance in future emotions at T3. Only the variables age (b = -.021, t = -3.516, p <.001) and future emotions at T1 (b = .227, t=17.493, p <.001) showed significance. The results indicate that as the VET students increase with one year in age, they decrease with .021 units in future emotions. Which can run up to a concerning amount for the older students in their mid-twenties. Moreover, one point higher on the five-point likert scale of future emotions at T1 result in .227 points higher on the 1 through 2.24-point scale of future emotions at T3. Which demonstrates the strong positive correlation between future emotions at T1 and T3. However, adding the variable ODL in the second model was found not statistically significant (F= .560, p = .692), explaining approximately .3% extra of the variance in future emotions. These findings, shown in table 3, imply that the extent of participation in ODL (compared to almost always online education) does not affect the VET student's future emotions. Consequently, the first hypothesis is rejected.

Table 3

Multiple linear regression examining the relation between ODL (comparing to almost always ODL) and future emotions, including social support interceptions

Parameters	Model 2 *B* *(SE)*	Model 3 *B* *(SE)*	Model 4 *B* *(SE)*	Model 5 *B* *(SE)*
Never ODL	-.018 (.053)	-.013 (.055)	-.019 (.052)	-.021 (.059)
Sometimes ODL	.028 (.023)	.030 (.023)	.024 (.023)	.026 (.024)

Mostly ODL	-.012	-.014	-.010	-.012
	(.025)	(.024)	(.025)	(.026)
Always ODL	.005	.013	.006	.001
	(.027)	(.027)	(.027)	(.028)
Friend support		.023		
		(.009)**		
Friend support * never ODL		-.023		
		(.057)		
Friend support * sometimes ODL		.007		
		(.019)		
Friend support * mostly ODL		.034		
		(.023)		
Friend support * always ODL		.034		
		(.023)		
Family support			.022	
			(.006)***	
Family support * never ODL			-.005	
			(.039)	
Family support * sometimes ODL			.022	
			(.018)	
Family support * mostly ODL			.023	
			(.019)	
Family support * always ODL			-.009	
			(.017)	
School support				.0001
				.016
School support * never ODL				.024
				(.156)
School support * sometimes ODL				.019
				(.047)

School support * mostly ODL				-.004
				(.046)
School support * always ODL				.079
				(.066)
Constant	1.230	1.245	1.195	1.256
R^2 change	.003	.030	.019	.002
F	.560	4.795***	3.091**	.389
N	436	435	435	434

Noot. *p<.05; **p<.01; ***p<.001.

Social support

The second, third, and fourth hypotheses propose that individuals with higher levels of social support experience a lesser impact on their future emotions with an increased extent of participation in ODL, in contrast to students with lower levels of social support. Models 3, 4 and 5 in table 3 include the interaction effects. For a complete image, refer to Appendix 3 for the significant direct effects of friend and family support without the included interactions.

Friend support in model 3 shows significance (F = 4.795, p = <.001), explaining about 3% (R^2 change) of the variance in future emotions. The significant direct effect of friend support on future emotions (b = .032, t = 4.420, p < .001) reveals that one point higher on friend support results in .032 points higher on future emotions. Which can be seen as a small effect size. Additionally, no interaction effect between friend support and ODL was observed. Indicating that friend support does not moderate the relationship between ODL and future emotions, rejecting the second hypothesis.

Furthermore, the interaction between family support and ODL is tested in model 4. It shows statistical significance (F = 3.091, p = <.001), explaining about 2% (R^2 change) of the variance in future emotions. The significant direct effect of family support on future emotions (b = .022, t = 3.468, p < .001) also has a small effect size as one point higher on family support results in .022 points higher on future emotions. Besides, no interaction effect between family

support and ODL was observed. Therefore, family support does not moderate the relationship between ODL and future emotions, discarding the third hypothesis.

At last, the moderation effect of school support is considered. Model 5 was found not significant (F = .389, p = .810) meaning that school support has no direct influence on future emotions and is not a moderating factor between ODL and future emotions. Hence, the fourth hypothesis is rejected.

Neurodevelopmental conditions

The fifth and sixth hypotheses propose that participants who experience neurodevelopmental conditions are impacted more negatively by a greater extent of participation in ODL in regard to their future emotions. In table 4, models 6 and 7 present the outcomes of the direct and interaction effects of ADHD and ASD when comparing to the group that has no neurodevelopmental condition. Note that the first two steps in the multiple regression analyses included the control variables and the direct effect of ODL on future emotions but because these are already shown in table 5 and 1, they are not again included in table 4. Furthermore, not every level of ADHD and ASD is connected to every level of ODL because in some cases one of the two categories had zero respondents and therefore no value.

Table 4

Multiple linear regression examining the moderation effect of neurodevelopmental condition (comparing to no condition) on the relation between ODL on future emotions

Parameters	Model 6 *B* *(SE)*	Model 7 *B* *(SE)*
ADHD not determined by a doctor	-.033 (.076)	

ADHD yes determined by a doctor	-.002	
	(.040)	
ADHD no doctor * sometimes ODL	.245*	
	(.114)	
ADHD yes doctor * sometimes ODL	-.106	
	(.107)	
ADHD no doctor * mostly ODL	.051	
	(.142)	
ADHD yes doctor * mostly ODL	-.088	
	(.088)	
ADHD no doctor * always ODL	-.472*	
	(.189)	
ADHD yes doc * always ODL	-.048	
	(.081)	
ASD not determined by a doctor		-.123
		(.098)
ASD yes determined by a doctor		-.058
		(.042)
ASD yes doctor * never ODL		.045
		(.181)
ASD yes doctor * sometimes ODL		.098
		(.128)
ASD no doctor * mostly ODL		.143
		(.142)
ASD yes doctor * mostly ODL		.119
		(.175)
ASD no doctor * always ODL		.103
		(.197)
ASD yes doctor * always ODL		-.106
		(.097)
Constant	1.115	1.246
R^2	.021	.009

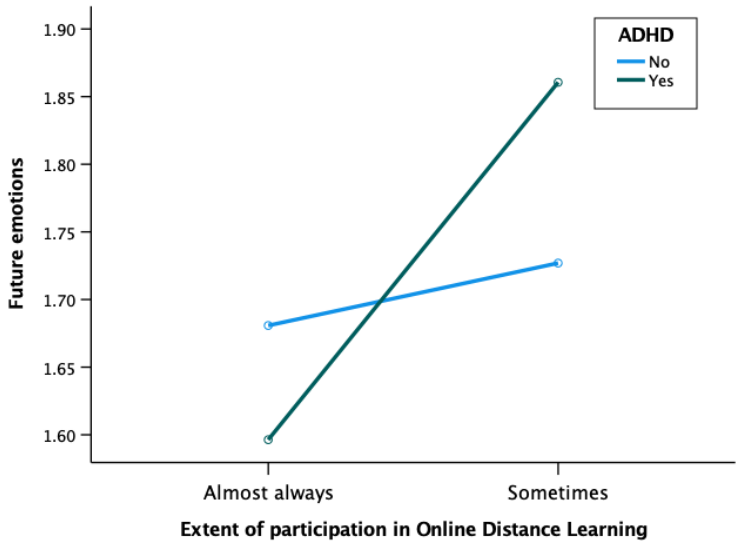
F	2.056*	.836
N	427	435

Noot. *p<.05; **p<.01; ***p<.001.

Model 6, testing the moderation of ADHD, shows statistical significance (F = 2.056, p = .039) with no direct effect of ADHD on future emotions but with two interaction effects, explaining about 2% (R^2 change) of the variance in future emotions. To ensure robustness, the analysis was repeated using the reference category "always ODL", yielding comparable linear results. In both cases, more online education negatively affects future emotions for the participants with ADHD (but not determined by a doctor). Therefore, the fifth hypothesis can be accepted. However, due to the small sample sizes of participants who experience ADHD the results must be taken in with caution. First, the results show a positive effect on future emotions for the participants who sometimes receive ODL (b = .245, t = 2.141, p = .033) compared to those who almost always receive ODL. Figure 2 shows a visualization of this interaction, including a good image of the relatively big effect size.

Figure 2

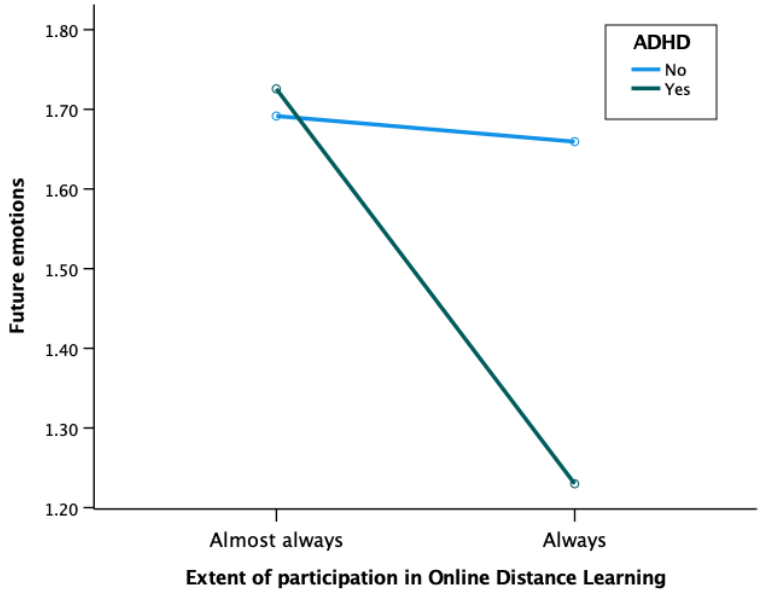
Moderation effect of ADHD with sometimes receiving ODL



Second, the results show a negative effect on future emotions for students who always receive ODL (b = -.427, t = -2.260, p = .024) compared to those who almost always receive ODL. Figure 3 visually represents this interaction effect, providing a clear depiction of the substantial effect size.

Figure 3

Moderation effect of ADHD on always receiving ODL



At last, model 7 tests the interaction between ASD and ODL on future emotions and was found not to be significant (F = .836, p = .571), explaining approximately .9% extra of the variance in future emotions. Experiencing ASD does not indicate a different outlook on future emotions with different extent of participation in ODL. Therefore, hypotheses 7 is rejected.

4. Discussion

This study examined how online distance learning (ODL) during COVID-19 influenced the future emotions of Vocational Education Training (VET) students, considering moderating factors like social support and neurodevelopmental conditions. The shift to ODL posed a threat to students' wellbeing, especially for VET students facing challenges in practical courses and

canceled internships. Detecting factors influencing mental wellbeing during crises like COVID-19 is crucial to minimize negative impact on for instance the learning process, motivation, interests, and health. To my knowledge, this study is among the first to focus specifically on VET students in the ODL context in the Netherlands. Differing to similar research, it found no significant negative decrease in future emotions due to ODL, though for students with ADHD it did impact future emotions negatively. These findings contribute to better pandemic preparedness for policymakers and educational stakeholders considering ODL adoption.

First, the study reveals that the extent of participation in ODL among VET students does not impact the aspect of future emotions within their mental wellbeing. Contrary to hypotheses suggesting a potential negative effect based on prior research, these non-significant results may be explained by the students' strong resilience and collective coping during the COVID-19 pandemic (Hardiyati et al., 2021). Adolescents, being adept with technology, possibly found the shift to online learning less challenging than anticipated. Additionally, high levels of friend and family support possibly acted as a protective factor, aligning with research indicating social support's role in empowering adolescents to build personal resilience during crises (Cruz & Girlie, 2022).

However, a noteworthy finding is the impact of ODL on the future emotions of students with ADHD. This group experienced inferior future emotions with increased participation in online education, aligning with research indicating the challenges faced by students with ADHD during online learning (Sibley et al., 2021; He et al., 2021). However, caution is advised as the results are only found for those self-reporting ADHD without a doctor's diagnosis. The results could be giving a distorted view of the reality, as this group may change over time. The lack of access to proper medication for managing school-related challenges among this group may contribute to the observed difficulties during online education. These findings underscore the importance of considering students with ADHD in policymaking to address potential

education inequalities. The study emphasizes the need for further research to explore specific aspects of ODL impacting students with ADHD or ADHD-like symptoms, providing insights for future pandemic preparedness.

While students with ADHD exhibited a connection between ODL and future emotions, no relation was found for students with ASD. This contrasts with prior research suggesting COVID-19 disruptions negatively affect mental wellbeing for ASD students (Da Cruz Amorim et al., 2020; Núñez et al., 2021). Nonetheless, pre-pandemic research also highlights the potential positive impact of technology in education for students with ASD. Valencia et al. (2019) demonstrated that technology can assist individuals with ASD in developing social skills and enrich learning environments in ways face-to-face classrooms may not. The broad spectrum of ASD, measured with a single question in this study, may limit comprehensive understanding. Future research should use robust measures like the Childhood Autism Rating Scale (CARS) or the Diagnostic and Statistical Manual of mental disorders (DSM-V), considering specific ASD subgroups facing challenges in online education and their impact on mental wellbeing.

At last, findings display that the relation between ODL and future emotions was not significantly different for students with more or less social support. Contrary to the expectation that increased social support would act as a protective factor for those receiving more online education. The results demonstrated a positive direct effect of social support on future emotions and the mental wellbeing of VET students. This emphasizes the vital role of social support, particularly during crises (Cruz & Girlie, 2022; Wang et al., 2022). While school support did not directly impact future emotions, the timing of its assessment (only at T1) and lower perceived support compared to family and friends may contribute to its limited influence. Additionally, a moderation analysis might not be the most suitable approach to measure the importance of social support during the transition to ODL, prompting further research to explore the mediating effects of social support constructs.

Strength and limitations

This study's strength lies in revealing a significant negative moderation effect of ADHD on the relationship between ODL and future emotions in VET students, addressing a gap in the existing literature. It emphasizes the need for tailored support for students with ADHD during the transition to ODL to prevent exacerbating educational inequalities, especially in pandemic times. Additionally, the study's focus on VET students, comprising 40% of the education track population in the Netherlands (SCP, 2020), fills a gap in pandemic-related research on this population. At last, validated scales ensure robust measurement of constructs, enhancing the study's conceptual validity.

Despite contributions, the study faces limitations. The three-wave data collection resulted in certain variables, like ODL, being assessed only in wave 3, while others, such as neurodevelopmental conditions, were exclusive to wave 1. Merging data from diverse phases introduces potential inaccuracies, especially as wave 1 predates COVID-19, contrasting with wave 3 during the pandemic. Moreover, substantial dropout rates between waves raise concerns about data representativeness, with only a quarter participating in all waves. Initial diversity across schools and fields may not persist due to attrition, affecting data validity. Generalizing results to countries with distinct COVID-19 policies poses challenges, urging future research to explore cross-country variations in online education's impact on mental wellbeing.

In conclusion, this study contributes to the existing literature by examining the correlation between ODL during COVID-19 and the mental wellbeing, specifically future emotions, of VET-students. Despite finding no significant overall link between ODL and future emotions, the presence of ADHD negatively moderates this relationship, indicating less positivity about the future with increased online education exposure for students with ADHD. Furthermore, friend and family support emerged as positive predictors of future emotions. Future research could add by exploring the mediating role of social support and understanding

the unique challenges faced by students with ADHD in ODL settings. The study's insights are crucial for informing policymakers about the potential social and psychological impact on diverse student groups during pandemic-induced transitions to ODL.

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6. Appendixes

Appendix 1

Descriptive statistics control variables

Variable	N	%	Future emotions T3 (*M*)	Mean	Min	Max
Gender T3						
1: Girl	329	57.1 %	3.4778			
2: Boy	237	41.1 %	3.6304			
Family affluence						
1: Low FAS	135	11.2 %	3.4048			
2: Medium FAS	687	57.0 %	3.5024			
3: High FAS	384	31.8 %	3.6086			
Age	575			18.49	16.33	26.33

Appendix 2

Model 1 with control variables

Parameters	Model 1
	B
	(SE)
Age	-.021***
	(.006)
Gender	.011
	(.015)
Family affluence	.000
	(.014)
Future emotions T1	.227***
	(.013)
Constant	1.227
R^2 change	.449
F	87.778***
N	436

Appendix 3

Direct effect of the social support constructs on future emotions

Parameters	*b*	*t*	*p*
Friend support	.032	4.420	<.001
Family support	.022	3.468	<.001

a. Dependent variable: future emotions T3

Appendix 4

SPSS Syntax

```
*stappen die ondernomen moeten worden voordat de data gebruikt kan worden*

*alleen de juiste cases gebruiken, dus 'do not use' eruit*

USE ALL.
COMPUTE filter_$=(DO_NOT_USE = 0).
VARIABLE LABELS filter_$ 'DO_NOT_USE = 0 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.

*betrouwbaarheid toetsen van de schalen*

*fam support*

RELIABILITY
  /VARIABLES=SR01famsupp1 SR01famsupp2 SR01famsupp3 SR01famsupp4
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /SUMMARY=TOTAL.

*friend support*

RELIABILITY
  /VARIABLES=SR01frdsupp1 SR01frdsupp2 SR01frdsupp3 SR01frdsupp4
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
```

```
  /SUMMARY=TOTAL.

*school support, classmate*

RELIABILITY
  /VARIABLES= SC01sclsupp1 SC01sclsupp2 SC01sclsupp3
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /SUMMARY=TOTAL.

*school support, teacher*

   RELIABILITY
  /VARIABLES= SC01sclsupp4 SC01sclsupp5 SC01sclsupp6
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /SUMMARY=TOTAL.

*school support classmate en teacher samen*

RELIABILITY
  /VARIABLES=SC01sclsupp1 SC01sclsupp2 SC01sclsupp3 SC01sclsupp4 SC01sclsupp5
SC01sclsupp6
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /SUMMARY=TOTAL.

*kijken of friend support en classmate support correleren*

    CORRELATIONS
  /VARIABLES=SC01SCLS_CLAS SR03MSPSS_FRDS
  /PRINT=TWOTAIL NOSIG FULL
  /MISSING=PAIRWISE.

   *een schaal maken voor school support want correleert niet*

COMPUTE
Schoolsup1=MEAN(SC01sclsupp1,SC01sclsupp2,SC01sclsupp3,SC01sclsupp4,SC01sclsupp
5,
    SC01sclsupp6).
EXECUTE.

*negative and positive future emotions T3 samen testen, eerst negatieve reverse coding*
```

```
 RECODE FP03emotion4 (1=5) (2=4) (3=3) (4=2) (5=1) (ELSE=SYSMIS) INTO
Reverse_negfe4.
EXECUTE.
RECODE FP03emotion5 (1=5) (2=4) (3=3) (4=2) (5=1) (ELSE=SYSMIS) INTO
Reverse_negfe5.
EXECUTE.
RECODE FP03emotion6 (1=5) (2=4) (3=3) (4=2) (5=1) (ELSE=SYSMIS) INTO
Reverse_negfe6.
EXECUTE.
RECODE FP03emotion7 (1=5) (2=4) (3=3) (4=2) (5=1) (ELSE=SYSMIS) INTO
Reverse_negfe7.
EXECUTE.

  RELIABILITY
  /VARIABLES=FP03emotion1 FP03emotion2 FP03emotion3 Reverse_negfe4
Reverse_negfe5 Reverse_negfe6 Reverse_negfe7
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /SUMMARY=TOTAL.

*future emotions T1*

 RECODE FP01emotion4 (1=5) (2=4) (3=3) (4=2) (5=1) (ELSE=SYSMIS) INTO
Reverse_negfe4_1.
EXECUTE.
RECODE FP01emotion5 (1=5) (2=4) (3=3) (4=2) (5=1) (ELSE=SYSMIS) INTO
Reverse_negfe5_1.
EXECUTE.
RECODE FP01emotion6 (1=5) (2=4) (3=3) (4=2) (5=1) (ELSE=SYSMIS) INTO
Reverse_negfe6_1.
EXECUTE.
RECODE FP01emotion7 (1=5) (2=4) (3=3) (4=2) (5=1) (ELSE=SYSMIS) INTO
Reverse_negfe7_1.
EXECUTE.

RELIABILITY
  /VARIABLES=FP01emotion1 FP01emotion2 FP01emotion3 Reverse_negfe4_1
Reverse_negfe5_1 Reverse_negfe6_1 Reverse_negfe7_1
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /SUMMARY=TOTAL.
```

multicollineraty en outliers via linear regressie, kijken naar VIF en cooks distance, resultaat goed

```
REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA COLLIN TOL
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT FP03FEMO_POS
  /METHOD=ENTER CO03educcor SR03MSPSS_FAMS SR03MSPSS_FRDS
SC01SCLS_CLAS SC01SCLS_TEAC IN01illadhd IN01illaut
  /SAVE COOK DFBETA.
```

* variabelen aanmaken met kortere naam en makkelijker te vinden*

```
COMPUTE ODL=CO03educcor.
EXECUTE.

COMPUTE Famsup3=SR03MSPSS_FAMS.
EXECUTE.

COMPUTE Frndsup3=SR03MSPSS_FRDS.
EXECUTE.
```

centreren van de variabelen voor moderatie

```
COMPUTE Schoolsup1_cen=Schoolsup1 - 3.726032.
EXECUTE.

COMPUTE frndsup3_cen=Frndsup3 - 5.770307.
EXECUTE.

COMPUTE Famsup3_cen=Famsup3 - 5.568345.
EXECUTE.
```

dummy's en interactie in een

```
SPSSINC CREATE DUMMIES VARIABLE=ODL frndsup3_cen
ROOTNAME1=ODL frndsup3_cen ROOTNAME2=ODL_frnsup3
/OPTIONS ORDER=A USEVALUELABELS=YES USEML=YES OMITFIRST=NO.

SPSSINC CREATE DUMMIES VARIABLE=ODL Famsup3_cen
ROOTNAME1=ODL famsup3_cen ROOTNAME2=ODL_famsup3
```

```
/OPTIONS ORDER=A USEVALUELABELS=YES USEML=YES OMITFIRST=NO.

SPSSINC CREATE DUMMIES VARIABLE=ODL Schoolsup1_cen
ROOTNAME1=ODL schoolsup1_cen ROOTNAME2=ODL_sclup1
/OPTIONS ORDER=A USEVALUELABELS=YES USEML=YES OMITFIRST=NO.

SPSSINC CREATE DUMMIES VARIABLE=ODL IN01illadhd
ROOTNAME1=ODL ADHD ROOTNAME2=ODL_ADHD
/OPTIONS ORDER=A USEVALUELABELS=YES USEML=YES OMITFIRST=NO.

SPSSINC CREATE DUMMIES VARIABLE=ODL IN01illaut
ROOTNAME1=ODL ASD ROOTNAME2=ODL_ASD
/OPTIONS ORDER=A USEVALUELABELS=YES USEML=YES OMITFIRST=NO.

*nu kijken naar future emotions normaliteit*

EXAMINE VARIABLES=FP03FEMO_TOTAL
  /PLOT STEMLEAF HISTOGRAM NPPLOT
  /STATISTICS DESCRIPTIVES
  /CINTERVAL 95
  /MISSING LISTWISE
  /NOTOTAL.

*links scheve verdeling dus (reversed) sqrt transformatie*

COMPUTE SQRT_femo3=SQRT(6-FP03FEMO_TOTAL).
EXECUTE.
COMPUTE reflect_SQRT_femo3=3.24-SQRT_femo3.
EXECUTE.

EXAMINE VARIABLES=reflect_SQRT_femo3
  /PLOT STEMLEAF HISTOGRAM NPPLOT
  /STATISTICS DESCRIPTIVES
  /CINTERVAL 95
  /MISSING LISTWISE
  /NOTOTAL.

*kijken naar frequencies en despreptives van alle variabele*

FREQUENCIES VARIABLES=BG03sex IN01illadhd IN01illaut ODL HF01FAS_lmh
  /NTILES=4
  /STATISTICS=STDDEV MINIMUM MAXIMUM
  /ORDER=ANALYSIS.
```

```
SORT CASES  BY CO03educcor.
SPLIT FILE LAYERED BY CO03educcor.
 DESCRIPTIVES VARIABLES= FP03FEMO_TOTAL
   FP01FEMO_TOTAL Famsup3 Frndsup3 Schoolsup1
  /STATISTICS=MEAN STDDEV MIN MAX.

SORT CASES  BY IN01illadhd.
SPLIT FILE LAYERED BY IN01illadhd.
 DESCRIPTIVES VARIABLES= FP03FEMO_TOTAL
   FP01FEMO_TOTAL Frndsup3 Famsup3 Schoolsup1
  /STATISTICS=MEAN STDDEV MIN MAX.

SORT CASES  BY IN01illaut.
SPLIT FILE LAYERED BY IN01illaut.
 DESCRIPTIVES VARIABLES= FP03FEMO_TOTAL
   FP01FEMO_TOTAL Frndsup3 Famsup3 Schoolsup1
  /STATISTICS=MEAN STDDEV MIN MAX.

SORT CASES  BY BG03sex.
SPLIT FILE LAYERED BY BG03sex.
DESCRIPTIVES VARIABLES=FP01FEMO_TOTAL FP03FEMO_TOTAL
  /STATISTICS=MEAN STDDEV MIN MAX.

SORT CASES  BY HF01FAS_lmh.
SPLIT FILE LAYERED BY HF01FAS_lmh.
 DESCRIPTIVES VARIABLES= FP03FEMO_TOTAL FP01FEMO_TOTAL
  /STATISTICS=MEAN STDDEV MIN MAX.

SPLIT FILE OFF.

*correlatie matrix*

CORRELATIONS
  /VARIABLES=Schoolsup1 ODL Famsup3 Frndsup3 HF01FAS_lmh BG03sex BG03age
    reflect_SQRT_femo3 FP01FEMO_TOTAL
  /PRINT=TWOTAIL NOSIG FULL
  /MISSING=PAIRWISE.

*multipele regressie met controle uit wave 1*
   *Future emotions zonder moderatie*

REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA COLLIN TOL CHANGE ZPP
```

```
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT reflect_SQRT_femo3
  /METHOD=ENTER BG03sex BG03age HF01FAS_lmh FP01FEMO_TOTAL
  /METHOD=ENTER ODL_1nooit ODL_2soms ODL_3meestal ODL_5altijd
  /RESIDUALS DURBIN HISTOGRAM(ZRESID) NORMPROB(ZRESID).

*met interactie van social support*
   *friend*


REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL CHANGE ZPP
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT reflect_SQRT_femo3
  /METHOD=ENTER BG03age BG03sex HF01FAS_lmh FP01FEMO_TOTAL
  /METHOD=ENTER ODL_1nooit ODL_2soms ODL_3meestal ODL_5altijd
  /METHOD=ENTER frndsup3 ODL_frndsup3_6_1 ODL_frndsup3_6_2 ODL_frndsup3_6_3
ODL_frndsup3_6_5
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS HISTOGRAM(ZRESID) NORMPROB(ZRESID).

*significante directe effect ook even los*

REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL CHANGE ZPP
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT reflect_SQRT_femo3
  /METHOD=ENTER BG03age BG03sex HF01FAS_lmh FP01FEMO_TOTAL
  /METHOD=ENTER ODL_1nooit ODL_2soms ODL_3meestal ODL_5altijd
  /METHOD =ENTER frndsup3.

*family*

REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL CHANGE ZPP
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT reflect_SQRT_femo3
```

```
  /METHOD=ENTER BG03age BG03sex HF01FAS_lmh FP01FEMO_TOTAL
  /METHOD=ENTER ODL_1nooit ODL_2soms ODL_3meestal ODL_5altijd
  /METHOD=ENTER  Famsup3 ODL_famsup3_6_1
    ODL_famsup3_6_2 ODL_famsup3_6_3 ODL_famsup3_6_5
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS HISTOGRAM(ZRESID) NORMPROB(ZRESID).

*significante directe effect ook even los*

REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL CHANGE ZPP
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT reflect_SQRT_femo3
  /METHOD=ENTER BG03age BG03sex HF01FAS_lmh FP01FEMO_TOTAL
  /METHOD=ENTER ODL_1nooit ODL_2soms ODL_3meestal ODL_5altijd
  /METHOD = ENTER Famsup3.

*school*

REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL CHANGE ZPP
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT Reflect_SQRT_femo3
  /METHOD=ENTER BG03age BG03sex HF01FAS_lmh FP01FEMO_TOTAL
  /METHOD=ENTER ODL_1nooit ODL_2soms ODL_3meestal ODL_5altijd
  /METHOD = ENTER Schoolsup1
  /METHOD=ENTER Schoolsup1 ODL_sclup1_6_1 ODL_sclup1_6_2 ODL_sclup1_6_3
    ODL_sclup1_6_5
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS HISTOGRAM(ZRESID) NORMPROB(ZRESID).


*interactie neurodevelopmental conditions*
*adhd*

REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL CHANGE ZPP
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
```

```
  /DEPENDENT Reflect_SQRT_femo3
  /METHOD=ENTER BG03age BG03sex HF01FAS_lmh FP01FEMO_TOTAL
  /METHOD=ENTER ODL_1nooit ODL_2soms ODL_3meestal ODL_5altijd
  /METHOD=ENTER ADHD_nodoc ADHD_yesdoc ODL_ADHD_6_1
    ODL_ADHD_6_2 ODL_ADHD_6_3 ODL_ADHD_6_4 ODL_ADHD_6_5
ODL_ADHD_6_6 ODL_ADHD_6_7 ODL_ADHD_6_11 ODL_ADHD_6_12
ODL_ADHD_6_13
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS HISTOGRAM(ZRESID) NORMPROB(ZRESID).


*asd*

REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL CHANGE ZPP
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT Reflect_SQRT_femo3
  /METHOD=ENTER BG03age BG03sex HF01FAS_lmh FP01FEMO_TOTAL
  /METHOD=ENTER ODL_1nooit ODL_2soms ODL_3meestal ODL_5altijd
  /METHOD=ENTER ASD_nodoc ASD_yesdoc ODL_ASD_6_1 ODL_ASD_6_2
ODL_ASD_6_3 ODL_ASD_6_4 ODL_ASD_6_5 ODL_ASD_6_6 ODL_ASD_6_7
    ODL_ASD_6_11 ODL_ASD_6_12 ODL_ASD_6_13
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS HISTOGRAM(ZRESID) NORMPROB(ZRESID).

*interactie adhdnodoc en odl soms*

UNIANOVA reflect_SQRT_femo3 BY ADHD_7ja ODL_2soms
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /PLOT=PROFILE(ODL_2soms*ADHD_7ja) TYPE=LINE ERRORBAR=NO
MEANREFERENCE=NO
    YAXIS=AUTO
  /CRITERIA=ALPHA(0.05)
  /DESIGN=ADHD_7ja ODL_2soms ADHD_7ja*ODL_2soms.

*odl altijd adhdnodoc*

UNIANOVA reflect_SQRT_femo3 BY ODL_5altijd ADHD_7ja
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
```

```
  /PLOT=PROFILE(ODL_5altijd*ADHD_7ja) TYPE=LINE ERRORBAR=NO
MEANREFERENCE=NO YAXIS=AUTO
  /CRITERIA=ALPHA(0.05)
  /DESIGN=ODL_5altijd ADHD_7ja ODL_5altijd*ADHD_7ja.
```

kijken naar effect als referentie categorie altijd voor robustheid

```
REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL CHANGE ZPP
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT Reflect_SQRT_femo3
  /METHOD=ENTER BG03age BG03sex HF01FAS_lmh FP01FEMO_TOTAL
  /METHOD=ENTER ODL_1nooit ODL_2soms ODL_3meestal ODL_4bijnaaltijd
  /METHOD = ENTER ADHD_nodoc ADHD_yesdoc
  /METHOD=ENTER
    ODL_ADHD_6_2 ODL_ADHD_6_4  ODL_ADHD_6_6 ODL_ADHD_6_7
ODL_ADHD_6_9 ODL_ADHD_6_10
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS HISTOGRAM(ZRESID) NORMPROB(ZRESID).
```