Image generated using the prompt "create a drawing of parents engaged in a conversation with a sad 15-year-old" (DALL-E & van den Hoven, 2023)

# THE IMPACT OF PARENTAL WISE INTERVENTIONS ON DEPRESSED SPANISH ADOLESCENTS

## INVESTIGATING THE EFFECTIVENESS OF PARENTAL WISE INTERVENTIONS ON DEPRESSION AND ACADEMIC PERFORMANCE AND SOCIAL CLASS

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## ABSTRACT

This master thesis investigates the moderating role of parental wise interventions on the mediation of depression between social class and academic performance among Spanish adolescents. Using data from the "Programme for International Student Assessment 2018 (PISA)" dataset (OECD, 2018), this study aims to explore the impact of depression on academic performance and how this influence varies across different social classes.

The findings reveal that depression significantly affects the academic performance of Spanish adolescents, indicating a negative influence. Moreover, substantial evidence supports the mediating effect of depression in the relationship between social class and academic performance, confirming hypothesis 2. This implies that social class has an impact on the level of depression experienced, which subsequently influences academic performance. This study demonstrates that parental positive wise interventions can reduce the negative influence of depression on academic performance. Specifically, when adolescents receive more positive wise interventions, their academic performances tend to improve. Regarding social class, the research indicates that adolescents from higher social classes benefit more from positive wise interventions than those from lower social classes.

Overall, this study sheds light on the complex dynamics between depression, social class, and academic performance among Spanish adolescents. The findings underscore the importance of parental wise interventions in mitigating the negative impact of depression on academic performances and highlight the need for support for adolescents from lower social classes.

**Keywords:** Academic Performance, Adolescents, Depression, Social Class, Wise Interventions

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# INTRODUCTION

The way an adolescent performs in secondary education can have a significant impact on their future. All adolescents need to have an equal opportunity to do their best in school, but some factors may prevent that from happening. This inequality of opportunity can be caused by various factors such as gender, poverty, race, location and social background, as noted by Gamoran (2001). However, mental health is a less commonly discussed factor that can also affect the social life and academic performance of an adolescent. Therefore, mental health should be discussed more in relation to academic performance, because depression is present in Spanish society, as shown by research of Canals-Sans et al. (2018), which found that 11,6% of Spanish adolescents suffer from depressive symptoms. According to Catalá-López et al. (2013), it even is the leading cause of disease for Spanish adolescents, from which 15,7% suffers. The World Health Organization (2021) is also cautious about depression, they state that depression is the leading cause of disability and illness around the world. Arias-de la Torre et al. (2018) found that a high representation of people with a depression is from a lower socio-economic background. These results suggest that treatment is needed, interventions directed at depression for people with a socioeconomic disadvantage might reduce the prevalence of depression in the general population (Arias-de la Torre et al., 2018). These interventions can be wise interventions, which are small interactions that influence people how to make sense of their life (Walton & Wilson, 2018). Parents play an important part in wise interventions, because researchers acknowledge that parents can make a significant difference in the mental health of their children (Dardas et al., 2018). Therefore, this research will focus on whether wise interventions by parents are helpful for adolescents, because understanding interventions might also facilitate the development of treatments that will have a bigger effect on more people (Dardas et al., 2018; Kraemer et al., 2002). This research will be done by answering the following research question: how do parental wise interventions moderate the relationships between social class, depression and academic performance for Spanish Adolescents? This research will start with its problem statement. Then this master thesis will use the theoretical framework to give a better insight into the subject and the theory that is involved. After which the data and methods will be explained to give an overview of the research. This will be followed by an analysis of the results, which will be interpreted in the conclusion. Then the limitations of this research will be discussed in the discussion.

# PROBLEM STATEMENT

## CONTEXT OF THE PROBLEM

Spain can be considered a meritocracy, where educational background is a very important social marker. Educational credentials are important indicators of social status, which is correlated with lifestyle, cultural attitudes, and political preferences (Bovens & Wille, 2017). Educational background is like class or religion an important cause of social and political divides (Bovens & Wille, 2017). According to Gil-Hernández et al. (2017), change in social status can be caused indirectly, where educational attainment can cause upwards social mobility in Spain. Thus, Spain has a system of credentialism (Collins, 1979), where certain credentials give access to the higher classes of society (Gil-Hernández et al., 2017).

## DESCRIPTION OF THE PROBLEM

Of the population of Spanish adolescents, 11,6% suffer from depression or depressive feelings (Canals-Sans et al., 2018). This 11,6% is unevenly distributed among different social classes because people from a lower social background are more often affected by depression or depressive feelings (Arias-de la Torre et al., 2018). Depression can have a negative influence on academic performance, thus depression creates inequalities. Inequality between adolescents who suffer from depression and adolescents who do not. This inequality is deepened by the Spanish context of credentialism, non-depressed adolescents have better educational attainment, which gives them better life opportunities (Gil-Hernández et al., 2017). The systems of meritocracy and credentialism are based on educational attainment, where hiring decisions are based on diplomas rather than potential productivity and skill (Gil-Hernández et al., 2017). This benefits those of higher social class because their educational attainment is higher than those of lower social class (Bukodi & Goldthorpe, 2013), which gives them more and better job opportunities based on their credentials, while their skill accumulation is lower than their lower-class peers (Gil-Hernández et al., 2017). Thus, the systems of credentialism and meritocracy create inequalities.

## RELEVANCE OF THE PROBLEM

The problem of depression among Spanish adolescents is relevant because the prevalence of depression is increasing in society (Weinberger et al., 2018), therefore the influence of depression might also be increasing. Depression could cause a deterioration of the

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life chances of Spanish adolescents because of its influence on academic performance. It is important to provide every adolescent with equal opportunity to have the best possible academic results to create the best possible life opportunities. Therefore, knowledge needs to be gained about interventions that can moderate the relationship between depression and academic performance.

## RESEARCH OBJECTIVES

The objective of this research is to gain more knowledge about the influence of depression on academic performance and how that influence is distributed among different social classes and whether this is moderated by parental wise interventions.

# THEORETICAL FRAMEWORK

## DEPRESSION

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) of the American Psychiatric Association (2022), depression is a disorder with the existence of a mood that is sad, empty or irritable, which impacts the ability of the individual to function. Hankin (2006) adds that depression affects the emotions, sense of self, behaviour, interpersonal relationships, physical functioning, biological processes, work productivity and life satisfaction of the individual. This depressive mood can have various levels of intensity and various lengths (American Psychiatric Association, 2022). Research conducted by Avenoli et al. (2015) shows that the average depressive episode is 27 weeks among adolescents.

For adolescent individuals, depression can cause impairment to their academic advancement and attainment of important milestones in their development, such as gaining autonomy and becoming more independent (Miller & Campo, 2021). Depression also changes the appetite and weight of adolescents, and adolescents have less energy and are more troubled by insomnia by depression (Miller & Campo, 2021).

The cause of depression is captured by the vulnerability-stress framework (Hankin, 2006), where the individual has a genetic predisposition for depression that is passed through multiple generations (Miller & Campo, 2021), but is triggered by stressful life events (Hankin, 2006). Thus, stressful events or conditions in the life of the adolescent threaten the physical

and/or psychological well-being and combined with the genetic vulnerability to those stressors cause depression in the adolescent (Hankin, 2006).

Risk factors for adolescents in developing depression are being of the female sex, having a family history of depression, having experiences of trauma, other medical illnesses, having conflict in social relationships and being of a sexual minority (Miller & Campo, 2021).

## DEPRESSION AND ACADEMIC PERFORMANCE

Depression has a negative impact on the academic performances of adolescents (Fröjd et al., 2008). The key symptoms of depression in adolescents such as the impaired ability to concentrate, loss of capability to plan, loss of interests, loss of memory and low self-esteem diminishes initiative in learning and disturbs cognitive performance (Kirkcaldy & Siefen, 1998; Wagner et al., 2015). Depression impairs cognitive functioning because the adolescent focuses on the depressive thoughts instead of the actual cognitive tasks or the depression directly blocks the cognitive thinking processes (Hartlage et al., 1993). Negative reactions of peers and teachers to the behaviour of the depressed adolescent can also be the cause of learning problems because it emphasizes their problems (Adams, 1992). Negative feedback on the adolescent exacerbates the depressive cognitive style or reinforces depressive thoughts, which invoke helplessness, passiveness and avoidance (Birmaher et al., 1996; Webb et al., 2017).

### HYPOTHESIS 1

Based on research by Fröjd et al. (2008), the first hypothesis, which can be seen in Figure 1, is that adolescents with higher levels of depression have lower academic performances than adolescents with lower levels of depression.
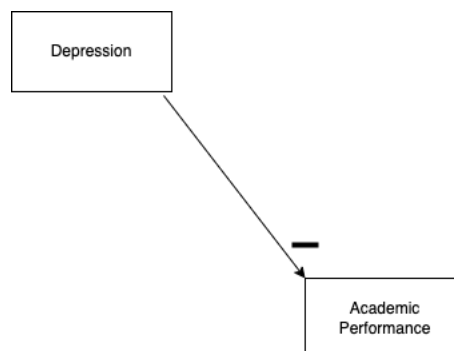


**FIGURE 1: CONCEPTUAL MODEL OF HYPOTHESIS 1**

## SOCIAL CLASS

According to Marshall (1950), social class is a system of beliefs, values and principles that create social inequality by separating people into different economic levels. Social class hierarchizes people on the basis of the interaction of factors based on property, education and occupation (Marshall, 1950). This hierarchization is a determinant which groups people with a common specific component and the same external living circumstances, which influence their life chances (Bourdieu, 1986; Weber, 1914). It influences their material, social and cultural world (Weis & Dolby, 2012).

Social class also creates inequalities in education, because it influences the academic performances of adolescents. Although the gap in academic performance between lower and higher social classes is decreasing over time, it still exists (Breen et al., 2009). According to research, there is a significant interactive effect that social class predicts the educational path of adolescents, because academic performances are better among adolescents of higher social class and adolescents of lower social class perform worse (Bernardi & Cebolla, 2014; Strand, 2021). These differences in academic performance among adolescents can be attributed to differences in their possession of material, social and cultural capital. Adolescents who belong to a higher social class have the financial means to utilize resources such as shadow education, which compensates for poor academic performance (Bernardi & Cebolla, 2014). On the other side, adolescents who belong to lower social classes have no access to the same resources due to financial constraints within their families, which makes them unable to uplift their academic performances to the same level (Jansen et al., 2021).

Adolescents of higher social class not only have an advantage in financial resources, but they also benefit from their social resources, parents can transfer them useful human capital which gives them knowledge and skills to navigate their academic careers (Willingham, 2012). Growing up in a socio-economically privileged family can also equip individuals with valuable language and non-cognitive abilities like confidence and assertiveness, these skills can compensate for the low educational performances of people from higher social classes (Bernardi & Ballarino, 2016). Families from lower social class do not possess such beneficial knowledge and thus cannot transfer it to their children which reinforces inequalities (Willingham, 2012).

According to Durante & Fiske (2017), social class stereotypes also disadvantage people from lower social classes in their educational achievement, because not only do the stereotypes

manifest their behaviour, but they are also reinforced in educational institutions. Educational institutions are filled with arbitrary, implicit standards that create an advantage for higher social class students. People from higher social class are often perceived as more intelligent and more competent than people from lower social class. These stereotypes are often internalized by people from lower social class, they hold a lower self-esteem and present lower self-evaluations of their IQ, which results in lower educational performances (Durante & Fiske, 2017). This low self-esteem and negative self-evaluation are constantly reinforced in the educational system, where self-confidence is part of the dominant culture (e.g., students have to raise a hand when they know an answer), thus social class is reinforced through the education system (Durante & Fiske, 2017).

People from lower social class also experience poorer mental health. Bartoli-Roca & Julià (2021) explain in their research that people from more disadvantaged social classes are more likely to experience poorer mental health. They argue that poorer living conditions and psychosocial factors worsen mental health, where an individual is 2 to 3 times more likely to experience poorer mental health than an individual who has better living conditions.

Willingham (2012) describes that families of lower social class experience more chronic stress than families from middle- and higher social class. The experience of chronic stress can have detrimental consequences for the individual, it can change the mental development of children, cognitive abilities and the anatomy of the brain, it can affect its working memory, long-term memory, processing and pattern recognition (Willingham, 2012). Next to that, chronic stress can also cause the development of behavioural and emotional problems such as depression (Willingham, 2012).

Ritsher et al. (2001) and Lepièce et al. (2015) corroborate this claim by showing that being of lower social class is a risk factor for depression. There exists a clear correlation between worsening socioeconomic conditions and depression. Individuals from lower socioeconomic backgrounds experience a higher prevalence of depression, which verifies that a lower socioeconomic background significantly contributes to the development of depressive symptoms (Lepièce et al., 2015). Ritsher et al. (2001) found that for the adolescent population that if neither parent had any education beyond high academic and an occupational status above low-skilled work, thus being of lower social class, their children are three times more likely to develop depression.

*HYPOTHESIS 2*

Research by Ritsher et al. (2001), Bartoll-Roca & Julia (2021) and Lepièce et al. (2015) showed that adolescents of lower social class have a higher risk of depression and research by Fröjd et al. (2008) found that depression can cause lower academic performances. Therefore, my second hypothesis, a mediation hypothesis to be precise, which is shown in Figure 2, is that the relationship between social class and academic performance is mediated by depression. adolescents of lower social class have higher levels of depression and therefore have lower academic performances than adolescents of higher social class.
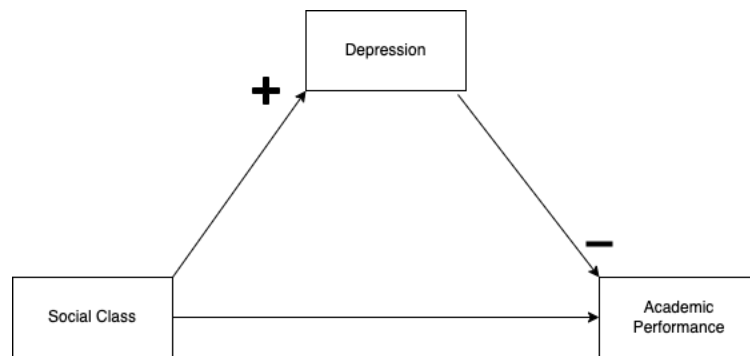


**FIGURE 2: CONCEPTUAL MODEL OF HYPOTHESIS 2**

## WISE INTERVENTIONS

An intervention is the treatment that an adolescent with depression receives or the treatment to prevent the development of depression for adolescents (Hankin, 2006). Individual and moderately sized treatments like individual psychotherapy, group psychotherapy and the use of antidepressants are seen as effective interventions for depressed adolescents (Rynn et al., 2017).

These interventions need a lot of specialists and time and thus are expensive and time-consuming. Wise interventions are relatively less time-consuming and do not require the attendance of specialists (Sijbrandij et al., 2020). These wise interventions can take place at home or other non-formal places, which is useful because adolescents are most inclined to present their emotional problems in their immediate primary care settings, consisting of parents, family, teachers and friends (Radovic et al., 2015). Wise interventions are the small interactions and actions that influence how people can make sense of themselves, their life, their world and society (Dweck & Yeager, 2021; Walton & Crum, 2021; Walton & Wilson, 2018). Wise interventions should be sensitive and compelling, it should help people understand how they

can change their life and motivate them to do so (Dweck & Yeager, 2019; Yeager et al., 2016). By using wise interventions adolescents can learn to change their self-defeating behaviours and feelings into self-enhancing ones. Wise interventions are set to equip adolescents to be able to face challenges and face them with confidence and effectiveness, which brings behaviour that can bring better emotional, social or academic results (Dweck & Yeager, 2021). Research by Yeager and Lee (2021) shows that wise interventions can have a decreasing effect on depression and anxiety for adolescents. Research has also found that wise interventions can also create a lasting improvement in academic performance because wise interventions create better academic attitudes with adolescents (Dweck & Yeager, 2021; Walton & Crum, 2021).

Dardas et al. (2018) support wise interventions provided by parents, because parental involvement in adolescent depression can cause a reduction in depressive symptoms. Parents are important because most adolescents are close to their parents, who give them emotional support (Peterson, 2005). Emotional support and positive parenting are protective factors in treating and preventing depression (Brent et al., 2009) because parents function as a buffer for stress, they give the adolescent a safe feeling, which lessens the negative consequences of chronic stress (Willingham, 2012). Because emotional support creates the opportunity for psychological factors to become resilient to stressors (Cohen & Wills, 1985). Research by Desjardins and Leadbeater (2011) therefore shows that increased emotional support from parents results in a decrease in depressive symptoms for adolescents. Interventions can create an acute improvement in the health outcomes of adolescents, but through support and help from parents, the adolescent learns to apply the things learned from interventions which improves the health outcomes in the long term (Dardas et al., 2018).

The kind of emotional support the parents provide differs between paternal and maternal figures (Desjardins & Leadbeater, 2011), the emotional support from maternal figures traditionally focuses more on emotions and offers understanding and empathy, which might have negative consequences for the depressive symptoms, because it affirms and reinforces them. While paternal figures traditionally focus more on the problems of the adolescent in a larger context (Desjardins & Leadbeater, 2011).

Parental support and involvement can also differ between people from different social classes. Vincent (2001) explains that parents from higher social class are more involved with the schooling of their children than parents of lower social class, which is caused by differences in knowledge of social and cultural capital. Parents of lower social class have difficulties

navigating the schooling system, which causes them to be less involved in the progress of the adolescent (Vincent, 2001). The differentiating parental involvement also influences parental interventions, because according to Dardas et al. (2018), some subgroups benefit more from certain parental interventions than other subgroups. After all, the social class of parents determines their knowledge of parental interventions, which creates differing results of interventions by families from different social classes.

*HYPOTHESIS 3*

According to theory, parental wise interventions can decrease adolescent depression (Dardas et al., 2018; Walton & Wilson, 2018; Yeager & Lee, 2021), therefore this research hypothesizes that with more parental wise interventions the negative influence of depression on academic performance will decrease, which is shown in Figure 3. This would mean that adolescents with more parental wise interventions experience a decreasing influence of depression on their academic performance than adolescents with more wise interventions.
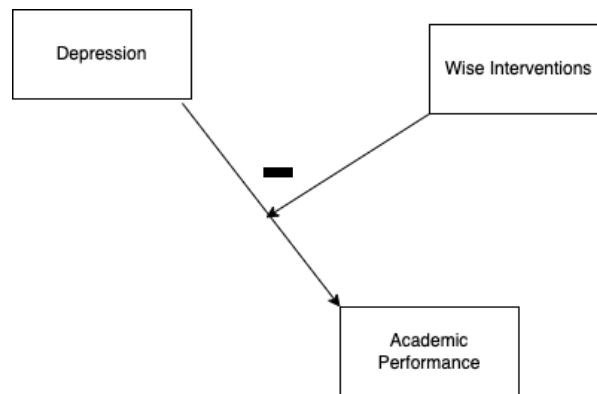


**FIGURE 3: CONCEPTUAL MODEL OF HYPOTHESIS 3**

*HYPOTHESIS 4*

According to Vincent (2001), social class can influence parental involvement because of knowledge of social and cultural capital, and Dardas et al. (2018) theorize that some subgroups in the social class hierarchy experience benefits or disadvantages from certain parental interventions. Thus, the theory suggests that social class influences the effectiveness of parental wise interventions. Therefore, this research hypothesizes that social class influences the effectiveness of parental wise interventions. Thus, adolescents of lower social class will benefit less from wise interventions from their parents than children from higher social class, which will result in lower academic performance.
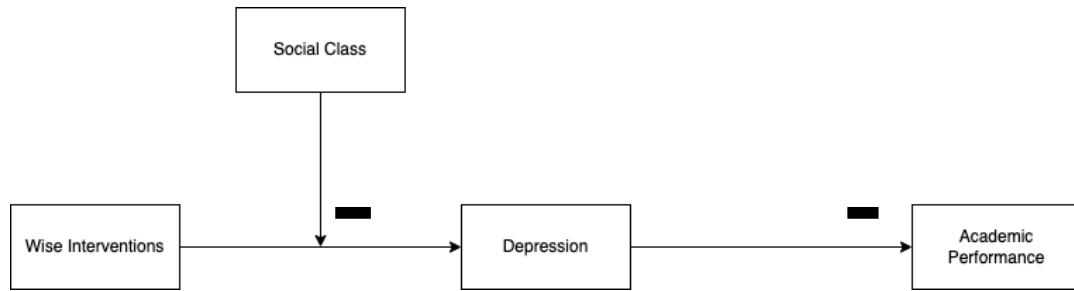
**FIGURE 4: CONCEPTUAL MODEL OF HYPOTHESIS 4**

## COMPLETE CONCEPTUAL MODEL OF RESEARCH
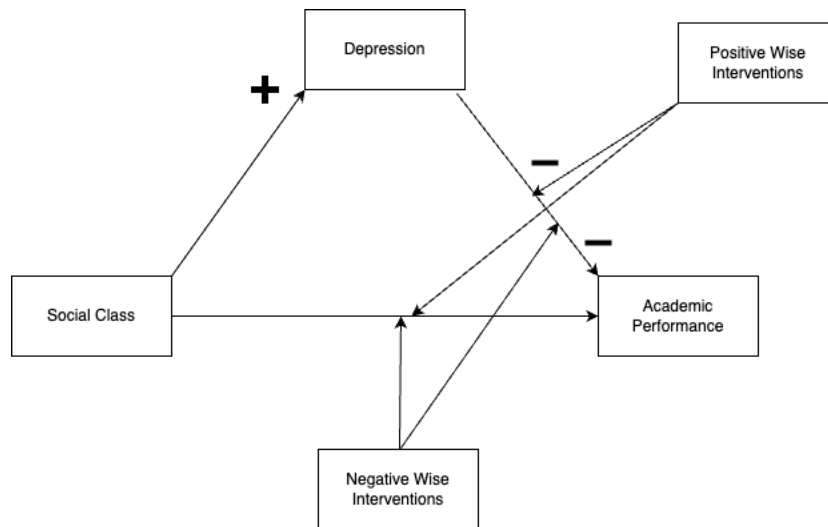


**FIGURE 5: CONCEPTUAL MODEL OF RESEARCH BASED ON MODEL 17 OF HAYES (2013)**

# DATA AND METHODS

## DATASET

This research will be conducted through a quantitative analysis approach, which means it will try to measure a set of variables to answer research questions and hypotheses guided by theory (Creswell & Creswell, 2022). This quantitative research will use the "Programme for International Student Assessment 2018 (PISA)" dataset which is provided by the Organisation for Economic Co-operation and Development also known as the OECD (2018).

The PISA dataset (OECD, 2018) is part of a cross-national study which examines the knowledge of 15-year-old adolescents in reading, mathematics and science, which is combined with insights into the background of adolescents. This dataset gives insight into the equality and quality of learning in different countries, which allows educators, policymakers and researchers to learn from practices from other countries (OECD, 2019b).

The dataset of PISA consists of 710.000 adolescents from 79 countries (OECD, 2019a). In Spain, the dataset consists of 35.943 adolescents who represent the whole population of 416.703 Spanish 15-year-olds (OECD, 2019c).

## VARIABLES

### ACADEMIC PERFORMANCE

The main dependent variable of this research is the academic performance of adolescents (*AP)*. The scores of the reading, mathematics and science tests from the PISA dataset (OECD, 2018) will be combined to create the academic performance score (*AP)*. This will ensure that academic performance will measure all competencies of adolescents, and not only focus on one subject in which the adolescent might excel or struggle. Each test consists of 10 scores which range from 150 to 800, thus with 3 tests this variable will consist out of 30 scores. These 30 scores are used to create a weighted factor score, this score gives a value of the academic performance of the individual adolescent which is relative to the others.

### DEPRESSION

Another important variable of this research is depression, which will be measured by how often adolescents have felt depressed in the past 6 months (*WB154Q04HA*) from the PISA data (OECD, 2018). In this variable, a five-point Likert scale is used in which adolescents can answer how often they experience depressive feelings with the following options 'rarely or never', 'about every month', 'about every week', 'more than once a week' and 'about every day'. This variable will be used as a scale to measure the depressive feelings of adolescents.

### SOCIAL CLASS

The variable of social class will be measured by an index of economic, social and cultural status (*ESCS*) (OECD, 2020). This variable will be derived from the highest level of education of the parents, the highest occupational status of the parents and their compositions and the home resources that indicate the family income. This variable is a standardized score, with a standard deviation of 1 and will have a neutral value of 0 for the average adolescent and will go up or down to indicate their social class position (OECD, 2020).

*WISE INTERVENTIONS*

This research will use factor analysis to create two combinations of variables to create linear factor scores. The used variables indicate parental wise interventions, these variables are about how often parents help the adolescent, how often parents let the adolescent do what they want to do, how often parents show that they care, how often the parents try to understand the problems of the adolescents, how often the parents encourage the adolescent to make their own decision, how often parents try to control everything the adolescent does, how often the parents treat the adolescent as a baby and how often the parents make the adolescent feel better when they are upset. The full operationalization of the variables of wise interventions can be found in Table 1 in Appendix 1.

**TABLE 1: TOTAL VARIANCES EXPLAINED**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 3.815 | 47.683 | 47.683 | 3.815 | 47.683 | 47.683 | 3.812 | 47.650 | 47.650 |
| 2 | 1.477 | 18.460 | 66.143 | 1.477 | 18.460 | 66.143 | 1.479 | 18.492 | 66.143 |
| 3 | .612 | 7.645 | 73.788 | | | | | | |
| 4 | .542 | 6.771 | 80.558 | | | | | | |
| 5 | .480 | 5.996 | 86.554 | | | | | | |
| 6 | .435 | 5.438 | 91.992 | | | | | | |
| 7 | .347 | 4.340 | 96.332 | | | | | | |
| 8 | .293 | 3.668 | 100.000 | | | | | | |

Extraction Method: Principal Component Analysis.



FIGURE 6

**TABLE 2: COMPONENT MATRIX**

| | Component | |
|---|---|---|
| | 1 | 2 |
| Thinking about your parents or guardians, how often do they: Try to understand my problems and worries | .864 | |
| Thinking about your parents or guardians, how often do they: Show that they care | .830 | |
| Thinking about your parents or guardians, how often do they: Help me as much as I need | .819 | |
| Thinking about your parents or guardians, how often do they: Encourage me to make my own decisions | .783 | |
| Thinking about your parents or guardians, how often do they: Make me feel better when I am upset | .768 | |
| Thinking about your parents or guardians, how often do they: Let me do the things I like doing | .698 | |
| Thinking about your parents or guardians, how often do they: Try to control everything I do | | .862 |
| Thinking about your parents or guardians, how often do they: Treat me like a baby | | .849 |

Extraction Method: Principal Component Analysis.

a. 2 components extracted.
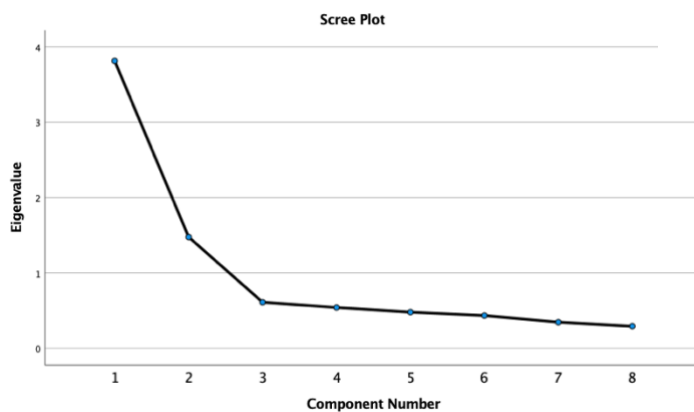
A factor analysis of variables that represent wise interventions, which can be seen in Table 1, Table 2 and Figure 6, shows that the combination of variables exists out of 2 components because they have an Eigenvalue above 1. When reviewing the tables, it can be concluded

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that component 1 with an eigenvalue of 3.815, represents the most similarities between positive wise interventions. Component 2 has an eigenvalue of 1.477 and represents similarities among negative wise interventions. Thus, this research will be conducted with a variable for positive wise interventions and a variable for negative wise interventions.

## CONTROL VARIABLES

The control variables of this research will be gender, grade and migration status (*Immig*). Gender is an important control variable because gender can influence the academic performance of adolescents, because female adolescents have an advantage in school, especially in cognitive subjects such as math, reading and science (Voyer & Voyer, 2014), thus it could influence the outcome variable. Gender also influences depression, because female adolescents have twice the rate of depression compared to male adolescents (Dyer & Wade, 2012; Miller & Campo, 2021). Grade can also influence the academic performance of the 15-year-olds because according to research by Ikeda and Garcia (2014) grade repetition and grade skipping can influence the academic performance of adolescents. Adolescents who have repeated a grade in their lives have worse academic performances later than people who have not repeated a grade. Opposite to that, adolescents who have skipped a grade, prove to have above-average academic performance throughout their lifetime (Miravete, 2023). Grade repetition also influences the mental state of adolescents, because adolescents who repeat a grade often have an increase in depressive symptoms during adolescence (Freiburger, 2015). Migration status influences the social class position of the adolescent, whereas adolescents who have a migration status have lower social class positions, which correlates with the negative influence migration status has on academic performance (Darvin & Norton, 2014). Because the constraints caused by their migration status and social class position leads to worse academic performances (Darvin & Norton, 2014). The migration status of individuals can also affect their mental well-being because migration and migration status prove to be an important risk factor for depression (Breslau et al., 2011).

The control variables have an important influence on the results of the research because they have a direct influence on the variables, therefore they should be held constant in order to have more reliable results for the analysis of the data (Agresti, 2018).

## STATISTICAL METHODS AND ANALYSIS

This proposed research will use SPSS and the Process application of Hayes (2013) to analyse the PISA data (OECD, 2018) to gather and analyse information to answer the research question and test the hypotheses. Model 17 (Hayes, 2013) allows for researching multiple interactions and relationships at the same time. The relationship between social class and academic performance will be central in this model, with social class as independent variable and academic performance as dependent variable. This allows for investigating how depression mediates the relationship between social class and academic performance, which will give more information on the mediating role of depression. The variable of positive wise interventions will be used to analyse the moderating influence of the parental positive wise interventions on the relationship between depression and academic performance and the relationship between social class and academic performance. The influence of social class on the effectiveness of parental wise interventions in decreasing adolescent depression will be analysed through a comparison of the correlation-coefficients of the created model. The interactions of the variables in model 17 will be conducted while being controlled for the control variables of this research.

# RESULTS

## DESCRIPTIVE STATISTICS

**TABLE 3: DESCRIPTIVE STATISTICS**

|  | N | Minimum | Maximum | Mean | Standard Deviation |
|---|---|---|---|---|---|
| Academic Performance | 26299 | 233.810 | 733.290 | 495.887 | 77.148 |
| In the past six months, how often have you had the following? Feeling depressed | 26299 | 1.000 | 5.000 | 1.940 | 1.236 |
| Index of economic, social and cultural status | 26299 | -6.073 | 3.717 | -0.002 | 1.007 |
| Positive Wise Interventions | 26299 | 1.000 | 3.000 | 2.523 | 0.497 |
| Negative Wise Interventions | 26299 | 1.000 | 3.000 | 1.805 | 0.626 |
| Valid N (listwise) | 26299 |  |  |  |  |

This research has 26299 valid cases as can be seen in Table 3, this means that the dataset provides data on the important variables for 26299 Spanish adolescents.

Table 3 shows the descriptive values that give more information on the important variables. It shows that the variable of academic performance has a mean of 495.887, which means that the average academic performance score is 495.887. The standard deviation of

77.149 shows that in a normal distribution, 68.2% of the adolescents have an academic performance score between 418.738 and 573.036. The highest academic performance score is 733.29 and the lowest is 233.81.

In Table 3 the mean for the depression variable is 1.94, which is between 'Rarely or Never' and 'about every month'. The standard deviation of 1.236 means that 68.2% of the adolescents fall between a score of 0.704 and 3.176 in a normal distribution.

The positive wise interventions variable has a mean of 2.523 and a standard deviation of 0.497, thus can be concluded that around 68.2% of the Spanish adolescents have a score between 2.026 and 3.020 under a normal distribution, which indicates that most Spanish adolescents receive positive wise interventions.

The mean for negative wise interventions is 1.805, with a standard deviation of 0.626 it can be assumed that 68.2% of the Spanish adolescents fall between a score of 1.179 and 2.432 in a normal distribution.
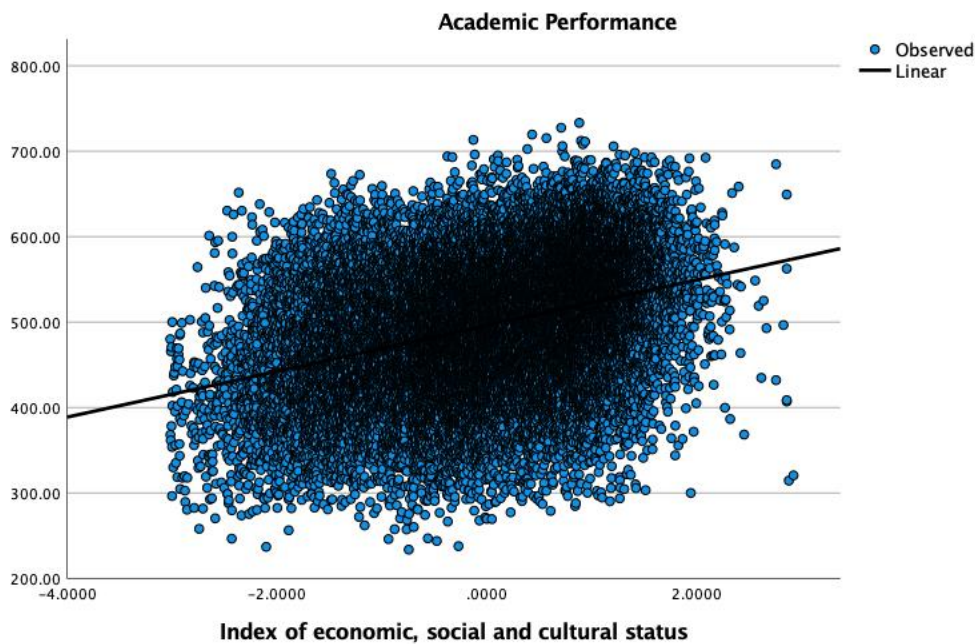
*Scatterplot*



**FIGURE 7: SCATTERPLOT ESCS AND ACADEMIC PERFORMANCE**

Figure 7 shows a scatterplot which displays the central positive relationship between the dependent variable of academic performance and the independent variable of economic, social and cultural status. The curve estimation has an upwards slope, which shows that a higher score

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on the index of economic, social and cultural status leads to a higher academic performance score. The constant in this relationship is 495.940, shown, by table 4, which means the

adolescent with an average economic, social and cultural status score has an academic performance score of 495.940. When economic, social and cultural status is involved, the B value of 26.759 explains that with every standard deviation increase of economic, social and cultural status the

**TABLE 4: MODEL SUMMARY**

| | |
|---|---|
| **Dependent variable:** Academic Performance | |
| **Independent variable:** Economic, Social and Cultural Status | |
| **Model Summary** | |
| R Square | 0.119 |
| **Parameter Estimates** | |
| Constant | 495.940*** |
| B value | 26.759*** |

*$p<.05$, **$p<.01$, ***$p<.001$

academic performance score goes up by 27.759. This relationship has a significance of 0.000, which is below the maximum of 0.05, consequently, this relationship is significant. This means that it also can be assumed that economic, social and cultural status has a positive influence on academic performance in the general population.

## DEPRESSION

**TABLE 5: ASSOCIATIONS OF DEPRESSION**

| **Outcome variable** = Depression | Model 1 | Model 2 |
|---|---|---|
| *Variables* | *b* | *b* |
| | *(SE)* | *(SE)* |
| **Constant** | 0.000 | 0.547*** |
| | (0.008) | (0.029) |
| **Independent variables** | | |
| Economic, social and cultural status | -0.086*** | -0.065*** |
| | (0.008) | (0.008) |
| Gender | | -0.466*** |
| | | (0.015) |
| Grade | | -0.102*** |
| | | (0.015) |
| Migration Status | | 0.103*** |
| | | (0.015) |
| **Model summary** | | |
| R-Square | 0.005*** | 0.043*** |

*$p<.05$, **$p<.01$, ***$p<.001$

Table 5 shows the negative association between the variables of depression and economic, social and cultural status. The regression coefficient of -0.086 in model 1 shows that a higher score on economic, social and cultural status leads to a lower score for depression. Thus, having a lower social class background increases the chances of feelings of depression for Spanish adolescents. The average of 0.000 decreases with 0.086 on each step of the economic, social and cultural status variable. According to Table 5, this association has an R-

square of 0.005, which indicates that 0.5% of the variance of depression is explained by economic, social and cultural status. This means that this model has a low explanation value in reality. The significance value of this association is 0.000, thus this association is significant, which means it can be assumed that there exists a negative association between economic, social and cultural status and depression.

Model 2 gives the same result as model 1, namely that there is a negative association between economic, social and cultural status and depression. Table 5 indicates with a regression coefficient of -0.065 that the score of depression is lowered by a higher score on economic, social and cultural status. Where the constant of 0.547 is lowered by 0.065 with each step increase of economic, social and cultural status. This association has a *P*-value of 0.000, thus this association is significant.

When the association between depression and economic, social and cultural status is controlled for gender, grade and migration status the results of the model change. The regression coefficient goes from -0.086 in model 1 to -0.065 in model 2, thus, the control variables in this regression have an effect on the relationship between economic, social and cultural status and depression.

This second regression model has an R-square of 0.043, which can be seen in Table 5, thus 4,30% of the variance of depression is explained by economic, social and cultural status and the control variables.

Gender has a negative association of 0.466 with depression, which is with a *P*-value of 0.000 considered significant. The control variable of grade has a negative association with depression with -0.102, which is significant with a *P*-value of 0.000. Migration status has a positive association of 0.103 with depression and has a *P*-value of 0.000 and is thus considered significant.

## ACADEMIC PERFORMANCE

Model 1 shows in Table 6 the associations between the dependent variable of academic performance and other important variables. The constant of 494.831 indicates the starting value of 494.831 on academic performance. The R-square of 0.166 shows that 16.6% of the variance of academic performance can be explained by the included variables. In this model 2, which is controlled, the R-square increases, and the increased R-square shows that this model better explains the variance of academic performance by the included variables than in model 1. The R-square of 0.324 shows that 32.4% of the variance is explained, which means it doubled the variance of model 1.

**TABLE 6: ASSOCIATIONS OF ACADEMIC PERFORMANCE**

| Outcome variable = Academic Performance | Model 1 | Model 2 |
|---|---|---|
| *Variables* | *b* | *b* |
|  | *(SE)* | *(SE)* |
| **Constant** | 494.831*** | 506.757*** |
|  | (0.451) | (1.568) |
| **Independent variables** |  |  |
| Economic, social and cultural status | 25.117*** | 14.720*** |
|  | (0.438) | (0.420) |
| Depression | -1.180** | -0.351 |
|  | (0.377) | (0.347) |
| Positive Wise Interventions | 13.669*** | 8.865*** |
|  | (0.935) | (0.854) |
| - ESCS * Positive Wise Interventions (Interaction 1) | 1.221 (0.831) | 3.463*** (0.756) |
| - Depression * Positive Wise Interventions (Interaction 2) | -3.892*** (0.648) | -3.413*** (0.585) |
| Negative Wise Interventions | -22.963*** | -19.247*** |
|  | (0.699) | (0.632) |
| - ESCS * Negative Wise Interventions (Interaction 3) | 0.670 (0.688) | -1.238* (0.622) |
| - Depression * Positive Wise Interventions (Interaction 4) | 4.966*** (0.545) | 3.739*** (0.492) |
| Gender |  | 6.900*** |
|  |  | (0.808) |
| Grade |  | 61.379*** |
|  |  | (0.796) |
| Migration Status |  | -3.839*** |
|  |  | (0.785) |
| **Model summary** |  |  |
| R-Square | 0.166*** | 0.324*** |

*$p<.05$, **$p<.01$, ***$p<.001$

Table 6 shows the positive association between economic, social and cultural status and academic performance. The value of 25.117 indicates that the constant increases with 25.117 by every step higher on economic, social and cultural status, resulting in a higher score for academic performance. Thus, for Spanish adolescents being of higher social class results in better academic performances. This association is significant with a *P*-value of 0.000, thus it can be assumed this association exists in the population. When this association is controlled by gender, grade and migration status, the regression coefficient decreases from 25.117 in model 1 to 14.720 in model 2, thus, the control variables have an effect on this association.

The regression coefficient of -1.180 in Table 6 shows the negative association between depression and academic performance, which indicates that with every step higher on depression, the score of academic performance goes down by 1.180. So, academic performances are negatively affected by depression. The significance of 0.002 is below 0.05 and thus shows that this association is significant, and therefore exists in the population. When

controlled, the constant of model 2 is decreased by the regression coefficient of -0.351 with every step on depression. The *P*-value of this association is 0.312, which is above 0.05, which means this association is insignificant. Model 1 has a regression coefficient of -1.180 for this association, while model 2 has a coefficient of -0.351. Thus, the control variables gender, grade and migration status have an effect on this association, but this effect is insignificant.

The variables of positive wise interventions and academic performance have a positive association, the academic performance score goes up 13.669 with an increase of positive wise interventions. Thus, positive wise interventions by parents positively affect the academic performances of Spanish adolescents. The *P*-value of 0.000 shows the significance of the association. When this association is controlled for the control variables, the association decreases. In model 1 this association had a regression coefficient of 13.669 and in model 2 this association has a regression coefficient of 8.865.

The regression coefficient of 1.221 for the first interaction in Model 1 in Table 6 has a significance of 0.142, which makes this interaction insignificant. But, when controlled for gender, grade and migration status in model 2, there exists an interaction effect between economic, cultural and social status and positive wise interventions. Academic performance increases with 3.363 when the interaction between economic, cultural and social status and positive wise interventions increases. This interaction has a significance of 0.000, which means it is significant.

The second interaction of model 1 in Table 6 shows a negative effect, with a value of -3.892, of the interaction effect of depression and positive wise interventions on academic performance. The *P*-value of 0.000 indicates this moderated effect is significant, thus it can be assumed this moderated effect exists in the population. When this effect is controlled by gender, grade and migration status, the effect decreases from -3.892 in model 1 to -3.413 in model 2. Thus, the control variables have an influence on this effect.

Negative wise interventions have a negative association with academic performance, which is indicated by the regression coefficient of -22.963. This means that adolescents who endure negative wise interventions by parents have worse academic performances. The significance of 0.000 proves that this association is significant. In a controlled regression by gender, grade and migration status, the association decreases in strength, from -22.963 in model 1 to -19.247 in model 2.

Interaction 3 in model 1 shows a regression of 0.670 for the interaction effect between economic, cultural and social status and negative wise interventions. However, this interaction has a significance of 0.330 and is thus highly insignificant because it is above the required 0.05. But, when controlled for gender, grade and migration status in model 2, there exists a negative interaction effect between economic, cultural and social status and negative wise interventions. Academic performance decreases with 1.238 when the interaction between economic, cultural and social status and positive wise interventions increases. This interaction has a significance of 0.000, which means it is significant.

Interaction 4 shows the positive effect that the moderation of negative wise interventions has on the association between depression and academic performance. This effect is portrayed by the regression coefficient of 4.966 in Model 1 in Table 6. With a significance of 0.000, this effect is considered significant. When this interaction is controlled by the control variables, the effect of the interaction decreases. In Model 1 this interaction had a regression coefficient of 4.966 and in Model 2 this interaction has a regression coefficient of 3.739.

In Model 2 Gender has a significant positive association of 6.900 with academic performance. Grade has a significant positive association with academic performance, with a regression coefficient of 61.379. The control variable migration status has a significant negative association of -3.839 with academic performance.

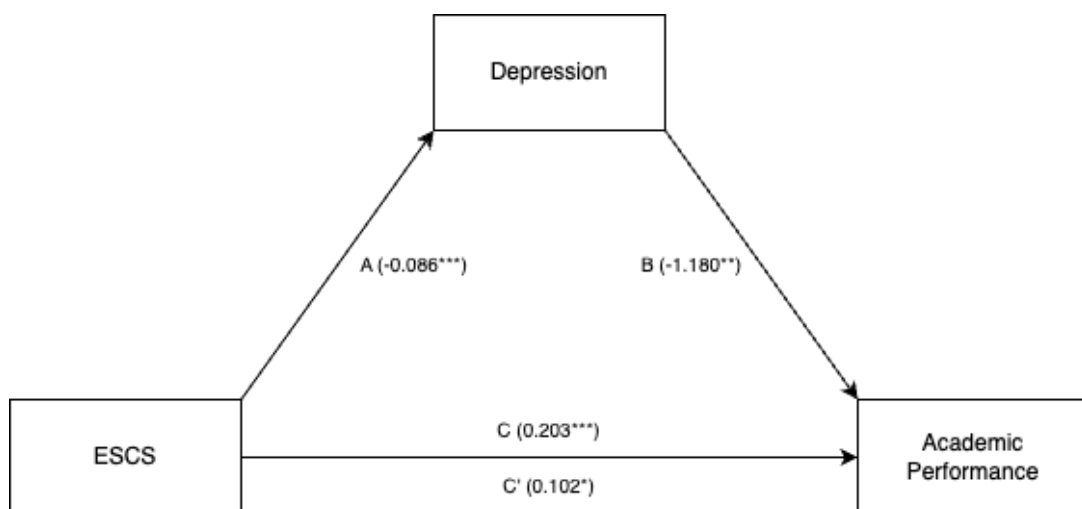## *MEDIATION OF DEPRESSION ON ESCS AND ACADEMIC PERFORMANCE*



**FIGURE 8: CONCEPTUAL MODEL WITH RESULTS OF MEDIATION**

**TABLE 7: DIRECT AND INDIRECT EFFECTS OF MEDIATION**

|  | Model 1 | Model 2 |
|---|---|---|
| **Direct Effect (C)** |  |  |
| ESCS → Academic Performance | 0.203*** | 0.046*** |
| **Indirect Effect (C')** |  |  |
| ESCS → Depression → Academic Performance | 0.102* | 0.023 |
| **Reduction** | 49.6% | 49.7% |

*$p$<.05, **$p$<.01, ***$p$<.001

**NOTE: FORMULA DIRECT EFFECT CALCULATION (C = C' + AB)** (KENNY, 2021)

Table 7 and figure 8 show the effect of the mediating variable of depression on economic, social and cultural status and academic performance. The significant direct effect of Model 1 is 0.203, which is reduced to a significant indirect effect of 0.102 when the mediating variable of depression is involved. Based on Table 7 the relationship between economic, social and cultural status is not completely mediated by depression, but the direct effect is reduced by 49.6% by the mediating variable. The direction of this mediation should be assumed to be in line with the hypothesis of this research.

However, when this model is controlled, the significant direct effect is 0.046, which decreases to the indirect effect of 0.023 which means the direct effect is reduced by 49.7% because of the mediating variable of depression, but the indirect effect shows insignificance because the bootstrap confidence intervals fall around the null hypothesis. Both the direct effect and the indirect effect decrease in value when controlled. Thus, this means that the control variables of gender, grade and migration status have an influence on these mediating relationships.

## *MODERATION OF ESCS AND ACADEMIC PERFORMANCE*

**TABLE 8: CONDITIONAL EFFECTS AT VALUES OF THE MODERATORS**

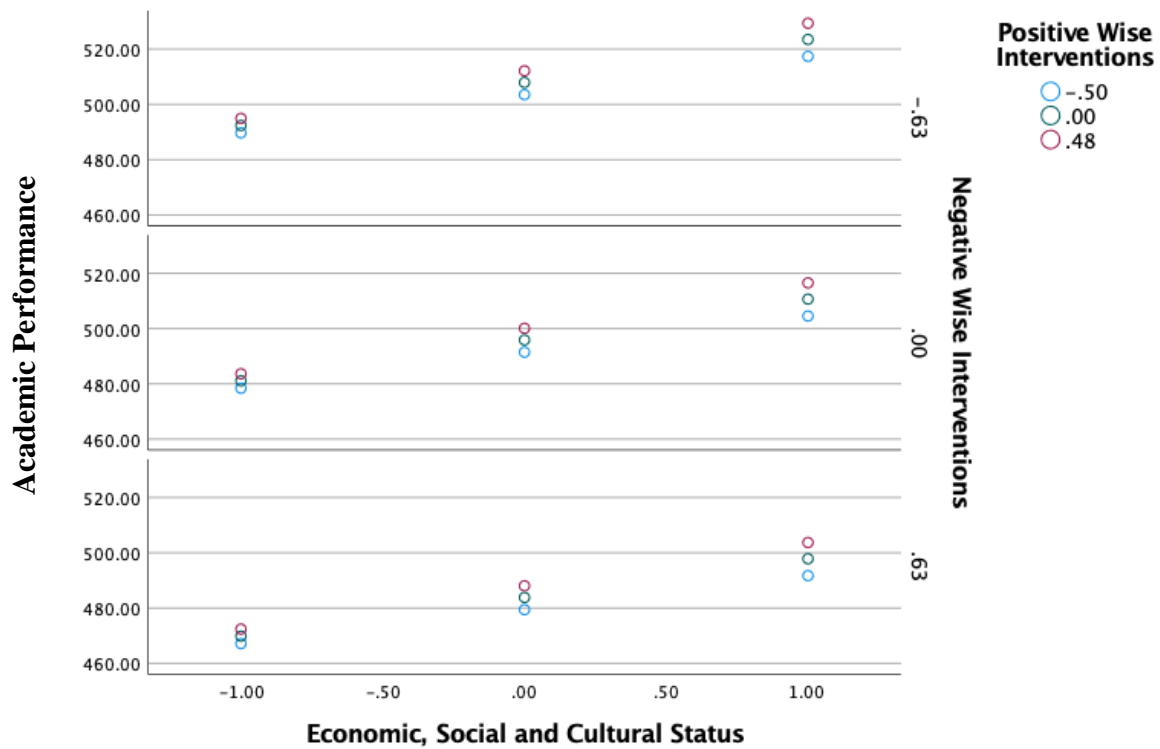| Positive wise interventions | Negative wise interventions | Effect (Model 1) | Effect (Model 2) |
|---|---|---|---|
| -0.497 | -0.626 | 24.090*** | 13.777*** |
| -0.497 | 0.000 | 24.510*** | 13.003*** |
| -0.497 | 0.626 | 24.930*** | 12.228*** |
| 0.000 | -0.626 | 24.697*** | 15.495*** |
| 0.000 | 0.000 | 25.117*** | 14.720*** |
| 0.000 | 0.626 | 25.537*** | 13.945*** |
| 0.477 | -0.626 | 25.280*** | 17.142*** |
| 0.477 | 0.000 | 25.700*** | 16.368*** |
| 0.477 | 0.626 | 26.120*** | 15.593*** |

*$p$<.05, **$p$<.01, ***$p$<.001

**FIGURE 9: ECONOMIC, SOCIAL AND CULTURAL STATUS AND ACADEMIC PERFORMANCE MODERATED BY POSITIVE AND NEGATIVE WISE INTERVENTIONS**

Figure 9 shows the varying slopes of the moderation effect of the wise interventions on the association between economic, social and cultural status and academic performance. It can be seen that there are differences among the interventions on the influence of economic, social and cultural status on academic performances, because it shows that for adolescents who experience more positive wise interventions their academic performances are higher. On the contrary, adolescents who experience more negative wise interventions score lower than the average on academic performances. Wise interventions influence the relationship between academic performance and economic, social and cultural status. Because when an adolescent has a higher economic, social and cultural status score, the effect changes because the moderated scores of academic performance become more separated from each other. Thus, when adolescents have a higher economic, social and cultural status, the effect of the moderation of wise interventions on academic performance increases.

Table 8 demonstrates the different slopes of the effect of the moderation of positive wise interventions on the association between economic, social and cultural status and academic performance. It shows that the slopes of the effect between academic performance and economic, social and cultural status become increasingly positive with an increase of positive

wise interventions. Thus, with positive wise interventions the effect of economic, social and cultural status on academic performance increases.

The moderation effect of negative wise interventions on the association between economic, social and cultural status and academic performance contrasts with the moderation effect of positive wise interventions. Table 8 shows that the slopes of the effect between economic, social and cultural status and academic performance decrease when the score of negative wise interventions increases.

## *MODERATION OF DEPRESSION AND ACADEMIC PERFORMANCE*

**TABLE 9: CONDITIONAL EFFECTS AT VALUES OF THE MODERATORS**

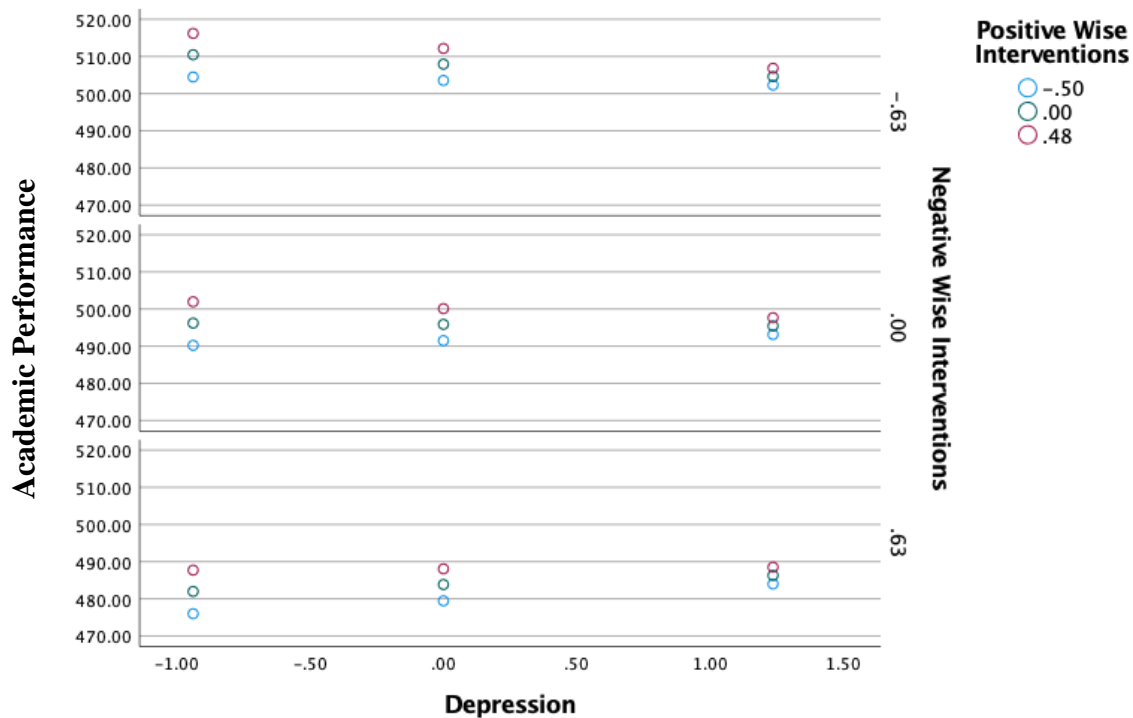| Positive wise interventions | Negative wise interventions | Effect (Model 1) | Effect (Model 2) |
|---|---|---|---|
| -0.497 | -0.626 | -2.357*** | -0.999 |
| -0.497 | 0.000 | 0.753 | 1.342** |
| -0.497 | 0.626 | 3.864*** | 3.682*** |
| 0.000 | -0.626 | -4.291*** | -2.269*** |
| 0.000 | 0.000 | -1.180** | -0.351 |
| 0.000 | 0.626 | 1.930*** | 1.990*** |
| 0.477 | -0.626 | -6.148*** | -4.315*** |
| 0.477 | 0.000 | -3.038*** | -1.975*** |
| 0.477 | 0.626 | 0.073 | 0.366 |

**$*\rho<.05, **\rho<.01, ***\rho<.001$**



**FIGURE 10: DEPRESSION AND ACADEMIC PERFORMANCE MODERATED BY POSITIVE AND NEGATIVE WISE INTERVENTIONS**

Figure 10, as explained by Table 9, shows the varying slopes of the moderation effect of the wise interventions on the association between depression and academic performance. In Figure 10 it can be seen that there are differences among the wise interventions on the influence of depression on academic performances because it shows that adolescents who experience more positive wise interventions their academic performances are higher. On the contrary, adolescents who experience more negative wise interventions score lower than the average on academic performances. Thus, wise interventions have an influence on the academic performances of adolescents. They also influence the relationship between academic performance and depression. When the adolescent scores higher for depression the effect changes, the moderated scores of academic performances become closer to each other. Thus, the effect of the moderation of wise interventions on academic performance decreases when adolescents become more depressed.

Overall, Table 9 shows that the slopes of the relationship between depression and academic performance become increasingly more negative with higher levels of positive wise interventions. This means that with positive wise interventions, the effect of depression on academic performance decreases with higher scores for depression.

Negative wise interventions have varying moderation effects on the association between depression and academic performance. It becomes clear based on Figure 10 and Table 9 that the relationship between depression and academic performance is moderated by negative wise interventions, which results that the association becomes increasingly positive with higher levels of negative wise interventions.

The positive wise interventions and the negative wise interventions can also be combined to look at the effect on the association between depression and academic performance. For adolescents who score high on positive wise interventions and score low on negative wise interventions, the significant effect is -4.315 on the association between academic performance and depression, thus with more positive wise interventions and less negative wise interventions the influence of depression on academic performance becomes lesser, as seen in Table 9. Contrary to that, Table 9 also shows that when low positive-wise interventions and high negative wise interventions are used, the significant effect becomes 3.682, thus the effect of depression on academic performance becomes stronger.

## MODERATED MEDIATION OF THE ASSOCIATION

**TABLE 10: INDICES OF PARTIAL MODERATED MEDIATION**

|  | Index (Model 1) | Index (Model 2) |
|---|---|---|
| Positive Wise Interventions | 0.335* | 0.221* |
| Negative Wise Interventions | -0.428* | -0.242* |

*$p<.05$

The moderated mediation of the association between economic, social and cultural status and academic performance mediated by depression which is subsequently moderated by positive wise interventions, has an index value of 0.221 in Table 10. The bootstrap confidence intervals in Table 10 determine this is a statistically significant moderated mediation. Thus, it can be assumed this moderated mediation exists. Table 10 shows a negative index value of -0.242 with negative wise interventions, where the association between economic, social and cultural status and academic performance is mediated by depression, which is moderated by positive wise interventions. This index value has bootstrap confidence intervals that indicate that this is a statistically significant result and this moderated mediation exists.

**TABLE 11: CONDITIONAL INDIRECT EFFECT OF ECONOMIC, SOCIAL AND CULTURAL STATUS ON ACADEMIC PERFORMANCE BY DEPRESSION**

| Positive wise interventions | Negative wise interventions | Effect (Model 1) | Effect (Model 2) |
|---|---|---|---|
| -0.497 | -0.626 | 0.203* | 0.065 |
| -0.497 | 0.000 | -0.065 | -0.087* |
| -0.497 | 0.626 | -0.333* | -0.239* |
| 0.000 | -0.626 | 0.370* | 0.174* |
| 0.000 | 0.000 | 0.102* | 0.023 |
| 0.000 | 0.626 | -0.166* | -0.129* |
| 0.477 | -0.626 | 0.530* | 0.280* |
| 0.477 | 0.000 | 0.262* | 0.128* |
| 0.477 | 0.626 | -0.006 | -0.024 |

*$p<.05$

Table 11 portrays the conditional indirect effects of economic, social and cultural status on academic performance moderated by positive and negative wise interventions. The table shows different values of the moderators positive and negative wise interventions and their effect on the association between economic, social and cultural status and academic performance mediated by depression. When the positive wise interventions variable has a value of a negative standard deviation, the mediated association has an effect of -0.087, the null hypothesis falls outside the bootstrap confidence intervals, thus this is considered significant. When positive wise interventions has the value of the mean, the mediated association has a positive effect of 0.023, this effect can be considered insignificant because the null hypothesis

falls inside the bootstrap confidence intervals. Positive wise interventions with a standard deviation above the mean creates a positive effect of 0.128 on the mediated association. The bootstrap confidence intervals reject the null hypothesis and indicate that this effect is significant. The results of Table 11 show that the effect of the association between economic, social and cultural status and academic performance, mediated by depression, becomes increasingly more positive and thus stronger with higher levels of positive wise interventions.

There are different values for the conditional indirect effects of economic, social and cultural status on academic performance mediated by depression and moderated by different values of negative wise interventions. Table 11 shows that for adolescents that score a standard deviation below the mean on negative wise interventions, the effect on the association between economic, social and cultural status on academic performance is 0.174, the bootstrap confidence intervals indicate the significance of this result. For adolescents that have a score similar to the mean, the effect on the association is 0.023, which is insignificant because the bootstrap confidence intervals fall around the null hypothesis. With one standard deviation above the mean on negative wise interventions, the effect on the association between economic, social and cultural status on academic performance is -0.129 with bootstrap confidence intervals that prove significance. The results show in Table 11 that the effect of the association between economic, social and cultural status and depression, mediated by depression becomes increasingly more negative with higher levels of negative wise interventions.

With the most positive usage of wise interventions, thus with one standard deviation above the mean on positive wise interventions and one standard deviation below the mean on negative wise interventions, the effect on the association between economic, social and cultural status and academic status mediated by depression the effect is 0.280, with bootstrap confidence intervals that show significance. When the most negative use of wise interventions is used, one standard deviation below the mean on positive wise interventions and one standard deviation above the mean on negative wise interventions, the effect is -0.239 on the association between economic, social and cultural status and academic status mediated by depression. Which has bootstrap confidence intervals that prove significance.

**TABLE 12: PAIRWISE CONTRASTS BETWEEN CONDITIONAL INDIRECT EFFECTS (MODEL 2)**

| Effect 1 | Effect 2 | Contrast |
|----------|----------|----------|
| 0.023 | -0.087 | 0.110* |
| 0.128 | -0.087 | 0.215* |
| 0.023 | -0.239 | 0.261* |
| 0.280 | -0.239 | 0.518* |
| 0.023 | 0.174 | -0.152* |
| -0.129 | 0.174 | -0.303* |
| -0.129 | 0.023 | -0.152* |
| 0.280 | 0.023 | 0.257* |
| 0.128 | 0.023 | 0.105* |

*$p<.05$

Table 12 provides insight into the differences between the effects of the association between economic, social and cultural status and academic performance mediated by depression with different values of the moderator positive wise interventions provided by Table 12. The significant difference between the mediated association effect 1 and mediated association effect 2, thus between low positive wise interventions and average positive wise interventions, is 0.110. The effects of the high positive wise interventions mediated association and the low positive wise interventions mediated association have a difference of 0.215, which is significant. The significant difference of the effects between the high positive wise interventions and the average positive wise interventions is 0.105.

The difference between mediated association effect 1 and mediation association effect 2, specifically between low negative wise interventions and average negative wise interventions is -0.152, which holds significance. The significant difference in effects of high negative wise interventions mediation and low negative wise interventions mediated association is -0.303. The significant difference in effects between high negative wise interventions and average negative wise interventions is -0.152.

The difference between the mediated effect of combined positive interventions, thus high positive wise interventions and low negative wise interventions, and the mediated effect of combined negative interventions, thus high positive wise interventions and low negative wise interventions, is 0.518, which is significant.

# CONCLUSION

To understand the relationships between social class, depression and school performances and the influence of parental wise interventions this research looked at the Programme for International Student Assessment 2018 (PISA)" dataset on 15-year-old Spanish adolescents. The first hypothesis of this research, based on the research of Fröjd et al. (2008), is that adolescents with higher levels of depression have lower academic performances than adolescents with lower levels of depression. The findings of Table 6 confirm this hypothesis, which can be accepted. Thus, this research can conclude that depression has a negative influence on the academic performances of Spanish adolescents.

Based on the research of Ritsher et al. (2001), Bartoll-Roca & Julia (2021), Lepièce et al. (2015) and Fröjd et al. (2008), the second hypothesis of this research is that depression has a mediating effect between social class and academic performance. That adolescents from lower social class have higher levels of depression and therefore have lower academic performances than adolescents of higher social class. According to Table 7, there is significant evidence for the mediating effect of depression between social class and academic performance, thus hypothesis 2 can be confirmed. This means social class influences the level of depression which then influences the academic performance of Spanish adolescents.

Theory of Dardas et al. (2018), Walton & Wilson (2018) and Yeager & Lee (2021) concluded that parental wise interventions can decrease adolescent depression, therefore this research hypothesized as the third hypothesis that more parental wise interventions will reduce the negative influence of depression on academic performance. Based on Figure 10 and Table 9, this hypothesis is confirmed. Because more parental positive wise interventions reduce the influence of depression on academic performance because the academic performances get higher, but this effect decreases when the adolescent becomes more depressed. Negative parental wise interventions have the opposite effect, more negative parental wise interventions create lower academic performances, but it has the same decreasing effect when adolescents get more depressed. Thus, receiving positive parental wise interventions creates better academic performances and reduces the influence of depression for Spanish adolescents.

The fourth hypothesis is based on the research of Vincent (2001) and Dardas et al. (2018), which resulted in the hypothesis that social class influences the effectiveness of parental wise interventions. Where adolescents of the lower social class will benefit less from wise

interventions from their parents than children from higher social class, which will result in lower academic performance. Based on Figure 6 and Table 8, this hypothesis can be confirmed, because it shows that for adolescents with a higher score for social class the effect of positive wise interventions increases. Thus, adolescents from lower social class benefit less from positive wise interventions than adolescents from higher social class in relation to their academic performances.

This research aimed to look at the moderation of parental wise interventions on the relationship between social class, depression and academic performance for Spanish adolescents. Based on the results of the analysis of this research, it can be concluded that parental wise interventions do have an influence on the relationships between social class, depression and academic performance. In general, based on Table 11, there is significant evidence for a moderated mediation. Thus, positive parental wise interventions do have a positive influence on the academic performances and depression of Spanish adolescents. While negative parental wise interventions have a negative influence on the academic performances and depression of Spanish adolescents.

## DISCUSSION

As stated before, this research found a moderation of parental wise interventions on the mediated relationship between social class and academic performance by depression with Spanish adolescents. This means positive wise interventions have a positive influence and negative wise interventions have a negative influence on the relationship between academic performance and depression.

The results of this research were consistent with its hypotheses and with the academic works of Fröjd et al. (2008), Ritsher et al. (2001), Bartoll-Roca & Julia (2021), Lepièce et al. (2015), Dardas et al. (2018), Walton & Wilson (2018), Yeager & Lee (2021) and Vincent (2001). This research builds further upon the before mentioned researches by looking more in-depth into wise interventions and their influence, it is of added value to the world academic literature on parental involvement, depression and academic performance. Although this research is on Spanish adolescents, the findings of the moderated mediation could be generalized to other Western meritocratic societies with similar structures and cultural values to Spain. Because the influence of adolescent depression occurs in most Western countries, in

which they compete in similar educational systems to achieve the best academic performances in which they are limited by depression.

The results of this research can have helpful implications for parents, teachers and policymakers, because this research shows the importance of parental involvement in the lives of adolescents. Parents should be made aware by teachers and policymakers that they can help their children when experiencing depressive symptoms, because they can reduce the experience of depression of their children, but they also can reduce the influence of depression on the academic performance of their child.

Future research on this subject should be directed at finding the most helpful parental wise interventions for reducing the influence of depression on academic performance. This research found that parental wise interventions can have a positive influence on the life of the adolescent, but it failed to provide evidence on which of the interventions is most useful to reduce the influence of depression on academic performance. Other future research could be directed at the underlying mechanisms of the parental wise interventions, as this research fails to provide insight into why these parental wise interventions are useful and how adolescents react to them.

As with most research, this research also has its limitations, one of those limitations is the operationalization of depression. As depression is a complex construct, the used variable for depression has a limited perspective on the level of depression of the Spanish adolescent. Other researchers (Arias-de la Torre et al., 2018; Fröjd et al., 2008; Hankin, 2006; Lovato & Gradisar, 2014; Rahman et al., 2021; Watts et al., 2015) investigate depression much more extensively by looking at depression through the experience of multiple symptoms affiliated with depression. While this research only uses how often adolescents feel depressed, which is not an in-depth indicator of depression. But, research by Santor et al. (2006) show in their research that the experience of depressed feelings is the most used and best indicator in models used to assert depression. Based on data availability this is the most accurate indicator available in the used dataset, which makes it an appropriate variable to use as an indicator for depression.

An additional limitation of this research is the use of the index of economic, social and cultural status variable as indicator for social class. Which includes the highest level of education of the parents, the highest occupational status of the parents and their compositions and the family income. But according to Barone et al. (2022), the use of multiple measures can result in fragmentation. They conclude that a social class scheme based on occupational status

is most used as an indicator in current research. This might be representative of adults and their social class position, but according to Svedberg et al. (2016), there is a weak correlation between parents' occupational status and the experienced socio-economic status of adolescents. Therefore, they advocate for using different approaches than parental occupational status as an indicator of social class for adolescents.

Another limitation of this research is the operationalization of the wise interventions. Literature on wise interventions is currently very limited in the academic field, which causes the concept to remain broad and vague. There currently is no significant academic literature which determines what precisely constitutes parental wise interventions, which makes it hard to test whether the used variables are representative for wise interventions. Thus, more research is needed to create a specific conceptualization and operationalization of wise interventions.

The last limitation of this research is the use of the Process tool of A. Hayes. Although it is a useful tool to analyze complete conceptual models at once, it also limits the possibility to create other conceptual models. In this research this resulted in the exclusion of a hypothesis from the conceptual model, thus the conceptual model is not representative of the complete research. This is an unfortunate occurrence, but not problematic as the hypothesis has still been investigated in this research. In future research, this problem could be solved by using structural equation modelling.

Another unfortunate limitation of the use of the Process tool, is that model 17 does not provide the effect coefficient of the C path in the mediation, which caused it to be calculated by hand in this research, this can have an effect on the significance of these results. This research is the proof that it would increase the significance of research if the C pathway is included in the process output. Although A. Hayes might have its reasons for not including the C pathway, this research advises Hayes to address and look into the pros and cons of including the C pathway in model 17 to create more clarity about it for the rest of the academic community.

# REFERENCES

Adams, K. E. (1992). An interpersonal approach to depression. In S. Miezitis (Ed.), *Creating alternatives to depression in our schools. Assessment, intervention, prevention* (pp. 57–66). Hogrefe & Huber Publishers.

Agresti, A. (2018). *Statistical Methods for the Social Sciences* (Fifth). Pearson Education Limited.

American Psychiatric Association. (2022). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.). American Psychiatric Association. https://doi.org/10.1176/appi.books.9780890425596

Arias-de la Torre, J., Vilagut, G., Martín, V., Molina, A. J., & Alonso, J. (2018). Prevalence of major depressive disorder and association with personal and socio-economic factors. Results for Spain of the European Health Interview Survey 2014–2015. *Journal of Affective Disorders*, *239*, 203–207. https://doi.org/10.1016/j.jad.2018.06.051

Avenevoli, S., Swendsen, J., He, J.-P., Burstein, M., & Merikangas, K. R. (2015). Major Depression in the National Comorbidity Survey–Adolescent Supplement: Prevalence, Correlates, and Treatment. *Journal of the American Academy of Child & Adolescent Psychiatry*, *54*(1), 37–44. https://doi.org/10.1016/j.jaac.2014.10.010

Barone, C., Hertel, F. R., & Smallenbroek, O. (2022). The rise of income and the demise of class and social status? A systematic review of measures of socio-economic position in stratification research. *Research in Social Stratification and Mobility*, *78*, 100678. https://doi.org/10.1016/j.rssm.2022.100678

Bartoll-Roca, X., & Julià, A. (2021). Empirically revisiting a social class scheme for mental health in Barcelona, Spain. *International Journal of Social Economics*, *48*(7), 965–981. https://doi.org/10.1108/IJSE-10-2020-0694

Bernardi, F., & Ballarino, G. (2016). Education as the great equalizer: a theoretical framework. In *Education, Occupation and Social Origin*. Edward Elgar Publishing. https://doi.org/10.4337/9781785360459.00006

Bernardi, F., & Cebolla, H. (2014). Clase social de origen y rendimiento escolar como predictores de las trayectorias educativas / Social Class and School Performance as Predictors of Educational Paths in Spain. *Revista Española de Investigaciones Sociológicas*. https://doi.org/10.5477/cis/reis.146.3

Birmaher, B., Ryan, N. D., Williamson, D. E., Brent, D. A., & Kaufman, J. (1996). Childhood and Adolescent Depression: A Review of the Past 10 Years. *Journal of the American Academy of Child & Adolescent Psychiatry*, *35*(12), 1575–1583.

Bourdieu, P. (1986). The Forms of Capital. In J. Richardson (Ed.), *Handbook of Theory and Research for the Sociology of Education* (pp. 241–258). Greenwood.

Bovens, M., & Wille, A. (2017). *Diploma Democracy: The Rise of Political Meroticracy* (1st ed.). Oxford University Press.

Breen, R., Luijkx, R., Müller, W., & Pollak, R. (2009). Nonpersistent Inequality in Educational Attainment: Evidence from Eight European Countries. *American Journal of Sociology*, *114*(5), 1475–1521.

Brent, D. A., Emslie, G. J., Clarke, G. N., Asarnow, J., Spirito, A., Ritz, L., Vitiello, B., Iyengar, S., Birmaher, B., Ryan, N. D., Zelazny, J., Onorato, M., Kennard, B., Mayes, T. L., DeBar, L. L., McCracken, J. T., Strober, M., Suddath, R., Leonard, H., … Keller, M. B. (2009). Predictors of Spontaneous and Systematically Assessed Suicidal Adverse Events in the Treatment of SSRI-Resistant Depression in Adolescents (TORDIA) Study. *American Journal of Psychiatry*, *166*(4), 418–426. https://doi.org/10.1176/appi.ajp.2008.08070976

Breslau, J., Borges, G., Tancredi, D., Saito, N., Kravitz, R., Hinton, L., Vega, W., Medina-Mora, M. E., & Aguilar-Gaxiola, S. (2011). Migration from Mexico to the United States and Subsequent Risk for Depressive and Anxiety Disorders. *Archives of General Psychiatry*, *68*(4), 428. https://doi.org/10.1001/archgenpsychiatry.2011.21

Bukodi, E., & Goldthorpe, J. H. (2013). Decomposing "Social Origins": The Effects of Parents' Class, Status, and Education on the Educational Attainment of Their Children. *European Sociological Review*, *29*(5), 1024–1039. https://doi.org/10.1093/esr/jcs079

Canals-Sans, J., Hernández-Martínez, C., Sáez-Carles, M., & Arija-Val, V. (2018). Prevalence of DSM-5 depressive disorders and comorbidity in Spanish early adolescents: Has there been an increase in the last 20 years? *Psychiatry Research*, *268*, 328–334. https://doi.org/10.1016/j.psychres.2018.07.023

Catalá-López, F., Gènova-Maleras, R., Álvarez-Martín, E., Fernández de Larrea-Baz, N., & Morant-Ginestar, C. (2013). Burden of disease in adolescents and young people in Spain. *Revista de Psiquiatría y Salud Mental (English Edition)*, *6*(2), 80–85. https://doi.org/10.1016/j.rpsmen.2012.07.002

Cohen, S., & Wills, T. A. (1985). Stress, Social Support, and the Buffering Hypothesis. *Psychological Bulletin*, *98*(2), 310–357.

Collins, R. (1979). *The Credential Society: A Historical Sociology of Education and Stratification*. Academic Press.

Creswell, J. W., & Creswell, J. D. (2022). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches* (6th ed.). SAGE publications.

DALL-E, & van den Hoven, D. W. (2023). *"Create a drawing of parents engaged in a conversation with a sad 15-year-old."* OpenAI.

Dardas, L. A., van de Water, B., & Simmons, L. A. (2018). Parental involvement in adolescent depression interventions: A systematic review of randomized clinical trials. *International Journal of Mental Health Nursing*, *27*(2), 555–570. https://doi.org/10.1111/inm.12429

Darvin, R., & Norton, B. (2014). Social Class, Identity, and Migrant Students. *Journal of Language, Identity & Education*, *13*(2), 111–117. https://doi.org/10.1080/15348458.2014.901823

Desjardins, T. L., & Leadbeater, B. J. (2011). Relational Victimization and Depressive Symptoms in Adolescence: Moderating Effects of Mother, Father, and Peer Emotional Support. *Journal of Youth and Adolescence*, *40*(5), 531–544. https://doi.org/10.1007/s10964-010-9562-1

Durante, F., & Fiske, S. T. (2017). How social-class stereotypes maintain inequality. *Current Opinion in Psychology*, *18*, 43–48. https://doi.org/10.1016/j.copsyc.2017.07.033

Dweck, C. S., & Yeager, D. S. (2019). Mindsets: A View From Two Eras. *Perspectives on Psychological Science*, *14*(3), 481–496. https://doi.org/10.1177/1745691618804166

Dweck, C. S., & Yeager, D. S. (2021). A Growth Mindset about Intelligence. In G. M. Walton & A. J. Crum (Eds.), *Handbook of Wise Interventions: How Social Psychology Can Help People Change* (Vol. 1, pp. 9–35). The Guilford Press.

Dyer, J. G., & Wade, E. H. (2012). Gender Differences in Adolescent Depression. *Journal of Psychosocial Nursing and Mental Health Services*, *50*(12), 17–20. https://doi.org/10.3928/02793695-20121107-04

Freiburger, M. (2015). *Relationship between Grade Retention and Psychological Outcomes during Adolescence* [Master Thesis]. University of Georgia.

Fröjd, S. A., Nissinen, E. S., Pelkonen, M. U. I., Marttunen, M. J., Koivisto, A., & Kaltiala-Heino, R. (2008). Depression and school performance in middle adolescent boys and girls.

*Journal of Adolescence*, *31*(4), 485–498.
https://doi.org/10.1016/j.adolescence.2007.08.006

Gamoran, A. (2001). American Schooling and Educational Inequality: A Forecast for the 21st
Century. *Sociology of Education*, *74*, 135. https://doi.org/10.2307/2673258

Gil-Hernández, C. J., Marqués-Perales, I., & Fachelli, S. (2017). Intergenerational social
mobility in Spain between 1956 and 2011: The role of educational expansion and
economic modernisation in a late industrialised country. *Research in Social Stratification
and Mobility*, *51*, 14–27. https://doi.org/10.1016/j.rssm.2017.06.002

Hankin, B. L. (2006). Adolescent depression: Description, causes, and interventions. *Epilepsy
& Behavior*, *8*(1), 102–114. https://doi.org/10.1016/j.yebeh.2005.10.012

Hartlage, S., Alloy, L. B., Vázquez, C., & Dykman, B. (1993). Automatic and Effortful
Processing in Depression. *Psychological Bulletin*, *113*(2), 247–278.

Hayes, A. F. (2013). *Model Templates for PROCESS for SPSS and SAS* (3rd ed.). The Guilford
Press.

Ikeda, M., & García, E. (2014). Grade repetition. *OECD Journal: Economic Studies*, *2013*(1),
269–315. https://doi.org/10.1787/eco_studies-2013-5k3w65mx3hnx

Jansen, D., Elffers, L., & Jak, S. (2021). A cross-national exploration of shadow education use
by high and low SES families. *International Studies in Sociology of Education*, 1–22.
https://doi.org/10.1080/09620214.2021.1880332

Kenny, D. A. (2021). *Mediation*.
Https://Davidakenny.Net/Cm/Mediate.Htm#:~:Text=The%20way%20to%20measure%2
0mediation,1%20-%20c'%2Fc.

Kirkcaldy, B., & Siefen, G. (1998). Depression, Anxiety and Self-Image among Children and
Adolescents. *School Psychology International*, *19*(2), 135–149.
https://doi.org/10.1177/0143034398192003

Kraemer, H. C., Wilson, G. T., Fairburn, C. G., & Agras, W. S. (2002). Mediators and
Moderators of Treatment Effects in Randomized Clinical Trials. *Archives of General
Psychiatry*, *59*(10), 877. https://doi.org/10.1001/archpsyc.59.10.877

Lepièce, B., Reynaert, C., Jacques, D., & Zdanowicz, N. (2015). Poverty and Mental Health:
What should we know as Mental Health professionals? *Psychiatria Danubina*, *27*(1), 92–
96.

Lovato, N., & Gradisar, M. (2014). A meta-analysis and model of the relationship between sleep and depression in adolescents: Recommendations for future research and clinical practice. *Sleep Medicine Reviews*, *18*(6), 521–529. https://doi.org/10.1016/j.smrv.2014.03.006

Marshall, T. H. (1950). Citizenship and Social Class. In *Citizenship and Social Class and other essays* (pp. 1–47). The Syndics of the Cambridge University Press.

Miller, L., & Campo, J. V. (2021). Depression in Adolescents. *New England Journal of Medicine*, *385*(5), 445–449. https://doi.org/10.1056/NEJMra2033475

Miravete, S. (2023). Should talented students skip a grade? A literature review on grade skipping. *European Journal of Psychology of Education*, *38*(2), 903–923. https://doi.org/10.1007/s10212-022-00614-z

OECD. (2018). *Programme for International Student Assessment 2018 (PISA)*.

OECD. (2019a). *PISA 2018 Assessment and Analytical Framework*. OECD Publishing. https://doi.org/10.1787/b25efab8-en

OECD. (2019b). *PISA 2018: Insights and Interpretations*. OECD Publishing.

OECD. (2019c). *Spain - Country Note - PISA 2018 Results*. OECD Publishing.

OECD. (2020). *PISA 2018 Results (Volume V): Effective Policies, Successful Schools*. OECD publishing. https://doi.org/10.1787/ca768d40-en

Peterson, G. W. (2005). Family Influences on Adolescent Development. In T. P. Gulotta & G. R. Adams (Eds.), *Handbook of Adolescent Behavioral Problems* (pp. 27–55). Springer. https://doi.org/10.1007/0-387-23846-8_3

Radovic, A., Reynolds, K., McCauley, H. L., Sucato, G. S., Stein, B. D., & Miller, E. (2015). Parents' Role in Adolescent Depression Care: Primary Care Provider Perspectives. *The Journal of Pediatrics*, *167*(4), 911–918. https://doi.org/10.1016/j.jpeds.2015.05.049

Rahman, Md. M., Saifuzzaman, Mohd., Ahmed, A., Mahin, M. F., & Shetu, S. F. (2021). Impact of COVID-19 on mental health: A quantitative analysis of anxiety and depression based on regular life and internet use. *Current Research in Behavioral Sciences*, *2*, 100037. https://doi.org/10.1016/j.crbeha.2021.100037

Ritsher, J. E. B., Warner, V., Johnson, J. G., & Dohrenwend, B. P. (2001). Inter-generational longitudinal study of social class and depression: A test of social causation and social selection models. *British Journal of Psychiatry*, *178*(S40), s84–s90. https://doi.org/10.1192/bjp.178.40.s84

Rynn, M., Crits-Christoph, P., Brent, D., Findling, R., & Dineen Wagner, K. (2017). Treatment of Depression and Bipolar Disorder. In D. L. Evans, E. B. Foa, R. E. Gur, H. Hendin, C. P. O'Brien, D. Romer, M. E. P. Seligman, & B. T. Walsh (Eds.), *Treating and Preventing Adolescent Mental Health Disorders* (2nd ed., pp. 45–68). Oxford University Press.

Santor, D. A., Gregus, M., & Welch, A. (2006). Eight Decades of Measurement in Depression. *Measurement: Interdisciplinary Research & Perspective*, *4*(3), 135–155. https://doi.org/10.1207/s15366359mea0403_1

Sijbrandij, M., Kleiboer, A., & Farooq, S. (2020). Editorial: Low-Intensity Interventions for Psychiatric Disorders. *Frontiers in Psychiatry*, *11*. https://doi.org/10.3389/fpsyt.2020.619871

Strand, S. (2021). *Ethnic, socio-economic and sex inequalities in educational achievement at age 16: An analysis of the Second Longitudinal Study of Young People in England (LSYPE2)*.

Svedberg, P., Nygren, J. M., Staland-Nyman, C., & Nyholm, M. (2016). The validity of socioeconomic status measures among adolescents based on self-reported information about parents occupations, FAS and perceived SES; implication for health related quality of life studies. *BMC Medical Research Methodology*, *16*(1), 48. https://doi.org/10.1186/s12874-016-0148-9

Vincent, C. (2001). Social Class and Parental Agency. *Journal of Education Policy*, *16*(4), 347–364. https://doi.org/10.1080/0268093011-54344

Voyer, D., & Voyer, S. D. (2014). Gender differences in scholastic achievement: A meta-analysis. *Psychological Bulletin*, *140*(4), 1174–1204. https://doi.org/10.1037/a0036620

Wagner, S., Müller, C., Helmreich, I., Huss, M., & Tadić, A. (2015). A meta-analysis of cognitive functions in children and adolescents with major depressive disorder. *European Child & Adolescent Psychiatry*, *24*(1), 5–19. https://doi.org/10.1007/s00787-014-0559-2

Walton, G. M., & Crum, A. J. (2021). Introduction. In G. M. Walton & A. J. Crum (Eds.), *Handbook of Wise Interventions: How Social Psychology Can Help People Change* (Vol. 1, pp. 1–5). The Guilford Press.

Walton, G. M., & Wilson, T. D. (2018). Supplemental Material for Wise Interventions: Psychological Remedies for Social and Personal Problems. *Psychological Review*, *125*(5), 617–655. https://doi.org/10.1037/rev0000115.supp

Watts, S., Leydon, G., Eyles, C., Moore, C. M., Richardson, A., Birch, B., Prescott, P., Powell, C., & Lewith, G. (2015). A quantitative analysis of the prevalence of clinical depression and anxiety in patients with prostate cancer undergoing active surveillance. *BMJ Open*, *5*(5), e006674–e006674. https://doi.org/10.1136/bmjopen-2014-006674

Webb, C. A., Auerbach, R. P., Bondy, E., Stanton, C. H., Foti, D., & Pizzagalli, D. A. (2017). Abnormal neural responses to feedback in depressed adolescents. *Journal of Abnormal Psychology*, *126*(1), 19–31. https://doi.org/10.1037/abn0000228

Weber, M. (1914). The Distribution of Power within the Political Community: Class, Status, Party. In C. Calhoun, J. Gerteis, J. Moody, S. Pfaff, & I. Virk (Eds.), *Classical Sociological Theory* (3rd ed., pp. 310–319). Wiley-Blackwell.

Weinberger, A. H., Gbedemah, M., Martinez, A. M., Nash, D., Galea, S., & Goodwin, R. D. (2018). Trends in depression prevalence in the USA from 2005 to 2015: widening disparities in vulnerable groups. *Psychological Medicine*, *48*(8), 1308–1315. https://doi.org/10.1017/S0033291717002781

Weis, L., & Dolby, N. (2012). *Social Class and Education: Global Perspectives*. Routledge.

Willingham, D. T. (2012). Ask the Cognitive Scientist: Why Does Family Wealth Affect Learning? *American Educator*, *36*(1), 33–39.

World Health Organization (WHO). (2021, September 13). *Depression*.

Yeager, D. S., & Lee, H. Y. (2021). The Incremental Theory of Personality Intervention. In G. M. Walton & A. J. Crum (Eds.), *Handbook of Wise Interventions: How Social Psychology Can Help People Change* (Vol. 1, pp. 305–324). The Guilford Press.

Yeager, D. S., Romero, C., Paunesku, D., Hulleman, C. S., Schneider, B., Hinojosa, C., Lee, H. Y., O'Brien, J., Flint, K., Roberts, A., Trott, J., Greene, D., Walton, G. M., & Dweck, C. S. (2016). Using design thinking to improve psychological interventions: The case of the growth mindset during the transition to high school. *Journal of Educational Psychology*, *108*(3), 374–391. https://doi.org/10.1037/edu0000098

# APPENDIX

## APPENDIX 1: OPERATIONALIZATION 'WISE INTERVENTION' VARIABLE

**TABLE 4: OPERATIONALIZATION 'WISE INTERVENTION' VARIABLE**

| Grouped variable name | Variable name | Variable label | Variable values |
|---|---|---|---|
| Positive Wise Interventions | WB163Q01HA | Thinking about your parents or guardians, how often do they: Help me as much as I need | 1. Almost Never<br>2. Sometimes<br>3. Almost Always<br>5. Valid Skip<br>7. Not Applicable<br>8. Invalid<br>9. No Response |
| | WB163Q02HA | Thinking about your parents or guardians, how often do they: Let me do the things I like doing | 1. Almost Never<br>2. Sometimes<br>3. Almost Always<br>5. Valid Skip<br>7. Not Applicable<br>8. Invalid<br>9. No Response |
| | WB163Q03HA | Thinking about your parents or guardians, how often do they: Show that they care | 1. Almost Never<br>2. Sometimes<br>3. Almost Always<br>5. Valid Skip<br>7. Not Applicable<br>8. Invalid<br>9. No Response |
| | WB163Q04HA | Thinking about your parents or guardians, how often do they: Try to understand my problems and worries | 1. Almost Never<br>2. Sometimes<br>3. Almost Always<br>5. Valid Skip<br>7. Not Applicable<br>8. Invalid<br>9. No Response |
| | WB163Q05HA | Thinking about your parents or guardians, how often do they: Encourage me to make my own decisions | 1. Almost Never<br>2. Sometimes<br>3. Almost Always<br>5. Valid Skip<br>7. Not Applicable<br>8. Invalid<br>9. No Response |
| | WB163Q08HA | Thinking about your parents or guardians, how often do they: Make me feel better when I am upset | 1. Almost Never<br>2. Sometimes<br>3. Almost Always<br>5. Valid Skip<br>7. Not Applicable<br>8. Invalid<br>9. No Response |

| Negative Wise Interventions | WB163Q06HA | Thinking about your parents or guardians, how often do they: Try to control everything I do | 1. Almost Never<br>2. Sometimes<br>3. Almost Always<br>5. Valid Skip<br>7. Not Applicable<br>8. Invalid<br>9. No Response |
|---|---|---|---|
| | WB163Q07HA | Thinking about your parents or guardians, how often do they: Treat me like a baby | 1. Almost Never<br>2. Sometimes<br>3. Almost Always<br>5. Valid Skip<br>7. Not Applicable<br>8. Invalid<br>9. No Response |

## APPENDIX 2: SYNTAX

*Dataset: Programme for International Student Assessment 2018 (PISA) (OECD, 2018)
*Author: Derk van den Hoven (Erasmsus Universiteit Rotterdam, 643279)
*Thesis: The Impact of Parental Wise Interventions on Depressed Spanish Adolescents


*--------------Creating the dataset

DATASET ACTIVATE DataSet1.
GET FILE='/Users/derkhoven/Desktop/Scriptie/PISA.sav'.
EXECUTE.


*--------------Selection Spanish Cases

USE ALL.
COMPUTE filter_$=(CNTRYID = 724).
VARIABLE LABELS filter_$ 'CNTRYID = 724 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.

DATASET ACTIVATE DataSet1.
FILTER OFF.
USE ALL.
SELECT IF (CNTRYID = 724).
EXECUTE.

*--------------Selection only valid cases

compute TEST=AP+ DEPR+ ESCS+ Poswi+ NegWI

compute notpresent=0.
if missing(TEST) notpresent=1.

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

DESCRIPTIVES VARIABLES=AP DEPR ESCS Poswi NegWI
 /STATISTICS=MEAN STDDEV MIN MAX.

DATASET COPY  onlyvalid.
DATASET ACTIVATE  onlyvalid.
FILTER OFF.
USE ALL.
SELECT IF (notpresent = 0).
EXECUTE.
DATASET ACTIVATE  DataSet1.

```
*--------------Rename Depression + Gender + Grade
RENAME VARIABLES (WB154Q04HA = DEPR) (ST004D01T = GENDER) (ST001D01T = GRADE).


*--------------Recode ESCS + Eliminate Outliers
RECODE escs (lo thru -3.0215171 = 999999999).
add value labels escs 999999999 '(Recoded outliers ESCS)'.
missing values escs (3.0191245 thru hi).


 *--------------Computing AP

COMPUTE  AP=(PV1MATH + PV2MATH + PV3MATH + PV4MATH + PV5MATH + PV6MATH +
      PV7MATH + PV8MATH + PV9MATH
   + PV10MATH + PV1READ + PV2READ + PV3READ + PV4READ + PV5READ + PV6READ +
      PV7READ + PV8READ +
   PV9READ + PV10READ + PV1SCIE + PV2SCIE + PV3SCIE + PV4SCIE + PV5SCIE + PV6SCIE +
      PV7SCIE + PV8SCIE
   + PV9SCIE + PV10SCIE) / 30.
VARIABLE LABELS  AP 'Academic Performance'.
EXECUTE.


*--------------Computing + Factor Analysis Wise Interventions
FACTOR
/VARIABLES   WB163Q01HA   WB163Q02HA   WB163Q03HA   WB163Q04HA   WB163Q05HA
      WB163Q06HA WB163Q07HA WB163Q08HA
 /MISSING PAIRWISE
 /ANALYSIS   WB163Q01HA   WB163Q02HA   WB163Q03HA   WB163Q04HA   WB163Q05HA
      WB163Q06HA WB163Q07HA WB163Q08HA
 /PRINT INITIAL CORRELATION EXTRACTION ROTATION
 /FORMAT SORT BLANK(.30)
 /PLOT EIGEN
 /CRITERIA MINEIGEN(1) ITERATE(25)
 /EXTRACTION PC
 /CRITERIA ITERATE(25)
 /ROTATION VARIMAX
 /METHOD=CORRELATION.

compute                            PosWI                                =
      mean(WB163Q04HA,WB163Q03HA,WB163Q01HA,WB163Q05HA,WB163Q08HA,WB163Q02
      HA).
compute NegWI = mean(WB163Q06HA, WB163Q07HA).


variable labels
PosWI 'Positive Wise Interventions'
NegWI 'Negative Wise Interventions'.



*--------------Data modeling
*Descriptives
 DESCRIPTIVES VARIABLES=AP DEPR ESCS Poswi NegWI
   /Statistics=MEAN.

*Scatterplot
TSET NEWVAR=NONE.
```

```
CURVEFIT
/VARIABLES=ap WITH escs
/CONSTANT
/MODEL=LINEAR
/PLOT FIT.


*--------------PROCESS V4.2 BY A. HAYES
*Model 1


Model 17
CI: 95%
Y variable: AP
X variable: ESCS
Mediators M: DEPR
Moderator variable W: PosWI
Moderator variable Z:  NegWI


DATA LIST FREE/
  ESCS     PosWI     NegWI     AP       .
BEGIN DATA.
    -1.007    -.497    -.626    478.168
     .000    -.497    -.626    502.422
    1.007    -.497    -.626    526.676
    -1.007    -.497     .000    463.363
     .000    -.497     .000    488.039
    1.007    -.497     .000    512.716
    -1.007    -.497     .626    448.557
     .000    -.497     .626    473.656
    1.007    -.497     .626    498.755
    -1.007     .000    -.626    484.350
     .000     .000    -.626    509.214
    1.007     .000    -.626    534.078
    -1.007     .000     .000    469.544
     .000     .000     .000    494.831
    1.007     .000     .000    520.118
    -1.007     .000     .626    454.738
     .000     .000     .626    480.448
    1.007     .000     .626    506.158
    -1.007     .477    -.626    490.286
     .000     .477    -.626    515.737
    1.007     .477    -.626    541.188
    -1.007     .477     .000    475.480
     .000     .477     .000    501.354
    1.007     .477     .000    527.228
    -1.007     .477     .626    460.674
     .000     .477     .626    486.971
    1.007     .477     .626    513.268
END DATA.
GRAPH/SCATTERPLOT=
 ESCS    WITH    AP     BY     PosWI  /PANEL  ROWVAR= NegWI   .


DATA LIST FREE/
  DEPR     PosWI    NegWI    AP       .
BEGIN DATA.
```

```
-.939    -.497    -.626   504.635
 .000    -.497    -.626   502.422
1.236    -.497    -.626   499.509
-.939    -.497     .000   487.332
 .000    -.497     .000   488.039
1.236    -.497     .000   488.970
-.939    -.497     .626   470.029
 .000    -.497     .626   473.656
1.236    -.497     .626   478.431
-.939     .000    -.626   513.243
 .000     .000    -.626   509.214
1.236     .000    -.626   503.911
-.939     .000     .000   495.939
 .000     .000     .000   494.831
1.236     .000     .000   493.372
-.939     .000     .626   478.636
 .000     .000     .626   480.448
1.236     .000     .626   482.833
-.939     .477    -.626   521.509
 .000     .477    -.626   515.737
1.236     .477    -.626   508.139
-.939     .477     .000   504.206
 .000     .477     .000   501.354
1.236     .477     .000   497.600
-.939     .477     .626   486.902
 .000     .477     .626   486.971
1.236     .477     .626   487.061
END DATA.
GRAPH/SCATTERPLOT=
 DEPR   WITH   AP    BY    PosWI  /PANEL  ROWVAR= NegWI  .


*Model 2
Model 17
CI: 95%
Y variable: AP
X variable: ESCS
Mediators M: DEPR
Moderator variable W: PosWI
Moderator variable Z:  NegWI
Covariates: GENDER, GRADE & IMMIG


DATA LIST FREE/
  ESCS    PosWI    NegWI    AP        .
BEGIN DATA.
  -1.004   -.496    -.626   489.722
    .000   -.496    -.626   503.558
   1.004   -.496    -.626   517.395
  -1.004   -.496     .000   478.454
    .000   -.496     .000   491.513
   1.004   -.496     .000   504.571
  -1.004   -.496     .626   467.187
    .000   -.496     .626   479.467
   1.004   -.496     .626   491.747
  -1.004    .000    -.626   492.393
```

```
 .000     .000    -.626   507.954
1.004     .000    -.626   523.516
-1.004    .000     .000   481.126
 .000     .000     .000   495.909
1.004     .000     .000   510.692
-1.004    .000     .626   469.858
 .000     .000     .626   483.863
1.004     .000     .626   497.868
-1.004    .476    -.626   494.956
 .000     .476    -.626   512.173
1.004     .476    -.626   529.389
-1.004    .476     .000   483.689
 .000     .476     .000   500.127
1.004     .476     .000   516.565
-1.004    .476     .626   472.422
 .000     .476     .626   488.081
1.004     .476     .626   503.741
END DATA.
GRAPH/SCATTERPLOT=
 ESCS    WITH    AP     BY     PosWI   /PANEL  ROWVAR= NegWI   .


DATA LIST FREE/
  DEPR    PosWI    NegWI    AP      .
BEGIN DATA.
  -.938   -.496    -.626   504.495
   .000   -.496    -.626   503.558
  1.235   -.496    -.626   502.325
  -.938   -.496     .000   490.254
   .000   -.496     .000   491.513
  1.235   -.496     .000   493.169
  -.938   -.496     .626   476.013
   .000   -.496     .626   479.467
  1.235   -.496     .626   484.014
  -.938    .000    -.626   510.479
   .000    .000    -.626   507.954
  1.235    .000    -.626   504.631
  -.938    .000     .000   496.238
   .000    .000     .000   495.909
  1.235    .000     .000   495.476
  -.938    .000     .626   481.997
   .000    .000     .626   483.863
  1.235    .000     .626   486.320
  -.938    .476    -.626   516.220
   .000    .476    -.626   512.173
  1.235    .476    -.626   506.844
  -.938    .476     .000   501.979
   .000    .476     .000   500.127
  1.235    .476     .000   497.689
  -.938    .476     .626   487.738
   .000    .476     .626   488.081
  1.235    .476     .626   488.533
END DATA.
GRAPH/SCATTERPLOT=
 DEPR    WITH    AP     BY     PosWI   /PANEL  ROWVAR= NegWI   .
```

## APPENDIX 3: ETHICS AND PRIVACY CHECKLIST

CHECKLIST ETHICAL AND PRIVACY ASPECTS OF RESEARCH

INSTRUCTION

This checklist should be completed for every research study that is conducted at the Department of Public Administration and Sociology (DPAS). This checklist should be completed *before* commencing with data collection or approaching participants. Students can complete this checklist with help of their supervisor.

This checklist is a mandatory part of the empirical master's thesis and has to be uploaded along with the research proposal.

The guideline for ethical aspects of research of the Dutch Sociological Association (NSV) can be found on their website (http://www.nsv-sociologie.nl/?page_id=17). If you have doubts about ethical or privacy aspects of your research study, discuss and resolve the matter with your EUR supervisor. If needed and if advised to do so by your supervisor, you can also consult Dr. Bonnie French, coordinator of the Sociology Master's Thesis program.

PART I: GENERAL INFORMATION

Project title:  The Impact of Parental Wise Interventions on Depressed Spanish Adolescents: Investigating the effectiveness of Parental Wise Interventions on Academic Performances

Name, email of student:       Derk van den Hoven, 643279dh@eur.nl

Name, email of supervisor:    Sjaak Braster, sjaak.braster@gmail.com

Start date and duration: 26 March 2023 – 25 June 2023

Is the research study conducted within DPAS        YES - NO

If 'NO': at or for what institute or organization will the study be conducted?
(e.g. internship organization)

PART II: HUMAN SUBJECTS

1.      Does your research involve human participants.     YES          -          NO

*If 'NO': skip to part V.*

If 'YES': does the study involve medical or physical research?          YES- NO
*Research that falls under the Medical Research Involving Human Subjects Act (WMO) must first be submitted to an accredited medical research ethics committee or the Central Committee on Research Involving Human Subjects (CCMO).*

2.      Does your research involve field observations without manipulations that will not involve identification of participants.          YES- NO

*If 'YES': skip to part IV.*

3.      Research involving completely anonymous data files (secondary data that has been anonymized by someone else).   YES - NO

*If 'YES': skip to part IV.*

PART IV: SAMPLE

Where will you collect or obtain your data?
*The PISA data is collected by the OECD (2018)*

What is the (anticipated) size of your sample?
*The sample size is 35.943 Spanish adolescents*

What is the size of the population from which you will sample?
*The total population of Spanish Adolescents is 416.703*

*Continue to part V.*

Part V: Data storage and backup

Where and when will you store your data in the short term, after acquisition?
*The data from the OECD (2018) will be stored on my laptop*

Who is responsible for the immediate day-to-day management, storage and backup of the data arising from your research?
*I will be responsible for the storage of the data*

How (frequently) will you back-up your research data for short-term data security?
*It is a dataset which is easily available through the internet, but the syntax of the dataset will be backed-up daily.*

In case of collecting personal data how will you anonymize the data?
*The data in the dataset is already anonymized.*

PART VI: SIGNATURE

Please note that it is your responsibility to follow the ethical guidelines in the conduct of your study. This includes providing information to participants about the study and ensuring confidentiality in storage and use of personal data. Treat participants respectfully, be on time at appointments, call participants when they have signed up for your study and fulfil promises made to participants.

Furthermore, it is your responsibility that data are authentic, of high quality and properly stored. The principle is always that the supervisor (or strictly speaking the Erasmus University Rotterdam) remains owner of the data, and that the student should therefore hand over all data to the supervisor.
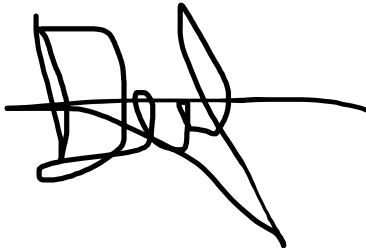
Hereby I declare that the study will be conducted in accordance with the ethical guidelines of the Department of Public Administration and Sociology at Erasmus University Rotterdam. I have answered the questions truthfully.

Name student:                                                    Name (EUR) supervisor:
*Derk van den Hoven*

Date:                                                                 Date:
*18-03-2023*