



RESEARCH ARTICLE

## Big Data Analytics of the Influence of Parent Characteristics on Children Health and Education

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**ARTICLE INFO**

**ABSTRACT**

Received: Aug 21, 2024

Accepted: Oct 8, 2024

**Keywords**

Financial Support

Parental Incarceration

Parenting

Child Health

Educational Attainment

The connection between parental characteristics and children's health has been investigated in various studies, and it has become a prominent topic of discussion among communities. However, in most of the existing studies which explored physical and mental well-being in children, the emphasis has primarily been on assessing covariates of a child's health, with limited attention given to understanding a child's health deterioration parental factors, and there is also little emphasis on how the education level of children is affected by parental characteristics. The current investigation seeks to ascertain the connection between each covariates (financial support received from parents, criminal record of parents, mistreatment received from parents, and care and accompaniment received from parents) and physical health problems, mental health problems, and education level of children. The methodology involves analysis of existing large data sets from Inter-University Consortium for Political and Social Research (ICPSR), which is a long-term investigation of child to adult health in the United States, and the Pearson correlation between each covariate and children's health and educational attainment is observed. The results highlighted the followings: financial support received from parents positively impacts children's physical and mental health problems, crime record of parents positively impacts children's mental health problems and negatively impacts children's education level, mistreatment received from parents positively correlates with children's physical and mental health problems, while care and accompaniment received from parents does not significantly affect children's health and education level. These insights offer a foundation for policymakers to develop evidence-based interventions aimed at enhancing the well-being of current and future generations by addressing the root causes and effects of parental influences on children's health and educational level.

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### 1.0 INTRODUCTION

In the ever evolving world of today, it is critical to protect children's welfare. However, with the evolution of family structures and societal norms, new challenges have emerged in children's development. A study found that approximately one in 14 children aged 0-17 years has parents

reporting poor mental health, which is associated with various health and developmental issues (Wolicki, 2021). Parental characteristics have always influenced children's health problems, and there are existing literatures available on the relationship between financial support from parents and children's physical health problem (Solt, 2022; Lindell et al., 2020), children's mental health problem (Lindell et al., 2022; Pooja \* Bhalla, 2022), and children's educational level (Deng et al., 2022). Furthermore, there are also existing studies on the relationship between parents crime record and children physical health problem (Wong et al., 2022), children's mental health problem (Heard-Garris, 2019), (Morgan-Mullane, 2018), and children's educational level (Hagan et al., 2020; Tadros, E. & Durante, K., 2021). Next, literature is available on relationship between mistreatment received from parents and children physical health problem (Gordon, 2021; Strathearn et al., 2020; Lansford et al., 2021), children's mental health problem (Strathearn et al., 2020; Lansford et al., 2021; Widom et al., 2018; Higgs et al., 2020; Raitasalo et al., 2018), and children's educational level (Zheng et al., 2020; Chitiyo, 2018; Mehta et al., 2021). Lastly, existing research on relationship between care and accompaniment from parents and children's physical health problem (Yogman & Eppel, 2021; Lee et al., 2021), children's mental health problem (Fan et al., 2018), and children's educational attainment (Koçak et al., 2021; Erdem & Kaya, 2020) are also available.

### **1.1 Problem statement**

Most of the existing studies tend to focus on the positive aspects of well-being and overlook the detrimental effects of poor health or academic struggles on individuals. Most of the existing studies which explored physical and mental well-being in children only have limited attention on a child's health deterioration, and little emphasis on how the education level of children is affected by parental characteristics. The research gap lies in the lack of comprehensive examination of both positive and negative aspects of well-being across physical, mental, and education performance. Therefore, we are investigating the relationship between parental characteristics and children's health problems and educational attainment by providing insights that can inform targeted interventions and support mechanisms for promoting the optimal development of children in today's fast-paced world.

## **2.0 LITERATURE REVIEW**

### **2.1 Financial support from parents**

#### **2.1.1 Financial support from parents on children's physical health problems**

Parental financial assistance significantly impacts children's physical health (Lee et al., 2020). This assistance includes a number of aspects, from ensuring access to nutritious food to covering medical expenses, and it plays a vital role in shaping children's overall wellbeing (Cao Y., 2021). Consequently, understanding how parental financial resources influence children's health outcomes is essential for addressing health inequities and advocating for fair access to healthcare. While it is crucial to acknowledge the broader implications of income inequality on health and wellbeing (Solt, 2019), caution must be exercised when directly correlating parental financial support with health outcomes. While research suggests a connection between income disparity and health outcomes (Lindell et al., 2020), the direct association between parental financial support and children's physical health may not always align neatly with larger socioeconomic differences. The complexity of the relationship between parental financial assistance and children's health outcomes is further compounded by various factors that can vary significantly within income categories. These factors include access to healthcare services, the quality of healthcare received, and the social determinants of health. Therefore, while economic disparity serves as a crucial macro-level indicator, it is essential to approach its implications on individual family dynamics and children's health with caution.

#### **2.1.2 Financial support from parents on children's mental health problems**

Examining the impact of parental financial assistance on children's mental health reveals a complex relationship with various dimensions of well-being (Oh & Lee, 2023). This support extends beyond providing basic necessities; it includes opportunities for extracurricular activities and education, crucial for shaping children's emotional health and resilience. Research indicates that engagement in extracurricular activities, such as athletics, arts, and cultural endeavours, serves as essential channels for regulating and expressing emotions, thereby contributing to positive mental health outcomes. Moreover, children from financially secure backgrounds are more likely to participate in these

activities, underscoring the significance of parental financial support in facilitating access to enriching experiences that promote emotional well-being (Lindell et al., 2020). In addition to extracurricular activities, the provision of educational programs and structured learning opportunities significantly influences children's mental health and cognitive development. Participation in educational activities not only enhances academic skills but also fosters problem-solving abilities, critical thinking, and resilience – crucial attributes for navigating life's challenges and maintaining optimal mental health. Furthermore, access to quality education empowers children to overcome socioeconomic barriers and break the cycle of intergenerational poverty, thereby contributing to long-term mental health and well-being (Pooja & Bhalla, 2022).

### **2.1.3 Financial support from parents on children's education level**

Analysing the extent of parental financial support for their children's education reveals a nuanced relationship between financial resources and academic performance (Deng et al., 2022). This support takes various forms, including financial aid for extracurricular activities, educational supplies, and tuition fees, all of which contribute to creating an enriching classroom environment and fostering academic achievement (Zhang et al., 2021). Furthermore, parental financial assistance can mitigate barriers to high-quality education stemming from resource constraints, thereby levelling the educational playing field for children from underprivileged families. Research indicates that children from stable, affluent families are more likely to pursue higher education and obtain advanced degrees compared to their peers from low-income households. Additionally, parental financial support enables children to engage in educational enrichment activities, such as summer camps or tutoring, enhancing their academic skills and cultivating a lasting enthusiasm for learning (C. Lee et al., 2022).

## **2.2 Criminal record of parents**

### **2.2.1 Criminal record of parents on children's physical health problems**

The criminal record of parents has been linked to an increased risk of physical health issues in their children. A family with a parent who has been involved in crime will often have characteristics like violent behaviour, substance abuse, and economic hardship (Travis et al., 2014 cited in Jackson et al., 2021). One of the most common crimes includes substance abuse by adults. Parents who are involved in substance abuse issues often experience erratic mood swings, delusions, and loss of consciousness and this can directly affect the physical health of their children (Czeisler et al., 2020). A research done by Branigan (2019) indicates that maternal incarceration will negatively impact a child's overall good health such as overweight and obesity, however paternal incarceration has less impact on it (Branigan et al., 2019). This is because most children with an incarcerated father reside with their mother, while relatively few children with an incarcerated mother live with their father (Bloom B. & Steinhart D., 1992, cited in Branigan et al., 2019). Besides, parental imprisonment is linked to higher BMI gain among non-delinquent females compared to delinquent females, particularly in early adulthood, suggesting a potential risk for cardiovascular and metabolic diseases as they age (Roettger et al., 2023).

### **2.2.2 Criminal record of parents on children's mental health problems**

The criminal record of parents is also associated with negative impacts on children's mental health development. Children of parents with criminal records may experience mental health issues as a result of witnessing their parent's arrest in childhood, such as heavily armed officers breaking down doors, handcuffing parents, and taking them away, leaving the child to be alone or subjecting them to unsettling places like in police stations or juvenile facilities. A child's traumatic cycle begins with the terror of witnessing parental arrest and continues with the lack of care from the child's parent (Manning 2011, cited in Morgan-Mullane, 2018). Furthermore, children whose parents have ever been incarcerated, may be at a higher risk of developing behavioural disorders such as anger, depression, self isolation and like to harm themselves (Morgan-Mullane, 2018). If these problems are not addressed, they can leave even more long-term severe psychological and emotional problems (Manning 2011, cited in Morgan-Mullane, 2018). According to Heard-Garris' study (2019), there is a high rate of depression, anxiety, and suicidal thoughts among young adults who have experienced parental incarceration (Heard-Garris, 2019). These findings suggest a significant relationship between a parent's criminal record and adverse children's mental health deterioration.

### **2.2.3 Criminal record of parents on children's education level**

The criminal record of parents can have a detrimental effect on their children's education level. According to research by Hagan et al. (2020), children of incarcerated fathers experience significant educational disadvantages, particularly in states with higher levels of paternal imprisonment and concentrated disadvantage, leading to lower college graduation rates despite state investments in welfare and education Hagan et al. (2020). The reason for this phenomenon lies in the intersection of rising college costs, limited federal and state efforts to address educational disparities, and the prevalence of parental incarceration in impoverished areas, all of which compound challenges to educational attainment Hagan et al. (2020). Children with fathers who have been incarcerated exhibit a higher probability of grade retention during elementary school and are frequently placed in special education programs, often due to behavioural or conduct issues such as attention deficits and learning disabilities (Arrastia-Chisholm et al., 2020). In contrast, as highlighted by Haskins and Jacobsen (2017), parental engagement in children's educational outcomes decreases the probability of them dropping out and they would experience fewer behavioural issues (Haskins and Jacobsen, 2017 cited in Tadros, E. & Durante, K., 2021). When there is only one parent available to participate in children's educational matters, the responsibility for the child's education falls solely on them, resulting in a reduced capacity to dedicate sufficient time to their child's schooling, thereby diminishing the emphasis on education (Tadros, E. & Durante, K., 2021).

## **2.3 Mistreatment received from parents**

### **2.3.1 Mistreatment received from parents on children's physical health problems**

The physical well-being of children significantly influences their development across various aspects, highlighting the need for a thorough examination of factors affecting their physical health. Despite some associations being mediated by smoking behaviour, emotional abuse from parents may also cause symptoms of asthma even into adulthood at 21 years old (Gordon, 2021; Strathearn et al., 2020). According to studies by other researchers, children who have an increased risk of pulmonary and coronary artery diseases, hypertension, chronic lung disease, skeletal fractures, liver disease, high dietary fat intake, poor sleep quality, and height deficits are associated with poor childhood experiences. (Gordon, 2021; Strathearn et al., 2020). Height deficit may be affected by all kinds of maltreatment but not by sexual abuse (Strathearn et al. 2020). However, for children who experience early abuse, their chances of engaging in risky sexual behaviour are higher than those who have not experienced abuse. This behaviour may lead to chronic pelvic pain, endometriosis, and gynecologic cancers (Gordon, 2021; Lansford et al., 2021). Overall, The average health index for individuals who encountered abuse during their childhood was 0.74 (SE = 0.02), while the average health index for adolescents who did not suffer from parental mistreatment was 0.81 (SE = 0.01). Early abuse is linked to a 0.10 SD statistically significant decline in health ratings. (Lansford et al., 2021)

### **2.3.2 Mistreatment received from parents on children's mental health problems**

Child well-being profoundly influences their development across various domains, necessitating a comprehensive exploration of factors impacting their mental health. Research underscores the heightened vulnerability of children who have experienced mistreatment, linking it to increased risks of externalising behaviour problems, delinquency (particularly in males), and internalising disorders (Strathearn et al., 2020; Lansford et al., 2021). Moreover, the adverse effects intensify for those subjected to multiple forms of mistreatment, including emotional abuse and neglect, leading to elevated risks of mental health disorders such as anxiety, depression, PTSD, psychosis, and the development of anxious attachment styles in adulthood (Widom et al., 2018; Strathearn et al., 2020). My own findings highlight the enduring consequences of childhood sexual abuse, revealing it as a predictor impacting children's sleep quality and subsequent mental health, potentially resulting in clinical depression and lifetime PTSD (Higgs et al., 2020). Additionally, literature underscores the detrimental impact of maternal alcohol abuse on children's mental health, suggesting its effects surpass those of paternal alcohol abuse (Raitasalo et al., 2018). In sum, these findings emphasise the multifaceted nature of mistreatment and its profound implications for children's mental health problems.

### **2.3.3 Mistreatment received from parents on children's education level**

The educational attainment of children is profoundly influenced by their overall well-being, necessitating a comprehensive examination of factors impacting their development, particularly within the educational context. Research suggests that exposure to various forms of maltreatment during childhood, such as physical abuse, emotional abuse, and neglect, can disrupt brain development and increase the risk of psychological disorders throughout their lifetime, thereby hindering academic success (Zheng et al., 2020). Additionally, impaired brain development resulting from maltreatment may affect readiness skills essential for academic achievement (Chitiyo, 2018; Mehta et al., 2021). Furthermore, lower educational attainment has been associated with physical abuse and neglect during childhood because of related behavioural concerns such as delinquency, attention disorders, and reduced engagement in extracurricular activities (Zheng et al., 2020; Mehta et al., 2021). These behavioural challenges, stemming from maltreatment by parents, extend beyond academic performance to impact attendance and social skills (Chitiyo, 2018; Mehta et al., 2021).

## **2.4 Care and accompaniment received from parent**

### **2.4.1 Care and accompaniment received from parent on children's physical health problems**

Parental care and accompaniment are the fundamental element of a child's upbringing which has an impact on their development including their physical well-being. While maternal care has traditionally been emphasised in a child's physical health, the importance of paternal involvement in promoting a child's well-being should not be neglected (Allport et al., 2018). According to previous research, the children who receive adequate parental care and accompaniment have demonstrated better physical health outcomes including lower infant mortality, fewer serious accidents, lower risks of obesity and asthma as compared to those without such support (Allport et al. 2018 cited in Yogman & Eppel, 2021). Additionally, the results from a research show that the healthy parenting style significantly affects the obesity status of the children (Lee et al., 2021). Common surroundings that are associated with body mass index and obesity are often shared by parents and children, including sharing meals and carrying out sports and games together. Hence, parental engagement in promoting healthy lifestyles such as regular physical activity and balanced nutrition, plays a significant role in mitigating the risk of chronic health conditions in children. In conclusion, parental participation in a child's life has been associated with lowering children's physical health problems.

### **2.4.2 Care and accompaniment received from parent on children's mental health problems**

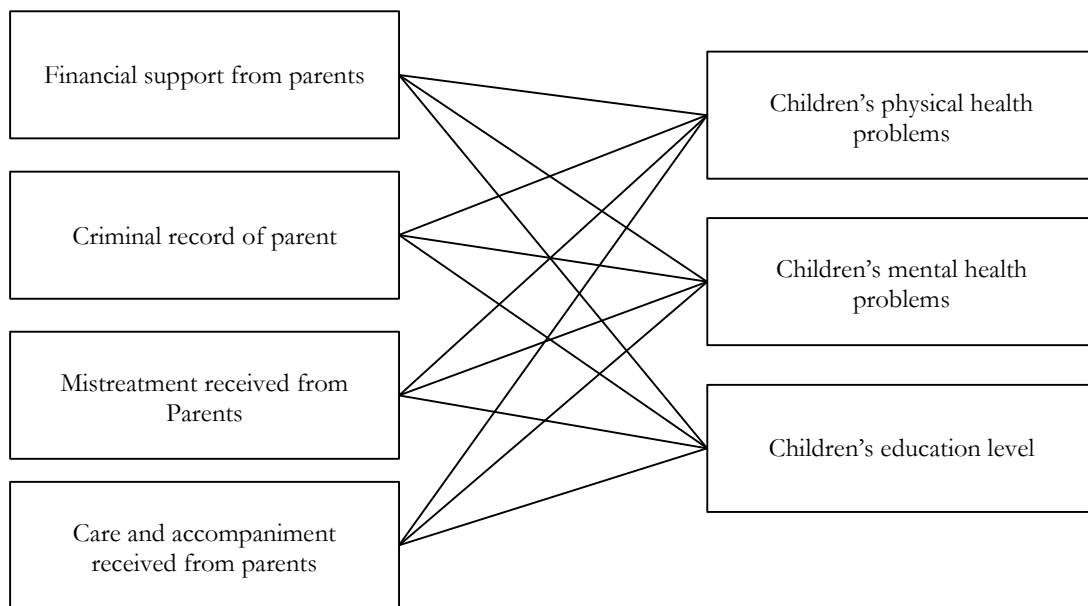
Parental care and accompaniment are a crucial factor on children's growth as well as mental health. Research found that inadequate parental care and accompaniment could increase the risk of depression in children (Fan et al., 2018). This could be because parents play a crucial role in their children's emotional and psychological development. (Li & Guo, 2023). Children who received fewer emotional support from their parents, were more likely to experience depressive symptoms when dealing with stresses (Fan et al., 2018). Furthermore, depression is not an isolated condition. It often led to a series of negative outcomes, including increased risk for anxiety disorders, behaviour issues like learning difficulties and increased risk of conflicts in social relationships (Lee et al., 2020). Therefore, creating a nurturing and supportive environment through positive parental involvement is essential for reducing their levels of anxiety, depression, and behaviour problems. This involvement can be in various forms, including spending time together, engaging in activities that promote bonding and communication, and being attentive to their children's emotional needs. When children feel loved, supported, and understood by their parents, they are more likely to experience lower levels of anxiety, depression, and behavioural problems.

### **2.4.3 Care and accompaniment received from parent on children's education level**

Parental care and accompaniment are also profoundly influencing children's academic journey such as educational level. Research indicates that parents' involvement has strong positive effects on children's academic achievement (Koçak et al., 2021). This is because parental involvement encompasses a range of activities and behaviours aimed at supporting and enhancing a child's academic and personal development, which highlights the critical role parents play in shaping their children's educational outcomes through their attitudes and actions (Eden et al., 2024). However, it's

crucial to recognize that parental involvement can have adverse effects, particularly when it involves psychological control or harsh parenting styles (Koçak et al., 2021). Instead, parents should focus on creating an environment that is conducive to learning by assisting with homework and discussing school activities with children. This involvement not only fosters motivation and engagement, but also instill a sense of value for education in children, ultimately contributing to their educational success (Hsu and Chen 2023 cited in Eden et al., 2024). Additionally, parental support can help kids learn and succeed in school by doing things like giving them the right materials for their education, giving them praise, and showing them that you care about them.(Boonk et al. 2018 cited in Erdem & Kaya, 2020).

Based on the literature review, a conceptual framework is created to illustrate the relationship between parental characteristics as covariates and children's physical health problems, mental health problems, and education level, as indicated in Figure 1.



**Figure 1: Conceptual framework of covariates of children's physical health problems, mental health problems, and education level**

**H1:** There is a relationship between financial support received from parents and children's physical health problems.

**H2:** There is a relationship between financial support received from parents and children's mental health problems.

**H3:** There is a relationship between financial support received from parents and children's educational level.

**H4:** There is a relationship between the criminal record of parents and children's physical health problems.

**H5:** There is a relationship between the criminal record of parents and children's mental health problems.

**H6:** There is a relationship between the criminal record of parents and children's educational level.

**H7:** There is a relationship between mistreatment received from parents and children's physical health problems.

**H8:** There is a relationship between mistreatment received from parents and children's mental health problems.

**H9:** There is a relationship between mistreatment received from parents and children's education level.

**H10:** There is a relationship between care and accompaniment received from parents and children’s physical health problems.

**H11:** There is a relationship between care and accompaniment received from parents and children’s mental health problems.

**H12:** There is a relationship between care and accompaniment received from parents and children’s education level.

**Summary Table of Literature Review**

The literature review of the covariates of children's physical health problems are summarised in Table 1, the covariates of children's mental health problems are summarised in Table 2, mental health, and the covariates of children's educational level are summarised in Table 3.

**Table 1: The covariates of children's physical health problems**

Covariate	Detail variables	Impact on Children’s Physical Health Problems	Previous studies
Financial support from parents	Good financial assistance	Increase overall well being	Lee et al. (2020) Cao Y et al. (2021)
	Access to Nutritious Food Coverage of Medical Expenses	Increased balance diet Improved overall health outcomes and reduced healthcare-related financial burden on families.	Lindell et al. (2020) Solt (2019)
Criminal records of parents	Violent behaviour and substance abuse by adults	Increased risk of physical health issues	Travis et al. (2014)
	Maternal incarceration	More impact on child’s overweight and obesity	Czeisler et al. (2020) Branigan et al. (2019)
	Paternal incarceration	Less impact on child’s overweight and obesity	Branigan et al. (2019)
Parental imprisonment		Higher BMI gain	Roettger et al. (2023)
		risk for cardiovascular and metabolic diseases	
Mistreatment received from parents	Parental emotional abuse and smoking behaviour	symptoms of asthma	Gordon (2021) Strathearn et al. (2020)
	Poor childhood experiences	Higher chance of developing pulmonary and coronary artery diseases, hypertension, chronic lung disease, skeletal fractures, liver disease, high dietary fat intake, poor sleep quality and height deficits	Gordon (2021) Strathearn et al. (2020)
	Early abuse	Higher chances of engaging in risky sexual behaviour Gynaecological disorders	Gordon (2021) Lansford et al. (2021)
Care and accompaniment received from parents	Paternal involvement	Promote better well being	Allport et al. (2018)
	Paternal involvement in a child’s life	Better physical health outcomes	Allport et al. (2018) cited in Yogman & Eppel, 2021)
	Healthy parenting style	Lower obesity rate	Eppel, 2021) Lee et al. (2021)

**Table 2: The covariates of children's mental health problems**

Covariate	Detail variables	Impact on Children’s Mental Health Problems	Previous studies
Financial support from parents	Extracurricular Activities	Regulate and express emotions in a healthy manner	Oh & Lee (2023)
	Educational Programs and Structured Learning Opportunities	Enhanced Social Skills Improved Cognitive Development	Lindell et al. (2020)
	Quality Education	Long-term Well-being	Pooja & Bhalla (2022)
Criminal records of parents	Witnessing parental arrest in childhood	Begin of trauma cycle	Manning (2011, cited in Morgan-Mullane, 2018)
	Parental incarceration	Development of behavioural disorders	

	Parental incarceration	Long-term Psychological and Emotional Problems Depression, Anxiety, Suicidal Thoughts	Heard-Garris (2019)
Mistreatment received from parents	Experienced mistreatment  Emotional abuse and neglect  Childhood sexual abuse  Maternal alcohol abuse	increased risks of externalising behaviour problems, delinquency (particularly in males), and internalising disorders  anxiety, depression, PTSD, psychosis, and the development of anxious attachment styles  impacting children's sleep quality and subsequent mental health  clinical depression and lifetime PTSD  children's mental health	Strathearn et al., (2020) Lansford et al. (2021) Widom et al. (2018) Strathearn et al., (2020) Higgs et al. (2020) Raitasalo et al. (2018)
Care and accompaniment received from parents	Inadequate parental care  Lack of parental care  Parental care	Increase risk of depression Experience depressive symptoms  Increased risk for anxiety disorders, behaviour issues, and increased risk of conflicts in social relationships  Growth in emotional and psychological health	Fan et al. (2018) Lee et al. (2020) Li & Guo (2023)

**Table 3: The covariates of children's education level**

Covariate	Detail variables	Impact on Children's Education Level	Previous studies
Financial support from parents	Aid for extracurricular activities  Access to Educational Supplies  Tuition fee coverage	Holistic Development Improved Academic Performance Increase support for Learning  Increased Access to Education	Deng et al. (2022) Zhang et al (2021) Lee et al. (2022)
Criminal records of parents	Paternal imprisonment  Parents able to engage in children's education Paternal incarceration	Lower graduation rates Grade Retention During Elementary School Placement in Special Education Programs Decrease in dropout rates, fewer behavioural issues  Single parent causes reduced time for educational support	Hagan et al. (2020) Arrastia-Chisholm et al. (2020)  Haskins and Jacobsen (2017, cited in Tadros, E. & Durante, K., 2021) Tadros, E. & Durante, K. (2021)
Mistreatment received from parents	Various forms of maltreatment during childhood  Maltreatment  childhood physical abuse and neglect	disrupt brain development and increase the risk of psychological disorders throughout their lifetime  impaired brain development affect readiness skills essential for academic achievement  lower educational attainment associated behavioural issues, including delinquency, attention problems, and reduced engagement in extracurricular activities	Zheng et al. (2020)  Chitiyo (2018) Mehta et al. (2021)  Zheng et al. (2020) Mehta et al. (2021)
Care and accompaniment received from parents	Parental involvement	Improve academic achievement Contributing to educational success Adverse effects on academic achievement	Koçak et al. (2021) Hsu and Chen (2023 cited in Eden et al.,



	Harsh parenting styles Parental support	Contribute to learning and educational success Enhancing academic and personal development	2024) Koçak et al. (2021) Boonk et al. (2018 cited in Erdem & Kaya, 2020) Eden et al. (2024)
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### 3.0 RESEARCH METHODOLOGY

#### 3.1 Population and country

The study utilised a quantitative approach by processing and reformatting the extensive datasets from the National Longitudinal Study of Adolescent Health (ICPSR, 2018), DS8 Wave III: In-Home Questionnaire, Public Use Sample, and DS22: Wave IV: In-Home Questionnaire, Public Use Sample. The National Longitudinal Study of Adolescent to Adult Health originated from the U.S. Congressional mandate aimed at funding a study on adolescent health, thus the dataset population primarily comprises individuals from the United States. These datasets were derived from two waves of data collection. DS8, from the third wave which was conducted during 2001 to 2002, captured responses from individuals aged 18 to 26, which investigated the correlation between exposure in life of adolescents, behaviours, and health during the transition to adulthood. Conversely, DS22 from the fourth wave that was conducted in 2008, targeted respondents aged 24 to 32 who were already assumed to enter the adult world and having the responsibilities of an adult. The follow-up conducted during the fourth wave facilitated a comprehensive examination of one’s development or how one’s health has changed when they transition from a teenager to an adult.

#### 3.2 Data transformation and cleaning workflow

These datasets' cleaning and transformation procedures were carried out using SPSS software, following the methodology outlined by Ting et al. (2022) for handling large datasets (Ting et al., 2022). Subsequently, the selected variables from both datasets were merged using a one-to-one merging approach based on the key value AID (respondent identifier), resulting in a consolidated dataset that selectively included relevant cases for the study. The variable selection, data merging and cleansing processes are illustrated in Figure 2.

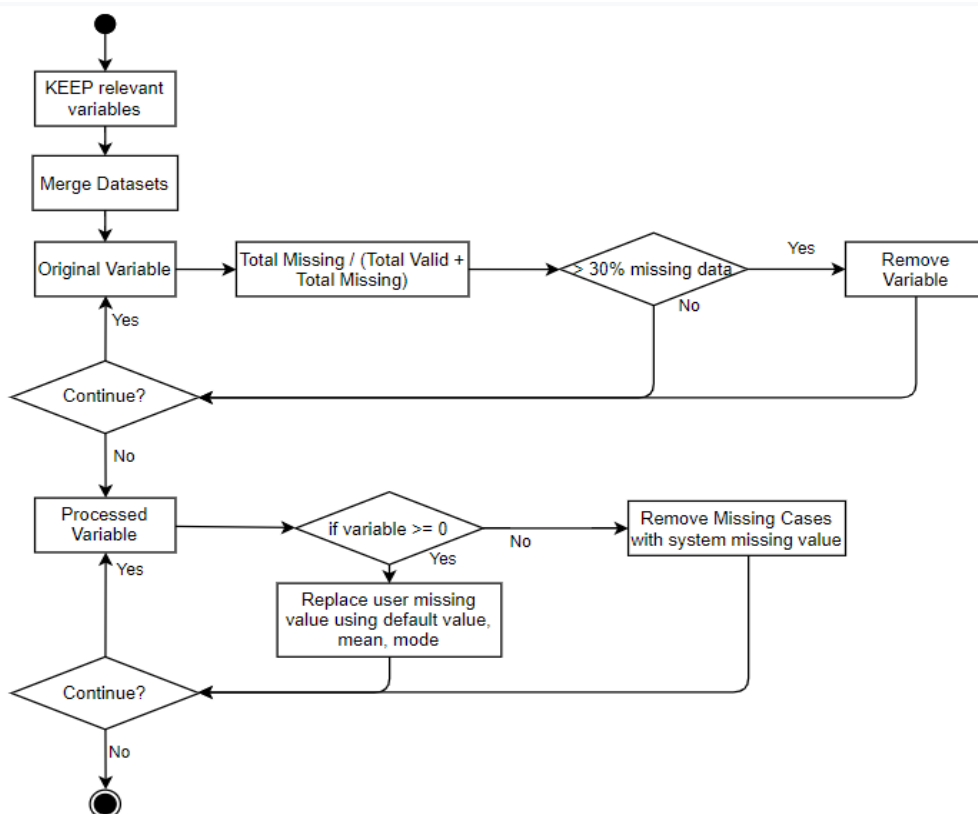


Figure 2: Data transformation and cleaning workflow

Firstly for the variable selection process, we identified potential variables relevant to our study from the two original datasets from ICPSR website, which are DS8 and DS22, the variable names of the identified variables are recorded in our document for our own record. Subsequently, we created a new Syntax using the KEEP subcommand under the MATCH FILES command, thereby keeping only a subset of variables in our updated version of DS8 and DS22, excluding those deemed irrelevant from the initial datasets. Next, we proceeded with our data merging process by merging both updated DS8 and DS22 using the one-to-one merge method in IBM SPSS statistics tool, using AID (respondent's identifier) as the key variable during the merging process. After this, both the datasets are successfully merged but require further data cleansing process. The data cleansing process is divided into two phases: removing variables, and removing or modifying cases. To remove irrelevant variables, we identified which variables have missing values exceeding 30%, then they are systematically removed from the dataset. This decision is based on a calculated ratio: Total Missing / (Total Valid + Total Missing) in order to determine if the variables have surpassed the 30% threshold, as they were considered irrelevant and will undergo the deletion process, in order to prevent potential distortions in the analysis which could lead to unstable results. For the remaining variables, we proceeded with the next step which is to replace missing cases. We selected the cases which satisfy the condition of "variable >= 0" for each and every variable in the merged dataset, and set the output as "delete unselected cases", this will remove cases which have system missing data. As for the cases which are kept, we proceed with appropriate strategies to handle the user missing data. These strategies include replacing missing values with suitable substitutes such as the mean, mode, "0" or other relevant values, chosen based on the variable's characteristics and conditions.

### 3.3 Variables

A combination of 75 predictor variables (excluding AID, DEMO\_BIOSEX, DEMO\_WGT, DEMO\_TEREDU) were selected from the initially chosen 175 variables from step 1 above after performing data cleaning to be used to analyse the significance relationship of the variables in 4 independent variables and 3 dependent variables (as shown in the Table 4). The total valid cases remaining after the dataset merging is 2673.

**Table 4: Variables selected for this study**

Category	Variable ID and source Data Set	Questionnaire Item
Respondent Identifier	AID DS8 DS22	Respondent's Identifier
Demographics	BIO_SEX3 DS8	Respondent's Gender (WAVE 3)
	BIO_SEX4 H4GH7 H4ED6	Respondent's Gender (WAVE 4) How do you think of yourself in terms of weight? Are you currently attending a college, university, or vocational/technical school where you take courses for academic credit? If you are enrolled but on school break or vacation, count this as attending
	H4WP25 H4WP39 H4ED7	How many times has your (mother figure) paid your living expenses or given you \$50 or more to pay living expenses during the past 12 months? How many times has your (father figure) paid your living expenses or given you \$50 or more to pay living expenses during the past 12 months? In the past 12 months, have any relatives, including your parents or in-laws, helped you out by paying some of your educational expenses, such as tuition and books?
Criminal record of parents	H4WP3 H4WP9 DS22	(Has/did) your biological mother ever (spent/spend) time in jail or prison? (Has/did) your biological father ever (spent/spend) time in jail or prison?
Mistreatment received from Parents	H3MA1 H3MA2 H3MA3 H3MA4 H3MA5 H3HR23 H3HR24 H3HR25 H3HR26	DS8 By the time you started 6th grade, how often had your parents or other adult care-givers left you home alone when an adult should have been with you? How often had your parents or other adult care-givers not taken care of your basic needs, such as keeping you clean or providing food or clothing? How often had your parents or other adult care-givers slapped , hit, or kicked you? How often had one of your parents or other adult care-givers touched you in a sexual way, forced you to touch him or her in a sexual way, or forced you to have sexual relations? How often had Social Services investigated how you were taken care of or tried to take you out of your living situation? Have/Did you ever run away from home? Have you ever run away from home? Have you ever stayed in a homeless shelter? Have your parents ever ordered you to move out of their house?
	H4MA1	DS22 Before your 18th birthday, how often did a parent or other adult caregiver say things that really hurt your feelings or made you feel like you were not wanted or loved?

	H4MA3 H4MA5		Before your 18th birthday, how often did a parent or adult caregiver hit you with a fist, kick you, or throw you down on the floor, into a wall, or down stairs? How often did a parent or other adult caregiver touch you in a sexual way, force you to touch him or her in a sexual way, or force you to have sexual relations?
Care and accompaniment received from parents	H4WP24 H4WP38 H4WP23 H4WP37	DS22	How close do you feel to your (mother figure)? How close do you feel to your (father figure)? You are satisfied with the way your (mother figure) and you communicate with each other. You are satisfied with the way your (father figure) and you communicate with each other.
Children physical health problems	H4GH1 H4GH2 H4GH7 H4ID1 H4ID5A H4ID5B H4ID5C H4ID5D H4ID5E H4ID5F H4ID5N	DS22	In general, how is your health? In the past 30 days, how often did a health problem cause you to miss a day of school or work? How do you think of yourself in terms of weight? The following questions are about activities you might do during a typical day. How much does your health now limit you in these activities: moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, playing golf? Has a doctor, nurse or other health care provider ever told you that you have or had: cancer or lymphoma or leukaemia? Don't include skin cancer, except melanoma? Has a doctor, nurse or other health care provider ever told you that you have or had: high blood cholesterol or triglycerides or lipids? Has a doctor, nurse or other health care provider ever told you that you have or had: high blood pressure or hypertension {if female add, when you were not pregnant} Has a doctor, nurse or other health care provider ever told you that you have or had: high blood sugar or diabetes {if female add, when you were not pregnant}? Has a doctor, nurse or other health care provider ever told you that you have or had: heart disease? Has a doctor, nurse or other health care provider ever told you that you have or had: asthma, chronic bronchitis or emphysema? Has a doctor, nurse or other health care provider ever told you that you have or had: Hepatitis C?
Children mental health problems	H4ID5G H4ID5H H4ID5I H4ID5J H4ID5K H4ID5L H4MH2 H4MH3 H4MH4 H4MH5 H4MH6 H4MH18 H4MH19 H4MH20 H4MH21 H4MH22 H4MH23 H4MH26 H4MH27 H4MH28 H4PE4 H4PE6 H4PE8 H4PE9 H4PE20 H4PE22 H4PE24 H4PE27 H4PE31 H4PE33 H4PE41 H4MH24 H4MH25 H4PE7 H4PE12 H4PE14 H4PE16 H4PE17 H4PE30	DS22	Has a doctor, nurse or other health care provider ever told you that you have or had: migraine headaches? Has a doctor, nurse or other health care provider ever told you that you have or had: depression? Has a doctor, nurse or other health care provider ever told you that you have or had: post-traumatic stress disorder or PTSD? Has a doctor, nurse or other health care provider ever told you that you have or had: anxiety or panic disorder? Has a doctor, nurse or other health care provider ever told you that you have or had: epilepsy or another seizure disorder? Has a doctor, nurse or other health care provider ever told you that you have or had: attention problems or ADD or ADHD? How often do you feel isolated from others? In the last 30 days, how often have you felt that you were unable to control the important things in your life? In the last 30 days, how often have you felt confident in your ability to handle your personal problems? In the last 30 days, how often have you felt that things were going your way? In the last 30 days, how often have you felt that difficulties were piling up so high that you could not overcome them? You were bothered by things that usually don't bother you (During the past seven days:) You could not shake off the blues, even with help from your family and your friends (During the past seven days:) You felt you were just as good as other people. (During the past seven days:) You had trouble keeping your mind on what you were doing. (During the past seven days:) You felt depressed. (During the past seven days:) You felt that you were too tired to do things. (During the past seven days:) You felt sad. (During the past seven days:) You felt that people disliked you, during the past seven days. In your day-to-day life, how often do you feel you have been treated with less respect or courtesy than other people? I have frequent mood swings I worry about things I get angry easily I don't talk a lot I get upset easily I get stressed out easily I lose my temper I make a mess of things I rarely count on good things happening to me I go out of my way to avoid having to deal with problems in my life There is really no way I can solve the problems I have (During the past seven days:) You felt happy

			(During the past seven days:) You enjoyed life. I'm always optimistic about my future I am relaxed most of the time I am not easily bothered by things I rarely get irritated I talk to a lot of different people at parties I don't worry about things that have already happened
Children's education level	H4ED1 H4ED2 H4ED8 H4ED6	DS22	What is your high school graduation status? What is the highest level of education that you have achieved to date? Which of the following best describes your desired level of education? Please listen to all options before responding. Are you currently attending a college, university, or vocational/technical school where you take courses for academic credit? If you are enrolled but on school break or vacation, count this as attending

As indicated in Table 5, multiple variables are merged into 1 new variable to ease the following data analysis process. The detailed procedures are as follows:

### Identifying similar variables and standardize variables

Firstly, we went through every variable chosen by referring to the questionnaire items and the meaning of each option. For instance, each questionnaire item's options might carry different meanings even though they may refer to similar things. In certain questions, '1' may mean 'strongly disagree' while in other questions '1' may mean 'strongly agree'. We decided to standardise each variable's way of determining a respondent's score for a particular question depending on the other variables of similar context, by using 'Recode into Same Variables' function in the IBM SPSS Statistics tool, in order to modify the values carried by each response to accurately reflect the score without changing the initial meaning of the response.

### Merging variables

After that, we used the 'Compute Variable' feature under 'Transform' in IBM SPSS Statistics tool. Then, we carry out the summation of each respondent's score by typing in relevant formulas in the 'Numeric Expression'. For instance, considering we plan to merge the variables relevant to the respondent's perceived mental health, the formula used is 'sum of variables score for negative perception - sum of variables score for positive perception'. Once we finished selecting the relevant variables to be substituted inside the corresponding formula, we entered the outcome variable's new name under the 'Target Variable' section. Lastly, we clicked on 'Type and Label' to ensure that the type of variable is correct and also renaming the label to a more comprehensive one for our own reference.

**Table 5: New variable merged from initial variables**

Category	New Variable	Description	Merged Variables
Financial support received from parents	FINSUP	The higher the score, the more financial support a child received from their parents	H4WP25, H4WP39, H4ED7
Criminal record of parents	CRIMERCD	There are only 3 final results after the sum of initial variables, which are 0, 1, and 2. 0 means none of a child's parent was incarcerated 1 means one of a child's parent was incarcerated, 2 means both of a child's parents were incarcerated.	H4WP3, H4WP9
Mistreatment received from Parents	MISTRMT	The higher the score, the higher number of mistreatment the respondent received from parents as a child	H3MA1, H3MA2, H3MA3, H3MA4, H3MA5, H3HR23, H3HR24, H3HR25, H3HR26, H4MA1, H4MA3, H4MA5
Care and accompaniment received from parents	CAREACMPNY	The higher the score, the higher the level of accompaniment the respondent received from parents as a child	H4WP24, H4WP38, H4WP23, H4WP37
Children physical health problems	PERPHY	The higher the score, the more physical health problems the respondent perceives they have	H4GH1, H4GH7, H4GH2, H4ID1
	DXPHY	The higher the score, the more diagnosed physical health problems the respondent has	H4ID5A, H4ID5B, H4ID5C, H4ID5D, H4ID5E, H4ID5F, H4ID5N
Children mental health problems	PERMENTAL	The higher the score, the more mental health problems the respondent perceives they have	H4MH2, H4MH3, H4MH4, H4MH5

			H4MH6, H4MH18, H4MH19, H4MH21, H4MH22, H4MH23, H4MH26, H4MH27, H4MH28, H4PE6, H4PE4, H4PE8, H4PE9, H4PE20, H4PE22, H4PE24, H4PE27, H4PE31, H4PE33, H4PE41, H4MH20, H4MH24, H4MH25, H4PE7, H4PE12, H4PE14, H4PE16, H4PE17, H4PE30
	DXMENTAL	The higher the score, the more diagnosed mental health problems the respondent has	H4ID5G, H4ID5H, H4ID5I, H4ID5J, H4ID5K, H4ID5L
Children's education level	EDULVL	The higher the score, the higher the respondent's achieved education level	H4ED1, H4ED2, H4ED6, H4ED8

The initial 75 predictor variables (excluding respondent identifier and demographic variables) as mentioned above are now grouped into 9 new variables using the relevant methods. Four of the new variables are for Independent Variables (IV), namely FINSUP, CRIMERCD, MISTRMT, CAREACMPNY. On the other hand, five of them are for Dependent Variables (DV), namely DXPHY, PERPHY, PERMTL, DXMTL, EDULVL.

### 3.4 Data analysis

IBM SPSS statistics 29.0 is used for data analyses, namely for Pearson's correlation analysis. In this study, descriptive statistics are utilised to identify the demographics of the participants. Subsequently, the bivariate function is applied to examine the Pearson correlation between selected IVs and DVs. The significance level of each analysis between the IV and DV is indicated by asterisks.

## 4.0 RESULTS

### 4.1 Demographics

Table 6 shows the demographics of the respondents. A total of 2673 valid respondents were identified after data cleansing and transformation, as detailed in Table III. The gender distribution within the valid dataset shows that 44.4% of responses came from males, while 55.6% were from females. Furthermore, the majority of respondents (84.4%) do not have tertiary education. In terms of body weight, 0.6% of respondents are classified as very underweight, 6.7% as slightly underweight, and 34.9% as about the right weight. Additionally, 44.4% of respondents are slightly overweight, and 13.4% are very overweight. These findings support the primary study objective, which is to explore the impact of parental characteristics on children's well-being.

		<b>Frequency</b>	<b>Percentage</b>
<b>Gender</b>	Male	1188	44.4
	Female	1485	55.6
<b>Perceived weight status</b>	Very underweight	17	0.6
	Slightly underweight	178	6.7
	About the right weight	932	34.9
	Slightly overweight	1187	44.4
	Very overweight	359	13.4
<b>Tertiary education status</b>	Attending college/ university/vocational school	418	15.6
	Not having tertiary education	2255	84.4
<b>Total Respondents</b>		2673	

## 4.2 Result analysis

The Pearson's correlation between parental characteristics and children's physical health problems, mental health problems, and educational level are indicated in Table 7.

### 4.2.1 Correlation between parental characteristics and children's physical health problems:

Based on Table 7, the result of financial support received from parents has no significant relationship with children's perceived physical health problems, as Sig. (2-tailed)  $> 0.05$ , but in an additional analysis we found that financial support does have a significant relationship with children's diagnosed physical health, where  $r = 0.048$  and Sig. (2-tailed)  $< 0.05$ , however the relationship being positive does not align with our hypothesis. Besides, we also found that crime records of parents do not have a significant impact on both children's perceived and diagnosed physical health problems, as the value of Sig. (2-tailed)  $> 0.05$ . On the other hand, positive significant relationships were found between mistreatment received from parents and children's perceived physical health problem and it also significantly affects children's diagnosed physical health problem, where the former pair's correlation value,  $r = 0.104$  and Sig. (2-tailed)  $< 0.001$ , and the latter pair's correlation value,  $r = 0.097$  and Sig. (2-tailed)  $< 0.001$ , and this aligns with our hypothesis. Lastly, there is no significant relationship between care and accompaniment received from parents and perceived physical health problems, nor is there any significant relationship between care and accompaniment received from parents and children's diagnosed health problems, because Sig. (2-tailed)  $> 0.05$ . Therefore, H7 is accepted, while H1, H4, H10 are rejected.

### 4.2.2 Correlation between parental characteristics and children's mental health problems:

Based on Table 7, positive significant relationship is found between financial support received from parents and children's perceived mental health problems, and positive significant relationship is also discovered between financial support received from parents and children's diagnosed mental health problems where the former pair's correlation value,  $r = 0.131$  and Sig. (2-tailed)  $< 0.001$ , and the latter pair's correlation value,  $r = 0.112$  and Sig. (2-tailed)  $< 0.001$ . Although there is a significant relationship, our finding shows a positive correlation which does not align with our hypothesis. Besides, there is also positive relationships between crime record of parents and perceived mental health problems of children, and same goes to the relationship between crime record of parents and diagnosed mental health problems of children, where the former pair's correlation value,  $r = 0.119$  and Sig. (2-tailed)  $< 0.001$ , and the latter pair's correlation value,  $r = 0.084$  and Sig. (2-tailed)  $< 0.001$ . In addition, mistreatment received from parents positively impacts children's perceived physical health problem, and also positively impacts children's diagnosed physical health problem, where the former pair's correlation value,  $r = 0.214$  and Sig. (2-tailed)  $< 0.001$ , and the latter pair's correlation value,  $r = 0.162$  and Sig. (2-tailed)  $< 0.001$ . Lastly, there is a positive relationship between care and accompaniment received from parents and children's perceived physical health problems, as correlation value,  $r = 0.056$  and Sig. (2-tailed)  $< 0.001$ , but in an additional analysis between care and accompaniment received from parents and children's perceived physical health problems, no significant relationship is found, since Sig. (2-tailed)  $> 0.05$ . Therefore, we accept H5 and H8 and reject H2 and H11.

### 4.2.3 Correlation between parental characteristics and children's educational level:

Based on Table 7, there is no significant relationship between financial support received from parents and education level of children, as Sig. (2-tailed)  $> 0.05$ . Besides, there is a negative significant relationship between the crime record of parents and children education level, as the value of correlation,  $r = -0.107$  and Sig. (2-tailed)  $< 0.001$ . On the other hand, no significant relationship was found between mistreatment received from parents and children education level, where Sig. (2-tailed)  $> 0.05$ . Lastly, there is no significant relationship between care and accompaniment received from parents and education level, because Sig. (2-tailed)  $> 0.05$ . Therefore, H6 is accepted, while H3, H9 and H12 are rejected.

Table 7: Correlation table					
	PERPHY	DXPHY	PERMTL	DXMTL	EDULVL
<b>FINSUP</b>					
Pearson Correlation	.022	.048*	.131**	.112**	.005
Sig. (2-tailed)	.248	.013	<.001	<.001	.790
<b>CRIMERCD</b>					
Pearson Correlation	.030	.034	.119**	.084**	-.107**
Sig. (2-tailed)	.117	.080	<.001	<.001	<.001
<b>MISTRMT</b>					
Pearson Correlation	.104**	.097**	.214**	.162**	.009
Sig. (2-tailed)	<.001	<.001	<.001	<.001	.638
<b>CAREACMPNY</b>					
Pearson Correlation	-.015	-.009	.056**	.019	.034
Sig. (2-tailed)	.429	.624	.004	.330	.080
** Correlation is significant at the 0.01 level (2-tailed).					
* Correlation is significant at the 0.05 level (2-tailed).					
N=2673					

## 5.0 DISCUSSION

### 5.1 Correlation between parental characteristics and children’s physical health problems:

- **Financial support received from parents and children’s physical health problems:**

Based on the results obtained, it indicates the lack of significant relationship between financial support received from parents and children’s perceived physical health problems, but a positive significant relationship between financial support received from parents and children’s diagnosed physical health problems. Compared to Solt (2022) and Lindell et al. (2020), the result is different from the research. According to the dataset, if the respondent has financial support from their parents, the respondent’s physical health will not be affected. The reason for this occurrence is due to parents having the financial support to provide the respondent with medical expenses and access to nutritious food. Therefore the respondent’s physical health will not be affected. However, the diagnosed data shows that, if the respondent has financial support from their parents, the respondent’s physical health will be affected. The reason for this is due to the respondent having the freedom to consume any food and the respondent did not take care of their food nutrition (Lemming, E. W., & Pitsi, T., 2022). In result, the respondent consumes unhealthy food affecting the physical health of the respondent. More research may be required to conclusively describe the relationship between financial support from parents and children’s physical health.

- **Crime record of parents and children’s physical health problems:**

The result we obtained indicates that a parent's crime record does not affect children’s perceived and diagnosed physical health problems. Compared to Wong et al. (2022), this result is different from their research. It is observed that in this dataset, if an individual’s parent has committed more crime when the respondent was a child, the respondent’s physical health is not necessarily affected. This is due to parental incarceration resulting in the removal of a problematic or harmful caregiver from the child's immediate environment. During the period of parental incarceration, the child may receive increased support and supervision from other caregivers such as foster or adopted parents, extended family members, or social services. A study by Keil et al. (2022) indicates that children who are adopted or received foster care were able to live in a better caregiving environment can lead to better growth, health, and development outcomes (Keil et al., 2022). This suggests that receiving another form of care could possibly mitigate the negative impacts on a child’s physical health, but it may not be a factor which makes them have a good physical health development. Therefore in our research population, there might not be a direct impact on a child’s health when their parents are imprisoned.

- **Mistreatment received from parents and children's physical health problems:**

Our findings show that mistreatment received from parents positively affects children's perceived and diagnosed physical health problems. This means that if an individual experiences mistreatment from their parents when the respondent was a child, the respondent's physical health is very likely to deteriorate. This is consistent with the research done by Gordon (2021), Strathearn et al. (2020), and Lansford et al. (2021). The reason for this occurrence is probably due to the profound and stable impact of mistreatment on physical health, as evidenced by immediate and persistent adverse effects observed in very young children. Mistreatment not only leads to developmental deficits but also increases the risk of acute and chronic somatic health issues (Winter et al., 2022). This suggests that individuals who experienced mistreatment during childhood may carry these adverse health effects into adulthood. The physiological toll of mistreatment on the body's regulatory systems, including the neuroendocrine and immune systems, may contribute to the deterioration of physical health over time. Additionally, caregivers of maltreated children may be less attuned to their somatic health needs, leading to medical neglect and poorer adherence to treatments, further exacerbating the decline in physical health (Winter et al., 2022). Therefore, it is clear that there is a positive significant relationship between childhood mistreatment and deteriorating physical health.

- **Care and accompaniment received from parents and children's physical health problems:**

Based on the result obtained, we found that care and accompaniment received from parents has no significant impact on children's perceived and diagnosed physical health problems. This means that if the respondent received care and accompaniment from their parents, the respondent's physical health will not necessarily be affected. This result is inconsistent with Yogman & Eppel (2021) and Lee et al. (2021) research discussed earlier. Though these studies show significant negative association between adequate care received from parents and children's physical health deterioration, there are also different studies which indicate a positive association. Even if parents provide care to their children, lacking healthy dietary practices and nutrition knowledge may lead to physical health issues in children. A study by de Buhr & Tannen (2020) indicates that low parental health literacy is associated with a number of poor children's physical health outcomes (de Buhr & Tannen, 2020). This suggests that parental care does not necessarily reduce a child's physical health problem, but could possibly bring a negative impact on a child's physical health depending on the parenting technique. It is possible that some parental caregiving practices may not be appropriate for children's physical health, as parental caregiving practices may vary due to cultural, educational, and other factors which could influence the actual effect on children's physical health problems, and further analysis may be required. Therefore in our research population, children's physical health problems might not receive a direct impact from the care and accompaniment they received from their parents.

## **5.2 Correlation between parental characteristics and children's mental health problems:**

- **Financial support received from parents and children's mental health problems**

We found that there is a positive significant relationship between financial support and children's perceived mental health problems, and also between financial support and children's diagnosed mental health problems. This means that if the respondent has financial support from their parents, the respondent's mental health problem will increase. This is inconsistent with the research done by Lindell et al (2022) and Pooja \* Bhalla (2022). The reason for this occurrence is due to when parents have good financial support, the parents can afford to provide their child with numerous extracurricular activities or resources. While the intention behind providing these resources are to support the child's development and success, the pressure or expectations associated with these instead result in heightened stress, anxiety, or disinterest, therefore impacting the child's mental well-being (Middya, A., 2023). Parents took advantage of their financial situation by giving what's best for their child and ignored their mental well-being. In result, the respondents have received additional pressure or stress from parents with good financial support.



- **Crime record of parents and children's mental health problems**

Based on our research, parental crime records do not significantly impact children's perceived and diagnosed mental health problems. This suggests that if an individual's parent was imprisoned when the respondent was a child, the respondent's mental health is very likely to deteriorate. This is consistent with the research done by Heard-Garris (2019) and Morgan-Mullane (2018). The reason for this occurrence is probably due to children whose parents are absent during their formative years may lack the emotional support and guidance necessary for healthy psychological development. The absence of parental figures due to incarceration can lead to feelings of abandonment, insecurity, and loneliness in children, which can significantly impact their mental well-being. According to Turney (2019), the removal of a parental figure from a child's household or daily routine is a traumatic incident for many children and this removal is often stigmatising, because young kids frequently face social stigma from their instructors and peers as a direct result of their parents' incarceration, be it intentionally or unintentionally. As a result, it could lead to isolation and shame among children (Turney, 2019). Another study by Saunders (2018) shows that a majority of the children in their study felt being looked down, shamed, and judged by their peers and others around them, just for the reason of being associated with a parent who committed crime (Saunders, 2018). This suggests that parental crime records can indeed leave a significant impact on a child's mental health.

- **Mistreatment received from parents and children's mental health problems**

Both the positive significant relationships between mistreatment received from parents and children's perceived mental health problems and between childhood mistreatment and diagnosed mental health problems indicate that individuals who experience mistreatment from their parents during childhood are highly likely to experience deterioration in their mental health. This finding aligns with research conducted by Strathearn et al. (2020), Lansford et al. (2021), Widom et al. (2018), Higgs et al. (2020), and Raitasalo et al. (2018). The reasoning behind this occurrence is supported by several key findings from the article: firstly, a higher prevalence of reported childhood maltreatment types among individuals with major depressive disorder (MDD), bipolar disorder (BD), and schizophrenia (SZ) compared to healthy controls (HC) suggests a widespread occurrence of childhood mistreatment across various psychiatric conditions (Nele et al.2020). Additionally, emotional abuse, emotional neglect, sexual abuse, and physical neglect predict the severity of psychiatric symptoms, indicating the broad impact of different types of childhood maltreatment on mental health (Nele et al.2020). Furthermore, reported childhood maltreatment predicts a younger age of onset in MDD and BD, implying that early-life stressors may accelerate the onset of psychiatric disorders (Nele et al.2020). These findings collectively suggest that the detrimental effects of childhood maltreatment on mental health may stem from the pervasive impact of maltreatment on psychological well-being, potentially leading to maladaptive coping mechanisms, dysregulated emotions, and exacerbation of psychiatric symptoms. Thus, this suggests that mistreatment can indeed leave a significant impact on a child's mental health.

- **Care and accompaniment received from parents and children's mental health problems**

Our findings show that there is a positive relationship between care and accompaniment received from parents and children's perceived mental health, but lack a significant relationship between care and accompaniment received from parents and children's diagnosed mental health problems. This result is inconsistent with research conducted by Fan et al. (2018). According to the dataset, receiving care and accompaniment from parents may lead to worse perceived mental health among respondents. However, it did not appear to have a significant effect on diagnosed mental health problems in the studied population. This discrepancy might be due to the reason that the respondents are experiencing the rebellious period, though they might think they are living an unhappy life, they might not have verified it by having a diagnosis. During the rebellious period, some adolescents resist parental involvement or perceive it as intrusive, resulting in feelings of frustration and resentment. On the other hand, some adolescents carry out self-harming activities when struggling with problems but do not want to discuss with their parents or guardians, leading to more mental health issues (Yoshinaga M. et al., 2022). Consequently, conflicts within the parent-child relationship could arise when they perceive an excessive amount of care and accompaniment. Hence, this suggests that

despite the presence of parental support, respondents in this phase may interpret it negatively, contributing to a decline in perceived mental health.

### 5.3 Correlation between parental characteristics and children's education level:

- **Financial support received from parents and children's education level**

Based on the results obtained, it indicates the lack of significant relationship between financial support received from parents and children's education level. This means that if the respondent received good parental financial support, the respondent's education level will not necessarily be affected. Compared to Deng et al. (2022), the results are inconsistent. This might be due to differences in characteristics of the respondents. The variation of educational backgrounds among respondents could potentially affect the disparate result. While some respondents may demonstrate strong motivation to excel academically regardless of their financial circumstances, others may lack the interest to pursue higher education despite having access to financial support. Factors such as personal values, aspiration, and external influences from social expectations may also play a role in shaping respondents' academic orientations. Furthermore, the quality of educational resources available also might be one of the factors affecting it, the level of parental involvement in academic matters, and the overall educational environment may vary across different respondents. By considering the above factors, this suggests that financial support from parents might not affect the respondents' educational level.

- **Crime record of parents and children's education level**

The negative significant relationship between crime record of parents and children's education level suggests that if an individual's parent has committed more crime or was imprisoned during the respondent's childhood, the respondent is very unlikely to achieve a higher education level. This is consistent with the research done by Hagan et al. (2020) and Tadros & Durante (2021). This phenomenon could be the economic strain experienced by families with an incarcerated parent. Parental incarceration often leads to financial instability, as the incarcerated parent may lose their source of income, resulting in limited financial resources available for the family's educational needs (Travis et al., 2014 cited in Jackson et al., 2021). Although financial stability might not guarantee a high education level of adolescents as discussed earlier, a family with financial problems are very likely to have severe challenges in educational attainment. Liu (2023) mentioned that low income families' have lower risk-taking ability for enrollment or generally expect less from educational benefits, making low-class families' children unable to compete with others in a higher education environment, eventually causing inequality in educational opportunities due to limited resources (Liu, 2023). On the other hand, a study by Fox et al. (2022) mentioned that children of the incarcerated have decreased academic abilities during their youth and this results in an increased likelihood of dropping out as they age (Fox et al., 2022). Naturally, dropping out or a discontinuation in study results in one being unable to obtain a higher certification degree. Therefore, it is clear that the educational level of a child from families with a criminal background will be negatively affected.

- **Mistreatment received from parents and children's education level**

The result we obtained indicates the lack of significant relationship between mistreatment received from parents and children's education level. It is not consistent compared to the research done by Zheng et al. (2020), Chitiyo (2018), Mehta et al. (2021). It is observed that in this dataset, if an individual experiences mistreatment during childhood, the education attainment level may or may not be affected by mistreatment. Despite the potential for mistreatment to impact educational attainment level that we saw from the previous research, there are instances where individuals demonstrate resilience and succeed academically despite adverse mistreatment experiences. Numerous factors can contribute to this resilience, such as having access to mental health services and robust social networks that act as buffers against the damaging consequences of abuse. In childhood, some may have a desire to leave their unsafe and unsupportive homes hoping to find a safer environment to live in, as they suffer from anxiety when they are living in a chaotic environment (Tyler, K. A., & Schmitz, R. M., 2020). Therefore, they might want to enrol themselves in an institution far away from their home, in order to achieve what they desire. Furthermore, the timing and duration of mistreatment experiences by the respondent can influence their impact on educational outcomes.

For example, if the duration of mistreatment is brief and the individual is subsequently placed in a stable environment with access to quality education and therapeutic interventions, they may exhibit resilience over time and overcome initial setbacks. This demonstrates their capacity for academic success despite early adversity.

- **Care and accompaniment received from parents and children's education level**

Based on our research, parental care and accompaniment do not significantly affect children's education level. This suggests that if the respondent received care and accompaniment from parents, the respondent's education level will not necessarily be affected. This is inconsistent with the research done by Koçak et al. (2021) and Erdem & Kaya (2020). The reason for this occurrence is probably due to the differences in the quality and depth of parental involvement across the studies. If the care and accompaniment provided by parents lack depth, consistency, or not relevance to the child's educational needs, it may not translate into tangible improvements in the children's educational attainment. For example, if parental involvement lacks meaningful engagement with the children's academic progress, it may not have a significant impact on their education level. Moreover, if parental involvement tends to be overly controlling, it may not yield the desired educational benefits and could even potentially hinder the child's academic development. Therefore, this demonstrates care and accompaniment received from parents might not affect the respondents' educational level.

## 6.0 CONCLUSION

Our research found that a child receiving more financial support from parents will cause them to have more physical and mental health problems, however they may not necessarily have a higher education level. On the other hand, our study has also found that if a child whose parents have a criminal record, their physical health will not be directly affected, but they may suffer from more mental health problems, while also having lesser opportunities in educational attainment. Besides, we found that mistreatments from parents will directly increase children's physical and mental health problems, but that may not affect children's education level. Lastly, we discovered that care and accompaniment given by parents do not necessarily affect children's physical health problems, mental health problems and education level. However, there are a number of shortcomings in our study that need to be looked into in more studies. For example, the sample was limited to adolescents in the USA, so it may not be applicable to all populations in the world. Besides, our research is limited to only four covariates, which in reality there could be more covariates that influence children's health problems and education level. Our discoveries might also indicate a lack of relationship between certain variables but they are not totally accurate with different studies. Therefore, future studies could include different methodologies and more measurement metrics, or apply analysis with mediating variables to clearly analyse the relationship between different variables in a more detailed way.

## REFERENCES

- Allport, B. S., Johnson, S., Aqil, A., Labrique, A. B., Nelson, T., KC, A., Carabas, Y., & Marcell, A. V. (2018). Promoting Father Involvement for Child and Family Health. *Academic Pediatrics, 18*(7), 746–753. [doi.org/10.1016/j.acap.2018.03.011](https://doi.org/10.1016/j.acap.2018.03.011)
- Arrastia-Chisholm, M. C., Alvis, A., & Miah, M. (2020). Vicarious reinforcement and punishment among the children of the incarcerated: Using social learning theory to understand differential effects of parental incarceration. *National Youth Advocacy and Resilience Journal, 4*(1), 38-51. [doi.org/10.20429/nyarj.2020.040105](https://doi.org/10.20429/nyarj.2020.040105)
- Branigan, A. R., Wildeman, C. (2019). Parental Incarceration and Child Overweight: Results From a Sample of Disadvantaged Children in the United States. *Public Health Reports, 134*(4), 363-370. [doi.org/10.1177/0033354919854448](https://doi.org/10.1177/0033354919854448)
- Cao Y, Chen H, Yang X. (2023) The impact of medical insurance on family financial support: evidence from CHARLS in China. *Health Econ Rev, 13*, 39,. [doi.org/10.1186/s13561-023-00452-9](https://doi.org/10.1186/s13561-023-00452-9)

- Chien-Chiang Lee., Chih-Wei Wang., Shan-Ju Ho. (2022). Financial aid and financial inclusion: Does risk uncertainty matter?. *Pacific-Basin Finance Journal*, 71, 101700, [doi.org/10.1016/j.pacfin.2021.101700](https://doi.org/10.1016/j.pacfin.2021.101700)
- Chitiyo, Jonathan; Pietrantonio, Zachary. (2019). The Impact of Child Maltreatment on the Educational and Psychological Well-Being of Students. *Journal of School Counseling*. <https://files.eric.ed.gov/fulltext/EJ1218579.pdf>
- Czeisler, M. É., Lane, R. I., Petrosky, E., Wiley, J. F., Christensen, A., Njai, R., Weaver, M. D., Robbins, R., Facer-Childs, E. R., Barger, L. K., Czeisler, C. A., Howard, M. E., & Rajaratnam, S. M. W. (2020). Mental health, substance use, and suicidal ideation during the COVID-19 pandemic - United States, June 24–30, 2020. *Centers for Disease Control and Prevention*, 69(32), 1049–1057. [doi.org/10.15585/mmwr.mm6932a1](https://doi.org/10.15585/mmwr.mm6932a1)
- de Buhr, E., Tannen, A. (2020). Parental health literacy and health knowledge, behaviours and outcomes in children: a cross-sectional survey. *BMC Public Health*, 20, 1096. <https://doi.org/10.1186/s12889-020-08881-5>
- Eden, C. A., Chisom, O. N., & Adeniyi, I. S. (2024). PARENT AND COMMUNITY INVOLVEMENT IN EDUCATION: STRENGTHENING PARTNERSHIPS FOR SOCIAL IMPROVEMENT. *International Journal of Applied Research in Social Sciences*, 6(3), 372–382. <https://doi.org/10.51594/ijarss.v6i3.894>
- Erdem, C., & Kaya, M. (2020). A Meta-Analysis of the Effect of Parental Involvement on Students' Academic Achievement. *Journal of Learning for Development*, 7(3), 367–383. <https://doi.org/10.56059/jl4d.v7i3.417>
- Fan, X., Fang, X., Huang, Y., Chen, Feng., & Yu, S. (2018). The influence mechanism of parental care on depression among left-behind rural children in China: A longitudinal study. *Acta Psychologica Sinica*, 50(9), 1029-1040. <https://doi.org/10.3724/SP.J.1041.2018.01029>
- Fox, M. P., Moore, R. L., & Song, X. (2022). Entwined life events: The effect of parental incarceration timing on children's academic achievement. *Advances in Life Course Research*. [doi.org/10.1016/j.alcr.2022.100516](https://doi.org/10.1016/j.alcr.2022.100516)
- Gordon, J. B. (2021). The importance of child abuse and neglect in Adult Medicine. *Pharmacology Biochemistry and Behavior*, 211, 173268. <https://doi.org/10.1016/j.pbb.2021.173268>
- Hagan, J., Foster, H., & Murphy, C. J. (2020). A tale half told: State exclusionary and inclusionary regimes, incarceration of fathers, and the educational attainment of children. *Social Science Research*, 88–89, 102428. [doi.org/10.1016/j.ssresearch.2020.102428](https://doi.org/10.1016/j.ssresearch.2020.102428)
- Heard-Garris, N., Sacotte, K. A., Winkelman, T. N., Cohen, A., Ekwueme, P. O., Barnert, E., Carnethon, M., & Davis, M. M. (2019). Association of Childhood History of parental incarceration and juvenile justice involvement with mental health in early adulthood. *JAMA Network Open*, 2(9). [doi.org/10.1001/jamanetworkopen.2019.10465](https://doi.org/10.1001/jamanetworkopen.2019.10465)
- Higgs, E., Drolet, C. E., & Belicki, K. (2020). The impact of childhood sexual abuse on sleep in adulthood. *Child Abuse & Neglect*, 107, 104567. [doi.org/10.1016/j.chiabu.2020.104567](https://doi.org/10.1016/j.chiabu.2020.104567)
- Jackson, D. B., Testa, A., Semenza, D. C., & Vaughn, M. G. (2021). Parental incarceration, child adversity, and child health: A strategic comparison approach. *Int. J. Environ. Res. Public Health*, 18(7), 3384 [doi.org/10.3390/ijerph18073384](https://doi.org/10.3390/ijerph18073384)
- Kamis, C. (2021). The Long-Term Impact of Parental Mental Health on Children's Distress Trajectories in Adulthood. *Society and Mental Health*, 11(1), 54-68. <https://doi.org/10.1177/2156869320912520>
- Keil, M. F., Leahu, A., Rescigno, M., Myles, J., & Stratakis, C. A. (2022). Family environment and development in children adopted from institutionalized care. *Pediatr Res*, 91, 1562–1570. [doi.org/10.1038/s41390-020-01325-1](https://doi.org/10.1038/s41390-020-01325-1)
- Koçak, Ö., Göksu, İ., & Göktaş, Y. (2021). The factors affecting academic achievement: a systematic review of meta analyses. *International Online Journal of Education and Teaching (IOJET)*, 8(1), 454-484. <https://files.eric.ed.gov/fulltext/EJ1286675.pdf>
- Lansford, J. E., Godwin, J., McMahan, R. J., Crowley, M., Pettit, G. S., Bates, J. E., Coie, J. D., & Dodge, K. A. (2021). Early physical abuse and adult outcomes. *Pediatrics*, 147(1). [doi.org/10.1542/peds.2020-0873](https://doi.org/10.1542/peds.2020-0873)
- Lee, J. S., Jin, M. H., & Lee, H. J. (2021). Global relationship between parent and child obesity: a systematic review and meta-analysis. *Clinical and Experimental Pediatrics*, 65(1), 35-46. [doi.org/10.3345/cep.2020.01620](https://doi.org/10.3345/cep.2020.01620)

- Lee, J.-Y., Lee, S., Park, E.-C., Kim, J., & Jang, S.-I. (2020). The Association of Maternal Accompaniment at Family Dinners and Depressive Symptoms of Korean Adolescents. *International Journal of Environmental Research and Public Health*, 17(5), 1743. [doi.org/10.3390/ijerph17051743](https://doi.org/10.3390/ijerph17051743)
- Lemming, E. W., & Pitsi, T. (2022). The Nordic Nutrition Recommendations 2022 – food consumption and nutrient intake in the adult population of the Nordic and Baltic countries. *Food & Nutrition Research*, 66. <https://doi.org/10.29219/fnr.v66.8572>
- Li, D., & Guo, X. (2023). The effect of the time parents spend with children on children's well-being. *Frontiers in Psychology*, 14. <https://doi.org/10.3389/fpsyg.2023.1096128>
- Lindell, A. K., Killoren, S. E., & Campione-Barr, N. (2021). Parent-child relationship quality and emotional adjustment among college students: The role of parental financial support. *Journal of Social and Personal Relationships*, 38(2), 459-481. <https://doi.org/10.1177/0265407520964870>
- Liu, M. (2023). No more well-educated students from poor families? the impact of higher education expansion on inequality of educational opportunity. *Proceedings of the 2023 2nd International Conference on Sport Science, Education and Social Development (SSES2023)*, 73–78. [doi.org/10.2991/978-2-38476-122-7\\_12](https://doi.org/10.2991/978-2-38476-122-7_12)
- Mehta, D., Kelly, A. B., Laurens, K. R., Haslam, D., Williams, K. E., Walsh, K., Baker, P. R., Carter, H. E., Khawaja, N. G., Zelenko, O., & Mathews, B. (2021). Child maltreatment and long-term physical and mental health outcomes: An exploration of Biopsychosocial Determinants and implications for prevention. *Child Psychiatry Hum Dev*, 54, 421–435. <https://doi.org/10.1007/s10578-021-01258-8>
- Middya, A. (2023) Study on Impact of Mental Health, Academic Stress, Motivation and Self-Concept on Academic Achievement of Higher Secondary Students. *JOURNAL OF EDUCATION IN TWENTY FIRST CENTURY*, 24. <https://atpl.kohacloud.in/upload/documents/asgilb22.pdf#page=32>
- Morgan-Mullane, A. (2017). Trauma focused cognitive behavioral therapy with children of incarcerated parents - clinical social work journal. *Clin Soc Work J*, 46, 200–209. <https://doi.org/10.1007/s10615-017-0642-5>
- Oh, S., & Lee, J. (2023). Parental Financial Assistance and Psychological Well-Being Among Korean Emerging Adults: Pressure from and Fulfillment of Parental Career Expectations as Mediators. *Emerging Adulthood*, 11(5), 1119-1130. [doi.org/10.1177/21676968231172550](https://doi.org/10.1177/21676968231172550)
- Pooja, Bhalla, R. (2022). A Review Paper on the Role of Sentiment Analysis in Quality Education. *SN COMPUT. SCI*, 3, 469. [doi.org/10.1007/s42979-022-01366-9](https://doi.org/10.1007/s42979-022-01366-9)
- Zhang, Q., Appau, S., & Kodom, P. L. (2021). Energy poverty, children's wellbeing and the mediating role of academic performance: Evidence from China. *Energy Economics*, 97, 105206. [doi.org/10.1016/j.eneco.2021.105206](https://doi.org/10.1016/j.eneco.2021.105206)
- Raitasalo, K., Holmila, M., Jääskeläinen, M., & Santalahti, P. (2018). The effect of the severity of parental alcohol abuse on mental and behavioural disorders in children. *Eur Child Adolesc Psychiatry*, 28, 913–922. <https://doi.org/10.1007/s00787-018-1253-6>
- Roettger M. E., Houle B., Boardman J. D. (2023). Parental imprisonment, delinquent behavior, and BMI Gain in a U.S. nationally representative cohort study of adolescents and adults ages 12-32. *SSM - Population Health*, 22, 101425. [doi.org/10.1016/j.ssmph.2023.101425](https://doi.org/10.1016/j.ssmph.2023.101425).
- Saunders, V. (2018). What does your dad do for a living? children of prisoners and their experiences of stigma. *Children and Youth Services Review*, 90, 21–27. [doi.org/10.1016/j.childyouth.2018.05.012](https://doi.org/10.1016/j.childyouth.2018.05.012)
- Solt, F. (2020). Measuring income inequality across countries and over time: The Standardized World Income Inequality Database. *Social Science Quarterly*, 101(3), 1183–1199. <https://doi.org/10.1111/ssqu.12795>
- Shawna J. Lee., Kaitlin P. Ward., Joyce Y. Lee. & Chirstina M. Rodriguez. (2020). Parental Social Isolation and Child Maltreatment Risk during the COVID-19 Pandemic. *J Fam Viol*, 37, 813–824. <https://doi.org/10.1007/s10896-020-00244-3>
- Strathearn, L., Giannotti, M., Mills, R., Kisely, S., Najman, J., & Abajobir, A. (2020). Long-term cognitive, psychological, and health outcomes associated with Child abuse and neglect. *Pediatrics*, 146(4). <https://doi.org/10.1542/peds.2020-0438>
- Struck, N., Krug, A., Yuksel, D., Stein, F., Schmitt, S., Meller, T., Brosch, K., Dannlowski, U., Nenadić, I., Kircher, T., & Brakemeier, E.-L. (2020). Childhood maltreatment and adult mental disorders

- the prevalence of different types of maltreatment and associations with age of onset and severity of symptoms. *Psychiatry Research*, 293, 113398. <https://doi.org/10.1016/j.psychres.2020.113398>
- Tadros, E. & Durante, K. (2021). Coparenting, Negative Educational Outcomes, and Familial Instability in Justice-involved Families. *International Journal of Offender Therapy and Comparative Criminology*, 66(2-3), 267-287. [doi.org/10.1177/0306624X211013740](https://doi.org/10.1177/0306624X211013740)
- Ting, T. T., Lee, S. C., Wee, M. C., & Chaw, J. K. (2022). Romantic relationship patterns, detailed covariates, and impacts on education: A study on young adults in the US using ICPSR data set. *Global Social Welfare*. [doi.org/10.1007/s40609-022-00254-7](https://doi.org/10.1007/s40609-022-00254-7)
- Turney K. (2019). Understanding the Needs of Children with Incarcerated Parents. <https://files.eric.ed.gov/fulltext/EJ1218823.pdf>
- Tyler, K. A., & Schmitz, R. M. (2018). Childhood disadvantage, social and psychological stress, and substance use among homeless youth. *Youth & Society*, 52(2), 272-287. <https://doi.org/10.1177/0044118x18767032>
- Widom, C. S., Czaja, S. J., Kozakowski, S. S., & Chauhan, P. (2018). Does adult attachment style mediate the relationship between childhood maltreatment and mental and physical health outcomes? *Child Abuse & Neglect*, 76, 533-545. <https://doi.org/10.1016/j.chiabu.2017.05.002>
- Winter, S. M., Dittrich, K., Dörr, P., Overfeld, J., Moebus, I., Murray, E., Karaboycheva, G., Zimmermann, C., Knop, A., Voelkle, M., Entringer, S., Buss, C., Haynes, J., Binder, E. B., & Heim, C. (2022). Immediate impact of child maltreatment on mental, developmental, and physical health trajectories. *Journal of Child Psychology and Psychiatry*, 63(9), 1027-1045. <https://doi.org/10.1111/jcpp.13550>
- Wolicki, S.B., Bitsko, R.H., Cree, R.A. et al. (2021). Mental Health of Parents and Primary Caregivers by Sex and Associated Child Health Indicators. *ADV RES SCI*, 2, 125-139. [doi.org/10.1007/s42844-021-00037-7](https://doi.org/10.1007/s42844-021-00037-7)
- Yogman, M. W., & Eppel, A. M. (2021). The role of fathers in child and Family Health. *Engaged Fatherhood for Men, Families and Gender Equality*, 15-30. [https://doi.org/10.1007/978-3-030-75645-1\\_2](https://doi.org/10.1007/978-3-030-75645-1_2)
- Yoshinaga, M., Takeuchi, T., & Yokoyama, A. (2022). Medicine Use and Mental Health in Japanese Adolescents: The Impact of the Rebelliousness Phase. *School Health*, 18, 10-19. [https://doi.org/10.20812/jash.SH\\_113](https://doi.org/10.20812/jash.SH_113)
- Yuwei Deng, J. Cherian, N. Khan, . Kumari, M. Safdar Sial, U. Comite, B. Gavurova, J. Popp. (2022). Family and Academic Stress and Their Impact on Students' Depression Level and Academic Performance. *Front. Psychiatry*, 13. [doi.org/10.3389/fpsy.2022.869337](https://doi.org/10.3389/fpsy.2022.869337)
- Zheng, X., Fang, Z., Shangguan, S., & Fang, X. (2022). Associations between childhood maltreatment and educational, health and economic outcomes among middle-aged Chinese: The moderating role of relative poverty. *Child Abuse & Neglect*, 130, 105162. <https://doi.org/10.1016/j.chiabu.2021.105162>