

# *Correlates of Adolescent Depression in 2021 in the United States*

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**Abstract:** The aim of this research paper is to explore the potential links between various factors (socioeconomic, empirical and contextual factors), as well as the likelihood of adolescents experiencing major depressive episodes according to datasets reported in the 2021 National Survey on Drug Use and Health (NSDUH). This paper uses secondary data analysis method, where some variables of interests are compared: demographics, school experiences, adult-involvements, peer-involvements, extracurricular, and incomes. The results shows that both contextual factors around adult and peer involvement played a significant role in this research process. In influencing adolescents experiencing major depressive emotions during their growth. During this period, the influence of adult figures become a main object in shaping adolescents' emotional health. However, with the frequency of parental arguments, the results show an adverse association, which underscores how the role of family dynamics influence adolescent mental health. Meanwhile, in terms of peer behaviors and related peer pressures, individuals are shaped by their choices and perceptions which also affect mental health of these adolescence.

**Keywords:** depression, teenagers, stepwise logistic regression

## 1. Introduction

The relationship between poverty and depression in adults is a well-established one; when one rises, the other tends to follow (REF) [1]. However, most of this knowledge is based on studies of adults. An area that has not been deeply explored is whether this link between poverty and depression is also present during the teenage years.

Adolescence is a whirlwind time of emotional and social shifts. In the U.S., teenagers often lean more on their friends to understand who they are, while their dependence on parents for social cues reduces [2]. This peer influence is especially pronounced in Western societies, where teens are more influenced by the opinions of their friends than by adult perspectives [3]. Alongside these social changes, teenagers also face emotional upheavals. This is thanks to a mix of hormonal surges and evolving brain connections that impact self-control and the way adolescents prioritize information [4-5].

In such a transformative phase, a nurturing environment is crucial for healthy growth. Poverty often deprives teenagers of this nurturing atmosphere. While poverty's effects on adult mental health are well-documented [6], its impact on teenagers can be distinct. This is because teenagers, more than

adults, are molded by their surroundings. Their experiences, amplified by their peer groups, can shape entire communities of young people [7].

There are factors that can safeguard teens against the mental health effects of depression. Positive parental behavior, influential teachers, engaging in education and extracurricular activities, and having a clear sense of purpose can all act as shields. But poverty can sometimes prevent access to these protective factors [8]. In this study, we wanted to explore how poverty might be linked to depression among teenagers aged 12-17. We also wanted to understand if other factors might influence this relationship. To do this, we used stepwise logistic regression to pinpoint the major factors associated with depression, taking into account the potential influence of poverty.

Our main tool for this investigation was the National Survey on Drug Use and Health (NSDUH; REF). The NSDUH primarily gauges how substance use and mental health issues manifest across the U.S. Beginning in 1971, it shifted to an annual format in 1990. Since 1991, the focus has been on civilians aged 12 or older, and Public Use Files (PUFs) from the survey have been available since 1979.

## **2. Methods**

### **2.1. Participant Data**

The National Survey on Drug Use and Health (NSDUH) is an annual survey managed by the Substance Abuse and Mental Health Services Administration (SAMHSA) under the US Department of Health and Human Services. The 2021 NSDUH sampled both households and noninstitutional group settings like college dormitories but excluded the homeless, active-duty military, and residents of institutional settings. Out of 220,743 screened addresses, 69,850 interviews were finalized. This study focuses on the 13,270 interviews involving adolescents aged 12 to 17. The dataset can be accessed at SAMHDA's website. Our analysis considered 8,026 observations, derived through specific criteria detailed later.

### **2.2. Variables of Interest**

We primarily assessed the relationship between poverty and depression during adolescence. Our outcome variables were "YMDELTA" and "YMDEYR," indicating whether an adolescent had a major depressive episode ever or in the past year, respectively. Both were recoded for clarity: 0 = "No" and 1 = "Yes."

#### **2.2.1. Demographics**

Age (to extract adolescent data) and gender [SEXAGE].

#### **2.2.2. School Experience**

Feelings about school [SCHFELT], average grades [AVGGRADE], physical altercations at school [YOFIGHT2], and the importance of religious beliefs [RLGIMPT].

#### **2.2.3. Context**

Adult-Involvement: Frequency of parental checks on homework [PARCHKHW], assistance with homework [PARHLPHW], assigning chores [PRCHORE2], TV time limitation [PRLMTTV2], outings on school nights [PARLMTSN], and positive reinforcements like commendation [PRGDJOB2] and expressions of pride [PRPROUD2].

Peer-Involvement: Smoking [STNDSCIG], marijuana use [STNDSMJ], alcohol consumption [STNDALC], and frequency of getting drunk [STNDDNK] by peers, and whether the adolescent discusses severe problems with someone [TALKPROB].

Extracurricular: Participation in youth activities [YTHACT2] and frequency of religious service attendance [RLGATTD].

### 2.2.4. Income

The income-related variables are as follows:

GOVTPROG: Household's participation in government assistance programs.

INCOME: Ordinal representation of household income.

POVERTY3: Individual's status regarding the poverty threshold, reflecting household conditions.

### 2.3. Analysis Procedure

Our analysis used stepwise logistic regression targeting the depression outcome (focusing on "YMDEYR"). We began with a null model, indicating depression rates without any predictors, progressing to a full model using stepwise regression. The final model was determined based on specific metric criteria.

Given the extensive dataset and the exploratory nature of our approach, we first identified 13 significant predictors using the stepwise regression. To ensure model validity, we checked for multicollinearity with the variance inflation factor (VIF), assessed model residuals, and examined leverage points. To refine our model for clarity and applicability, we ranked these predictors based on their importance, relying on the absolute value of their z-values (or Wald statistic, as appropriate). This ranking helped us decide on the number of predictors to retain, considering domain-specific knowledge and practical significance.

Lastly, while statistical significance is critical, it doesn't always denote real-world impact. Therefore, our interpretation also considered the practical significance of our findings, weighing effect sizes in a real-life context.

### 3. Results

Below in Figure 1 we show the effects associated with adolescent depression.

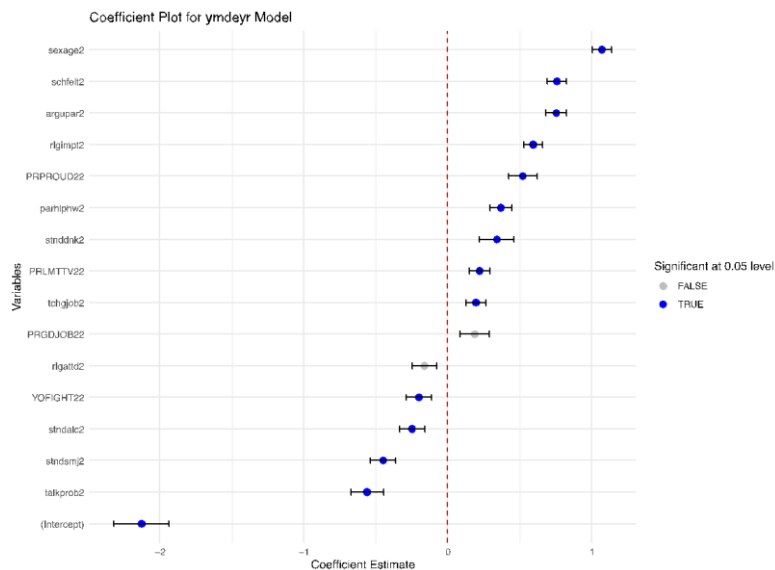


Figure 1: The effects associated with adolescent depression.

## 4. Discussion

The present study set out to explore the potential associations between various socio-economic, experiential, and contextual factors, and the likelihood of experiencing a major depressive episode among adolescents, as reported in the 2021 NSDUH dataset. These findings, situated in this robust dataset, offer a comprehensive insight into depression among adolescents and the numerous intricate factors that may play a role.

Firstly, the role of socio-economic factors and their implications for mental health cannot be understated. It is well-established in the literature that economic hardships, represented here through the income variables and participation in governmental assistance programs, can exert significant stress and contribute to depressive symptoms in adolescents. This study reaffirms this, showing a clear association between lower household incomes and a higher likelihood of depressive episodes among participants.

Interestingly, the contextual factors around adult and peer involvement played a substantial role in the findings. Adolescence is a period characterized by significant cognitive, emotional, and social development. The influence of adult figures—especially parents—in shaping the emotional well-being of adolescents is profound. Regular positive reinforcement from parents, whether through commendations, expressions of pride, or involvement in their academic activities, appeared to serve as protective factors against depression. This aligns with the attachment theory which posits that secure attachments, often cultivated through positive reinforcements, can foster better emotional health.

Conversely, the frequency of arguments or fights with parents had an adverse association, underscoring the role of household dynamics and conflict in influencing adolescent mental health. As for peer context, the prevalence of substance use (tobacco, marijuana, and alcohol) among peers was an essential predictor. Peer behaviors and the associated peer pressure can shape individual choices and perceptions of normative behavior, which can further influence mental well-being.

Extracurricular activities, particularly religious service attendance and youth activity participation, emerged as important considerations. These activities can provide adolescents with a sense of community, purpose, and belonging, which might act as a buffer against depressive symptoms. Furthermore, involvement in such activities often means a structured environment, which can be beneficial for mental health.

Another noteworthy observation is the significance of school experiences. How adolescents felt about school, their academic performance, and the frequency of physical altercations at school were pivotal in predicting depressive episodes. A positive school environment is often linked to better mental health outcomes, as it offers not just academic knowledge but also a place for social interaction and identity formation.

The strength of this study lies in its comprehensive analysis and robust dataset. However, there are certain limitations. The cross-sectional nature of the data doesn't allow for causative interpretations. Additionally, self-reported measures, though necessary for large-scale surveys, may introduce biases.

In conclusion, this study provides a holistic view of the myriad factors associated with depression in adolescents. The findings emphasize the multifaceted nature of mental well-being and underscore the need for a comprehensive approach in interventions aimed at promoting mental health in this age group. Future research could benefit from longitudinal designs to ascertain causality and delve deeper into the interplay of these factors over time.

## 5. Conclusion

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