

PERCEIVED DISCRIMINATION AND DEPRESSION AMONG ECONOMICALLY DISADVANTAGED COLLEGE STUDENTS: THE MEDIATING ROLE OF STRESS AND SELF-ESTEEM

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Abstract: A growing of research suggests a clear positive correlation between perceived identity discrimination and depression. However, the various intermediary processes behind this connection have not been adequately studied. The purpose of this study was to investigate the relationship between perceived discrimination and depression among economically disadvantaged college students, as well as the mediating role of stress and self-esteem. An online questionnaire was distributed to collect data. The sample consisted of 896 students from economically disadvantaged families from 22 universities. Descriptive statistics and Pearson correlation analysis were performed using stata (16.0) and structural equation modeling (SEM) was performed by Mplus (8.0). The results showed that identity discrimination was positively correlated with stress and depression in college students with family economic difficulties. Stress and self-esteem mediated the relationship between identity discrimination and depression among poor students, and the perceived stress caused by discrimination had a negative impact on self-esteem, thereby reinforcing depression; These findings are of great significance for the prevention and intervention of depression in college students with economically disadvantaged. This study focused on the impact of perceived identity discrimination on depression among economically disadvantaged college students, with stress and self-esteem acting as mediating factors. It reflects the potential risks brought by the funding project to the financially disadvantaged college students, and provides a basis for the implementation of the university funding policy and the active intervention of the mental health of the economically disadvantaged college students.

Keywords: Perceived discrimination; Depression; Economically disadvantaged; Stress; Self-esteem

1 INTRODUCTION

According to the data of the National Student Financial Aid Development Report (2021),[1] there are 8.7094 million college students in China who need to apply for national financial aid to help them complete their studies, accounting for about 20% of the total number of college students that year. The current funding system requires economically disadvantaged college students to complete the identification of financially disadvantaged students in order to receive financial aid, collectively referred to as "economically disadvantaged students," similar to an identity label. This economic disadvantage can take a toll on their mental health. Previous research has shown that children from financially disadvantaged families are more likely to be disadvantaged in college than students from financially well-off families.[2,3] They may have a strong sense of inferiority, excessive inferiority, excessive self-esteem and so on, compared with other students.[4] In addition, their paranoid, social withdrawal and social aggression scores were significantly higher than those of non-poor students.[5] The identity label of poor students often brings stigma and discrimination to them, making them feel different from others and even suffer some unfair treatment.

Discrimination based on class is more widespread among economically disadvantaged college students, and these students are more stressed than others owing to their families' financial challenges in affording college.[6,7] They experience a change in their identity after applying for financial aid, and the discrimination and self-stigma attached to their identity label lead to poor physical and mental health.[8,9] Studies have shown that perceived discrimination puts economically disadvantaged college students at potential threats, the most obvious of which is depression.[10,11] While previous studies have shown that discrimination and individual depression are highly correlated, [12-14] few of these studies have specifically focused on perceived status-based discrimination among economically disadvantaged college students. Therefore, the purpose of this study was to investigate how perceived discrimination affects the mental health of economically disadvantaged college students. In addition, we wanted to look at the role of stress and self-esteem in mediating perceived discrimination and depression among economically disadvantaged college students.

1.1 Perceived Discrimination and Depression

Perceived discrimination is an important predictor of self-assessed mental health,[13] and self-reported levels of discrimination are more likely to cause harm to individuals than actual adverse situations. Perceived discrimination

affects self-rated health status,[15] and discrimination is associated with higher crime rates.[16] Current research on discrimination and depression focuses on race,[17-19] gender,[20] and heterosexuality,[21] using Risk models confirm that multiple forms of discrimination are associated with a higher risk of depressive symptoms.[22] Among them, identity labels are more likely to make people perceive discrimination and express mental distress.[23] The impact of perceived discrimination on vulnerable groups is larger, and the negative impact on their well-being is particularly significant.[14] It is possible to argue that the negative impact of perceived discrimination on individual mental health is critical. Perceived discrimination is more widespread among socially disadvantaged persons, which may explain some of the relationship between disadvantaged social position and mental health.[24]

1.2 The Mediating Role of Stress

Stress is related to external events experienced by people, which may exceed the individual's ability to bear and even induce mental or physical illness.[25] Identity affiliation is directly related to an individual's mental health and can also interact with stressors, and identity characteristics can contribute to a certain degree of stress and distress. Individuals with complex self-identities are less likely to be depressed when faced with stress, while individuals with problems with self-identity are more likely to experience stress that further damages or threatens their self-perception and psychological state. In existing studies, exposure to stressors is an important predictor of depression,[26,27] and college students who are economically disadvantaged are more likely to experience stress, and these stressors increase depression in all groups and anxiety symptoms, but this effect is particularly severe in groups that have previously suffered financial hardship.[28,29] Previous research has demonstrated a significant relationship between stress and depression in economically disadvantaged college students, with perceived discrimination increasing stressor exposure and vulnerability to stress, which in turn leads to symptoms of depression,[30] higher depressive symptoms are a direct result of stress caused by poverty.[31] According to the findings, perceived persistent discrimination was linked to greater stress and depression. Combining these studies, we hypothesized that stress may be a mediating factor linking perceived discrimination and depression in college students with financially disadvantaged families.

1.3 The Mediating Role of Self-Esteem

Discrimination has been linked to depression and low self-esteem in studies examining the consequences of perceived discrimination on mental health.[32,33] Members of stigmatized groups may have lower self-esteem, yet self-esteem has been shown to mitigate discrimination-pain correlations.[34] Low self-esteem and depression are also tightly associated, as low self-esteem may lead to depression,[35] depression can destroy self-esteem,[36] and the influence of self-esteem on depression is substantially larger than the effect of depression on self-esteem.[37] Individuals with high vulnerability to self-esteem have higher responses to discrimination and higher levels of depression.[38] The involvement of self-esteem as a mediator in the pathways of perceived discrimination and psychological stress has also been shown.[32,39,40] Furthermore, prospective studies have shown that people at risk of developing depressive symptoms following life stress show more unstable self-esteem than those without risk.[41] Self-esteem instability interacts with perceived stress variability and depressive mood variability,[35,42] and self-esteem plays a role in moderating social exclusion responses.[43] Based on the above studies, we hypothesized that self-esteem may be a mediating factor linking perceived discrimination and depression among college students with financial disadvantages.

1.4 The Present Study

As noted above, few studies have explicitly focused on the mental health effects of economically disadvantaged college students' perceived discrimination because of their status, and the mediating role of stress and self-esteem in this relationship requires further research. In contrast, research on perceived discrimination has focused on categories (race, gender, heterosexuality, etc.) and groups (psychiatric, physical disabilities, immigrants, single mothers, etc.). Most of the research has focused on the social support and group identification that financially disadvantaged college students bring to apply for grants, while the stigma and discrimination that this identification entails have been overlooked. To address this research gap and better conduct financial aid for disadvantaged college students to reduce negative effects, the purpose of this study was to look at the influence of perceived discrimination on depression among economically disadvantaged college students, as well as the role of stress and self-esteem in mediating this process. Based on our analysis of the literature, we suggest the following hypotheses:

H1: In college students from economically disadvantaged backgrounds, perceived discrimination is a strong predictor of depression.

H2: The link between depression and perceived discrimination is mediated by stress.

H3: The relationship between perceived discrimination and depression is mediated by self-esteem.

H4: Stress and self-esteem as mediators of perceived discrimination and depression among economically disadvantaged college students.

2 MATERIAL AND METHODS

2.1 Data and Participants

The data used in this study is based on the "Tao Students Panel Survey" (TSPS) student aid program. The survey was launched in 2018 by a research team from Nanjing University. It conducts a questionnaire survey on college students funded by the Jiangsu Tao Shing Pee Education Foundation from March to May every year, aiming to understand their development after receiving the funding. The data used this time comes from a May 2022 survey of seniors who had received financial aid for four consecutive years. The foundation has cooperative relations with 22 universities in Jiangsu Province, China. The foundation sponsors 200 students in each school each year and 50 in each grade from freshman to senior year. These sponsored students were selected based on three screenings: first, their household registration was in rural areas; second, their families could not afford their college expenses due to financial difficulties; and third, they had certain plans for their future. Those who pass these conditions are selected to become members of the program and receive 5,000 RMB of financial aid each year from the beginning of the first year to the end of the senior year. If a student's family's financial situation improves during the process, funding for him will be stopped. Affected by the control of the COVID-19 epidemic in Chinese universities, the research team did not have the right to enter each university to conduct on-site investigations. Hence, the survey took the form of an online questionnaire. Participants were invited to fill out a questionnaire based on the email addresses they left when applying for funding. The purpose of the investigation and research is fully explained in the email, and the answering session can only be entered after obtaining their informed consent. The ethics committee approved the protocol for this study of the investigator's university. The procedures used in this survey follow the Declaration of Helsinki principles. A total of 1050 questionnaires were sent out, and 896 were recovered, with an effective recovery rate of 85.3%. Participants included 312 (34.82%) men and 584 (65.18%) women. Participants ranged in age from 19 to 26, with an average age of 22.56. 707 (78.91%) participants had siblings, and 653 (72.88%) were first-generation college students in their families, with an average annual family income of no more than 40,000 RMB. Table 1 shows descriptive data for the study sample.

Table 1 Demographic Characteristics of Participants (N = 896)

	Frequency (N) / M	Percentage (%) / S.D.
Gender		
Male	312	34.82%
Female	584	65.18%
Age	M=22.565	S.D.=0.912
Only child		
Yes	189	21.09%
No	707	78.91%
First Generation College Student		
Yes	653	72.88%
No	243	27.12%
Family income	M=3.851	S.D.=2.596

Abbreviations: M, means; SD, standard deviations

2.2 Measurement

2.2.1 Perceived discrimination

Responses to the questionnaire "Do you feel discriminated against at school because of your identity as an economically disadvantaged student?" were used to assess perceived discrimination by economically disadvantaged university students. This question was aimed to illustrate the impact that challenging student status has on individuals by emphasizing the prejudice that comes with the status classification. The responses ranged from '1=never' to '5=always' on a 5-point Likert scale. The higher the score, the greater the level of discrimination experienced by economically disadvantaged university students.

2.2.2 Perceived stress

The 4-item Perceived Stress Scale (PSS-4) was used to assess stress,[44] and respondents were asked to report how much control they had over important things in their lives in the previous month, confidence in dealing with difficulties, and whether events are going the way they want (eg: how often have you felt that things were going your way in the last month?). Answers are on a scale from 0 (never) to 4 (very often). The PSS-4 score is obtained by adding the scores for the four questions, with the second and third questions being reversed. The highest score for this measure is 16. The PSS-4's Cronbach's alpha in this study was 0.698.

2.2.3 Self-esteem

The Rosenberg (1979) Self-Esteem Scale (RSES),[45] which consists of 10 questions with five positive and five negative statements (for example, "I believe that I have a number of nice attributes. "), was used in this study to gauge respondents' overall judgments of self-esteem (eg, "I feel I do not have much to be proud of."). Response scores on the 4-point Likert scale range from 1 (strongly disagree) to 4 (strongly agree) (completely agree). The RSES's Cronbach's alpha in this study was 0.857.

2.2.4 Depression

This study used the 20-item CESD scale for depression testing,[46] which asked participants to report how often they felt and behaved during the past week, including 16 negative items (eg, "I feel alone." "I don't sleep well." "I feel like my life is a failure.") and 4 positive items (eg, "I am happy." "My life is meaningful."), answered on a scale from 0 (rarely or none of the time) to 3 (most or all of the time), with 4 positive items for reverse scoring. The higher the score after the items are added together, the stronger the degree of depression. In this study, the Cronbach's alpha for CESD was 0.931.

2.2.5 Covariates

In our study, we also controlled for the following covariates: gender, age, only child, first-generation college students, and family income. Gender (0=male, 1=female); age in years; only child (0=no, 1=yes); first-generation college students (0=yes, 1=no); household income was a continuous variable in tens of thousands.

2.3 Data Analysis

First, descriptive statistics for all key variables, including frequency, mean, standard deviation, and percentage, were performed in Stata 16.0, followed by a Pearson correlation analysis of the interrelationships between all key variables in the study. Second, SEM analysis was performed using Mplus8.0.[47] After establishing the impact of perceived discrimination on depression, we include stress and self-esteem as mediating factors to examine the significance of the direct effect of perceived discrimination on depression. In this study, we used the following metrics to evaluate model fit, (1) a value of χ^2/df less than 5 was considered "reasonable".[48] (2) The Tucker-Lewis index (TLI) and the comparative fit index (CFI) are both larger than 0.90.[49] (3) The approximation's root mean square error (RMSEA) is less than 0.06,[50] and (4) SRMR (standardized root mean square residual error) is less than 0.08.[51] The above five indices are all used to evaluate the fit of the model. In addition, for estimate, we employed 95% percentile confidence intervals based on 5000 bootstrap samples and bias-corrected 95% bootstrap confidence intervals (CI). When the 95% CI value did not contain zero, the mediation effect was statistically significant.[52]

3 RESULT

3.1 Preliminary Analyses

The mean, standard deviation, and bivariate correlations for all major variables in this investigation were shown in Table 2. According to the correlation results, perceived discrimination was positively connected with sadness ($r=0.247$, $p<0.001$), stress ($r=-0.164$, $p<0.001$), and negatively correlated with self-esteem ($r=-0.194$, $p<0.001$) of economically disadvantaged college students. These findings provide support for our hypothesis to test mediation effects.

Table 2 Key Variable Descriptive Statistics and Correlations (N = 896)

	Range	M	S.D.	1	2	3	4
Perceived discrimination	1-5	1.540	0.745	1			
Stress	0-4	2.496	0.470	0.090***	1		
Self-esteem	1-4	2.880	0.347	-0.194***	-0.206***	1	
Depression	0-3	0.929	0.476	0.247***	0.336***	-0.589***	1

Note: *** is $p<0.001$, ** is $p<0.05$, * is $p<0.01$
 Abbreviations: M, means; S.D., standard deviations

3.2 Mediation Analysis

The structural model, as illustrated in Figure 1, exhibits the influence of perceived discrimination on depression. The fitting index of the structural model is $\chi^2/df=1.537$, $p<0.001$, CFI=0.990, TLI=0.979, RMSEA=0.024, SRMR=0.025, indicating that the fitting effect of the model is good. Perceived discrimination had a significant direct effect on depression ($\beta=-0.077$, $P<0.001$). As a result, this investigation supports Hypothesis 1. In economically disadvantaged college students, perceived discrimination had a beneficial influence on depression.

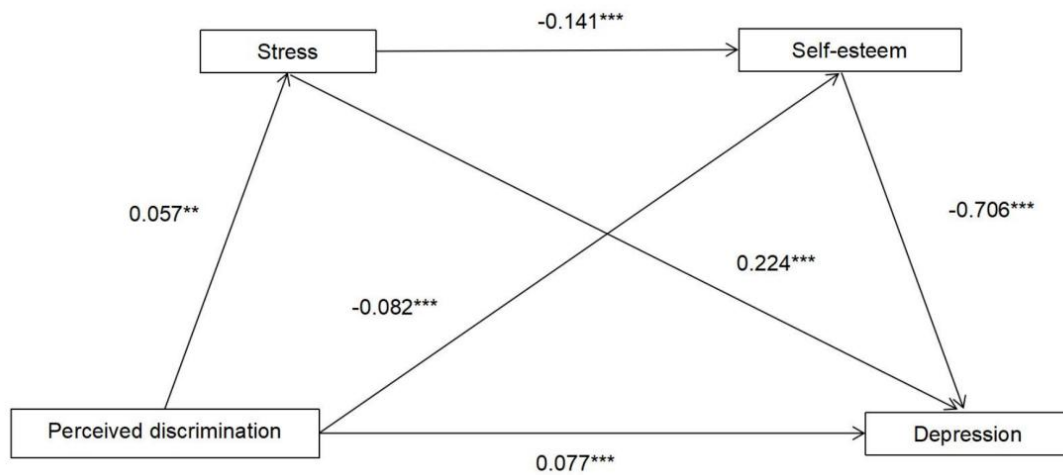


Figure 1 Result of Structural Model

Note: Standardized estimates. Covariate coefficients including gender, age, only child, first-generation college students, and household income are not shown in the figure. Significant paths are indicated with asterisks; *** is $p < 0.001$, ** is $p < 0.05$, * is $p < 0.01$.

Moreover, in order to investigate the mediating impacts of stress and self-esteem, the study looked at the direct effects of perceived discrimination on depression as well as the indirect effects via stress and self-esteem mediation pathways (Table 3). The results show that perceived discrimination can directly ($\beta=0.121$, 95%CI=[0.043, 0.110]) and indirectly ($\beta=0.120$, 95%CI=[0.052, 0.102]) affect the economic difficulties of college students depression. This leads in a total effect size of ($\beta=-0.240$, 95%CI=[0.113, 0.195]). The mediation model revealed that the indirect effect of perceived discrimination mediated by stress on depression was considerable. The mediation model revealed that the indirect effect of perceived discrimination mediated by stress on depression was significant ($\beta=0.020$, 95%CI=[0.004, 0.023]). Hypothesis 2 was supported. Furthermore, the indirect effect of perceived discrimination mediated by self-esteem on depression was significant ($\beta=0.091$, 95%CI=[0.036, 0.083]). Hypothesis 3 is supported. Finally, the indirect effect of perceived discrimination mediated by stress and self-esteem on depression was significant ($\beta=0.009$, 95% CI=[0.002, 0.011]). Therefore, Hypothesis 4 was supported by this study.

Table 3 Standardization's Mediated Path Effects

Model pathways	Estimate	S.E	95% CI
Total Effect	0.240	0.033	[0.113, 0.195]
Direct effects	0.121	0.027	[0.043, 0.110]
Total Indirect Effect	0.120	0.020	[0.052, 0.102]
PD→Stress→Depression	0.020	0.007	[0.004, 0.023]
PD→SE→Depression	0.091	0.019	[0.036, 0.083]
PD→Stress→SE→Depression	0.009	0.004	[0.002, 0.011]

Note: standardized estimating of 5000 bootstrap sample.

Abbreviations: PD, perceived discrimination; SE, self-esteem; CI, confidence interval.

4 DISCUSSION

The purpose of this study was to look at the impact of stress and self-esteem in the relationship between perceived discrimination and depression among economically disadvantaged college students. The results of the study are consistent with our expectations, that is, perceived discrimination positively predicts depression in college students from disadvantaged families, and stress and self-esteem have a strong mediation influence on perceived discrimination and depression.

First, the findings suggest that perceived discrimination can harm the mental health of economically disadvantaged college students, which is consistent with earlier research.[3,6] Receiving financial help, in particular, may identify and stigmatize people, causing them to feel discriminated against. And the more intense their feeling of discrimination, the more depressed they will become. Economic inequities in colleges will make economically disadvantaged college students more stressed. Their family background, consumption habits, and identification characteristics will cause them to feel isolated from the people around them, as well as psychological resistance, making it much simpler for them to feel discriminated against.[30] At the same time, this discrimination is accompanied by stress, which contributes to their depression. Due to the economic disadvantage of their family, some students choose part-time jobs and loans to help

them finish their studies to relieve financial pressure, but these measures are more likely to increase their pressure.[53,54] This study supports the hypothesis of a stress-mediated mediating effect, confirming that perceived discrimination causes more stress and that more stress causes more depression. As a result, assisting economically disadvantaged college students in reducing psychological stress is a feasible measure to prevent depression among economically disadvantaged college students. This highlights the importance of economic disadvantage, which can lead to psychological distress.

Second, this study demonstrated the important links between perceived discrimination, stress, self-esteem, and depression as well as the mediating function that self-esteem played between perceived discrimination and depression. This study concluded that self-esteem is both a mediator of perceived discrimination and depression, and a mediator of stress and depression, and stress is a mediator of perceived discrimination and self-esteem. Our hypothesis is supported by the involvement of self-esteem as a mediator. Specifically, people who perceive strong discrimination negatively affect their self-esteem and increase their depression. Perceived discrimination can also increase an individual's depression by increasing their stress, causing damage to their self-esteem. Numerous studies have shown that receiving funding can relieve their financial pressure.[55,56] But requiring them to demonstrate why they are poor to qualify for funding, and making their poor status public creates discrimination. The process of obtaining financial aid can also bring psychological stress, and the exposure to their privacy can create feelings of inferiority and hurt the self-esteem of economically disadvantaged college students. Despite the fact that several studies have found a direct or indirect relationship between perceived discrimination and sadness, less attention has been paid to difficult students who already have family financial problems and received financial aid, and stress and self-esteem have not been used as mediators between perceived discrimination and depression. As a result, this study examines the influence of perceived discrimination on the depression of economically disadvantaged college students, with a focus on the discrimination and stress caused by economic disadvantage, and employs stress and self-esteem as mediators. There is also a lack of such research in the literature on the negative effects of financially disadvantaged college students' post-funded status transition. The results of this study can also help to fund policymakers, college administrators, and economically disadvantaged college students to take steps to reduce the pressures of the poor student status, improve their self-esteem, reduce the sense of discrimination caused by this status, and ultimately Relief of depression in economically disadvantaged college students.

5 LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

It is necessary to note several significant study limitations. First of all, this study relies on the self-reports of economically disadvantaged college students regarding their perceptions of discrimination as poor students and has a relatively small measurement dimension of perceived discrimination. Although the experience of perceived discrimination is largely a subjective one, future research must establish a more varied method of measuring perceived discrimination to improve it. Second, the cross-sectional design of the study makes it challenging for us to analyze the relationship between variables in the model, even though the study's data pertains to financially disadvantaged college students who have received financial aid for four years. If more conclusions about the causal relationships and pathways between perceived discrimination, stress, low self-esteem, and depression are required, longitudinal tracking data should also be included. The third feature is that the questionnaires are distributed electronically. There is a lack of supervision in answering the questions, and the filling may be easily influenced by uncontrollable interference.

6 CONCLUSIONS

This study examines the association between perceived discrimination, stress, self-esteem, and depression among economically disadvantaged college students, therefore broadening the impact of identity discrimination on economically disadvantaged college students. The findings support the direct impact of felt discrimination on depression in economically disadvantaged college students, emphasizing the importance of stress and self-esteem in the relationship between perceived discrimination and depression . The connections between perceived discrimination and stress, self-esteem, and depression demonstrate how perceived discrimination affects depression. The present study reflects the unintended consequences of financial aid, and the identification tag attached to financial aid can bring certain psychological distress to economically disadvantaged college students. Considering these potential influencing factors, these findings can provide valuable insights into how to better finance the well-being of economically disadvantaged college students, alleviate their psychological distress, and adopt positive psychological interventions. Relieving the pressure of college students with financial difficulties and enhancing their self-esteem can play a positive preventive role. In the process of funding, a multi-faceted support system is established, which is not limited to providing material assistance, but also guides them to correctly deal with economic disadvantages. Further studies are needed to improve the mental health of financially disadvantaged college students and to explore how to address the negative impact of receiving financial aid on financially disadvantaged college students to better consolidate financial aid outcomes.

COMPETING INTERESTS

The authors have no relevant financial or non-financial interests to disclose.

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