Original Research Article
Acta Medica Academica 2023;52(3):201-211
DOI: 10.5644/ama2006-124.421

The Relative Role of Family Affluence and Social Support on Depression and Self-Esteem among Adolescents in Nigeria: a Cross-Sectional Study

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Received: 27 July 2023; **Accepted:** 21 November 2023

Abstract

Objectives. To assess the relative importance of social support and family affluence in depression and self-esteem among adolescents in Calabar, Nigeria. **Methods.** This cross-sectional study was conducted among adolescent students in Calabar, Nigeria. Using stratified random sampling, 332 students were selected for participation. The Family Affluence Scale (FAS), Oslo Social Support Scale (OSS), Becks Depression Inventory (BDI) and Rosenberg Self-Esteem Inventory (RSES) were administered. To facilitate comparisons, the sample was divided into four groups: those with low OSS and low FAS scores, those with low OSS and high FAS scores, those with high OSS and low FAS scores, and those with high scores in both OSS and FAS. Groups were compared using the Kruskal-Wallis Test. Linear regression analysis was conducted to determine the predictors of depression and self-esteem. All analyses were performed using IBM SPSS version 21. **Results.** Respondents with low levels of social support, irrespective of family affluence, had significantly higher depression scores and significantly lower self-esteem scores ($P< 0.05$). In linear regression analyses, social support (95%CI [-1.35,-0.58]) and female gender (95%CI [1.49,5.29]) emerged as predictors of depression, while social support (95%CI [0.25,0.64]) and age (95%CI [-0.79,-0.11]) emerged as predictors of self-esteem. Affluence did not predict depression or self-esteem. **Conclusions.** Social support is of greater relative importance in depression and self-esteem in our study. In developing nations with lean resources, enhanced social support might buffer against the effect of low socio-economic status on mental health.

Key Words: Depression ▪ Social Support ▪ Socio-economic Factors ▪ Adolescent.

Introduction

Mental disorders are a significant global health concern, comprising 7.4% of the global disease burden and affecting over one billion people worldwide (1, 2). They are also the leading cause of years of life lived with disability, accounting for up to 4% of gross domestic product loss in sub-Saharan Africa (3, 4). In Nigeria, it is estimated that 40 to 60 million individuals suffer from mental disorders (5). Furthermore, the associated disability in sub-Saharan Africa is projected to increase by 130% over the next 40 years (6).

Adolescence represents a sensitive phase in human development, characterised by heightened neuroplasticity that enables the brain to adapt to various physical, emotional, cognitive, and environmental challenges (7). This developmental period involves significant brain rewiring, associated with substantial learning and laying the foundation for adulthood (8). However, it is also a vulnerable phase, with nearly 50% of all mental disorders beginning around the age of 18, peaking at 14.5 years (8, 9). Unfortunately, the majority of affected adolescents do not receive any form of treatment until several years after the onset of their conditions, and this situation is likely exacerbated in sub-Saharan Africa, where over 90% of mental disorders remain undiagnosed (10).

Adolescents with untreated mental health issues face increased risks, including substance abuse, violence, academic struggles, unemployment, poor social functioning, and compromised physical health (11, 12). Depression and anxiety are among the most common disabling problems, with suicide ranking as the third leading cause of death in this age group (13, 14). Given the current and future disease burden and its consequences, it is imperative to understand the determinants of mental well-being among adolescents.

Numerous factors influence mental well-being, spanning biological, psychological, and social dimensions (15). The theoretical framework for this study aligns with the Social Determinants of Health (SDOH) Model developed by the World Health Organization (16). This model posits that conditions related to where individuals are "born, live, grow, work, and age," particularly those related to social and economic disadvantages, can result in health inequalities. Social determinants of health encompass early childhood experiences, educational opportunities, socio-economic backgrounds, food security, neighbourhood conditions, access to clean air and water, gender inequity, social support, employment opportunities, and exposure to crime (17). Research consistently demonstrates that these social determinants of health affect physical and mental well-being. They are causally linked to mental health, interacting with polygenic risk factors to shape psychological well-being (18). Social determinants of health also significantly influence positive mental health and mental disorder among adolescents (19).

Socio-economic status segregates the population, creating health disparities through its impact on an individual's occupation, health-seeking behaviour and risk exposure (20). These social inequalities become evident when examining the direct effects of socio-economic factors on mental well-being (13). Socio-economic status has been associated with mental health problems in adolescents, with more pronounced effects observed in younger children (21). Its impact is especially significant in countries like Nigeria, where over 60% of the population lives in extreme poverty (22). According to the social equalisation theory, health disparities in childhood might diminish during adolescence due to the influence of youth culture pressures (23). However, research has shown that these inequalities can persist during adolescence despite the equalisation effect, influencing health behaviours and mental wellness (24, 25).

Social support also plays a critical role in mental well-being, particularly during adolescence, a phase characterized by heightened stress (13, 26). It is defined as everyday behaviours that communicate directly or indirectly to an individual that they are valued and cared for by others (27). Effective communication with parents and peers, adequate family time, and engaging in recreational activities with friends improve stress coping, enhancing social skills, self-esteem, and a sense of security and belonging (13, 20). Various dimensions of social support, including emotional, instrumental, financial, and informational support, can be derived from family, peers, and teachers (20, 26, 28).

While some studies have explored how social support and socio-economic status might be associated with depression or self-esteem, most were conducted in high-income countries and different socio-cultural settings (29-32). Few studies have aimed to determine the relative importance of these factors as predictors of depression or self-esteem in adolescents.

This study aims to fill this gap by assessing the comparative significance of social support and socio-economic status as predictors of depression and self-esteem among adolescents in a low-middle-income country in sub-Saharan Africa. Depression and self-esteem were selected as outcome variables to evaluate the two essential dimensions of mental health: negative and positive aspects, respectively.

Methodology

Study Setting and Population

Participants for this cross-sectional study were recruited from secondary schools in Calabar, a city located in the southern senatorial district of

Cross River State, Nigeria. Calabar encompasses two local government areas, Calabar South and Calabar Municipality, and shares boundaries with Akpabuyo, Odukpani, and Akamkpa local government areas. Calabar is a tropical city renowned for its serenity, cuisine, and rich pre-colonial history. During the colonial era, while exporting local resources and enslaved people, the colonialists introduced Christianity, healthcare, and education to the region. Education remains one of the enduring legacies of this exchange, beginning with the establishment of the famous Hope Waddell Training Institute, one of Nigeria's first secondary schools, in 1895. According to the State Ministry of Education, Calabar currently boasts 80 secondary schools, with 56 (70%) being privately owned.

Eligibility Criteria: Students from the most senior class in private and public schools in Calabar were eligible for inclusion.

Sample Size Estimation

The sample size was determined using the formula for estimating sample size when the prevalence is known ($Z\alpha^2pq/d^2$) (33). Using an assumed prevalence of 50%, the desired precision level of 0.05 and a 95% confidence interval, we had an estimate of 384 (34).

Sampling Procedure

The study employed a stratified sampling technique. Out of the 80 secondary schools in Calabar, 73 were coeducational, and the remaining seven, which were single-gender schools, were excluded to maintain uniformity. Sampling was conducted in the 73 coeducational secondary schools. These secondary schools were further stratified into privately and government-run institutions. Using simple random sampling, two schools were selected from each group, resulting in four schools (two private and two government-run).

Participants were randomly selected from the senior class, SS3 (typically divided into sub-classes, e.g., SS3A, SS3B, SS3C), in each school. The data collection period lasted six weeks, from January to February 2020.

Study Instruments

1. Sociodemographic questionnaire: This collected data on the respondent's age, gender, and school type.
2. The Family Affluence Scale (FAS-II): This is a four-item self-report measure of family affluence first designed and used in the WHO-Health Behavior in School-aged Children (HBSC) survey (35). It was designed to assess family socio-economic status using ownership of material possessions as a response to the observation that many adolescents cannot accurately report other indicators of family affluence, such as parental income, occupation, education, etc. A composite score for the scale can be computed as follows: low affluence (0-2), medium affluence (3-5), and high affluence (6-9) (35). In this study, affluence was graded as high or low based on the median, giving a dichotomous variable for simplicity of presentation. It has been found to have cross-cultural validity and has been used in several countries worldwide, including Nigeria (35, 36). In a multi-country validation study, it had good rank order correlations of .87 with country GDP, suggesting good criterion validity (35). In this study, the Cronbach's alpha was 0.57.
3. Oslo Social Support Scale (OSS-3): This is a 3-item self-report scale which measures the level of social support an individual receives(37). It inquires about the number of people the respondent feels close to, the ease of accessing help when needed and the level of interest others show in the respondent's person or life. Its brevity is considered an advantage, and it has been found to be reliable and valid in many countries worldwide, including Nigeria (37). The overall score spans from 3 (minimum) to 14 (maximum), delineating social support into categories: inadequate (3-8), moderate (9-11), and strong (12-14). In this study, the social support was graded into high and low based on the

median, giving a dichotomous variable for simplicity of analysis and presentation. It has an internal consistency of 0.67, which is acceptable given the scale's brevity (38). In this study, the value was 0.52.

4. Beck Depression Inventory (BDI-II): This is a 21-item self-report measure of depressive symptoms that was originally designed to assess the intensity of depression. It is one of the most popular screening tools for depression and has been used across several countries worldwide (39). The scale assesses depressive symptoms such as sadness, loss of interest, insomnia, tiredness, feelings of guilt and suicidality (39). Each question has a possible score of 0 to 3, with 0 indicating the absence of symptoms and 3 indicating severe symptoms. The 21 items are summed to get a composite score, which is graded as follows: 0-13: Minimal depression, 14-19: Mild depression, 20-28: Moderate depression, and 29 to 63: Severe depression (40). It has also been validated and widely used in Nigeria with a sensitivity of 0.91 and a specificity of 0.97 (40). In this study, the scale was used as a continuous variable to indicate the overall presence of depressive symptoms as defined by the BDI. The Cronbach alpha for this sample was 0.86.
5. Rosenberg Self-Esteem Scale (RSES): This is a 10-item self-report measure of self-esteem, originally designed for adolescents (41). Some examples of scale items are as follows: "*I feel that I am a person of worth, at least on an equal plane with others*; I take a positive attitude toward myself; I certainly feel useless at times, etc". Each question is graded using a Likert scale ranging from 1 (strongly agree) to 4 (strongly disagree). A score between 21 and 30 on the RSES indicates high self-esteem, scores between 11 and 20 signify average self-esteem, and scores ranging from 0 to 10 suggest low self-esteem. In this study, the scale was used as a continuous variable to indicate the overall level of self-esteem. It has been used in several contexts globally and is known for its good psychometric properties (42). It has also been validated and used in Nigerian studies with a Cronbach alpha of 0.87 (43). In this sample, the Cronbach alpha was 0.66.

Ethical Consideration

This study adhered to the Declaration of Helsinki. Ethical approval (Ref no: FNPH/HREC/01/05) was obtained from the ethics board of the researcher's institution, the Federal Neuropsychiatric Hospital Calabar. Additionally, permission for the study was granted by the State Ministry of Education and the administrators of the selected schools. For students under the age of 18, informed parental consent was sought, and the students also provided their assent to participate. Students aged 18 or older provided informed consent themselves.

Statistical Analysis

Analysis was done using the IBM SPSS version 21 software. Frequencies and percentages for sociodemographic variables were computed. The dependent variables (depression and self-esteem) were not normally distributed. Therefore, the four groups were compared using Kruskal-Wallis (KW) non-parametric tests with post-hoc analyses. A possible association between affluence and social support was explored using Spearman rank correlation, as both variables were also non-normal. Results were considered significant if $P<0.05$. Linear regression was also done to determine the predictors of both depression and self-esteem scores.

Results

The final sample comprised 332 adolescents from four secondary schools in Calabar, with slightly more than half being male. Ages ranged from 11 to 20 years, and 182 (54.8%) attended private schools, while the rest attended government-owned schools. Sociodemographic data are presented in Table 1.

Table 1. Characteristics of Respondents

Variable	Frequency (N; %)
Age (yrs)*	
11-14	125 (38.3)
15-20	205 (61.7)
Gender	
Male	181 (54.5
Female	151 (45.5)
School type	
Public	150 (45.2)
Private	182 (54.8)

*Mean±SD (14.99±1.40).

Four comparison groups were generated based on median scores of 5 on the Affluence Scale (FAS) and 11 on the Oslo Social Support Scale (OSS). First, using the median score, the social support (OSS) and family affluence (FAS) variables were categorized into high and low levels. Thus, for FAS, low affluence was defined by scores of 0-4, while scores of 5 or above were considered high. Also, for OSS, scores of 3-10 were designated as low social support, while scores of 11 or above were deemed high affluence. Then, based on binary combinations, four groups were created as follows: Group One comprised of respondents with low OSS and FAS scores; Group Two consisted of respondents with low OSS and high FAS scores; Group Three was composed of respondents with high OSS and low FAS; and Group Four comprising respondents with high scores in both measures. These four groups were compared to determine how different levels of social support and affluence in binary combinations might be associated with depression and self-esteem.

Using the normal P-P plot, data was approximately normally distributed for both regression analyses. Also, a scatter plot of regression standardized residuals against regression standardized predicted values showed that the data was homoscedastic. All VIF values were less than 10, with the Durbin-Watson statistic as 1.95 for the depression regression and 1.87 for the self-esteem, suggesting low multicollinearity.

A weak positive correlation was observed between OSS and FAS ($r=0.19$; $P<0.05$). Table 2 presents a comparison of depression levels across the four groups. Depression scores (as measured by the BDI) were similar for two groups with low social support and the other two with high social support, irrespective of affluence level. Overall, the differences in depression scores across the four groups were statistically significant ($H=25.37$; $P<0.05$). Post hoc tests revealed that the depression score for Group One (low OSS + low FAS) was significantly higher than that of Group Three (high OSS + low FAS) and Group Four (high OSS + high FAS) ($P<0.05$). Similarly, the depression score for Group Two (low OSS + high FAS) was significantly higher than that of Group Three (high OSS + low FAS) and Group Four (high OSS + high FAS) ($P<0.05$). The two groups with low OSS (one and two) were not significantly different from each

Table 2. Comparison of Depression Scores across Groups

Group	N (%)	BDI Mean± SD	Kruskal-Wallis test P-value	Post Hoc (Tukey HSD) Comparisons			
				Low OSS and Low FAS P-value	Low OSS and Low FAS P-value	Low OSS and Low FAS P-value	High OSS and High FAS P-value
Low OSS and Low FAS	79 (23.8)	14.74±9.17	<0.001	-	-	-	-
Low OSS and High FAS	79 (23.8)	14.16±9.25		1.00	-	-	-
High OSS and Low FAS	65 (19.6)	9.60±6.98		0.006	0.03	-	-
High OSS and High FAS	109 (32.8)	9.99±9.14		<0.001	0.002	1.00	

BDI= Becks Depression Inventory; OSS=Oslo Social Support Scale; FAS=Family Affluence Scale.

Table 3. Comparison of Self-Esteem Scores across Groups

Group	N (%)	RSES Mean±SD	Kruskal-Wallis Test P-value	Post Hoc (Tukey HSD) Comparisons			
				Low OSS and Low FAS P-value	Low OSS and High FAS P-value	High OSS and Low FAS P-value	High OSS and High FAS P-value
Low OSS and Low FAS	79 (23.8)	19.96±4.00	<0.001	-	-	-	-
Low OSS and High FAS	79 (23.8)	19.60±4.85		1.00	-	-	-
High OSS and Low FAS	65 (19.6)	21.16±3.93		0.006	0.009	-	-
High OSS and High FAS	109 (32.8)	20.89±4.20		0.01	0.02	1.00	-

RSES=Rosenberg Self-Esteem Inventory; OSS=Oslo Social Support Scale; FAS=Family Affluence Scale.

other in terms of depression score, irrespective of affluence score (P>0.05). Also, the two groups with high OSS (three and four) did not differ significantly with regard to their depression score, regardless of their affluence level (P>0.05).

Table 3 is a comparison of the levels of self-esteem in the four groups. The self-esteem scores (as measured by the RSES) were similar for two groups with low social support and the other two with high social support, irrespective of affluence level. Overall, the differences in self-esteem scores across the four groups were statistically significant (H=18.83; P<0.05). The post hoc test revealed that the self-esteem score for Group One (low OSS + low FAS) was significantly lower than that of Group Three (high OSS + low FAS) and Group Four (high OSS + high FAS) (P<0.05). Also, the self-esteem score in Group Two (low OSS + high FAS) was significantly lower than that of Group Three (high OSS + low FAS) and Group Four (high OSS + high FAS) group (P<0.05). The two groups with low OSS (one and two) were not significantly different from each other in terms of self-esteem score, irrespective of affluence score (P>0.05). The same trend was present in the comparison of groups (three and four) with high OSS scores (P>0.05).

Table 4 shows predictors of depression scores based on OSS score, FAS score, age, and gender. A significant regression equation was found (F=10.17, P<0.05), with an R^2 of 0.11. Both OSS (95%CI [-1.35,-0.58]) and female gender (95%CI [1.49,5.29]) were significant predictors of BDI scores. Depression scores decreased by 0.97 for each unit increase in OSS score and increased by 3.39 for females compared to males (reference category).

In Table 4, OSS score, FAS score, age, and gender were assessed as predictors of self-esteem scores.

Table 4 Linear Regression Showing Effect of Family Affluence and Social Support on Depression and Self-Esteem Scores

Variables	Standardized β Coefficient	95% CI
Predictors of depression		
OSS	-0.27	-1.35, -0.58
FAS	0.01	-0.32, 0.41
Age	0.09	-0.068, 1.29
Gender	0.18	1.49, 5.29
Constant	-	-0.39, 22.78
R=0.230		
R^2=0.053		
Predictors of self-esteem		
OSS	0.25	0.25, 0.64
FAS	-0.06	-0.29, 0.08
Age	-0.14	-0.79, -0.11
Gender	-0.01	-1.12, 0.78
Constant	-	17.92, 29.51
R=0.29		
R^2=0.08		

CI=Confidence Interval; OSS=Oslo Social Support Scale; FAS=Family Affluence Scale.

A significant regression equation was found ($F=7.58$, $P<0.05$), with an R^2 of 0.08. Both OSS (95%CI [0.25,0.64]) and age (95%CI [-0.79,-0.11]) were significant predictors of RSES scores. Self-esteem increased by 0.45 for each unit increase in OSS score and decreased by 0.45 for each unit increase in age.

Based on these results, we conclude that there is sufficient evidence to reject the null hypothesis in favour of the alternative, that family affluence and social support have differential roles in depression and self-esteem among adolescents in Calabar, Nigeria.

Discussion

This study aimed to determine the relative roles of social support and family affluence in depression and self-esteem. We found that social support and affluence had a weak positive correlation. Respondents with low social support consistently had poorer outcomes, regardless of their family affluence level. They exhibited significantly higher depression scores and significantly lower self-esteem scores. In regression analysis, social support and gender emerged as predictors of depression, while self-esteem was predicted by age and social support. Family affluence did not emerge as a predictor of either depression or self-esteem.

Previous research has indicated a positive correlation between social support and affluence (44, 45). Our study also found such a relationship; however, it was weak, which minimized multicollinearity in regression analysis. Another survey among Chinese adolescents reported an even weaker correlation, though they used different measures of social support and family affluence (46). This might suggest that while there is some relationship, they are largely independent phenomena with potentially convergent effects.

Although a high socio-economic level and family affluence are ideal in adolescence, there is a wide variation in these factors among individuals. We assessed four possible combinations and found that a low level of social support was associated with poorer outcomes in terms of depression and self-esteem, regardless of affluence level. In other words, those with strong social support generally fared better. This could imply that, at least in our study context, good social support leads to better mental health outcomes, regardless of the adolescent's socio-economic background.

This finding appears to trivialize the role of socio-economic status in mental health, which contradicts common knowledge in the field of psychological research (21). A systematic review of 55 studies, primarily conducted in North America, Europe, and Australia, reported an inverse relationship between socio-economic status and various mental health indicators (including depression and self-esteem) in children and adolescents (21). The review noted a wide disparity in the approach to measuring socio-economic status among included studies, which limited comparability. The majority used single variables such as parental occupation, income, or educational level as indicators of SES, while only a few utilized a composite index like the FAS. It is noteworthy that two out of the three studies that did not report an association used the FAS. The differences in measuring tools might explain the variance in our findings compared to previous work. Also, the social equalization theory which posits that the impact of social disadvantage in early childhood diminishes in adolescence, might explain the lesser role of family affluence on mental health in this population (23).

A cross-national pilot study conducted in Serbia, India, Nigeria, Turkey, and Indonesia, employing the FAS, revealed a significant relationship with mental well-being (36). However, their study included children from both rural and urban areas, likely capturing the poorest rural families. Our study was conducted among adolescents who are secondary school students in a metropolitan city. Therefore, our findings might be more applicable to adolescents in urban areas who are likely to be well-off in terms of family affluence compared to those from rural areas.

Another study in South Africa demonstrated that SES did not significantly predict variance in mental well-being (47). Additionally, they identified hope as a significant predictor and determined

that its presence mitigated the impact of low socioeconomic status. It is also possible that in a highly religious, collectivistic society like Nigeria, sociocultural factors, including social support, religiosity, and hope, could act as buffers against the effects of low SES on mental health risk. Another review also considered this possibility, suggesting that buffers, such as religiosity driven by cultural mechanisms, could explain the lack of association in some contexts (48). Taken together, these findings indicate that the link between SES and mental health is intricate and subject to moderation by various psychosocial or culturally dependent variables.

Our study underscores the importance of social support in adolescents' psychological well-being, aligning with previous reports (11, 29, 49). According to the *stress-buffering effect model*, social support exerts its effect by diminishing the impact of stress and helping the individual to cope better (50). Low SES, on the other hand, exacerbates health problems by elevating stress risk, thus exerting its effect in the opposite direction (51). Social support is more accessible in collectivistic societies –a phenomenon believed to serve an "anti-psychopathology" function (52). In resource-lean collectivistic communities like Nigeria, the relative ease of accessing social support may mitigate the impact of low SES.

Limitation of Study

Our study has some limitations. First, we relied solely on self-report questionnaires, which could introduce social desirability bias. Second, our study did not include adolescents from rural areas and may have predominantly excluded those from economically disadvantaged families. This may explain the lack of significance regarding family affluence and could limit the generalizability of our findings. It would be beneficial to reevaluate the validity and socio-metric capability of the FAS among Nigerians and conduct further research to determine the threshold at which SES begins to affect mental health adversely. Additionally, our regression models accounted for a low variance in the outcome variables, suggesting that while social support was a significant predictor, its overall impact may be relatively modest. Alternatively, the low variance might mean the relationship between study variables is non-linear. Lastly, causality cannot be inferred since this was a cross-sectional study.

Recommendation

Considering the importance of social support for mental well-being, interventions designed to strengthen social support systems for adolescents should be prioritized, especially in contexts with socioeconomic inequity. Such interventions could be school-based, as the structured educational environment might be more amenable to integrating such interventions. Parents should be educated and involved in such interventions to make them aware of the relative importance of social support in the well-being of adolescents. Further research is needed to elucidate the relative importance of social support and affluence. Also, it would be beneficial to reevaluate the validity and socio-metric capability of the FAS among Nigerians and conduct further research to determine the threshold at which SES begins to affect mental health adversely.

Conclusion

Based on our findings, we conclude that social support predicts depression and self-esteem and appears to hold greater relative importance for the mental well-being of adolescents in our sample compared to family affluence. Our study may be interpreted as highlighting the compensatory effect of factors like social support on mental well-being in developing countries where economic resources are scarce and the majority live below the poverty line.

What Is Already Known on This Topic:
It is known that social support and socio-economic factors influence the mental well-being of adolescents.

What This Study Adds:
This study examines the relative importance of socio-economic status and social support in depression and self-esteem among adolescents. Our findings suggest that social support influences adolescents' emotional health more than family affluence.

Acknowledgement: We acknowledge the staff of the research unit, Federal Neuropsychiatric Hospital, Calabar, for their assistance with data entry.

Authors' Contributions: Conception and design: all authors; Acquisition of data: EE and FE; Analysis and interpretation of data: BE, EE, EO and DF; Drafting the article: EE, RA and DF; Revising it critically for important intellectual content: all authors; Approved final version of the manuscript: all authors.

Conflict of Interest: The authors declare that they have no conflict of interest.

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