

Social support, stress, health, and academic success in Ghanaian adolescents:

A path analysis.

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Abstract

The aim of this study is to gain a better understanding of the role psychosocial factors play in promoting the health and academic success of adolescents. A total of 770 adolescent boys and girls in Senior High Schools were randomly selected to complete a self-report questionnaire. School reported latest terminal examination grades were used as the measure of academic success. Structural equation modelling indicated a relatively good fit to the posteriori model with four of the hypothesised paths fully supported and two partially supported. Perceived social support was negatively related to stress and predictive of health and wellbeing but not academic success. Stress was predictive of health but not academic success. Finally, health and wellbeing was able to predict academic success. These findings have policy implications regarding efforts aimed at promoting the health and wellbeing as well as the academic success of adolescents in Ghana.

Keywords: adolescents; perceived social support; stress; health; wellbeing; academic success

INTRODUCTION

The academic success of children does not occur within a vacuum, but rather is situated within nested environments characterised by dynamic and subtle influences. Data from the Global School-based Health Survey in Ghana indicates that over 80% of adolescents report experiences such as feeling worried, feeling sad and hopeless, and feeling lonely which in turn had a negative effect on their daily life activities (Owusu, 2008). The psychosocial needs of adolescents play a critical role in their academic success. Several studies have demonstrated that social support has a positive effect on adolescents' health and wellbeing (Gini, Carli, & Pozzoli, 2009; Lindsey, Joe, & Nebbitt, 2010) and on their academic success (Azmitia, Cooper, & Brown, 2009; Danielsen, Wiium, Wilhelmsen, & Wold, 2010).

Conversely, stress has negative effects on health and wellbeing (Flouri & Kallis, 2011; Hjern, Alfvén, & Ostberg, 2008) and on academic success (Alva & de los Reyes, 1999; Chung & Cheung, 2008; Flook & Fuligni, 2008). These findings also suggest that social support mitigates the deleterious effects of stress on health (Gayman, Turner, Cislo, & Eliassen, 2011) and academic success (Danielsen et al., 2010). Stress is known to be deleterious to health by promoting maladaptive behavioural coping responses (e.g. smoking, alcohol intake, binge eating). Cohen, Gottlieb, and Underwood (2000) assert that beliefs of perceived social support may reduce or even annihilate an emotional reaction to stressful situations and prevent or alter maladaptive behavioural response, and may also alleviate the deleterious effects of stress appraisal by providing a solution to a problem, either in terms of health or academic success.

In response to concerns that academic standards are falling in Ghana, policy makers have placed considerable emphasis on factors such as school feeding programmes, curriculum modification, and education reforms among others (Ghana Ministry of Education, 2003). Although these school-based factors may be positive for academic success, the psychosocial needs of adolescents, for whom these measures have been instituted, has received little attention in terms of research and policy formulation. Thus, the main

purpose of this study was to explore the impact of social support, stress, and health on the academic success of Ghanaian adolescents.

Social support, stress, and health

Social support is a multidimensional construct comprising of the psychological and material resources available to individuals through their interpersonal relationships and it enhances an individual's ability to cope with stressful life events (Cohen, 2004) and their general health and wellbeing (Uchino, 2006) by influencing cognitions, emotions, behaviours and biological responses (Cohen et al., 2000). Research indicates that higher levels of social support play either a buffering or direct role in diminishing stress appraisal and response thereby decreasing distress or ameliorating health and wellbeing (Oliva, Jimenez, & Parra, 2009), albeit the mechanism involved in this process is equivocal (Lovallo, 2005; Uchino, 2006).

The association between social support and stress has been investigated for various aspects of adolescent health. Social support from family and friends has been found to be effective in protecting against mental health problems (e.g. Monroe & Harkness, 2005; Murberg & Bru, 2004; Suliman et al., 2009; West & Sweeting, 2003) and psychosomatic disorders (Gini et al., 2009; Hjern et al., 2008), while increasing engagement in physical activity (Beets, Cardinal, & Alderman, 2010), healthy eating habits (Kubik, Lytle, & Fulkerson, 2005) and decreased smoking (Scales, Monahan, Rhodes, Roskos-Ewoldsen, & Johnson-Turbes, 2009).

Social support, stress, and academic success

Several studies have found that social support and stress have a strong influence on academic success. For example, higher levels of social support from family, friends, teachers and significant others have a positive effect on Mathematics grades (Azmitia et al., 2009), reading tests (Park & Bonner, 2008), school meaningfulness (Brewster & Bowen, 2004), and school belonging (Adelabu, 2007). Less social support on the other hand has been reported to influence school failure (Domagała-Zyśk, 2006) and poor academic performance (Rothon et al., 2010). With regard to stress, Flook and

Fuligni (2008) reported that high family related stress is associated with lower grade point average.

Health and Academic Success

Various aspects of health impact on the academic success of adolescents, including negative mood, feelings of low self-esteem and depression (DeSocio & Hootman, 2004), general mental health problems (Ding, Lehrer, Rosenquist, & Audrain-McGovern, 2009), and emotional intelligence (Parker et al., 2004). Negative thinking has also been found to lead to procrastination and eventually poor academic performance (Humensky et al., 2010).

Barriga et al. (2002) assert that somatic conditions impair and exacerbate attention problems that then have a concomitant negative impact on academic performance. Headaches causes adolescents to often miss school (Breuner, Smith, & Womack, 2004), adolescents who report that they did not get enough sleep were more tired during the day, having difficulty paying attention in school and getting lower grades (Noland, Price, Dake, & Telljohann, 2009). Adolescents who smoke very often are more likely to have low grades compared to their peers who do not smoke (Cox, Zhang, Johnson, & Bender, 2007; Diego, Field, & Sanders, 2003). Furthermore, MacLellan, Taylor, and Wood (2008) found that adolescents who reported better academic performance were also more likely to have a healthier diet.

Most of the studies that have examined the interrelationships between social support, stress, health, and academic success among adolescents have been conducted in western countries. Given that culture could have a strong influence in the perception of social support and stress, it is important to study how these variables influence academic success in other cultures. We are not aware of any other similar study that has been conducted using a sample of Ghanaian adolescents. The aim of this study is to examine how social support and stress influence the health and academic success of Senior High School adolescents. Based on the review of related studies, we hypothesise that social support will have a positive effect on both health and academic success, and a negative association with stress. Also, we hypothesise that

stress will have a negative effect on both health and academic success, whereas health will have a positive effect on academic success.

METHOD

Participants and Procedure

The sample of 770 second-year and third-year students was selected randomly from four Senior High Schools in Accra, Ghana. First-year students could not participate because at the time of data collection they had just received their admission letters and were yet to report for the first time to Senior High School. The sample consisted of 504 boys and 266 girls between the ages of 14 to 21 ($M = 16.86$, $SD = 1.01$). In each school, classrooms were randomly selected from the list of all classrooms in the school, and on the days of data collection any student in any of the randomly selected classrooms with a completed consent form and willing to participate was allowed to complete the questionnaires in their respective classrooms. Data collection was carried out when all schools were in session and questionnaire completion took place in the classrooms. Participants were asked to sign a consent form and those below the age of 18 were given an additional parental consent form for their parent or guardian to sign. Ethical approval was obtained from the Faculty of Science Ethics Committee of the University of Essex, after school authorities in Ghana had given permission for their schools to participate in the study. Sample size was determined a priori using Gpower3 software (Faul, Erdfelder, Lang, & Buchner, 2007). With a power value of 0.80, a significance level of 0.05, and minimum effect size of 0.10, the minimum sample size was calculated to be 614.

Measures

General Health Questionnaire

The 12-item General Health Questionnaire (GHQ-12) (Goldberg, 1972) is a well-established, self-administered screening instrument designed to detect common psychiatric disorders. Participants indicate their agreement or disagreement along a 4-point scale for each item (1- not at all, to 4 - very often). In this study the GHQ-12 score was additive after reversing of some items so it ranged from 12 to 48 with a high score indicating poorer

psychological wellbeing. Tait, French, and Hulse (2003) reported $\alpha = 0.88$ for the 12-item GHQ among adolescent samples. In this study, the GHQ-12 had an internal reliability of $\alpha = 0.75$.

School Success Profile

The School Success Profile (SSP) (Bowen & Richman, 2008) was used to measure physical health (eight items) and social support from teachers (SST) (eight items). The physical health subscale consists of items asking if students feel little or no energy, trouble going to sleep, dizziness, headaches, tiredness and other aches and pains. Responses are on a 5-point Likert scale ranging from 0 - never, to 4 - very often. After reverse scoring of some items, higher scores indicate better physical health. The SST subscale has items asking if teachers show them respect, encourage and listen to them. Responses are on a 5-point Likert scale ranging from 1 - strongly disagree to 5 - strongly agree with higher scores indicating more social support from teachers. Analysis by Bowen and Richman (2008) indicated that the physical health subscale has an $\alpha = 0.78$ while Gruber and Fineran (2007) found an $\alpha = 0.85$. For the SST subscale the alpha values are consistently reported above 0.80 (Garcia-Reid, 2007; Garcia-Reid, Reid, & Peterson, 2005; Woolley, Kol, & Bowen, 2009). In this study we found an $\alpha = 0.80$ for the SST and 0.71 for the physical health subscale.

Social Support from Family and Friends Scales

The 10-item versions of the Perceived Social Support from Family (PSS-FA) scale and the Perceived Social Support from Friends (PSS-FR) scale (Procidano & Heller, 1983) were used to assess social support from family and friends. Responses to the PSS-FA and PSS-FR were on a 5-point Likert scale ranging from 1 - strongly disagree to 5 - strongly agree where higher scores indicate more social support. The PSS-FA and PSS-FR scales have items assessing whether participants' family and friends give them the moral support they need, enjoy hearing about what they think, sensitive to their personal needs and giving them emotional support. Procidano and Heller (1983) reported an $\alpha = 0.88$ and $\alpha = 0.90$ for the PSS-FA and PSS-FR respectively. Skinner, John, and Hampson (2000) reported PSS-FA $\alpha = 0.89$

and PSS-FR $\alpha = 0.86$ while Karcher (2008) found $\alpha = 0.90$ and $\alpha = 0.82$ for PSS-FA and PSS-FR respectively among adolescents. The Cronbach's alphas in this study are $\alpha = 0.86$ and $\alpha = 0.71$ for the PSS-FA and PSS-FR scales respectively.

Adolescent Stress Questionnaire

The Adolescent Stress Questionnaire (ASQ) (D. G. Byrne & Mazanov, 2002) was used to assess stressful daily life events. Four out of nine subscales with a total of 25 items were selected based on pertinence to this study. These are subcategorised into stressors pertaining to relationships with family and home conditions, peers and community environment and teacher and school environment. The ASQ is scored on a 5-point Likert type scale with response categories ranging from 1 - never to 5 - very often. Items assess adolescents on stressors encountered in relation to home life (e.g. 'disagreement with parents' and 'lack of trust in the home'), peer pressure (e.g. 'pressure to fit in' and 'being judged by peers') and teacher interaction (e.g. 'lack of respect from teachers' and 'getting along with teachers'). Byrne, Davenport, and Mazanov (2007) found high reliability coefficients for all the subscales; stress of home life $\alpha = 0.92$, stress of peer pressure $\alpha = 0.88$ and stress of teacher interaction $\alpha = 0.87$. Moksnes, Moljord, Espnes, and Byrne (2010) found the various subscales of the ASQ to have good internal consistency; $\alpha = 0.87$, and $\alpha = 0.89$ for the stress of home life and stress of peer pressure subscales respectively among adolescents. Cronbach's alpha of the ASQ in this study is 0.78 with $\alpha = 0.72$, $\alpha = 0.71$, and $\alpha = 0.63$ for the home life, peer pressure and teacher interaction subscales respectively.

Personal Lifestyle Questionnaire

The revised Personal Lifestyle Questionnaire (PLQ) (Mahon, Yarcheski, & Yarcheski, 2003) was used to assess health promoting/impairing behaviours. The PLQ has six subscales but, for the pertinence of this study, four subscales were used consisting of 16 items scored on a 5-point Likert type categories ranging from 1 - never to 5 - very often. Total scores range from 16 to 80 where high scores indicate more positive health practices. The PLQ has items on exercise behaviour (e.g. jogging and participate in any physical

activity); substance use (e.g. smoking cigarettes daily and drinking alcoholic beverages daily); nutrition (e.g. eating at regular intervals during the day and eating “junk food” daily); and sleep/relaxation (e.g. getting adequate sleep, and meeting needs for friendship). Mahon et al. (2003) found an $\alpha = .84$; and Mahon, Yarcheski, and Yarcheski (2004) found an $\alpha = 0.73$ among adolescents. The Cronbach’s alpha for this study is 0.70 for the 16 items and 0.74 for the ten items that were used in the analysis.

Health and Wellbeing

In order to provide a more stable and universal measure of health and wellbeing a composite score was formed by adding the scores of the GHQ-12, PLQ and SSP - physical health subscale after scoring these three scales in the same direction. The reliability of the composite health and wellbeing scale is $\alpha = .80$.

Academic Success

Academic success was measured by using students’ examination grades in English, Mathematics, Integrated Science and Social Studies in their latest terminal examinations. The grades with its corresponding percentage marks were obtained from school records from school authorities. A composite measure of academic success was created by adding the percentage marks of the four subjects, with high marks indicating academic success.

Parental Education

Parental education was measured by adding together the highest education attained by fathers and mothers, or the highest education attained by guardians in the case of adolescents who are not living with their biological parents. Educational level was classified as: (6) University master’s degree, (5) University bachelor’s degree (4) Polytechnic (3) Teacher or nursing training college (2) Form four/secondary school and (1) No education. This resulted in scores ranging from 2 to 12 with high scores indicating better socio-economic circumstances then the scores were later collapsed into categories as high (≥ 10), middle (5 to 9) and low (≤ 4) parental education.

Statistical Analysis

Structural Equation Modelling (SEM) with AMOS 16 software was used to analyse the data. Missing value analysis was carried out and the results showed little missing data with missing values ranging from 0.1% to 5.6% per variable. Notwithstanding this, a Full Information Maximum Likelihood (FIML) estimation method in AMOS 16 was used as this produces less biased estimates compared to other methods, by accounting for missing data (Byrne, 2010). Kolmogorov-Smirnov test of normality was run in SPSS 16 and the statistic for the social support (.04), stress (.06), health and wellbeing (.03) and academic success (.12) scales were all non-significant ($p > .05$), indicating that these variables are normally distributed.

The approach taken with SEM was for model generation – whereby an initial model is specified and then data is collected to test it. If the initial model does not fit the data the model is modified and retested using the same data until an acceptable fit is achieved. Consistent with current practices in respect of the use of fit indices, emphasis was placed on the Root Mean Square Error of Approximation (RMSEA) to evaluate goodness of fit. In addition, consideration was given to other fit indices: Tucker–Lewis Index (TLI), Comparative Fit Index (CFI), chi square degrees of freedom ratio (χ^2 /df), chi square (χ^2) goodness-of-fit statistic, and the evaluation of parameter estimates. RMSEA cut-off values ≤ 0.05 indicate a good fit although values ranging from 0.06 to 0.08 also indicate acceptable fit with values above 1 indicting poor fit. CFI and TLI cut-off values range from 0 to 1 with values closer to 1 indicating good fit, although CFI and TLI values ≥ 0.95 are highly recommended. The smaller the χ^2 goodness-of-fit statistic, the better the fit, with value zero indicating perfect fit and a value with χ^2 ($p > 0.05$) indicating acceptable fit. Chi square degrees of freedom ratio (χ^2 /df), (or CMIN/DF), specifies the ability of the hypothesised model to fit the sample data. Values less or equal to 2 indicate a good fit (Byrne, 2010; Hu & Bentler, 1999). The statistical significance of all parameter estimates or coefficients in the structural equation model were evaluated at the 0.05 level.

RESULTS

Table 1 presents the demographic characteristics of the sample in this study. The large majority of students are between 16 and 18 years old. Older and younger students are included if they were in the school year groups targeted in this study.

Table 1. Demographic Characteristics of the Sample

Demographic Variables	Description	N (%)	M (SD)
Age	14	2 (0.3)	16.86 (1.01)
	15	48 (6.2)	
	16	229 (29.7)	
	17	320 (41.6)	
	18	130 (16.9)	
	19	29 (3.8)	
	20	8 (1.0)	
	21	2 (0.3)	
Gender	Male	504 (65.5)	
	Female	266 (34.5)	
Class/Form	Two	420 (54.5)	
	Three	350 (45.5)	
Socio-Economic Status/ Parental Education	Low	279 (36.2)	
	Middle	320 (41.6)	
	High	169 (21.9)	

N = Number, % = Percentage of N, M = Mean, SD = Standard Deviation

Social support, stress, and health latent constructs

The measurement model of the latent variables were assessed by applying Simultaneous Confirmatory Factor Analysis (SCFA) - which permits an examination of the psychometric adequacy of an instrument and can aid in item evaluation and construct development (Byrne, 2010). Due to the large number of items for each construct, item parcelling by way of the subscales was used. Item parcelling is more likely to have smooth distributions and higher internal consistency than the individual items (Savalei & Bentler, 2006). SCFA results showed that the scales are multidimensional constructs with each having three dimensions conforming reasonably well with the construction of sources of social support, sources of stress and dimensions of health and wellbeing.

Academic success manifest variable

The academic success scale was made up of four items (English language, mathematics, social studies and integrated science) with an $\alpha = 0.78$. These four items were summed up and used as a directly observed variable. The academic success variable was therefore used in the specification and estimation of the full structural equation model only. Tables 2 and 3 below show the reliability analysis and correlation matrix of all the variables used in the SEM.

Table 2. Descriptive Statistics and Reliability analysis of Scales and Subscales (N = 770)

Variable	M	SD	Number of Items	α
Stress (ASQ)	39.76	9.33	19	0.78
Stress from Home Life	21.82	5.97	10	0.72
Stress from Peer Pressure	11.24	3.79	5	0.71
Stress from Teacher Interaction	6.71	2.64	4	0.63
Psychological Wellbeing (GHQ -12)	35.96	5.51	12	0.75
Perceived Social Support (PSS)	74.80	11.73	21	0.83
Social Support from Friends (PSS-FR)	28.31	5.24	8	0.71
Social Support from Family (PSS-FA)	25.99	6.16	7	0.86
Social Support from Teachers (SST)	20.50	4.47	6	0.80
Behavioural Health (PLQ)	31.55	6.53	10	0.74
Physical Health (SSP)	30.41	4.70	8	0.71
Academic Success	17.50	3.80	4	0.73
Health and Wellbeing (GHQ-12+SSP+PLQ)	97.93	12.26	30	0.80

Table 3. Correlation Matrix of Indicators used in the Structural Model (N = 770)

	1	2	3	4	5	6	7	8
1. Psychological Wellbeing (GHQ-12)	1.00							
2. Behavioural Health (PLQ)	0.38**	1.00						
3. Social Support from Friends (PSS-FR)	0.19**	0.37**	1.00					
4. Social Support from Family (PSS-FA)	0.34**	0.32**	0.31**	1.00				
5. Social Support from Teachers (SST)	0.27**	0.27**	0.26**	0.37**	1.00			
6. Physical Health (SSP)	0.40**	0.12**	-0.07	0.05	0.06	1.00		
7. Stress from Home Life	-0.35**	-0.10**	-0.01	-0.29**	-0.15**	-0.36**	1.00	
8. Stress from Peer Pressure	-0.28**	0.00	0.02	-0.04	-0.09*	-0.26**	0.36**	1.00
9. Stress of Teacher Interaction	-0.19**	-0.02	0.02	-0.13**	-0.29**	-0.15**	0.27**	0.27**

• $p < .05$ level (2-tailed), ** $p < .01$ level (2-tailed)

Estimation of the structural equation model

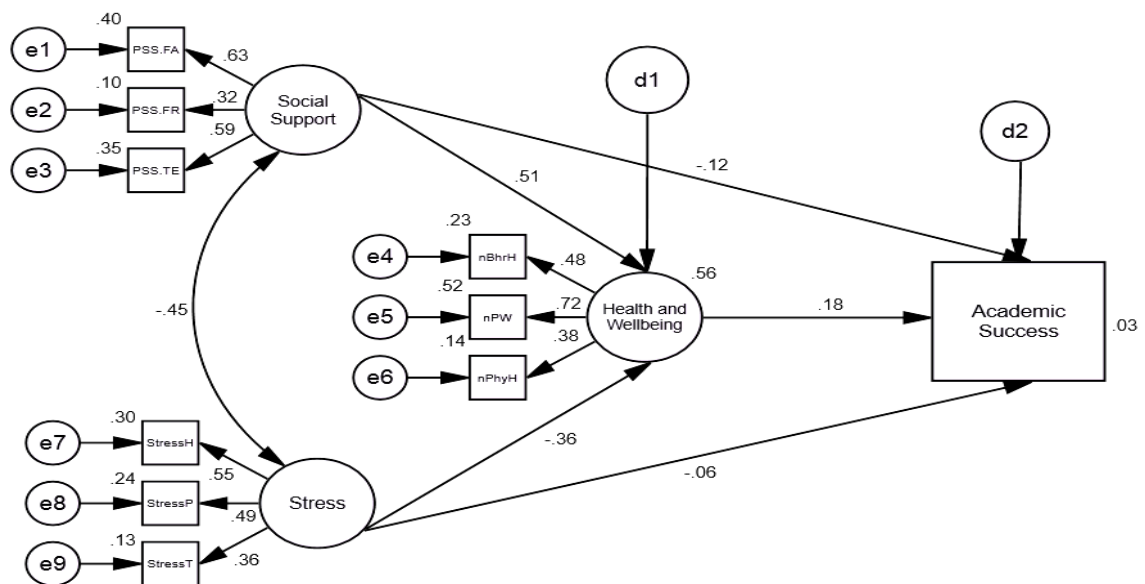
After the specification of the full structural model, the model was evaluated by using Full Information Maximum Likelihood (FIML) estimation method with Amos 16. Standardised and unstandardised coefficients as well as the covariance of all estimates were produced. After estimating the full structural model, none of the fit indices reached acceptable benchmark levels: $\chi^2 (30) = 245.70$, $p < .05$; CMIN/DF = 8.19; CFI = .75; TLI = .63; RMSEA = .10. Due to the apparent misspecification of the hypothesised model there was the need to modify the model. Consequently, modification indices together with standardised residuals in the AMOS output were used as the basis for re-specifying the model along with theoretical and practical justification. The modified model resulted in a $\chi^2 (17) = 28.79$, $p = 0.04$; CMIN/DF = 1.69; CFI = 0.99; TLI = 0.97; RMSEA = 0.03 indicating that the re-specified model had an acceptable fit with the data. Figure 1 below shows the evaluated full structural equation model with standardised coefficients.

As the full structural model did not fit the data well there was the need to explore and modify the model to have an acceptable fit with the data (Savalei & Bentler, 2006). As a result modification indices together with standardised

residuals in AMOS output were again used as the basis for re-specification of the model by implementing the re-specifications outlined in the measurement model - ensuring that the process was theory and data driven. The modified model resulted in a $\chi^2 (20) = 27.74, p > 0.05$; CMIN/DF = 1.39; CFI = 0.99; TLI = 0.98; RMSEA = 0.022. Figure 2 below shows the re-specified full structural model with standardised coefficients.

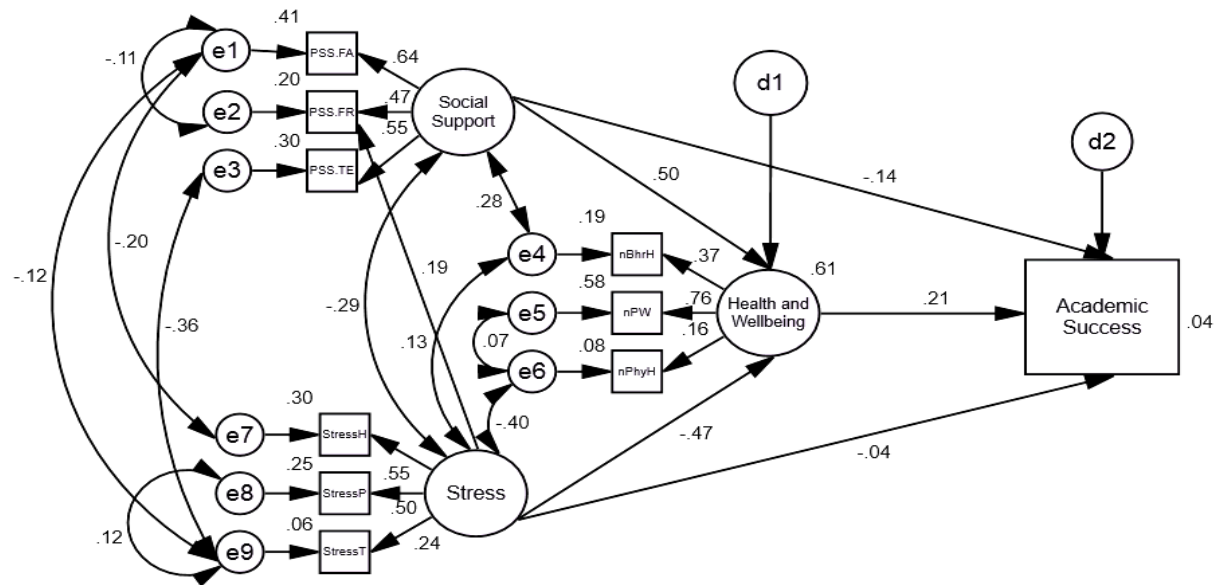
As the modified structural model had a good fit with the data, it was therefore appropriate to proceed to examine and interpret the parameter estimates or hypothesised paths for their statistical significance.

Figure 1. Estimated Structural Equation Model (Standardised Estimates)



Notes: PSS.FR = Perceived social support from friends, PSS.FA = Perceived social support from family, PSS.TE = Perceived social support from teachers, nBhrH = Behavioural health, nPW = Psychological wellbeing, nPhyH = Physical health, Stress H = Stress of home life, Stress P = Stress of peer pressure, Stress T = Stress of teacher interaction.

Figure 2. Modified Structural Equation Model (Standardised Estimates)



Direct Effects

Social support was related negatively to stress ($\beta = -.29$, $p < .05$) and had a positive direct effect on health and wellbeing ($\beta = .50$, $p < .05$), but a non-significant negative direct effect on academic success ($\beta = -.14$, $p > .05$). Stress had a negative direct effect on health ($\beta = -.47$, $p < .05$) but a non-significant direct effect on academic success ($\beta = -.04$, $p > .05$). Finally, health and wellbeing had a positive direct effect on academic success ($\beta = .21$, $p < .05$).

Indirect Effects

Although it was hypothesised that social support and stress would have a direct effect on academic success, these effects were found not to be statistically significant. A critical analysis of the results and the modified structural model suggests that social support and stress have indirect impacts on academic success through health and wellbeing.

DISCUSSION

The primary goal of this study was to examine the interrelationships among social support, stress, health and academic success. The results pointed to the fact that social support had a significant negative association with stress,

a significant positive effect on health and insignificant effect on academic success. Stress also had a significant negative effect on health and an insignificant effect on academic success. Finally, health had an insignificant effect on academic success.

Social support, stress and health

The results indicated that social support had a significant negative association with stress. These findings is consistent with previous studies that found that adolescents with more social support display quick behavioural adjustment and so are protected against negative life events (Oliva et al., 2009). Also, stress was found to have a negative effect on health and wellbeing which is consistent with results of previous studies that investigated the predictive effect of stress on health among adolescents (Byrne & Mazanov, 2002; Chung & Cheung, 2008; West & Sweeting, 2003) where adolescents who reported less stress also reported better health.

As expected, it was also found that social support has a significant positive effect on health and wellbeing which is consistent with previous that have found that adolescents who report more social support also report better psychological wellbeing (Lindsey et al., 2010), better physical wellbeing (Gini et al., 2009; Hjern et al., 2008) and positive health-related lifestyles (Mahon et al., 2004).

Social support, stress and academic success

The results indicated that social support was negatively associated with academic success. It is worth noting however that even though the relationship between social support and academic success was negative, the standardised beta value indicates a weak negative relationship, close to zero. For this reason, the results suggest that decrease in academic performance was not necessarily due to low social support, or increase in academic performance is not necessarily due to more social support, suggesting the influence of factors other than social support. This finding is inconsistent with results from previous studies that found that social support has a positive effect on academic success (Adelabu, 2007; Woolley et al., 2009).

Contrary to expectation, this study found that although stress was negatively associated with academic success, the relationship was not statistically significant. This suggests that although when stress increased, academic success also decreased, the decrease in academic success was marginal and that factors other than stress may be responsible for any decrease in academic success. This result is partially compatible with other studies that investigated the effects of stress on academic success (Chung & Cheung, 2008; Flook & Fuligni, 2008).

Health and academic success

The findings pointed to the fact that health and wellbeing had a significant positive effect on academic success. This finding is consistent with numerous previous studies that have investigated the effects of health on academic success. For example, adolescents almost invariably attribute their academic performance to their psychological wellbeing (Ding et al., 2009), physical health (Barriga et al., 2002) and behavioural health (MacLellan et al., 2008).

A possible reason to explain the positive association between health and academic success lies in the fact that adolescents who have a good sense of psychological and physical wellbeing are more likely to eschew health impairing behaviours that are inimical to their academic success. For example, adolescents with poor psychological and physical wellbeing are more likely to adopt maladaptive coping strategies which may include absenteeism, truancy and a general lack of motivation towards their studies. Furthermore, it has been asserted that health and psychological wellbeing impairs attention problems, which in turn has a negative impact on academic performance and makes it difficult for students to cope with academic pressures (Barriga et al., 2002).

The main limitation of this study is that although the sample consists of Senior High School adolescents, it only comprised of second-year and third-year students (older adolescents) thereby diminishing the ability to generalise the findings to all adolescents and high schools across Ghana, as the results could have been different if first-year students were included. Therefore,

Interpretation of the results should be done cautiously. Also, the use of SEM does not meet experimental conditions necessary to be able to infer causation. Also, although standardised questionnaires were used, the use of self-report measures may not have been the most objective way of measuring the variables. This notwithstanding, a reliability analysis was conducted to ensure that the instruments were internally consistent and valid as has been used in other empirical studies. Finally, although the study sought to examine psychological wellbeing as an aspect of general health and wellbeing, the measurement of psychological wellbeing was confined to measures of psychological distress such as anxiety and depression, the absence of psychological distress may not necessarily imply psychological wellbeing. These notwithstanding, reverse scoring the scale provided a somewhat sound proxy for the measurement of psychological wellbeing.

Implications for policy

Based on the findings, it is imperative for policy and programs to target the health and wellbeing of adolescents as a crucial means by which they can achieve academic success. The Ministry of Health, (or Ghana Health Service) and the Ministry of Education (or Ghana Education Service) could liaise to formulate policies and regulations such as directing all high schools to establish or ensure effective and efficient counselling services as well as ensure regular visits by health professionals including psychologist to see to the psychological and emotional needs of adolescents. School administrations could ensure that students, especially those in the boarding school, participate in some sporting activity including the sustainability of the compulsory weekly physical education lessons and activities being run in some schools. This may be done by adopting an intransigent position with regard to the enforcement of this health promoting activity by encouraging adolescents to participate in inter-schools sporting activities or sports clubs.

Also, Parent-Teacher Association (PTA) meetings are a potential avenue where parents/guardians and school authorities could deliberate on students wellbeing both in school and at home by introducing strategies in which both parents and teachers could help students, especially those going through

stressful experiences at home, in school or both by sharing information. Such PTA meetings would also be an opportunity for resource persons including health professionals to talk and educate parents and teachers about the need to show more care, respect and support to enhance the health and wellbeing of their children. Again, home and school environments should be made as cordial and lively as possible so that adolescents would not appraise their daily life events as stressful which has a high tendency to result in distress. Ideally, there should be enough and proper collaboration among adolescents, family, peers and school authorities in which relationships and interaction provide more effective support and resources that may enhance health and wellbeing. School authorities are encouraged to sell nutritious foods, fresh fruits and vegetables in school canteens and markets as well as serving these foods in dining halls. While school authorities are advised to endeavour to adopt effective strategies to promote healthy eating, parents should also monitor what their children eat well at home and encourage them to implement healthy eating habits.

In summary, the result of this study has provided valuable insight into the path along which social support, stress and health influence academic success. Based on these, this study has also delineated practical strategies that could be adopted by policy makers and school administrators with the main purpose of enhancing the health and wellbeing as well as the academic success of Ghanaian adolescent students.

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