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Perceived social support and parental education as determinants of adolescents' physical activity and eating behaviour: A cross-sectional survey

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ABSTRACT

Purpose: To examine the role of perceived social support and parental education on physical activity and eating behaviour of Ghanaian adolescents.

Methods: Seven hundred and seventy Senior High School students (504 boys and 266 girls) between the ages of 14 to 21 years participated by completing questionnaires on perceived social support, physical activity and eating behaviour. Highest education attained by either parent or guardian was also obtained. Multivariate Analysis of Covariance was the main statistical test used to analyse the data.

Results: The results showed significant gender differences in physical activity and eating behaviour combined, with boys more likely to engage in physical activity than girls, and girls also more likely to engage in healthy eating behaviour than boys, albeit the effect was not statistically significant. While perceived social support had a significant positive effect on eating behaviour and physical activity, parental education had a significant effect only on eating behaviour but not physical activity.

Conclusions: Perceived social support from family coupled with parental education provides more opportunities for adolescents to engage in healthy eating behaviour. Also, parents' educational attainment alone does not necessarily guarantee that adolescents will engage in physical activity; providing the needed social support and conducive home environment is more likely to induce physical activity behaviours. Finally, physical activity and eating behaviour should not be construed as alternative health behaviours as suggested by gender differentials in these health behaviours.

Key Words: Health behaviour; Adolescents; Socio-economic status; Parental education; Eating behaviour; Physical activity; Perceived social support.

BACKGROUND

Adolescence represents an important stage of physical, social, psychological, and cognitive development. No longer children and not yet adults, adolescents make significant choices about their health and develop attitudes and health behaviours that may have severe consequences and continue to adulthood (1). Through action and example, parents shape the lives of their children from birth through adolescence and even adulthood. During adolescence, the influence of friends and peers take on greater importance, but research has demonstrated clearly the continued significance of parents in shaping the behaviours and choices of adolescents as they face the challenges of growing up (2).

Some of the fundamental health and lifestyle-related choices that adolescents make borders on their physical activity and eating behaviour. Results of a study conducted to examine the effects of School Feeding Programme on nutritional status of children and adolescence in Ghana revealed that there is no statistically significant difference between the nutritional status of adolescents who participated and those who did not participate in the programme (3). Similarly, it has been found among Ghanaian adolescents that peer pressure increases the likelihood that adolescents will engage in unhealthy eating behaviour (4). Also, it has been asserted that among Africans, traditional diets are healthier than the non-traditional dietary patterns that have evolved with globalization and urbanization (5). Urbanisation and globalisation has also been reported to be reason for rural Kenyan adolescents being significantly more physically active (and less sedentary) compared with urban adolescents (6).

The foregoing discussions suggest that adolescent eating behaviour and physical activity cannot be left in their own hands, especially in developing countries because of the increasing rate of urbanisation and globalisation. The home environment and parents, particularly, play a critically vital role in the health of their children and can strongly influence the choices and adolescents make regarding eating behaviour and physical activity (7). Close parent-adolescent relationships, healthy open communication, good parenting skills, shared family activities and positive parent role modelling all have well-documented effects on adolescent health and development (8, 9), particularly relating to physical activity (4) and eating behaviour (5). Adolescents who eat meals regularly with their parents are also more likely to

eat fruits, vegetables, and dairy foods and less likely to skip breakfast (10). Support for healthful eating has been reported to be related to healthy dietary practices (11). Also, transportation and encouragement by parents has been found to be associated with adolescent physical activity (12). Parental lifestyle habits may also shape adolescent health behaviours when they live a sedentary lifestyle, or on the positive side, increasing access to healthy food at home (13).

The ability of parents to provide social support for their children at home may also be dependent on the level of education attained by parents, which could account for variation in children's physical activity (14). Research studies that have conceptualised parental socio-economic status as a combination of parental education and income have generally not found significant effects on physical activity behaviour of adolescents (15). When parental socio-economic status is construed separately for parental education and parental income, it has shown to have significant effects on physical activity (16-18). Parents with higher levels of education are more likely to report exercising heavily and this serves as a model for adolescents to emulate. For instance, adolescents with a parent who had more than a high school degree reported exercising heavily in the last month, compared with adolescents whose parents had less than a high school degree (13). When parents attain a higher level of education they are more likely to know the health benefits of engaging in physical activity and healthy eating habits, and are also more likely to stick to physical activity and healthy eating guideline compliance (19). (20) reported that among Ghanaian adolescents parental level of education increases the likelihood of adolescents to eat breakfast and fruits.

Recently it has been demonstrated that social support from parents did not predict adolescent physical activity (21), but it is not very certain if the level of education attained by these parents have any influence on the kind of social support they provide. This is because, it has been reported that parents level of education and parental modelling of physical activity are two independent factors from the home environment that influence children's physical activity behaviour (22, 23).

Although the foregoing discussion has centred generally on the role perceived social support and parental education play in adolescent physical activity and eating

behaviour, there is evidence suggesting that there are gender and age differentiation in physical activity and eating behaviours. For example, boys were found to engage in more physical activity than girls just as younger adolescents were more likely to eat fruits and vegetables than older adolescents (20). (24) found that boys of middle school age are more physically active than their female counterparts. Also, the prevalence of binge eating, excessive exercise and fasting decreased significantly over time among girls than for boys (25).

In spite of the numerous research studies that have delineated the importance of perceived social support and parental education in adolescent physical activity and eating behaviour, there is a paucity of such studies in Africa in general and Ghana in particular. The purpose of this study, therefore, is to examine the role of perceived social support and parental education in adolescent physical activity and eating behaviour in Ghanaian adolescents. This is particularly important because it has been reported that many children in Ghana spend less time engaging in physical activity but more time in front of the screens (26).

METHODS

Population and Sample

A cross-sectional survey design was employed. Participants consisted of 770 second-year and third-year adolescents between 14 and 21 years (504 boys, 266 girls). First-year students could not participate as they were yet to report to school. Participants were randomly selected from all classes in four Senior High Schools (SHS) in Accra, the capital of Ghana. As a metropolis and the most populated and urbanised city in Ghana, Accra is composed of people of or from different ethnic, cultural, and socio-economic backgrounds across Ghana. Thus, selecting the sample from this geographical area is more likely to ensure that the study used a representative sample of the population of adolescents in Senior High School across Ghana.

Procedure

Schools were recruited into the study via the permission of the head teacher. Within each school, classes were randomly selected. A study description and consent form was provided to individual students within the schools that agreed to participate and

the classes randomly selected. Parents/guardians of students below 18 years of age were also required to provide consent. Questionnaire completion took place in their respective classrooms. Research ethics approval was obtained from the University of Essex, UK.

Measures

Perceived Social Support from Family Scale

The 10-item version of the Perceived Social Support from Family (PSS-FA) scale (27) was used to assess social support. The PSS-FA scale is originally a 20-item scale with responses on a 3-point (yes, no, don't know) format. In this study a 5-point Likert scale response options was used to measure social support on an interval scale in order to give a wider range of response options to participants. As a 5-point categorization of the responses as 1 = strongly disagree, 2 = disagree, 3 = somehow, 4 = agree and 5 = strongly agree was used, scores range from 10 to 50 with higher scores indicating more perceived social support from family. The PSS-FA scale has items assessing whether adolescents' family members give them the moral support they need, enjoy hearing about what they think, sensitive to their personal needs, a sharing relationship with them, give them emotional support, and helping them solve problems. Several studies have found that the PSS-FA scale has a good internal consistency (Cronbach's α). For example (28) found $\alpha = .92$, (29) $\alpha = 0.84$, (30) $\alpha = 0.71$, (31) $\alpha = 0.89$ and (32) $\alpha = 0.90$. In the present sample $\alpha = 0.86$ was found. For purposes of this study and for statistical analysis, the PSS-FA scores was later categorised into three – High, Average and Low, by using quantile splits.

Parental Education

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. Either parents' (or guardians, in the case of adolescents who were not living with their biological parents) highest education completed or attained were added up resulting in scores ranging from 2 to 12, with higher scores indicating higher parental education and thus, better socio-economic circumstances. For statistical analysis purposes, the scores were later categorised into three using quantile splits: High (≥ 10), Average (5 to 9) and Low (≤ 4) parental education.

Revised Personal Lifestyle Questionnaire

The Revised Personal Lifestyle Questionnaire (RPLQ) (33) was used for assessing physical activity and eating behaviour. The PLQ assesses lifestyles that are deleterious to health and wellbeing and/or health promoting behaviours. The RPLQ has items scored on a 5-point Likert type response category from 1 = never, 2 = not often, 3 = sometimes, 4 = often to 5 = very often. The composite scores range from four to 20 with higher scores indicating engagement in positive lifestyles: eating behaviour or physical activity. Two subscales consisting of four items each for physical activity and eating behaviour were used for the purpose of this study. Negatively worded items were reversed scored for both scales. The physical activity scale had items asking respondents if “climb at least five flights of stairs or walk one mile each day” and “play sports, jog, or participate in other physical activity at least three times weekly”. The eating behaviour scale has items asking respondents if they like “eating at regular intervals during the day” and “eating food from each of the food groups daily e.g. meat, milk, bread, fruits, and vegetables”. Previous research using the RPLQ with adolescent samples has demonstrated to have good internal consistency reliability notwithstanding the relatively small number of items: (33) $\alpha = 0.70$ for physical activity and $\alpha = 0.37$ for eating behaviour, (34) $\alpha = 0.74$ and (35) $\alpha = 0.73$. In the present sample, the RPLQ has $\alpha = 0.68$ and $\alpha = 0.38$ for the physical activity and eating behaviour scales respectively.

Statistical Analysis Strategy

Statistical analysis was conducted using SPSS 16. Missing value analysis was initially conducted and the results showed that only 0.3% of items were missing for parental education and age and none for the physical activity and eating behaviour scales. Accordingly, a decision was made to ignore the missing data and proceed with analysis. Descriptive statistics were then computed with the demographic characteristics of the sample and categorisation of parental education, physical activity and eating behaviour. Additionally, Multivariate Analysis of Covariance (MANCOVA) was used to explore parental education and social support differences in physical activity and eating behaviour. Parental education and social support were used as independent variables while physical activity and eating behaviour were used as dependent variables with gender and age being the covariate. One-way analysis of variance and independent samples t-tests were consequently conducted

when the where significant main effects. Age was categorised as younger (14-17) and older (18-21) adolescents using quantile splits (i.e. 50th percentile).

RESULTS

Descriptive Statistics

From **Table 1** below it can be seen that majority of the participants were 18 years and below with a few being over 18 years old. Also, there were more males than females just as there were more form two students than form three students. In relation to participants' religious activity (frequency of attending a place of worship), attending a place of worship once in a week was the most reported whereas the least reported was 'never attended a place of worship'. Form four or secondary school education was the most reported highest educational level attained by mothers and fathers. On the other hand, the least reported educational attainment was 'university bachelor's degree' for mothers and 'no education' for fathers.

Table 1: Descriptive Statistics (N = 770)

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)	
	Missing	2 (0.3)	
Age Group	Younger	600 (77.9)	--
	Older	170 (22.1)	--
Gender	Male	504 (65.5)	--
	Female	266 (34.5)	--
Class/Form	Two	420 (54.5)	--
	Three	350 (45.5)	--
Parental Education	<u>Gender</u>		
	Male	--	6.36 (2.75)
	Female	--	6.30 (2.41)
	<u>Age</u>		
Younger	--	6.49 (2.60)	
Older	--	5.79 (2.71)	
Social Support	<u>Gender</u>		
	Male	--	25.87 (5.96)
	Female	--	26.23 (6.51)
	<u>Age</u>		
Younger	--	26.23 (6.17)	
Older	--	25.15 (6.04)	

Multivariate Analysis of Covariance (MANCOVA)

A one-way MANCOVA revealed a non-significant multivariate main effect for age and a significant main effect for gender - power to detect effect size = 0.96. The significant multivariate gender effect was observed for physical activity and not for eating behaviour. Consequently, an independent samples t-test results showed a significant gender difference in physical activity; $t(601.93) = 3.84, p < .001$ with boys more likely to engage in physical activity than girls. Girls were also more likely than boys to engage in healthy eating behaviours $t(768) = -1.32, p > .05$ (See **Table 2** for the MANOVA results).

In the same MANCOVA analysis, there was a significant multivariate main effect for parental education - power to detect the effect size = 0.94, and this was observed for only eating behaviour and not for physical activity. A further one-way analysis of variance results showed that adolescents whose parents attained high education were more likely to engage in healthy eating behaviour than those whose parents have average educational attainment and low educational attainment as can be seen in **Table 2**. Social support was found to have a significant multivariate main effect this on both physical activity and eating behaviour - power to detect the effect = 0.98. With regard to physical activity, it was found that adolescents who had high social support were more likely to engage in physical activity than those who had average and low social support. On the other hand, as can be seen in **Table 3**, the results also showed that adolescents who had high social support were more likely to engage in healthy eating behaviour than those who had average and low social support.

Table 2: Multivariate Analysis of Covariance for Gender, Parental Education and Social Support on Physical Activity (N = 770)

Variables	Category	<i>M</i>	<i>SD</i>	<i>Wilks' λ</i>	<i>F</i>	<i>df</i>	<i>Partial η²</i>	<i>p</i>
Age	Younger	12.60	3.54	.999	1.04	1	0.001	> .05
	Older	12.49	3.45					
	Total	12.54	3.50					
Gender	Male	12.91	3.64	.977	15.72	1	.021	< .001
	Female	11.93	3.20					
	Total	12.42	3.42					
Parental Education	High	12.25	3.60	.976	1.63	2	.004	> .05
	Average	12.87	3.44					
	Low	12.45	3.56					
	Total	12.52	3.53					
Social Support	High	12.61	3.52	.971	7.25	2	.019	< .01
	Average	12.81	3.55					
	Low	11.68	3.32					
	Total	12.37	3.46					
Social Support X Parental Education	--	--	--	.991	1.12	4	.006	> .05

Table 3: Multivariate Analysis of Covariance for Gender, Parental Education and Social Support on Eating Behaviour (N = 770)

Variables	Category	<i>M</i>	<i>SD</i>	<i>Wilks' λ</i>	<i>F</i>	<i>df</i>	<i>Partial η²</i>	<i>p</i>
Age	Younger	11.11	2.81	.999	.002	1	.000	> .05
	Older	10.92	2.81					
	Total	11.02	2.81					
Gender	Male	10.97	2.85	.978	.62	1	.001	> .05
	Female	11.25	2.73					
	Total	11.11	2.79					
Parental Education	High	11.54	2.74	.976	6.65	2	.018	< .01
	Average	11.28	2.74					
	Low	10.54	2.87					
	Total	11.12	2.78					
Social Support	High	11.60	2.82	.971	5.22	2	.014	< .01
	Average	11.08	2.76					
	Low	10.40	2.70					
	Total	11.03	2.76					
Social Support X Parental Education	--	--	--	.991	.45	4	.002	> .05

DISCUSSION

This study examined parental education and social support as determinants of physical activity and eating behaviour among Ghanaian adolescents. In line with previous studies, the results showed significant gender differences in physical activity and eating behaviour combined, with boys more likely to engage in physical activity than girls (20, 24), and girls also more likely to engage in healthy eating behaviour than boys (25). Social pressure and individual's sense of body image on the part of girls may also explain why girls were more likely to engage in healthy eating behaviour than boys. For example gender role socialisation and stereotyping which enjoins boys to be masculine and boisterous may explain why boys engaged in physical activity more than girls (37). There was however no age differences in physical activity and eating behaviour.

Social Support and Physical Activity

Consistent with previous studies, social support was found to have a significant influence on physical activity (21). It is likely that social support influenced adolescent physical activity in the form of encouragement and advice from family about the health benefits of engaging in physical activity including losing weight and looking attractive. Furthermore, adolescents may see themselves as young, and as a sign of respect to parents, are not able to independently make decisions regarding their engagement in physical activity, as their engagement in physical activity largely depend on their parents' consent and provision, including the cost of, and transportation to sporting events (12).

Parental Education and Physical Activity

Parental education was found to have non-significant influence on adolescent physical activity behaviour. This finding is consistent with that of previous studies that found that (16 -18). It is surmisable to say that parents with higher educational attainment may be excessively busy and preoccupied with their work to the extent that they (themselves) may not engage in physical activity to serve as a role model for their children. Through social modelling parental physical activity could be directly associated with children's physical activity behaviour (13). This may then restrict children who do not engage in physical activity to minor exercises such as walking within the inner perimeter of their residence. This may explain why even though it is

expected that adolescents whose parents have higher educational attainment will engage in more physical activity because of their level of education, this expectation was not observed in this study.

Social Support and Eating Behaviour

It was found that social support has a significant positive effect on adolescent eating behaviour. Adolescents who reported high social support were more likely to engage in healthy eating behaviour than those with low social support. Consistent with the findings of this study, social support from family were found to significantly predict fat and fibre intake (35). Also, healthy eating behaviour may have come about as a result of useful information provided by family members to adolescents regarding the effects, either positive or negative, of particular kinds of food. Emotional and tangible support may have also been provided to aid this course of healthy eating.

It could also be speculated based on the findings of the present study that within the cultural context of Ghana, communal eating practices has the potential of influencing healthy eating in adolescents. Adolescents who eat together on the same table or even the same bowl with parents and siblings are more likely to 'do as their parents do' by eating healthily (13, 19). Moreover tangible support such as the provision of adequate nutritious foods by parents especially, could go a long way to influence adolescents to engage in healthy eating behaviour. In addition, subjective norms and respect for parents or adults may also have an effect on adolescent eating behaviour. Consequently adolescents endeavour to eat healthily in order not to incur the dissatisfaction or disapproval from parents and other adults within the community especially when it has to do with being overweight. The view parents and others hold or think about adolescents, thus, becomes an influential factor that motivates adolescents to engage in healthy eating behaviour.

Parental Education and Eating Behaviour

Parental education was found to have a significant influence on adolescent eating behaviour. This finding is consistent with that of previous research studies that have found that higher socioeconomic groups have healthier diets because they may have higher educational levels and may be more health conscious and have healthier

lifestyles including eating behaviour (e.g. higher intakes of fruit, lean meat, oily fish, wholemeal products, and raw vegetables) (16, 20, 36). Moreover, highly educated parents, as explained previously, are more likely have good jobs and higher salaries or wages. It is possible that parents who have a higher educational attainment may have studied or learnt much about the benefits of healthy eating or would have been taught about specific kinds of foods to eat, at what time and what quantity.

In spite of the potential contributions of this study, there are some limitations that must be noted. Although the sample consists of Senior High School adolescents, it only comprised of second-year and third-year students thereby diminishing the ability to generalise the findings to all Senior High School students across Ghana. Nonetheless, the age range in the present sample fairly captures the age range of this population; therefore some generalisations could be made, albeit with caution.

Standardised questionnaires were used but the use of self-report measures may not have been the most objective way of measuring the variables. Besides the inconsistencies regarding what exactly constitute social support, methodological issues about the measurement of physical activity and eating behaviour may also have some effects on the findings; physical activity and eating behaviours are complex behaviours and no one method of assessing it is considered ideal.

Conclusion

This study demonstrated that there is a need for tailored programmes aiming at boys and girls separately as gender differences in eating behaviour and physical activity were found. There is the need for intervention strategies that will concentrate on health information that would educate girls about that fact that engaging in physical activity is equally good or better than healthy eating behaviour alone. Parents' educational attainment alone does not necessarily guarantee that adolescents will engage in physical activity, providing the needed social support and conducive home environment is more likely to induce physical activity behaviours as a means of maintaining healthy body weight and keeping a good body image.

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