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Research Article

DIETARY HABITS AND RELATED SOCIO-DEMOGRAPHICS AMONG SECONDARY SCHOOL ADOLESCENTS OF ZANZIBAR, TANZANIA

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ABSTRACT

Background: Adolescence is a period where general health is at its best and stage where risks health behaviour such as unhealthy diets are expressed and increased.

Aim: To explore the dietary habits and eating behaviours as well as examined the socio-demographic correlates of healthy eating and snacking habit among adolescents of Zanzibar, Tanzania.

Material and Methods: Cross-sectional study among secondary school adolescents. Cluster sampling technique was used and data collected using structured questionnaire. The questionnaire inquired on; socio-demographics, dietary habits and eating behaviours. Frequency distributions, cross-tabulations and Kendall's correlations were used for analysis.

Results: Four hundred adolescents participated in the study, mean age 16.5 years (1.03) and were mostly from socio-demographically advantaged families. Close to a third (28.0%) ate healthy foods and 9.5% ate vegetables on daily basis. Snacking was found in 57.3% of all adolescents and that 33.5% ate either sweets, sugared beverages daily. Younger aged adolescents and those with educated parents were eating healthy compared to their counterparts.

Conclusion: Eating healthy foods items was uncommon among the adolescents while snacking was much prevalent habit. Parental education level and employment status was associated with healthy eating and snacking habit; and that healthy eating positive correlated with snacking habits.

KEYWORDS: Dietary habits, Socio-demographics, Adolescents

INTRODUCTION

Dietary habit refers to physiological dimension of food intake entailing the food preparation, nature, content, quality as well as socio-cultural aspects connected with supply and choice of food products, meal timing and composition [1]. It is the result of behavioral, personal, familial, social, and physical environmental factors [2]. These dietary habits can be influential or detrimental to health. According to WHO health influencing diet include eating a wide variety of foods vegetables, whole grains, fruits, non-fat dairy products, beans, lean meats, poultry and fish, legumes, nuts and grains [3]. While an unhealthy diet habits include; consumption of

carbonic drinks, sugar snacks, salt, and fats [4]. The unhealthy diets are said to be the major risk factors for a range of chronic diseases, including oral diseases, cardiovascular diseases, cancer, diabetes and other conditions linked to obesity and underweight [5].

Unhealthy diet during adolescence have been reported to be a risk factor for a number of non-communicable diseases in adulthood, whilst are associated with their oral health in terms of dental caries experience and overweight at the current state [6]. Due to ongoing globalization in most Sub-Saharan Africa region, changes and adaptation to western lifestyle including eating habits might have changed from the previous typical African meals and pattern to more western style [7]. In most societies the first people to adopt changes in a community are the young ones as adolescents. Adolescence is a period in which general health is presented at its best and a stage where risks health behaviour such as unhealthy diets are expressed and increased [8].

Various studies have reported on adolescents' dietary habits and eating pattern, the results are conflicting with most of the reports pointing out that; just a few of the adolescents eat healthy food items [9–12], most of them do snacks and eat fast foods [9,12–15] and majority tend to skip family meals [14,16–18]. Other studies however, have reported on the fact that most of their adolescents were eating healthy food items, tended to eat the family meals and just a few were snacking [17,19,20].

As pointed out before dietary habits in adolescents are interplay of multiple factors, the influence of the family in adolescents' dietary behaviors cannot be ignored. These influences can be in terms of family structure, the socio-economic status, parents' educational levels or their occupation. Studies have showed that adolescents from higher household socioeconomic status families, parents with higher parental education and stable occupation positively influenced number of meals eaten, intakes of nutritious foods and decreased snacking [16,17].

A shift in disease pattern to non-communicable diseases (NCD) in Tanzanian communities is evident [21] and eating pattern is one of important determinant for a number of these NCD for instance cardiovascular diseases and dental caries. So far information concerning adolescents' dietary habits in Tanzania and sub-Saharan Africa is not sufficient, whereas this information is crucial for planning dietary intervention in both health promoting and disease prevention activities in relation to NCD. Hence this study was set to explore the dietary habits and eating practices of in school adolescents of Zanzibar, Tanzania and later examined the socio-demographic correlates of healthy eating and snacking habit among these adolescents.

MATERIAL AND METHODS

This was a descriptive cross-sectional study designed to collect information on eating practices and dietary patterns of secondary school adolescents in Unguja, Zanzibar, Tanzania. This study was conducted at Zanzibar West Urban Region which is estimated to have 166,739 people aged below 15 years in Zanzibar [22]. A sample size of 384 students was estimated to be satisfactory; assuming that the percentage of students expected to have healthy eating practices was 50%, using an absolute precision (d) of 0.05 and 95% confidence interval (CI). One staged cluster design was utilized with secondary school as the primary sampling unit where four schools were randomly selected and all the students in form two and three were invited to participate. Totals of 400 students were subsequently included into the study.

Parents and students gave written informed consent to participate in the study. Permission to conduct the study was granted by the school authorities and Urban West Region education and health authority. Ethical clearance was obtained from Muhimbili University of Health and Allied Sciences (MUHAS) Tanzania. As part of social accountability for the researchers a brief relevant health information was given to the student after filling in questionnaires.

Data were collected through interviews using structured questionnaire which was in Kiswahili language. Information on adolescents' socio-demographics, daily meals such as eating breakfast, midmorning snack, lunch, midafternoon snack and dinners were collected. Furthermore, adolescents were inquired on healthy food items eaten (cereals, fish, meat, vegetables, fruits and milk), sugared snacking and beverages and fast foods. The questions required the adolescents to state the frequency of eating the mentioned foods or meals on a weekly basis as; *During the past week how often have you eaten the following things?*, and responses ranged from *0=Not at all; 1=once or twice in a week; 2= thrice in a week; and 3 =On daily basis*. During data analysis sum score for the five healthy food items was obtained and later dichotomized to eating healthy (eating health food at least thrice in a week and daily) or not for those not eating at all and eating once/twice in a week. The same was done for snacking behaviours, where its sum score was dichotomized into those who snack daily or not (*those who do not snack at all to those who snack thrice in a week*). Data entry and analysis were carried out using Statistical Package for Social Sciences (SPSS) version 20.0. Frequency distributions cross tabulations and Kendall's correlations were performed to get the proportions, test for bivariate associations and correlations for eating practices, dietary habits and socio-demographics. P value of ≤ 0.05 was chosen as level of significant.

RESULTS

The study involved 400 secondary school adolescents with mean age 16.5 years SD 1.03, 50.2% were aged 17 years or older and were mostly girls with a proportion of 70.2%. Majority of their parents, 84.5% and 81.7% had secondary school education or above for fathers and mother, respectively. Similarly, most of their parents were employed or were self-employed such that less than 15% of the fathers and a third of the mothers (37.7%) were not employed. In terms of the family structure where this adolescents were from, nearly 40% were either single parented or living with persons other than their parents (Table 1).

Eating healthy foods at least three times in a week was reported in 28% (112/400) of all the study participants. Cereals was reported as the most consumed food item in a daily, followed by fish which was taken daily by 46.0%, however less than half (49.5%) of the adolescents were

eating cereal on daily basis. At least close to a third (28.0%) of the adolescents reported to eat fruits in a day while less than ten percent reported to eat vegetables. Vegetables were mostly ate at least once a week (55.5%) similar to those who ate meat (50.8%) on weekly basis. The least consumed food item was milk and dairy product, whereby a third of the adolescents reported not to take milk or dairy products (31.3%) at all, 53.3% reported to consume milk at least once in a week and only 15.5% consumed on daily basis whereas (Table 2).

Snacking and fast foods consumption was found in 57.3% of all the studied adolescents. One third of the adolescents had either sweets, sugared beverages or were eating fast foods on a daily basis. Sugared beverages were mostly common taken snack at least once in a day, where only 7.8% reported not to be taking the sugared beverage (Table 3).

Breakfast (28.8%), was less reported meal type that was eaten by the adolescents on the daily bases as compared by lunch and dinner, 50.8% and 43.5% respectively. At least more than third had meals once or twice in a week and that afternoon snack was not a usual snack no a meal of the day (Table 4).

Practice of eating healthy among these adolescents differed statistically significant with the adolescents' age and their parental level of education. Higher proportion (33.3%) of adolescents aged between 13-16years reported to eating healthy compared to those older than 17 years. Likewise, higher proportion of adolescents who had fathers and mothers with secondary education and above reported to eating healthy compared to the adolescents whose parents had primary education or below (Table 5).

Snacking behaviour showed statistical significant differences between adolescents' mother's educational level and employment status. Reporting snacking was higher (69.9%) among adolescents whose mothers had primary school education than their counterparts (54.1%). On the other hand, larger proportion of adolescents whose mothers were not employed (63.6%) had snacking behaviour than those who had mothers were employment (53.4%).

Sex of the child and whether the adolescents was living with single parent/guardian or he or she was living with both parents showed no statistical significant difference between adolescents' eating healthy nor in snacking behaviour (Table 5).

Kendall correlation among dietary patterns and eating practices was conducted, using Cohen's standards to evaluate the strength of relationships it was found that most of the association where between small to moderate association for the studied pattern and practices. There were moderate but significant positively correlation between eating lunch and eating dinner (r=0.481) and between eating midmorning snack and afternoon snack (r=0.322). The correlation between eating healthy and snacking (0.215); Eating breakfast and eating lunch (r=0.250) and that between eating breakfast and eating dinner (r=0.223) were significantly positive though with small strength of association. Both eating healthy and snacking had significant positive correlation with eating afternoon snack and the strength of association was as well small, r=0.123 and r=0.161, respectively (Table 6).

Table 1: Socio-demographic characteristics of the study participants.

Variable	Categories	%	n
Age in years	13-16	49.5	198
	17 years or older	50.5	202
Sex	Female	70.2	281
	Male	29.8	119
Father's educational level	Primary education school or lower	15.5	62
	Secondary education or beyond	84.5	338
Mother's educational level	Primary education school or lower	18.3	73
	Secondary education or beyond	81.7	327
Mother's employment	Employed/self employed	62.3	249
	Not employed	37.8	151
Father's employment	Employed/self employed	87	348
	Not employed	13	52
Family structure	Living with single parent or other than parents	38.8	155
	Living with both parents	61.2	245

Table 2: Frequency distribution of healthy food items consumption.

Food items consumed	Not at all	Once or twice a week	Thrice a week	On daily basis
Bread, cereals and rice	4.0 (16)	29.0 (116)	17.5 (70)	49.5 (198)
Vegetables: Spinach, mchicha, kisamvu	8.5 (34)	55.5 (222)	26.5 (106)	9.5 (38)
Fruits: Oranges, mango, pawpaw	8.0 (32)	39.5 (158)	24.5 (98)	28.0 (112)
Milk and dairy products e.g. yogurt	31.3 (125)	40.0 (160)	13.3 (53)	15.5 (62)
Fish	4.5 (18)	21.3 (85)	28.3 (113)	46.0 (184)
Meat : Beef, chicken	18.3 (73)	50.8 (203)	20.3 (81)	10.8 (43)

Table 3: Frequency distribution of snacking and fast food consumption.

Food items consumed	Not at all	Once or twice a week	Thrice a week	On daily basis
Sweets*: Toffees, candies, biscuits, cakes, ice water*	13.0 (52)	36.5 (146)	17.5 (70)	33.0 (132)
Sugared beverages: *Soda, juice, ice cream*	7.8 (31)	35.8 (143)	23.0 (92)	33.5 (134)
Fast foods: *Chips, crisp, burgers, pizza, urojo*	16.5 (66)	39.5 (158)	16.8 (67)	27.3 (109)

Table 4: Frequency distribution of the participants by type of meal eaten.

Type of meal	Not at all % (n)	Once or twice a week % (n)	Thrice a week % (n)	On daily basis % (n)
Breakfast	6.5 (26)	42.0 (168)	22.8 (91)	28.8 (115)
Midmorning snack	17.5 (70)	42.3 (169)	25.3 (101)	15.0 (60)
Lunch	2.3 (9)	25.0 (100)	22.0 (88)	50.8 (203)
Afternoon snack	25.0 (100)	38.8 (155)	18.8 (75)	17.5 (70)
Dinner	4.0 (16)	30.5 (122)	22.0 (88)	43.5 (174)

Table 5: Socio-demographic distribution of adolescents by the eating healthy and snacking behavior.

Variable	Categories	Eat Healthy % (n)	Snacking % (n)
Age in years	13-16 yrs.	33.3 (66)	54.5(108)
	≥17 yrs.	22.8 (46)*	59.9 (121)
Sex	Female	26.7 (75)	55.2 (155)
	Male	31.1 (37)	62.2 (74)
Father's educational level	Primary education school or lower	11.3 (7)	66.1 (41)
	Secondary education or beyond	31.1 (105)**	55.6 (188)
Mother's educational level	Primary education school or lower	17.8 (13)	69.9 (51)
	Secondary education or beyond	30.3 (99)*	54.4 (178)*
Mother's employment	Employed/self employed	29.3 (73)	53.4 (133)*
	Not employed	25.8 (39)	63.6 (96)
Father's employment	Employed/self employed	29.3 (102)	57.2 (199)
	Not employed	19.2 (10)	57.7 (30)
Family structure	Living with single parent or other than parents	24.5 (38)	58.1 (90)
	Living with both parents	30.2 (74)	56.7 (139)

*p=0.05, **p=0.001

Table 6: Kendall correction matrix for dietary pattern and eating practices presented in correlation coefficient *r (95% CI).*

	Variable	1	2	3	4	5	6	7
1.	Eating healthy	-	0.215** (0.121, 0.313)	0.084 (-0.021, 0.183)	0.034 (-0.069, 0.134)	0.069 (-0.027,0.171)	0.123* (0.020, 0.226)	0.082 (-0.018, 0.179)
2.	Snacking		-	-0.002 (-0.103, 0.106)	0.062 (-0.043, 0.166)	0.043 (-0.055, 0.146)	0.161** (0.059, 0.259)	0.088 (-0.007, 0.182)
3.	Eating breakfast		-	-	0.120* (0.012,0.222)	0.250** (0.161, 0.337)	0.100*(-0.004, 0.197)	0.223**(0.122, 0.322)
4.	Eating midmorning snack			.	-	0.106*(0.002, 0.200)	0.322** (0.197,0.447)	0.182**(0.083, 0.277)
5.	Eating lunch					-	0.098* (0.003,0.195)	0.481** (0.395, 0.566)
6.	Eating afternoon snack						-	0.167**(0.069, 0.262)
7.	Eating dinner							-

** Correlation is significant at the 0.01, * Correlation is significant at the 0.05

DISCUSSION

The study is reporting on the dietary habits, eating practices and the socio-demographic correlates of healthy eating and snacking habit among of in school adolescents of Zanzibar, Tanzania. The sample was mostly composed of older adolescents, girls and those from socio-demographically advantaged families since nearly all had parents who had secondary education or above and were employed. This observation suggest that, the participants of the current study have been up brought by the parents who have basics in importance of healthy eating and are capable of providing varieties of foods to their children. These adolescents are unlike most of adolescents reported from previous studies in Tanzanian, where most the adolescents were from parents who had primary education or less and were not employed or in small scale business [23,24].

Healthy eating being crucial for the growth and development of children and adolescents included [25] was not prevalent habit in the current study, whereby just a few of the adolescents were consuming healthy food items at least thrice in a week. This observation was not expected from such group of adolescents who seemed to be mostly from socio-demographically advantaged families. Similar observations have been reported from studies among adolescents of Ghana [26], where only 33% of adolescents consumed healthy foods. However the current findings differ from those reported from India, Fiji and Egypt [15,22] which showed a high proportion of adolescents consuming healthy foods.

Of the health foods that was assessed, cereals was the most common daily eaten food item in the list, though only about half of the participants were eating cereals on daily bases. Adolescents demand for body energy is substantial, when only half take cereal foods in a day is a matter of concern to the community. Vegetables and fruits which have to be part of the daily meals were only reported to be eaten on daily basis by a less than a third of these participants. Similar observations have been made by Peltzer and Pengpid among adolescents of seven African countries whereby more than two thirds of both girls and boys had inadequate fruits and vegetables consumption [27]. Milk or dairy products were the least consumed food item likewise for meat where only half were reported to have meat on weekly basis. However, a considerable proportion of adolescents were consuming fish on daily basis as compared to a study which was done in Damascus, Syria [28] in which only 6% of adolescents were consuming fish. This observation could be due to the fact that Zanzibar being an island is surrounded by Indian Ocean, majority of people do fishing, so fish is the common food to the people of Zanzibar compared to meat and milk which have to be mainly imported from mainland, Tanzania.

Eating breakfast is important for the health and development of children and adolescents and is a fundamental component of nutritional well-being [29]. Unfortunately less than a third of these adolescents were having breakfast on daily bases, so most of them skipped breakfast as compared to those who skipped lunch and dinner. This observation is expected during adolescents' school life where they are require to be at school very early in the morning, such that having breakfast before leaving to school is logistically. Similar findings have been reported by Ranjana et al [13] among Mauritius adolescents, Moy et al [30] for the adolescents of of Kuala Lumpa and Doku et al [26] in Ghanian adolescents.

The fact that at least a third of the adolescents had either sweets, sugared beverages or were eating fast foods on a daily basis, and therefore more than half are actually snacking, indicates that this adolescents depend mainly on snacks for their daily food demand. The alarming snacking habits should be taken into consideration where planning for health promotion in schools, whereby the snacking should be make of healthy foods and not junks as it could be the only and most important source of healthy diet for such adolescents. Alike observation has been made among adolescents of Sri Lanka and Egypt [17,30]. Furthermore, majority of the participants in the current study reported to consume in between meals sugar-sweetened drinks more than 3 times in a day could be explained by the fact that, sugared drinks are most available and affordable for the adolescents. Comparable findings have been made by Mbawalla et al [23] in Tanzania and Allafi et al [9] in Kuwait, that the sugar-sweetened drinks were most consumed food items by the adolescents.

Age of the adolescent and parental level of education statistically influenced healthy eating behaviour among these adolescents. The fact that younger adolescents ate healthier foods compared to their older counterpart suggested that; at young age adolescents' food choices are mostly controlled by the family norms and parents' recommendation which are most likely to be healthier choices. Furthermore, educated parents are likely to promote healthy food items than those with less educational achievements, since parent with secondary education or above are likely to access information on healthy foods. Similar trends were reported in Ghana, Egypt, Mexico and Norway [10,15,26,31], where parental socioeconomic status, education and employment were positively associated with healthy eating habits among adolescents.

Inline to the above observations; higher proportion of adolescents whose mothers' were unemployed and those with primary education or below reported snacking habits compared to those whose parents had secondary education and were employed, respectively. The findings are corresponding to Lien et al [31] observation that low family socio-economic status positively influence sweets/chocolate/soft drinks with sugar food consumption. Most likely, the adolescents with educated mothers are aware of impacts of snacking to their children's health and hence discouraging snacking and use of fast food for their children. Whereas, unemployed mothers are unlikely to educated and therefore are not in a position to do the same.

The current observation that, there was a significant positively correlation between eating healthy and snacking, and both correlated positively with eating afternoon snack, suggest that the healthy food items reported to be taken by this adolescents are mostly likely in form of snacks and not as family meals. However our finding are not in line with those by Kubik et al [32] in USA, where access to snacking machines were negatively correlated consumption healthy food items (fruit).

CONCLUSION

The majority of Zanzibar school adolescents do not eat healthy foods items on daily basis, whereas snacking is a prevalent habit. Milk and dairy products as well as meat were the least consumed healthy food items. Parental education level and employment status influenced adolescents healthy eating and snacking behaviours, and that healthy eating positive correlated with snacking habits of these adolescents.

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