A Study on General Health and Hygiene of Muslim Adolescent Girls of Surat City, Gujarat – India

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Abstract. This research paper puts forth the general health status and hygienic practices of Muslim adolescent girls. Adolescence age itself is very trivial and critical for overall growth and development of a child, additionally being girl makes the whole process more complex and challenging. Further factors like religion and socio-demographic status strongly determine the health of girl teens. Here the paper tries to highlights the real facts related to body mass index (BMI), few physically visible signs like nails, dental health, skin, etc which are reflections of good or bad health. Along with this, whether good health practices like bathing, gargling, brushing teeth, menstrual hygienic practices, etc are followed or not were also studied. Also, researchers try to analyses what could be the possible reasons for such health and hygienic conditions of these subjects.

Keywords: Health, Hygienic practices, Muslim Adolescent girls, Slum area, urban population

1. Introduction

"Health is a state of complete physical, mental and social well being and not merely the absence of disease or infirmity" (WHO, 1948). Also according to Srilakshmi (2006) there are 6 essential requisites of health - (1) To achieve optimal growth and development, reflecting the full expression of one's genetic potential. (2) Maintenance of the structural integrity and functional efficiency of body tissues necessary for an active and productive life. (3) Ability to withstand the inevitable process of ageing with minimal disability and functional impairment. (4) Ability to combat diseases. (5) Mental health and (6) Social well being.

For good health, good hygienic practices play important role. Hygiene is nothing but a set of preventive measures for good health (www.hygiene-edu.com/en/learn/history/sci-data/frame/html). It refers to practices and habits that ensure good personal health and cleanliness (www.torkusa.com/pages/SimplePage.aspx?id=164417). Such habits can save one from many diseases throughout the life. Such things should be taught and followed from the very childhood.

In the present study a humble effort in this direction was made to find out the incidences of observable health deficiencies and hygiene practices in Muslim adolescent girls of 11 to 18 years of Surat city. There are 1.2 billion adolescents (ages 10-19) in developing nations, making up one fifth to one quarter of one fifth to one quarter of their country's population (http://web.worldbank.org). Yet, adolescents remain a largely neglected group, difficult to measure and hard-to-reach population, with the needs of adolescent girls, particularly ignored.

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As per definition given by Veer (2005), adolescence is a period of transition from childhood to adulthood with accelerated physical, biochemical and emotional development. It is during this period

that the final growth spurt occurs. Adolescent girls' health plays an important role in determining the health of future population, because adolescent girls' health has an intergenerational effect. So it is in this period, girls should be given utmost care and attention and efforts should be made to improve their health status as they are future mothers.

Although there is enough research evidence to indicate that fewer resources are invested in their health care – very few receive medical care and those who receive are taken to local and less qualified doctors (www.bihartimes.com/poverty/anant_pandey.html). Such disparities are greatest in India and China, where more girls than boys die before their fifth birthday (Worldbank, 1993). Because of the predominantly patriarchal set up, girls get a lesser share in the household distribution of health, goods and services compared to men and boys. There is a data to show that in a situation of extreme food and scarcity, the adverse effect on the nutritional status of girls is greater than boys. Even in situation where food is available, girls are taught to eat less so that they remain slim to rate better in the marriage market (Majumdar, 2006).

Thus to determine the actual health status and hygiene conditions in Muslim adolescent girls this study was carried out. Researchers also tried to analyze possible reasons behind the health problems of these girls. Also very little work has been carried out in Indian Muslim community especially adolescent girls regarding health and hygiene. So this work will be able to throw some light in this area.

2. Methodology

A cross-sectional randomized survey was conducted in various zones (both slums and posh areas) of Surat City - Gujarat, India. A detailed questionnaire was prepared after appropriate literature review for the survey. Questionnaire contained 6 major sections wherein general health profile, socio-economic status of the subject, education, family background, dietary habits, questions related to hygienic practices, menstrual hygiene etc were covered up in details. Sample size of 200 Muslim adolescent girls of 8 age groups (11 to 18 years) was interrogated. With each age group, 25 respondents were undertaken. Further, the collected data was properly processed with the help of Microsoft Office 2007 – Excel program and critically analyzed.

3. Results and Discussion

After survey and detailed interrogation of the subjects, the obtained results indeed revealed the dire senario of these adolescent Muslim girls. From Table-1, one can conclude easily that these girls could not achieve enough height – weight as per the standards described by ICMR (1990). In fact in all age groups height – weight were found to be less than the normal values resulting into disproportionate growth. In addition to this, Table – 2 reveals that most of the subjects (136/200, 68%) had low BMI values compared to normal ones. This certainly poses questions on number of factors like food availability, care of girls by their parents, socio-economic status etc.

When analyzed further it was found that 45 % (90/200) subjects belong to lower class social groups, 50.5 % (101/200) respondents were from average (lower middle) class and only 4.5 % (9/200) belong to upper middle class families. Again it was the Muslim girls belonging to these lower and middle class groups showed poor health status compared to upper middle class. This is in accordance with one of the study by Jonge *et al.,* (1996) which reveals that children living in developing countries under poor socio-economic and hygienic conditions are often exposed to nutritional deprivation. Even, Case *et al.,* (2002) find that children's health is closely associated with long-run average household income and lower permanent income has adverse health effects on children's lives.

Data on parental education reveals that 46.5 % (93/200) fathers and 59 % (118/200) mothers have got education up to primary level or even below than that. Education up to class 10^{th} was found in

26.5 % (53/200) fathers and 12.5 % (25/200) mothers. Percentage of fathers and mothers who have studied beyond 10th was only 19 % (38/200) and 10.5 % (21/200) respectively, of them only few were graduates. Illiterate fathers rated 18 % which was double than the illiteracy rating of mothers (only 8 %). Hence, as parents themselves are not well-educated, they could not focus well on the overall growth and development of their girl child. Furthermore, low level of literacy and illiteracy of both the parents is surely one of the major constraints for optimum growth and development of children.

Table – 1 Comparison of Subjects' Height and Weight with Indian Standards for Height – Weight as given by ICMR, (1990)

Age Groups	Standard Height (in cm)	Average Height of Subjects (in cms)	Standard Weight (in Kgs)	Average Weight of Subjects (in Kgs)
11	142	137.6	33.7	29.1
12	148	133.6	38.7	33.8
13	150	152.5	44	42.3
14	155	152.05	48	44.2
15	161	152.95	51.5	42.05
16	162	159.55	53	49.2
17	163	151.55	54	44.35
18	164	158.22	54.4	47.94
Per age group 25 subjects.				

Table – 2 BMI Status of the subjects in relation to energy status (Srilakshmi, 2006)

BMI	Presumptive Diagnosis	Results	
		No. of Subjects	No. of Subjects (in %)
<16.0	*CED GRADE III (SEVERE)	57	29
16 - 17	*CED GRADE II (MODERATE)	22	11.22
17 - 18.5	*CED GRADE I (MILD)	35	17.86
18.5 - 20	LOW WEIGHT – NORMAL	22	11.22
20 - 25	NORMAL	51	26
25 - 30	OBESE GRADE I	8	4.08
> 30	OBESE GRADE II	1	0.51
** CED = Chronic energy deficiency*			

With the profound growth of adolescence there is increased demands for energy, proteins, minerals and vitamins and for this, meals is advised 4 times a day, which includes breakfast, lunch, dinner and snacks (Ziegler *et al*., 2002). But it was found that 4 times meal was not available to majority of the respondents i.e. 94.5 % (189/200). In age group 11, 12 and 17, all 25 respondents in each group has less than 4 times meals per day. This could also be one of the reasons for low BMI values. Although it was interesting to note, yet at the same time it was strange that in the present study there was no awareness or knowledge of breakfast and snacks in the family of the respondents as only few girls were reported to take breakfast. Moreover, majority of the respondents had junk food in their breakfast or during recess time in the school as a subordinate food to eat, which is harmful to them. Even, if they were having meals for two times, the meal was not balanced quantitatively as well as qualitatively not taken in enough amounts.

Also it was noted that 56 % (112/200) girls were having good housing condition while 44 % (88/200) were living in urban slum areas with poor housing facilities, unsafe water and inadequate sanitation facilities. Fernandez *et al.,* (2003) stated that due to poverty, overcrowding, unhygienic surroundings and lack of an unorganized health infrastructure, urban slum poses special health problems.

According to Venkaiah *et al.,* (2002), there is a significant association between CED and religion, community, family size, type of house, occupation and per capita income. Uneducated or partially educated parents and gender discrimination could also be the possible reasons for poor nutritional status (Vashisht *et al*., 2005). So, here too it can be concluded that because of their low food intake due to their low-middle socio-economic status, large family size, low level housing and poor occupational grades and educational status the study group has experienced low nutritional status.

Further, during the research, many physical health problems were noted in these adolescent subjects (Table-3).Complaints of headache ranked highest while shortness of breath was the second. No appropriate cause could be identified for these, but headache might be due to starvation and lack of proper food, while shortness of breath might be due to low hemoglobin levels, which are ought to be there looking to their dietary habits.

It's worth mentioning here that 97 % (194/200) respondents reported to consume junk food, of which 38 % (76/200) subjects had a daily intake and 59 % (118/200) consumed it on twice or thrice a week. When high fat content of the junk food linked to the sedentary lifestyle of the surveyed girls (no outdoor games and physical exercise), these girls are at a risk of getting obsessed at adult stage. Children who eat lot of fast food are more likely to experience recurrent abdominal pain (ABP). Researchers from the Baylor College of Medicine, Houston (USA), conducted a survey on 900 students, aged five to 15 and their parents. They reported recurrent abdominal pain occurred in 24% of children, with 60% reporting moderate to severe pain, and nearly half having pain for more than half an hour with each episode. They concluded that the risk of recurrent abdominal pain was 2.2 fold higher among children who ate no more than two servings of fruits per week compared to those who ate fruits daily. In current investigation, 16.5 % (33/200) girls reported to have recurrent abdominal pain (ABP) and they were also having daily intake of junk food. Even 29 % (58/200) girls also said to have recurrent abdominal pain with weekly intake of junk food. Apart from all these disorders, children who are eating junk food also show lack of energy and poor concentration problems which were also found in surveyed girls.

Table – 3 Physical health problems of the subjects

* AGE	PHP									
	ABP	HED	BKP	NKP	TD	FT	SHB	LP	EY	
									DEY	SEY
11	10	15	7	4	11	5	11	12	13	8
12	15	14	6	4	13	7	9	13	11	5
13	8	10	6	5	10	3	17	9	11	11
14	12	12	6	5	11	4	8	17	7	8
15	16	17	13	11	8	8	19	14	12	9
16	9	19	13	2	10	8	12	14	20	9
17	13	16	13	3	12	5	22	8	10	5
18	9	17	7	2	11	9	14	7	9	8
TOTAL	92	120	71	36	86	49	112	94	93	63
%	46	60	35.5	18	43	24.5	56	47	46.5	31.5

* Each group has 25 subjects. See List of Abbreviations for full forms.

Though, milk is considered as a wholesome food and a rich source of bioavailable calcium, which helps in building up of strong bones (NIM, 1999). 65 % (130/200) girls were not taking milk (ML) daily while only 35 % (70/200) respondents were taking milk daily. In the age group 17, only 3 respondents had a glass of milk daily, while in the age group 14, 13 respondents had a glass of milk daily. These respondents were not even consuming dairy items and dry fruits on a regular basis.

Table – 4 Few Clinical Symptoms observed amongst the study subjects									
*AGE	ALPS	ANL	POP	SPG	DTH				TNG
					DDTH	SDTH	PDTH	ASK	
11	24	24	24	3	5	3	5	4	22
12	24	24	24	0	1	2	8	1	18
13	18	18	18	3	5	1	3	4	17
14	15	15	15	0	2	3	5	1	14
15	24	24	24	2	1	0	1	7	20
16	20	20	20	0	7	3	9	3	17
17	21	21	21	1	0	2	2	1	20
18	15	15	15	0	5	2	3	2	13
TOTAL	161	161	161	9	26	16	36	23	141
%	80.5	80.5	80.5	4.5	13	8	18	11.5	70.5
** Each group has 25 subjects. See List of Abbreviations for full forms.*									

Table – 5 No. of subjects not following various hygienic practices in day to day life.					
Age	BRH		GRG	DB	ER
	ON	TW			
11	16	9	16	10	4
12	18	7	19	6	5
13	9	16	11	5	6
14	14	11	9	3	2
15	10	15	17	10	2
16	8	17	12	2	1
17	15	10	20	7	0
18	12	13	17	7	2
TOTAL	102	98	121	50	22
%	51	49	60.5	25	11
**Each group has 25 subjects. See Abbreviations for full forms*					

With an aim to study the hygiene attitude of girls, they were asked about washing of hands before meals and after using restroom, tooth brushing and gargling, daily bathing, frequency of hair washing, infection of hair, and cleanliness of tongue, ear and nails. When subjects were asked about washing of hands before meals and after using toilet, all girls i.e. 100% (200/200) admitted that they used to do so on a regular basis. Luby *et al.,* (2005) also reveals that hand washing prevents diarrhoea and acute lower respiratory infections which causes largest number of childhood deaths globally. Therefore, hand washing is the single most important factor related to the spread of infection, not just for children but for adults of all ages.

Brushing the teeth only once a day (ON) was observed in 51 % (102/200) teens and 60.5 % (121/200) girls admitted that they don't do gargles after meals (Table-5). In addition to this, 70.5 % (141/200) respondents were reported to have unclean tongue which becomes breeding ground for germs. This shows lack of acceptable levels of knowledge and awareness of oral health among study girls which may lead them to tooth decay, gum diseases and haliotis (bad breath)

(www.hygieneexpert.co.uk/GeneralOralCare.htm).This was found true when 13 % (26/200) teens reported to have tooth decay (DDTH), 18 % (36/200) subjects revealed to have occasional tooth pain (PDTH) (Table-4). 4.5 % (9/200) respondents had problems of bleeding gums (SPG) while brushing and stained teeth (SDTH) were observed in 8 % (16/200) (Table-4).Tooth decay or dental caries is a public oral health problem and is the commonest dental problem encountered in children and teenage population. The prevalence of these diseases is continuously increasing with change in dietary habit of people and increased consumption of sugar (Saini *et al*., 2003; Khan *et al.,* 2008). The prevalence of dental caries is approximately 60-65 % in India (Shouri, 1941; Ramchandran *et al*., 1973; Khan *et al.,* 2008). Lower prevalence of dental caries similar to present study was also observed in 24.7 % (62/251) in female adolescents of Umuahia Metropolis by Obichi and Chibuzo (2008).

Regarding body hygiene, 3/4th i.e. 75 % (150/200) girls take bath daily, while one-fourth i.e. 25 % (50/200) subjects were having irregular bathing habits, which may be due to the poor infrastructure at home. As these girls are in pubertal phase, their sweat gland are overactive than before and secrete different chemicals into the sweat which emit a stronger smelling odor (www.targetwoman.com/aritcles/feminine-hygiene.html). Dust, sweat and other secretions, and warmth are all factors which encourage germs to multiply and make body prone to various illnesses. Therefore, a daily shower should be encouraged in these girls, which will wash away the bacteria and smell from their body

As far as the aspect of hair care is concerned, girls were found to be much careful about their hair, as most of the girls said to have washed their hair twice or thrice, which is normal. Still 33 % (66/200) teens had a problem of scalp infestation i.e. dandruff and head lice. Prevalence of scalp infestation was found less in younger girls of 11 to 14 years (24 %) compared to mature teens of 15 to 18 years (42 %). Agrawal *et al*., (1999) also found problem of pediculosis (head lice) to be the commonest hygiene related problem in 35.6 % (183/514) in secondary section girls of Mumbai.

During puberty the body goes through some very important changes, including increased body hair and the development of underarm (axillary) and pubic hair for teens. Removing axillary and pubic hair is important to keep the underarms and pubic area clean. As per, 81.5 % (163/200) subjects have said to have development of axillary and pubic hair and rest 18.5 % (37/200) have yet not reached puberty. Out of these 163 teens of Surat, 57.05 % (93/163) subjects use hair removal cream while, 19.01 % (31/163) use razor to depilate axillary and pubic hair. It is very interesting to note that 23 % (23/100) younger girls of 12, 13 and 14 age groups had also revealed to use hair removal cream which may cause harm to their young and delicate skin and cause skin irritation in a longer periods.

Above results and discussion certainly emphasizes that lack of awareness regarding health and hygiene amongst parents as well as adolescent subjects, lethargic attitudes towards one's own physical body and/or parent's attitudes towards their children and other socio-demographic factors have a definite role to play in habit formations for good hygienic practices of young groups.

4. Conclusion

Overall, in present study, the general health and hygiene status of Muslim adolescent girls is not at appreciable. It also reveals that for a health generation of youth parental approach, parental education, dietary habits, socio-demographic aspects, religion and education of the adolescent are undoubtedly vital determining factors. Social discrimination and gender bias can only give us weak and under developed adult females who will obviously become the generator of weaker progenies. The results of this study must be considered alarming and appropriate actions to improve health of adolescents should be implemented.

5. List of Abbreviations

ABP - Abdominal pain
ALPS - Abnormal Lips
ANL - Abnormal Nails
ASK - Abnormal Skin
BKP - Back pain
BMI – Body Mass Index
BRH – Brushing
CED - chronic energy deficiency
cm - centimeter
DB – Daily Bath
DDTH – Decayed dental hygiene
DEY - Diseased Eyes
DTH – Dental hygiene
ER - Ear
EY - Eyes
FT - Fainting
GRG - Gargling
HED - Headache
ICMR – Indian Council of Medical Research
kg - kilogram
LP - Limb pain
NKP - Neck pain
ON - once
PDTH – Pain in teeth
PHP - Physical health problems
POP – Paleness of palms
SDTH – Stained dental hygiene
SEY - Spectacled Eyes
SHB - Shortness of breadth
TD - Tiredness
TNG - Tongue
TW - Twice
WHO - World Health Organization

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