Practices and knowledge of schoolchildren regarding chhaalia/paan masala in Mahmoodabad and Chanesar Goth, Karachi

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Abstract

Objective: To determine the practices and knowledge about chhaalia and paan masala chewing among school children in Mahmoodabad and Chanesar Goth, Karachi, Pakistan.

Methods: A cross-sectional study was conducted in three government schools of Mahmoodabad and Chanesar Goth, Jamshed Town, Karachi. Students of either gender were interviewed using a pre-coded structured questionnaire. In addition to the demographic data, questions included frequency of use, practices among friends and family and procurement of these substances. Knowledge about harmful effects, source of the knowledge and practices in relation to knowledge were also assessed.

Results: A total of 370 students, ages between 10 to 15 years were interviewed, of which 205 (55.4%) were boys. Thirty one percent of fathers and 62% of mothers were uneducated. The frequency of using chhaalia was 94% and that of paan masala was 73.8%, with 85% being regular users and 95% had friends with similar habits. Majority (88%) procured the substances near their homes. chhaalia was considered harmful for health by 96% and Paan Masala by 60% of the students. The commonest reason for continuing use was good taste (88.5%) followed by company of friends (57%). Knowledge about harmful effects was adequate in both "daily" and "less than daily users".

Conclusion: The frequency of chhaalia and paan masala chewing, among school children in lower socio-economic areas is high. The probable reasons might be the taste, widespread use of these substances by family members and friends, low cost and easy availability. Although knowledge about harmful effects of these habits was adequate, but very little students knew about Oral Submucous Fibrosis (OSMF) (JPMA 58:678; 2008).

Introduction

It is a little known fact that Areca nut is the fourth most commonly used psychoactive substance in the world (chewed regularly by at least 10% of the world population) in different forms.[1] Areca nut chewing, by itself or in combination with scents, condiments or sweetners is an accepted practice in parts of the Western Pacific and many South and South East Asian countries, including India and Pakistan.[2-4]

In Urdu (Pakistan's national language), Areca nut is called 'Chhaalia' or 'Supari'. Its use is deeply ingrained in the socio-cultural practices of the nation. In Pakistan, the traditional method of use is the paan or quid (made by smearing a betel leaf with catechu paste (Kattha), slaked lime (Choona), chopped areca nut, a variety of condiments, sweeteners, spices, flavourings and folding it up in the shape of a quid).[2-4] Tobacco flakes are often added by users to enhance its flavour and potency.[2] More recently areca catechu has become available as plain or sweetened chhaalia/supari and as an ingredient of Paan Masala in brightly coloured little sachets. Paan Masala is a dry mixture of areca nut, lime, catechu, spices, other unspecified ingredients and very often tobacco. Originating in India, it became available in the sub-continent in the 1970's.[3,5,6]

The habits of sweetened supari and paan masala chewing are becoming increasingly popular among school-going children, (some as young as four to five years of age).[2]

Of great concern is the evidence that oral submucous fibrosis (OSMF) presents at younger ages in habitual chewers of areca nut/quid and paan masala.[7-12] Areca catechu and smokeless tobacco have been established to cause oral cancer (one of the ten leading cancers worldwide), irreversible gingival recession, oral submucous fibrosis, other oral pathologies, nicotine addiction, cardiovascular diseases, accidental inhalation (and its consequent complications) in children and worsening of asthma.[1,2,4-7,10,11]

Many people believe that consuming chhaalia (sweetened or plain) is not harmful in comparison to its use in combination with betel leaf, slaked lime (choona) and tobacco. In addition, their promotion by celebrities in advertisements affects adolescents' perceptions and behaviour.

There is very little data regarding knowledge about harmful effects and practices of these substances among adults and children in Pakistan. Very few studies have been done in children to determine prevalence and characteristics of this harmful and addictive habit. This study was done to find the practices of using these substances and knowledge about harmful effects of chhaalia and paan masala among school children in Mahmoodabad and Chenasar Goth, Jamshed Town, Karachi.

Subjects and Methods

Mahmoodabad and Chanesar Goth are low socio-economic areas with an average income of 5000-6000 per month and a multi-ethnic population. Across-sectional study was conducted in three government schools of which one was an all-girl's and the other two were boys' schools, over a period of four weeks. These schools were selected as their enrolled students are mostly from Akhtar Colony, Chanesar Goth, Mahmoodabad and other adjoining areas that fall within the jurisdiction of Jamshed Town and are highly representative of other schools in the area. Prior to conducting the interviews, permission was taken from the Principal of each selected school. The average number of students in each school was 700 with an average of 140 students in each grade divided into 4-5 sections each. A total of 370 students comprising of a representative sample from each section of both sexes over the age of ten years and below the age of sixteen years present at the time of the survey were interviewed using a pre-coded questionnaire after taking verbal consent. Children from different classes were interviewed each day to avoid re-interview.

Knowledge that chhaalia and paan masala were harmful for health was assessed in two categories of 'present' or 'not present'. Information about established harmful effects was collected for ten harmful effects along with knowledge about any harmful effects through an open ended question. Regarding practices, users were grouped into 'daily', 'once', 'twice' or 'thrice a week' and 'less than weekly' users of chhaalia and paan masala and time passed since starting the habit was also assessed. Practices and knowledge about harmful effects were compared between "daily users of chhaalia and paan masala" and "less than daily users of chhaalia and paan masala".

Data about the number of packets consumed daily was collected across a range of 'one per day' to 'more than five per day'. The place of procurement of these substances was also recorded in terms of proximity to school or home along with reasons for starting the habit.

The SPSS software was used for data entry and analysis. Mean and standard deviation was computed for age and frequencies and percentages for categorical variables like source of knowledge about harmful effects, type of harm (correct or incorrect responses), practice of use of chhaalia and paan masala including frequency of use, source of money and reasons for use by the two groups.

Results

A total of 370 students were interviewed. Almost all of them (97.3%; 95% C.I.: 95.6%, 98.9%) were chhaalia and paan masala users. Their ages ranged between 11-15 years with an overall mean age of 12.71±1.27 years.

Table I: Practices of chhaalia and paan masala use by students.

Variable	Daily n (%)	Less than daily use n (%)	Total n (%)
Number of subjects	**269 (72.7%)`91 (27.3%)**	**91 (27.3%)**	**360**
Use in full knowledge of family			
Yes	224(83.3)	80(87.9)	304(84.4)
Purchase of substances by oneself			
Yes	263(97.8)	82(90.1)	345(90.8)
Relative having the habit including cigarette smoking			
At least one relative	236(87.7)	83(91.2)	319(88.6)
Use by teachers			
Yes	47(17.5)	28(30.8)	75(20.8)
Use by friends			
Yes	264(98.1)	89(97.8)	353(98.1)
Sharing the substances with friends			
Yes	238(88.5)	85(93.4)	323(89.7)
***Place of procurement of substances**			
Near Home	234(88.3)	77(88.5)	311(84.0)
Near school	168(63.4)	49(56.3)	217(58.6)
Inside School	21(7.9)	8(9.2)	29(7.8)
Far away	2(0.8)	1(1.1)	3(0.8)
***Reasons for consuming these substances**			
Taste	239(89.2)	75(89.3)	314(84.9)
Use by Friends	166(61.9)	36(42.9)	202(54.6)
Easy availability	140(52.2)	33(39.3)	173(46.8)
Craving	116(43.3)	33(39.3)	149(40.3)
Use by Family members 71(26.5)	15(17.9)	86(23.2)	
Relieves hunger	36(13.4)	10(11.9)	46(12.4)
Low cost	33(12.3)	15(17.9)	48(13.0)

*multiple responses

Table 2: Knowledge about harmful effects of chhaalia and paan masala products.

Variable	Daily n (%)	Less than daily use n (%)	Total n (%)
Number of users	**269 (72.7%)**	**91 (27.3%)**	**360**
Use of chhaalia harmful for health			
Yes	266(98.9)	89(97.8)	355(98.6)
Use of paan masala harmful for health			
Yes	154(57.2)	61(67.0)	215(59.7)
Friends believed that use of chhaalia and paan masala is harmful for health			
Yes	162(60.2)	56(61.5)	218(60.6)
Most harmful substance for health			
Chhaalia	20(7.4)	4(4.4)	24(6.7)
Paan Masala	4(1.5)	1(1.1)	5(1.4)
Tobacco	194(72)	61(67)	255(70.8)
Tobacco products	51(19)	25(27.5)	76(21.1)
***Harmful effects of the habit**			
Stone formation	139(51.7)	41(45.1)	180(48.6)
Cancer	114(42.4)	44(48.4)	158(42.7)
Illness (unspecified)	79(29.4)	30(33.0)	109(29.5)
Sore throat	82(30.5)	25(27.5)	107(28.9)
Kidney pain	42(15.6)	9(9.90)	51(13.8)
Respiratory Disease	34(12.6)	13(14.3)	47(12.7)
Accidental inhalation	17(6.3)	8(8.8)	25(6.8)
Tooth problems	15(5.6)	5(5.5)	20(5.4)
Cough	12(4.5)	9(9.9)	21(5.7)
OSMF	10(3.7)	3(3.3)	13(3.5)
***Source of knowledge about harmful effects**			
Mother	180(67.4)	46(51.7)	226(61.1)
Father	156(58.4)	43(48.3)	199(53.8)
Other family members	60(22.5)	22(24.7)	82(22.2)
Television	53(19.9)	18(20.2)	71(19.2)
Teacher	48(18)	9(10.1)	57(15.4)
Somebody with harmful effect	30(11.2)	17(19.1)	47(12.7)
Neighbour	22(8.2)	17(19.1)	39(10.5)
Doctor	27(10.1)	8(9.0)	35(9.5)
Newspaper	14(5.2)	3(3.4)	17(4.6)

*multiple responses

Table 3: Practices in relation to knowledge as reported by respondents.

Variable	Daily n (%)	Less than daily use n (%)	Total n (%)
Number of subjects	**269 (72.7%)**	**91 (27.3%)**	**360**
Worry following knowledge about harmful effects			
Yes	162(60.2)	56(61.5)	218(60.6)
Want to quit following knowledge about harmful effects			
Yes	214(79.9)	66(72.5)	280(78.0)
Know about someone affected by these substances			
Yes	110(40.9)	48(52.7)	158(43.9)
Action after knwoing harmful effects			
Continued the habit	214(79.6)	65(71.4)	279(77.5)
Stopped habit	35(13)	17(18.7)	52(14.4)
Stopped and restarted habit	20(7.4)	9(9.9)	29(8.1)
Reasons for stopping or restarting habit			
Difficult to stop	20(7.4)	12(13.2)	32(8.9)
Friends	11(4.1)	7(7.7)	18(5.0)
Enjoyable habit	46(17.1)	8(8.8)	54(15.0)
Harmful Habit	35(13)	17(18.7)	52(14.4)
Do not know	157(58.4)	47(51.6)	204(56.7)
Anyone advising to quit habit			
Yes	267(99.3)	88(96.7)	355(98.6)
***Person advising to quit habit**			
Parents	248(92.9)	81(92)	329(88.9)
Teachers	250(93.6)	77(87.5)	327(88.4)
Doctor	223(83.5)	71(80.7)	294(79.5)
Other family members	168(62.9)	57(64.8)	225(60.8)
Siblings	71(26.6)	33(37.5)	104(28.1)
Friends	73(27.3)	25(28.4)	98(26.5)
Dentist	25(9.4)	22(25.0)	47(12.7)
Doctor	27(10.1)	8(9.0)	35(9.5)
Others	7(2.6)	5(5.7)	12(3.2)

*multiple responses

Females were 165 (44.6%) of the total sample. Thirty one percent of fathers and 62% of mothers were uneducated. Two hundred and sixty nine (72.7%) were "daily users", while the remaining 91 (27.3%) students were using the substances at a less than daily frequency. Out of the total, 167 (62%) were boys. More than 80% in each group were using the substances with full knowledge of their family (Table I). Over 97% of the "daily users" and 90% of the "less than daily users" procured the substances themselves. The majority (88%) of both groups bought the substances from shops located near their homes while a little over 58% bought them from shops near their schools. The most common reasons cited were good taste 114 (88%), friends 202 (57%), family members 88 (25%), craving for it 149 (42%), convenient availability 47 (13%) and low cost, 48 (13%) (Table I).

A large proportion (98%) of both "daily users" and "less than daily users" believed that consumption of chhaalia was harmful, while 60% of both "user" groups believed that Paan Masala was harmful for health. Self reported harmful effects in descending order of frequency caused by chhaalia and paan masala use ranged from stone formation (site not specified) 161 (44%), cancer 136 (37%), illness (unspecified) 95 (26%), sore throat 90 (25%), kidney pain 51 (13.8%), respiratory problems 32 (9%), accidental inhalation 25 (6.8%), teeth problems 22 (6%), cough 21 (5.7%) and Oral Submucous Fibrosis (OSMF) 13 (4%), while 4% did not know any harmful effects of the habits. (Table 2).

The types of harmful effects believed to be caused by the use of these substances were almost similar in the two groups. Parents were the main source of knowledge about harmful effects followed by relatives and media. (Table 2).

Approximately 44% knew about someone affected by its use yet 77.5% continued the habit. Parents were the most commonly reported people to advise quitting the habit (Table 3).

Discussion

The frequency of chhaalia use in the present study was 94% and most of them were daily users. Similar results were obtained from a study in primary school children in Baba Island (74%), a fishing community of 7,000 individuals of Karachi and in Asian immigrant school students aged between 11 and 15 years in the United Kingdom (77%).[2,4] In the current study, the average income of the fathers was Rs.5000-6000 per month and their occupations were shop-keeping, tailoring, driving etc., with over two-third of fathers and one-third of mothers being uneducated. At least one relative had the same or a similar habit as stated by the students and almost all of them were

using and sharing these substances with their friends. Environmental influences play a major role in molding practices as studies have found that about 50% of the students commenced the habit with their families.[2,4,10] Sweetened chhaalia was the most commonly used variety, similar to that found by SMA Shah et al.[2] and this is the likely explanation for taste being the most frequently (84.9%) reported reason for the habit in this study.

Most of them were purchasing the substance themselves, similar to 94% in the study by SMA Shah et al and this appears to be another major contributory factor for continued use in the present study. The reason for such a high frequency in these areas is the easy availability and the fact that this habit is a socio-culturally accepted practice amongst Pakistani or Ex-Pakistani adults.[2,4] In the current study, low cost (within reach of the smallest amount of pocket money) and easy accessibility are additional factors promoting continued use.

There was no parental or school/teacher supervision or sanctions on the buying of these substances although parental belief that the substances were harmful and advice against using the substances was reported by 98% in the study, in contrast to over 50% in the study by SMA Shah et al.[2] It is alarming to note that even though most children reported that their parents considered the habit harmful and advised against it, they continued the habit for various reasons. Taste has been reported as the commonest reason indicating a strong compulsion for the habit is taste which is perhaps secondary to the fact that areca catechu is also an addiction. In addition, 42% reported craving for the substances as a reason for continuing the habit, implying that chhaalia and paan masala are addictive.[2,9] There is increasing evidence that areca products produce dependency.[3] Furthermore, areca catechu as a substance of abuse is included in the category of "substance induced disorders" in DSM IV.[13]

Awareness about medically established harmful effects was present to a varying degree although many other unrelated diseases and conditions were also believed to be caused by these habits. The risk of OSMF is increased 100 fold in habitual users of areca nut as repeatedly shown in literature.[2,3,11,5] In users of Paan Masala/Gutka, it has been shown that OSMF develops after an average of 2.7 (SE= 0.6) years of use whereas in paan chewers it develop after 8.6 (SE= 2.3) years.[5,10,12] Only 4% of the respondents reported OSMF as a harmful effect, although oral cancer and OSMF are well established hazards of paan, chhaalia and tobacco chewing.[10,12]

Incorrect harmful effects reported by the students included kidney pain, anaemia, tuberculosis, worms, AIDS, blood diseases, diabetes mellitus and appendicitis. This reveals the extent and range of erroneous knowledge regarding harmful effects of these habits.

The source of knowledge ranged from parents, teachers, television, newspapers, doctors and others. Although the large majority of the students reported that doctors advised against using these substances, very few said that doctors inform them about harmful effects. Although more than 70% wanted to quit the habit following the acquisition of knowledge about harmful effects, almost the same number continued to use the substances and 56% could not give a reason for continuing the habit.

Steps need to be taken at the Public Health level by creating awareness among the general public about the hazardous nature of these products by appropriate health messages in newspapers and the multi-media and through passing legislation to ban the sale of Supari and Paan Masala to young children. In addition, school health education programs regarding these substances involving trained teachers and School Doctors should be developed.

The study sample was largely drawn from children coming from poor socio-economic backgrounds attending government schools in a low socio-economic area, so the results cannot be generalized to the whole population.

Conclusion

The frequency of use of chhaalia and paan masala is very high especially among children of lower socio-economic areas. This habit amounts to paediatric substance abuse and is widespread across all socio-economic groups in Pakistan, particularly the lower socio-economic strata who constitute a large majority.

In Pakistan, oral cancer is the second most common cancer in women and men to date. Such a high frequency of usage of substances in children of lower socioeconomic strata would increase the burden of this devastating disease in groups which are already deprived of quality healthcare.

The present scenario calls for screening, educating and counseling about the harmful effects of these substances not only among school children, but all age groups. The Family Physicians, regarded as the first contact can prove to be one of the best resources in increasing the awareness among general public.

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