Preliminary study of chewing betel leaf and its adverse effects in Aden

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Abstract

The presented study was addressed to identify the factors that lead to increase the spreading of chewing betel leaf and its adverse effects in Aden.
The study was performed by direct interviews with consumers of betel leaf, the total number of selected people was 389, including all age group starting from 8 years up to more than 50 years old, both sexes in all of the Aden Governorate, in period from March to June 2014.
3.6% was the starting age of chewing betel leaf 8years old, and the commonest age of the chewer was between15-25 years which formed 59.1%, males more common than females 92. 5%, while education level was 45.2% secondary school students, 37.5% university students, 78.9% were singles while21,1 % were married. 86.1% used betel with Zarda and Socka which is the main source of health danger, 25 betel leaves are the maximum quantity chewed per day, 20.3% of chewer reflect dependence, and addiction as side effects.
The early age of starting the chewing betel leaf, and its rapid prevalence reflected a serious issue among young students. Chewing betel leaves badly affects the health of chewers as well as the community.

Key words: Betel leaf, health problem, Aden city.

Introduction

Betel (*Piper betle*) is the leaf of a vine belonging to the Piperaceae family, which includes pepper and kava. It is valued both as a mild stimulant and for its medicinal properties. Betel leaves are mostly consumed in Asia and elsewhere in the world by some Asian emigrants as betel quid or *paan*, with or without tobacco, in an addictive psycho-stimulating and euphoria-inducing formulation with adverse health effects.[6][7]

The World Health Organization[6] reports that a betel leaves are consumed, in southeast Asian community wor*ldwid*e, predominantly as a *betel* paan. But, in the last years it has become more common in the Arabic Gulf countries, such as UAE, and Qatar where many Indian lives. Recently, the Dubai government has banned the import and sale of paan. [10]

In Aden governorate, the chewing of betel leaves is known hundred years ago, it was brought by some Indian emigrants and its use was very limited. It was used as simple type with few additional substances, but now increases too much, mainly among young students of secondary school, especially in the last three years, because of the deterioration of most socioeconomic and political condition in the country, due to what's named youth revolution. It is reflected negatively in the younger generation with absent of any health control. In addition, the leaf already grows in Yemen in Hadramout governorate. All these conditions together make the matter as a serious health problem now, especially due to the addition of substances that reach up to ten most of them carcinogenic, affecting the whole body organs and systems. These substances include: areca nut, slaked lime, saffron, cloves, aniseed, turmeric, mustard, sweeteners, and cardamom with or without tobacco mixied with catechu, and flavoring agents. These substances affect the teeth and cause stained teeth ,bad breath, sores on gingiva and throat and after prolong use, it leads not only to oral cancer, but also cancer in esophagus, stomach, bowel and bladder [6][23]

The International Agency for Research on Cancer (IARC) regards the chewing of betel and areca nut to be a known human carcinogen. The media has reported that regular chewers of betel leaf and areca nut have a higher risk of damaging their gums and acquiring cancer of the mouth, pharynx,

esophagus and stomach.[16][20] Studies have found tobacco and caustic lime increase the risk of cancer from areca nut preparations.[23][10]

Studies have been conducted on the use of a "pure" *paan* preparation: areca nut, betel leaf, and lime only. One important example of animal study, done in 1989, found that unprocessed areca nuts, even at high doses, displays only a very weak carcinogenicity in mice, whereas use of processed areca nuts, as commonly used in *paan* preparations, causes cancer.[14] Since 1971, many studies showed that areca nut extracts to cause cancer in rodents.[15][18]

In 2003, the International Agency for Research on Cancer (IARC) reached the conclusion that there is a sufficient evidence that the habit of chewing betel quid, with or without tobacco, is carcinogenic to humans.[23] Support for this conclusion is provided by a recent study which found that *paan*, even without concurrent tobacco use, is a risk factor for oral cancer. The Merchant *et al.* further determined that *paan*, when consumed with and without tobacco, increases oral cancer risk by 8.4 and 9.9 times, respectively, compared to those who do not consume *paan*.[4,13]

Chewing areca nut alone has been linked to oral submucosal fibrosis.[11] According to Medline Plus, "Long-term use [of betel-areca preparations] has been associated with oral submucosal fibrosis (OSF), pre-cancerous oral lesions and squamous cell carcinoma. Acute effects of betel chewing include asthma exacerbation, hypertension, and tachycardia. There may additionally be a higher risk of cancers of the liver, mouth, esophagus, stomach, prostate, cervix, and lung with regular betel use. Other effects can include a possible effect on blood sugar levels, which may, in turn, increase the risk of developing type 2 diabetes.[5]

In 1904, however, the increase in mouth ulcers and gum deterioration caused by chewing areca nut and betel may outweigh any positive effects. [5,,24]

In October, 2009, 30 scientists from 10 countries met at the International Agency for Research on Cancer (IARC), a World Health Organization sponsored group, to reassess the carcinogenicity of various agents, including areca nut, and mechanisms of carcinogenesis. They concluded that there is a sufficient evidence that areca nut, with or without tobacco, can cause cancer.[1,22]

Scientific teams from Taiwan, Malaysia and Papua New Guinea have reported that expected mothers who chew *paan* (and/or other areca nut and betel leaf formulations) during pregnancy significantly increase adverse outcomes for the baby. The effects were similar to those reported for mothers who consume alcohol or tobacco during pregnancy. Incidences of lower birth weight, reduced birth length and early term were found to be significantly higher.[17][21]

The aim of this study is to know the factors that lead to increase the spreading of chewing betel leaf in Aden.

Methods:

By using a questioner that was filled randomly by direct interviews of consumers of betel leaf, the study was carried out. The total number of selected people in this study was 389, including both sexes started from school age up to more than 50 years old, in all of the Aden Governorate, in the period from March to June 2014.

Results:

Table (1): - Distribution of betel leaf of chewers according to age

Age group in Years	Frequency	Percent
8- 14	4	1.0
15-20	112	28.8
20-25	118	30.3
26- 30	51	13.2
30-35	34	8.7
More than 35 Y	70	18.0
Total	389	100.0

The highest percent of chewing (59.1%), are between 15-25 years' old.

Table (2): - Distribution of chewers of betel leaf according to the educational level.

Educational level	Frequency	Percent
Don't study	4	1.0
Primary school	60	15.4
Secondary school	176	45.2
University	146	37.6
Post-graduate	3	0.8
Total	389	100.0

The highest percent of chewer is in secondary school is (45.2%)

Table (3): - Distribution of betel leaf chewers according to sex

Sex	Frequency	Percent
Male	360	92.5
Female	29	7.5
Total	389	100.0

Males show a higher percent (92.5%).

Table (4): - Distribution of betel leaf chewers according to social levels

Social levels	Frequency	Percent
Singles	307	78.9
Married	82	21.1
Total	389	100.0

The participation of single shows a higher percentage (78.9)

Table (5): - The distribution of betel leaf chewers according to work

Participants having work	Frequency	Percent %
With work	146	37.5
Without work	243	62.5
Total	389	100

The chewers without work represent higher percentage (62.5%).

Table (6):- Symptoms that appear after chewing betel leaf.

Symptoms	*Frequency*	*Percent*
Chang in mood and feeling	168	43.1
Stimulation	145	37.2
Headache	24	6.3
Nausea and vomiting	34	8.7
Abdominal pain and diarrhea	18	4.7
Total	389	100.0

Change in mood and feeling followed by stimulation are the common symptoms that chewers feel after chewing betel leaf (43.1%, 37.2%).

Table (7): - Symptoms that appear if people not take betel leaf

Symptom feel if not chewing betel leaf	Frequency	Percent
Headache	136	34.9
Nervous	49	12.6
Night mears	7	1.8
Insomnia	8	2.1
chest tightness	109	28.0
Hallucination	8	2.1
None	72	18.5
Total	389	100.0

Symptoms representing high percentage are headache and chest tightness, (34.9%), (28.0%) respectively.

Table (8): - Getting advice to stop chewing betel leaf

People advising to stop chewing betel leaf	Number	Percent
Yes	305	78.6
No	84	21.4
Total	389	100.0

78.6 % of participants have getting advice to stop chewing of betel leaf.

Table (9): - This table represents People who were advised to stop chewing betel leaf

People who advice	Frequency	Percent
Family	205	52.6
Friends	97	25
Teacher	10	2.6
None	77	19.8
Total	389	100.0

Family and friends show the highest percentages (52.6%), (25.0%), respectively, while schools have very poor role (2.6%).

Table (10):Total number of betel leaf chewed per day

The quantity of betel leaves /day	Frequency	Percent
Less than5/day	126	32.4
5-10/day	133	34.2
10-15/day	31	8.0
15-20/day	12	3.1
20-25/day	8	2.1
More than 25/day	79	20.3
Total	389	100.0

The higher percent represents up to 10 per day (66.6%), while 20.3% showed more than 25 betel leaf chewed per day.

Discussion:

Betel leaf is mostly consumed in South East Asia and elsewhere in the world by some Asian emigrants as betel quid or *paan***.**

In last years, it becomes more common in the Arab Gulf countries such as UAE, Qatar where many Indians live[10,19]. In Yemen, especially in Aden governorate, the chewing of betel leaf was known about hundred years ago, due to the presence of many Indian people, living in Aden governorate, but these phenomena were very limited as a simple type of betel leaf with few additional substances. Now, the chewing of betel leaf increases too much, mainly among young students and specially in secondary school. During the last three years which named youth revolution there was no any control for this problem that leads to the increase of chewing of betel leaf very rapidly in Aden governorate.

It is considered as a serious health problem due to the addition of substances that reach up to ten substances; most of them are carcinogenic, affecting the whole body.

The World Health Organization Expert Group for Research on Cancer reported in 2004, that the percentage of oral cancer, among all cancers diagnosed in hospitals in Asia, has always been much higher than that usually found in the western countries, due to the habit of chewing betel quid, with or without tobacco.[6,7.]

389 consumers were reviewed (chewing of pann) in this study and it is found that the commonest age group between 15-20 years old (28.8%) and 20-25 years old (30.3 %) are most susceptible to chewing of paan (Table No 1). The first age group are students mainly in secondary school, followed by university students, which represents the highest percentage (45.2%) & (37.5%) of educational level as seen in Table No (2).

This result differs from other studies found in Thailand, where, the consumption of areca nut has declined gradually in the last decades. The younger generation rarely chew these substances, especially in the cities, while, in our country the males like more to chewing of paan as seen in Table No 3 (92.5%). These may be because that sale of paan is available anywhere, specially near schools, and males spend most of their time outside home, due to bad companionship, Low public awareness, and Lack of religious faith, Family disintegration and unemployment, Lack of oversight, declining socioeconomic condition, lack of society responsiveness; while in other countries, laws are set to curb Sales-Spread dramatically.[3]

This result is identically similar to those in Taiwan where there is an increasing of chewing paan, especially in the male sex of the younger generation [8, 9.12].

Table No 4 represents single people chewing pann more frequently (73.4%), compared with married (26.6%). There was no literature study about the relationship between chewing paan and social status.

Table No 5 shows that most people who chewing pann jobless 62.5%, there was no literature study about the relationship between chewing paan and getting a job, but we think that this is, important factor because some person found the selling of betel leaves is easy work, and profitable.

Table No 6 shows abnormal symptoms that appear after chewing betel leaf; (49.7%) change mood and feeling, followed by stimulation (41.3%). These symptoms may be due to some substances in its components that lead to addiction.

Table No7 show symptoms that appear if people not chewing paan, such as headache (33.7%), chest tightness (27.9%), nervous (18.2%), and hallucination (7.2%). These symptoms are represented as side effect of chewing paan.

Also other studies show that the use of areca nut has been associated with deterioration of psychosis in patients with preexisting psychiatric disorders [20], and Areca nut is the fourth most commonly used psychoactive substance, after caffeine, nicotine, and alcohol.[6]

Table No 8 showed that many advices to stop chewing of betel leaf (78.2% yes) this reflect that this phenomenon are not accepted by most of people in our society. Most of the people who advice to stop are family 52.6%, and friends 25. % while the teachers have very poor role in advising process (2.6%,) as seen in Table No 9.

This problem refers to, the whole society, mainly the young people (secondary school students), that means all member of the society should participate in the advising process to stop this bad habit that affects the health of people which reflect negatively in all aspects economic, social, educational, and immoral.

Also nicotine causes vasoconstriction and addiction., (As seen in Table No 10) there was an increase in the numbers of paan chews per day1-10(66.6%), while 19.1 %they chewed 25 paan per day; this occurs after longer use to reached up to this large quantity which increases gradually and reflects the tolerance and addiction effect, this result has been confirmed by some studies which said that, the betel quid , with or without tobacco ,is an addictive psycho-stimulating and euphoria-inducing formulation with adverse health effects.[6][7]

Conclusion:

1. The commonest age group of people chewing betel leaves are between 15-20 and 20-25 years old, most of them are students mainly in secondary school.
2. There is an increasing frequency of chewing betel leaves among males.
3. Single people chewed pann more frequently than married ones.
4. Most of people chewed pann were without job.
5. The people chewing paan suffer from change in mood and feeling, followed by stimulation that lead to addiction.
6. Most of chewers that already gave up chewing and then they return again to chewing betel leaf because they complain from some symptoms such as headache, chest tightness, nervous and hallucination. These symptoms could be explained as side effects of paan.
7. The number of chower increasing number of paan chewers with some chewed 25 pann / day.

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دارسه أوليه لمضغ التمبل وأضراره الصحية في مدينة عدن

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الملخص

تهدف هده الدراسة إلى التعرف على التمبل وتأثيره على صحة متعاطية وعلى المجتمع.
وقد تمت الدراسة من خلال المقابلات الشخصية وتعبئة الاستمارات الخاصة، والاجابة على الأسئلة، وقد كان عدد المشاركين 389 شخص يمضغ التمبل وتضمنت كافة العمار ابتداء من ثمان سنوات وشملت ايضا الذكور والإناث في كل مناطق عدن في الفترة من مارس الى يونيو 2014م.
3.6% من الأطفال يبدؤون مضغ التمبل منذُ الثامنة من العمر, اكثر الفئات العمرية انتشارا بين 15-25 سنة الذي يشكل 59.1%، وكان الذكور هم الأكثر استعمالاً للتمبل 92.5%، وشكل طلاب المدارس الثانوية 45.2% وطلاب الجامعة 37.5%، وغير المتزوجين 78.9%، اما النوع المفضل والأكثر طلباً هو الزردة والسوكة 86.1%، والتي تعد من اخطر المواد من حيث تأثيرها السيء على الصحة، وكان 4و32 من المتعاطين يأخذون 5 حبات في اليوم 2و34% يمضغون عشر حبات في اليوم 3و20% ووصل الامر بالبعض الاخر لمضغ 25 حبة في اليوم مما يدل على ادمان متعاطيه مع مرور الوقت.
إنَ السن المبكر لمضغ التمبل وانتشاره السريع والخطير بين طلاب المدارس يدل على خطورة الأمر، والمستقبل الخطير الملي بالأمراض الخطيرة والمدمرة على صحة متعاطية بشكل خاص وعلى المجتمع بشكل عام.

الكلمات المفتاحية: التمبل، تأثره على الصحة، عدن.