

Temporo Mandibular Joint Click and Pain due to Takhzeen al-qat (Qat chewing)

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Abstract

Background: Millions of Yemenis practice the habit of Takhzeen al-qat (Qat chewing) every day. Due to this, many adverse health effects on different body systems have been reported **Objective:** To assess the effects qat chewing on Temporo Mandibular Joint (TMJ) click and pain. **Methods:** The design was cross sectional hospital based type. Subjects were randomly recruited from patients of dental clinics in 2 Government hospitals in Sana'a. Subjects were interviewed for demographic and qat chewing information then clinically examined for the effects of chewing on TMJ click and pain. **Results:** 650 subjects (515 males & 135 females) were recruited. 490 were chewers and the remaining 160 were non chewers. TMJ click was detected on 184 subjects (166 chewers and 18 non chewers). TMJ pain was detected on 41 subjects all of them were chewers. Both results were statistically highly significant ($p < 0.001$). **Conclusion:** TMJ click and pain are associated with Takhzeen al-Qat (QAT chewing) habit among Yemenis.

INTRODUCTION:

Introduction:

Takhzeen al-qat is the term used locally to describe the process of qat chewing among Yemenis¹. The plant of Qat (*Catha Edulis*) was probably introduced to Yemen from Ethiopia by Muslim Sufis in the 15th century². The plant spread slowly over time covering the whole country in early 20th century. Qat use exploded in Yemen in 1970s among men and used for 1st time by women³. National Qat Conference, 2002, reported that 90% and 20% of adult men and women respectively were regular qat chewers⁴. Qat use also increased in many African countries such as Kenya, Ethiopia, Djibouti and Somalia⁵. Globally, qat use spread by African and Arab immigrants to many European countries, USA, China and Australia⁶. People use qat to get some psycho stimulant effects resulted from Cathinone, the most active ingredient⁷. In the literature, several reports have been extensively reviewed all health adverse effects of qat chewing on different human body systems 8-11. Also, the adverse effects of qat chewing habit on different oral tissues such

as oral mucosa, periodontium and on oral pathogens had been reported¹²⁻²⁰. This study is part of the ongoing research to elaborate further on those effects on oral and para oral tissues. The aim of this study was to estimate the risk of TMJ click and pain due to Takhzeen al-qat (Qat chewing) among Yemenis.

Materials and Methods:

The design of the study was hospital based cross sectional. Subjects recruited from patients reported randomly to dental clinics in 2 government hospitals in Sana'a city during the period 2004-2008. Inclusion criteria included; age 18-60, qat chewer for 3 years minimum and chewed on one side of their mouths only. A direct pre coded interview questionnaire included: Personal data: age, sex, residence and any special dietary habit. Chewing information: chewer/non chewer, oral side of chewing, age of starting the habit, duration of the habit/years, frequency of chewing in days/week and the average period of each qat session/hours. The clinical status of TMJ was assessed according to WHO criteria (WHO, 1997)²¹. This was done first by asking the subject to open and close his/her mouth many times, when examiner was standing exactly

in front of the subject and inspecting carefully the symmetry, size and the functional lateral movements of the jaw. Bilateral palpation accomplished to the masticatory muscles and the joint when the examiner standing behind the subject. The examiner palpated the joint using both fingers closely on the joint and asked the subject to make opening and closing movements from rest position (right, left and protrusive), to find any jerky or abnormal movements and the presence or absence of any tenderness in the joint. The masticatory muscles were palpated for any enlargements, tenderness, or spasm. Auscultation of the joint was carried to reveal any abnormal sounds presents such as clicking, grating or snapping during the movement using stethoscope. Scoring was also done according to WHO criteria (WHO, 1997). After examination, all subjects were treated by the dental examiner. Dentist informed consent was obtained from all subjects.

Data collected was analyzed by SPSS, Chi square test. Level of significance was $p < 0.05$ and CI at 95%.

Results:

650 healthy Yemeni subjects were recruited divided into 515 (79.20%) male and 135 (20.80%) females with M/F ratio of 4:1. Their mean age was $29 \pm$ years and ranged and ranged from 18 to 60 years. Regarding qat chewing habit, 490 (75.38%) were chewers and the remaining 160 (24.62%) were non chewers. Table one shows distributions of age groups among the study sample. Figure 1 shows distribution of chewers and non chewers among study sample.

Chewing duration ranged from 3 to 45 years and the mean was 19 years. Frequency of chewing days/week were categorized into; 358 (73.06%) chewed every day, 98 (20%) chewed 1-2 days and the remaining 34 (6.93%) chewed 3-5 days/week.

Average chewing session/hours were also categorized into; 377 (76.93%) chewed 3-5 hours/session, and 74 (15.10%) chewed more than 6 hours/ session and the remaining 39 (7.95%) 1-2 hours/session.

Among study subjects TMJ click was detected on 184 (28.30%) subjects divided into 166 (28.13%) among chewers and the remaining 18 (11.25) were among non chewers. The difference was highly statistically significant ($p < 0.001$). Among females TMJ click recorded on 41 (30.37%) divided into 34 (25.18%) among chewers and the remaining 9 (6.66%) among non chewers. The difference was highly statistically significant ($p < 0.001$).

TMJ pain was recorded on 41 (6.94%) subjects all were among chewers. The difference was highly significant ($p < 0.001$). TMJ pain among females was recorded on 9 (6.66%) subjects all were among chewers. The difference was highly significant ($p < 0.001$). Table two shows distribution of TMJ click and pain in relation to chewers and gender subjects.

Discussion:

Temporo mandibular joint disorders are a group of disorders affecting the joint and muscles of mastication²². Three classical cardinal signs and symptoms of these disorders have been reported. These are; pain and tenderness on palpation in front of the ear, limited range of mandibular movement and noises or click during masticatory movements which also called popping or grating sounds²³. Bruxism and para functional activities were reported to play a role in those temporo mandibular joint disorders²⁴. Qat chewing is an oral habit which demands continuous temporo mandibular joint movements for few hours a day everyday and for years; therefore, some joint disorders are expected.

In this study, TMJ click was recorded on 168 and 18 among chewers and non chewers respectively. Among females TMJ click was recorded on 34 and 9 among chewers and non chewers respectively. Differences between chewers & non chewers and males females were highly significant ($p < 0.001$). This result is in agreement with result of earlier study reported increased risk for TMJ click among qat chewers¹. The possible mechanism for the joint noises or click is probably due to the sudden movement of the articulating disc which temporarily

displaced in position to allow the completion of mandibular movement 25. Similarly, TMJ pain was recorded on 41 subjects all were among chewers. Among females pain was recorded on 14 subjects, all were among chewers. No TMJ pain was recorded among non chewers. Differences between chewers & non chewers and males females were significant ($p < 0.05$). This result is in agreement with two earlier studies reported TMJ related pain among qat chewers 1+26. Pain thought to be originating from the joint (arthralgia) or from the masticatory muscles (myofacial) or from both. A poor correlation was found between pain severity and evidence of tissue pathology 27.

In conclusion, takhzeen al qat (qat chewing habit) is associated with both TMJ click and pain among Yemenis.

Table 1. Age groups distribution among study subjects

AGE GROUP	OVERALL N=650	QAT CHEWERS N= 490	NON- CHEWERS N=160	P*
18-27y	110 (16.92%)	080(16.33%)	030(18.75%)	< 0.0001
28-32y	182 (27.14%)	144 (29.38%)	038(23.75%)	
38-47y	186 (28.61%)	139 (28.38%)	047(29.37%)	
48-57y	126 (19.28%)	092 (18.77%)	034(21.75%)	
58-60y	046 (07.15%)	035 (07.14%)	010(06.88%)	

*Chi-square test

Table 2 Distribution of TMJ click and pain in relation to gender and chewers subjects.

	QAT- CHEWERS N=490		NON - CHEWERS N=160		OVERALL N=650		P*
TMJ conditions	Male	Fem	Male	Fem	Male	Fem	
Normal	231	54	116	27	347	81	<0.0001
Click	132	32	9	8	141	40	
Pain	27	14	0	0	27	14	

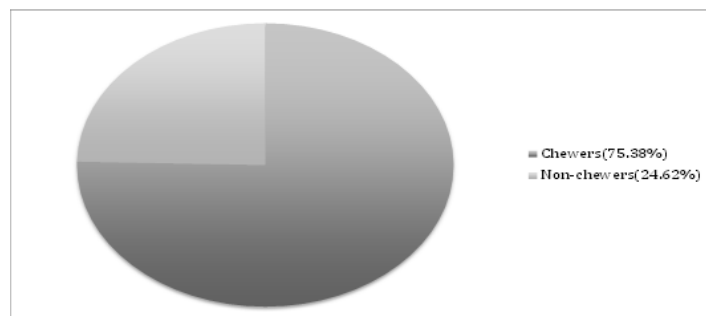


Fig 1. Qat chewing among the sample.

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