



KNOWLEDGE, ATTITUDE, AND ESTHETIC PERCEPTIONS AMONG BETEL QUID CHEWERS IN RURAL POPULATION OF SULLIA TALUK, DAKSHINA KANNADA DISTRICT- A CROSS SECTIONAL STUDY

Dr Moksha Nayak	MDS, PhD, Principal and professor, Department of Conservative Dentistry and Endodontics, KVG Dental college and hospital Sullia, Dakshina Kannada, Karnataka, India 574327.
Dr Deepa Singh*	Post graduate student, Department of Conservative Dentistry and Endodontics, KVG Dental college and hospital Sullia, Dakshina Kannada, Karnataka, India 574327. *Corresponding Author
Dr Vishnuja V R Nair	Post graduate student, Department of Conservative Dentistry and Endodontics, KVG Dental college and hospital Sullia, Dakshina Kannada, Karnataka, India 574327.
Dr Swathi Pai	Reader, Department of Conservative Dentistry and Endodontics, KVG Dental college and hospital Sullia, Dakshina Kannada, Karnataka, India 574327.

ABSTRACT

Introduction: Betel nut is the fourth most commonly used substance of abuse in the world & is chewed by 600 million people worldwide. A quid of betel consists of betel leaf, arecanut and slaked lime to which tobacco is often added. It has deleterious effects on oral soft tissues, causes staining of the teeth, attrition, abrasion and often develop to potentially malignant lesions like oral submucous fibrosis, leukoplakia & pan chawers mucosa. **Aim:** The present study was designed in the rural areas of Sullia taluk to determine the knowledge attitude & the esthetic perceptions in betel quid chewers to facilitate better assessment, planning of preventive measure and treatment more effectively. **Methodology:** A cross sectional study was conducted among 400 betel quid chewers aged above 18 years drawn through convenience sampling. Necessary data was collected on a validated questionnaire containing 2 parts, where part A recorded the sociodemographic details & part B recorded Knowledge, Attitude & Perception about esthetics (KAP) among the betel quid chewers. Statistical analysis was performed using SPSS software version 22.0 and level of significance related to KAP was assessed using Chi square test. Level of significance was set at $p < 0.05$. **Result:** About 384 (96%) participants were unaware about the harmful effects of chewing betel quid. The study participants had a negative attitude for dental treatment as 84% of the people had not consulted any dental surgeon regarding the appearance of their teeth and 82% of the respondents were not interested for the treatment of their discolored teeth. **Conclusion:** Despite the severe impact of betel quid chewing on overall health and appearance of the teeth, majority of the study population had inadequate knowledge, negative attitude and neglected esthetic perception.

KEYWORDS : Betel quid, Betelnut chewing, Arecanut chewing, Esthetic perception, Knowledge, Dakshina kannada.

INTRODUCTION:

After nicotine, ethanol, and caffeine, areca nuts are the fourth most often used addictive substance.¹⁻³ Around 600 million people chew areca nut worldwide and India has the largest areca-consuming population in the world with approximately 128.4 million of whom 90 million are men and 38 million are women.^{3,5}

Betel leaf, areca nut, and slaked lime are combined to make betel quid (aqueous calcium hydroxide paste). Tobacco may be added, along with a variety of flavourings including cardamom, cloves, licorice, peppermint, shredded coconut, fennel seed, and sugar syrup. By influencing the autonomic nerve system, it has both a calming and energising impact.⁶⁻⁸

Areca nut is familiarly known as supari in Hindi where as it is either known as 'adike or adakke or bajjeji' in the study area.⁹ It has deleterious effects on oral soft tissues, periodontium, and causes staining of the teeth, attrition, abrasion, temporomandibular joint disorders and often develop to potentially malignant lesions like oral submucous fibrosis, leukoplakia & pan chawers mucosa.¹⁰⁻¹¹

Dental esthetics in particular seem to be increasingly important in the present era and various studies have reported that better appearance had a positive effect on self-esteem & quality of life.¹²⁻¹⁴

The study area has found to be a major producer of areca nut in India¹⁵ and Sullia taluk is known for the cultivation of arecanut & rubber. The aim of the study was to determine the Knowledge Attitude & Esthetic Perceptions in betel quid chewers among the rural population of Sullia Taluk. Various studies have been done to assess the Knowledge Attitude and Practice of betel quid chewers¹⁶⁻¹⁸ but to the best of our knowledge, this is the first report assessing the esthetic perception of betel quid chewers among the rural population who are considered to be underexposed to health education.

OBJECTIVES:

1. To examine the knowledge of betel risks among the rural population

of Sullia taluk, Dakshina Kannada district, Karnataka.

2. To assess the attitude towards betel chewing among the rural population of Sullia taluk, Dakshina Kannada district, Karnataka.

3. To evaluate the esthetic perception of betel quid chewers among the rural population of Sullia taluk, Dakshina Kannada district, Karnataka.

METHODOLOGY:

A cross-sectional survey was carried out to assess the Knowledge, Attitude, and Esthetic perceptions among the betel quid chewers in rural population of Sullia taluk, Dakshina Kannada district. The choice of subjects was guided by key informants that included betel nut sellers, store owners that sell betel quid, young, middle-aged, and elderly male and female chewers, gutkha chewers, etc. The goal of key informant selection was to compile the most diverse sample possible and a non-randomized purposive sampling strategy was used. The survey had 400 respondents aged above 18 years. Individuals with terminal illness, history of major systemic disease, prior diagnosis of any form of invasive cancer and specially abled people were excluded from the study.

Before conducting the study, the objective was explained to the village leaders and a verbal consent was obtained. Written consent was obtained from all the participants. Necessary data was collected on a validated questionnaire with forward & back translation done to the questions and the final validated questionnaire consisted of 23 questions in both English & Kannada language. The questionnaire had 2 parts, where part A recorded the sociodemographic details & part B recorded Knowledge, Attitude & Perception about esthetics (KAP) among the betel quid chewers. (Table 1) The questionnaire was distributed and the Confidentiality and privacy were maintained during and after the study.

STATISTICAL ANALYSIS:

Statistical analysis was performed using SPSS software version 22.0

and chi square test was used to assess the level of significance related to KAP and the level of significance was set at $p < 0.05$.

Table 1: Final validated questionnaire

KNOWLEDGE	Do you think betel nut chewing causes staining of teeth?	Yes No
	Where do you see the staining?	Teeth surface /Gums/ Both
	Do you know that treatment is available for staining of teeth caused due to betel nut chewing?	Yes/ No
	Do you think betel nut chewing can cause oral cancer?	Yes/ No
	Do you think betel nut chewing can lead to broken/cracked lips?	Yes/ No
	Do you think using toothpaste can reduce the stains caused due to betel nut chewing?	Yes/ No
	Do you think betel nut chewing can cause white patches in your mouth?	Yes/ No
	Do you think betel nut chewing can cause difficulty in opening mouth?	Yes/ No
	Has anybody told you about the ill effects of betel nut chewing?	Yes/ No
	Have you seen any depression in your teeth?	Yes/ No
ATTITUDE	Have you ever consulted any dentist regarding the appearance of your teeth?	Yes/ No
	Are you willing to get the treatment done for the appearance of your teeth?	Yes/ No
	Do you think the esthetic treatment for betel nut chewing is expensive?	Yes/ No
	Do you think chewing betel nuts is a good practice?	Yes/ No
	Had you tried to quit the betel nuts?	Yes/ No
	If you have a chance, will you try to quit from chewing betel nuts?	Yes/ No
	Are you bothered by the effect betel has on the appearance of your teeth?	Yes/ No
	ESTHETIC	Do you check your teeth in the mirror everyday?
Do you appreciate your smile?		Yes/ No
Are you content with the appearance of your teeth & gums?		Yes/ No
Do you hide your mouth with your hand when you smile?		Yes/ No
Do you wish that your teeth were whiter?		Yes/ No
Is there anything you would like to change about your smile?		Yes/ No

RESULTS:

Betel quid chewing with addition of tobacco was found to be more common among the respondents. The majority of the people who participated in the study had an average age of 50 years with a primary school degree and monthly income below 10,000 rupees (Table 2).

Table 2: Sociodemographic details of studied population in relation to KAP

VARIABLE	FREQUENCY N=400	PERCENTAGE	KAP SCORE	P VALUE	
AGE	18-35 yrs	64	16%	7.5 ±1.60	0.000541*
	36-50 yrs	128	32%	10.1 ± 2.84	
	>50 yrs	208	52%	7.6±1.80	
GENDER	Male	160	40%	9.1 ±2.17	0.0742
	Female	240	60%	8.0± 2.51	

MONTHLY INCOME	<10,000	352	88%	8.1±2.36	0.0000606*
	10,001-30,000	48	12%	11.0±0.89	
	>30,000	-	-	-	
EDUCATIONAL STATUS	Uneducated	48	12%	7.3±22	0.00000002*
	Primary	208	52%	8.2±1.92	
	Higher secondary	128	32%	8.1±1.89	
	Preuniversity/above	16	4%	15.0±0.0	

*p value <0.05 indicates statistical significance: KAP= Knowledge, Attitude, Perception

About 384 (96%) participants were unaware about the harmful effects of chewing betel quid. The study participants had a negative attitude for dental treatment as 84% of the people had not consulted any dental surgeon regarding the appearance of their teeth and 82% of the respondents were not interested for the treatment of their discoloured teeth (Table 3).

Table 3: Interpretation of KAP score and individual scores of Knowledge, Attitude and Perception of esthetics among studied population

PARAMETER	SCORE	FREQUENCY N=400 (Percentage)
Overall KAP	Poor (0-8)	224 (56%)
	Fair (9-16)	176 (44%)
	Good (17-23)	-
Knowledge	Inadequate (1-5)	384 (96%)
	Adequate (6-10)	16 (4%)
Attitude	Negative (1-3)	336 (84%)
	Positive (4-7)	64 (16%)
Perception (esthetic)	Bad (1-3)	328 (82%)
	Good (4-6)	72 (18%)

Scores were given based on the response to the questions.

DISCUSSION:

The study highlights the use of areca nut in 400 respondents, above 18 years of age and betel quid chewing with addition of tobacco was found to be more common. It was reported that most of the betel quid chewers were above 50 years old (52%) followed by 36 to 50 years (32%) and least in the younger age group of 18 to 35 years (16%).

Among 400 respondents, 52% had only completed elementary school, and they contributed the majority of the data. They were followed by 32% of respondents with higher secondary degrees, 12% of illiterate respondents, and just 4% of respondents were graduates.

According to the current survey, the majority of people who chew betel nut had a monthly income of less than 10,000 rupees (88%) and made up the highest percentage of respondents, followed by 12% of those who made between 10,000 and 30,000 rupees. The majority of respondents could still purchase betel nuts even with incomes under 10,000 rupees, it was shown. This could be explained by betel quid's widespread availability and affordable price.

The knowledge questionnaire revealed that, the majority of respondents (96%) were unaware about the harmful effects of chewing betel quid. The reported benefits of betel quid chewing were it produced a sense of well-being, sweetened the breath, dispelled nausea, eliminated intestinal helminths, strengthened gums & teeth, satisfied hunger, promoted digestion and also aided in relaxation and coping with stress. This outcome is comparable to research done by Shrihari et al. on 90 areca nut chewers in the Dakshina Kannada district of Karnataka, where the majority of respondents (69%) believed that betel nut chewing had positive consequences and just a third of the sample were aware of the negative effects of chewing.⁵ Over all, there is poor knowledge among the respondents about the harmful effects from chewing betel quid.

This study illustrated a negative attitude for dental treatment in betel quid chewers as 84% of the people have not consulted any dental surgeon regarding the appearance of their teeth and 78% of the respondents were not interested for the treatment of their discolored teeth or periodontal disease. It was found that most respondents (82%) were not bothered by the stains or discolorations caused by betel nut chewing. Most of the respondents were satisfied with their oral health and were unbothered about the appearance of their teeth. They were confident with their smile and did not wish to change anything about it. Given that betel quid and smokeless tobacco both have addictive properties, this suggests that the research population has poor oral health knowledge and lacks motivation to discontinue using it. The parasympathetic agonist characteristics of the alkaloids arecoline and arecaidine are connected to the addictive potential.¹⁹

To the best of our knowledge, this is the first report assessing the esthetic perception of betel quid chewers among the rural population. Despite the severe impact of betel quid chewing on overall health and appearance of the teeth, only a small percentage consulted the dentist. This shows the negative attitude of participants toward their oral health.

Limitations of the study:

The results of this study cannot be generalized to rest of India because the areca nut chewers were chosen by purposive sampling. Some of the respondents had trouble remembering their ages and the year that they began chewing areca nuts, which might cause memory bias. Since the study was cross-sectional in nature, no conclusions on the dependency of the areca nut can be established.

CONCLUSION:

Within the limitations of the study, it can be concluded that the participants were unaware of the harmful effects of arecanut chewing. The majority of the people who participated in the study had an average age of 50 years with a primary school degree and monthly income below 10,000 rupees. Despite the severe impact of betel quid chewing on overall health and appearance of the teeth, majority of the study population had inadequate knowledge, negative attitude and neglected esthetic perception.

RECOMMENDATIONS:

In order to address betel nut and tobacco use, the WHO Regional Office for the Western Pacific (2010) created a Technical Report that provides advice for government officials, nongovernmental organizations (NGOs), community groups, and health experts.

The paper identifies a number of efficient counter measures to tobacco and betel nut usage, including policies and laws, advocacy and education, behavior modification tactics, clinical services, partnerships and alliances, as well as surveillance and research.

REFERENCES:

1. Lingappa A, Nappalli D, Sujatha GP, Prasad SS. Areca nut: To chew or not to chew?. *E-Journal of dentistry*. 2011 Jul 1;1(3).
2. Gupta PC, Warnakulasuriya S. Global epidemiology of areca nut usage. *Addiction biology*. 2002 Jan;7(1):77-83.
3. Hussain A, Zaheer S, Shafique K. Reasons for betel quid chewing amongst dependent and non-dependent betel quid chewing adolescents: a school-based cross-sectional survey. *Substance Abuse Treatment, Prevention, and Policy*. 2018 Dec;13(1):1-8.
4. Buente W, Rathnayake C, Neo R, Dalisay F, Kramer HK. Tradition gone mobile: An exploration of #betelnut on Instagram. *Substance use & misuse*. 2020 Jun 1;55(9):1483-92.
5. Shrihari JS. Patterns of consumption, and levels of addiction among Areca nut chewers in Dakshina Kannada District, Karnataka (Doctoral dissertation, SCTIMST).
6. Gupta PC, Ray CS. Epidemiology of betel quid usage. *Annals-Academy of medicine singapore*. 2004 Jul 1;33:31-6.
7. Ghanwate N, Thakare P. Antimicrobial and synergistic activity of ingredients of betel quid on oral and enteric pathogens. *Bioscience Discovery*. 2012 Jan;3(1):47-51.
8. Thomas S, Kearsley J. Betel quid and oral cancer: a review. *European Journal of Cancer Part B: Oral Oncology*. 1993 Jan 1;29(4):251-5.
9. Patidar KA, Parwani R, Wanjari SP, Patidar AP. Various terminologies associated with areca nut and tobacco chewing: A review. *Journal of oral and maxillofacial pathology: JOMFP*. 2015 Jan;19(1):69.
10. Trivedy CR, Craig G, Warnakulasuriya S. The oral health consequences of chewing areca nut. *Addiction biology*. 2002 Jan;7(1):115-25.
11. Nayak B. Effect of Arecanut and Various Tobacco Products on Salivary pH. *EC Dental Science*. 2019;18:253-9.
12. Tortopidis D, Hatzikyriakos A, Kokoti M, Menexes G, Tsiggos N. Evaluation of the relationship between subjects' perception and professional assessment of esthetic treatment needs. *Journal of Esthetic and Restorative Dentistry*. 2007 Jun;19(3):154-62.
13. Mehl C, Kern M, Freitag-Wolf S, Wolfart M, Brunzel S, Wolfart S. Does the Oral Health Impact Profile questionnaire measure dental appearance?. *International Journal of Prosthodontics*. 2009 Jan 1;22(1).
14. Kaur P, Singh S, Mathur A, Makkar DK, Aggarwal VP, Batra M, Sharma A, Goyal N. Impact of dental disorders and its influence on self esteem levels among adolescents. *Journal of clinical and diagnostic research: JCDR*. 2017 Apr;11(4):ZC05.
15. Ramappa BT. Economics of areca nut cultivation in Karnataka, a case study of

Shivamogga District. *Journal of Agriculture and Veterinary Science*. 2013 May;3(1):50-9.

16. Goyal G, Bhagawati BT. Knowledge, attitude and practice of chewing gutka, areca nut, snuff and tobacco smoking among the young population in the Northern India population. *Asian Pacific journal of cancer prevention: APJCP*. 2016;17(11):4813.
17. Kumar A, Oswal K, Singh R, Kharodia N, Pradhan A, Sethuraman L, Venkataramanan R, Purushotham A. Assessment of areca nut use, practice and dependency among people in Guwahati, Assam: a cross-sectional study. *ecancermedicalscience*. 2021;15.
18. Khan MS, Bawany FI, Shah SR, Hussain M, Arshad MH, Nisar N. Comparison of knowledge, attitude and practices of betelnut users in two socio-economic areas of Karachi. *JPMA. The Journal of the Pakistan Medical Association*. 2013 Oct 1;63(10):1319-25.
19. Chu NS. Effects of betel chewing on the central and autonomic nervous systems. *Journal of biomedical science*. 2001;8(3):229-36.