原文題目(出處)：	Areca nut chewing and dependency syndrome: Is the dependence comparable to smoking? A cross sectional study Substance Abuse Treatment, Prevention, and Policy 2011, 6:23.
原文作者姓名：	Saira S Mirza
通訊作者學校：	Centre of Population & Health Sciences, Department of Public Health and Health Policy, university of Glasgow, Glasgow, UK
報告者姓名(組別)：	吳宗勳 Intern E組
報告日期：	2011/01/13

內文：

Background
1. Areca nut is the seed of the fruit of the tropical palm tree, Areca Catechu.
2. Thin slices of nuts either natural or processed are then mixed with a variety of substances including slaked lime(calcium hydroxide) and spices.
3. Most importantly these nuts are also mixed with some tobacco products.
4. Four most commonly used psychoactive substance: tobacco, alcohol, caffeine and Areca nut
5. Approximately 10% of the World's population chew it regularly.
6. Many epidemiological studies have revealed that continuous use of areca nut is associated with many adverse health effects from oral leukoplakia to submucous fibrosis which is subsequently linked with cancer risk.
7. WHO International Agency for Research on Cancer Monograph Working Group (2009) highlighted that the evidence on areca nut and its assosciation with oral, pharyngeal and esophageal cancer is sufficient to establish a causal link.
8. Areca nut chewing has been claimed to manifest a sense of well-being, euphoria, salivation, warm sensation of the body, low to moderate sweating and palpitations.
9. Little is confirmed about the dependency syndrome among areca nut users as compared to the symptoms of dependency among tobacco users.
10. The present study was carried out to explore the dependency syndrome among the areca nut chewers in comparison with cigarette smokers.
11. Furthermore, the study also has an objective to investigate the major determinants associated with the dependency syndrome among the areca nut chewers and cigarette smokers.

Methods
1. We included healthy individuals from population for this study who were invited to outdoor patients department of Civil Hospital Karachi.
2. Users of any one of the three products (i.e. Areca nut only or Areca nut with tobacco additives or just tobacco use in the form of cigarettes).

Inclusion criteria
1. All willing healthy male individuals between the ages of 16 to 35 who visited the outdoor patient department during January 2009 to December 2010

Exclusion criteria
1. Refused to participate in the survey
2. Unable to understand Urdu (National language of Pakistan)
3. Individuals who visited the hospital due to current illness or follow up of a previous illness were also excluded.

Instrument

1. Information was collected by using <u>a pre-tested questionnaire</u>
   A. Sociodemographic profile (including age, years of education, nature of job/study)
   B. Pattern of substance use (frequency, number of years since use, daily consumption, type of substance and family history of use).
2. <u>The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) module</u> for substance dependence.
   A. We translated the DSM-IV module of substance dependence to Urdu by using a committee approach.
   B. Bilingual and selected for their proficiency in both English and Urdu.
   C. Two of them translated the English questionnaire to Urdu at an initial stage.
   D. Another two judged the translation in relation to the original questionnaire.
   E. On second step, the other two individual who had no prior knowledge about this DSM-IV module translated the Urdu version back to English.
   F. The two judges again compared the converted English version of questionnaire to original questionnaire
   G. All six members sat together to select the best translations.
   H. This questionnaire was piloted to the first 25 participants of the study.
3. Questions were about the
   A. <u>tolerance</u> (needing more to become intoxicated or discovering less effect with same amount)
   B. <u>withdrawal</u> (characteristic withdrawal associated with this type of drug)
   C. <u>Using more or for longer periods</u> than intended?
   D. Desire to or unsuccessful efforts to cut down?
   E. <u>Considerable time spent</u> in obtaining the substance or using, or recovering from its effects?
   F. <u>Important social, work, or recreational activities given up</u> because of use?
   G. Continued use despite knowledge of problems caused by or aggravated by use.
4. Presence of any <u>three</u> of these during the same <u>12 months period</u> confirmed the presence of dependency syndrome.

Sample size estimation
1. A sample of <u>630 participants</u> was the minimum number required to be accrued to perform this survey.

Results

Basic characteristics of study sample
1. <u>900 individuals</u> were regular users of any of the three products (i.e. areca nut or areca with tobacco additives or cigarette smokers).
2. <u>35 subjects</u> lacked basic information about age, use of product and exact quantity of substance used,
3. <u>14 subjects</u> missed some important questions related to dependency symptoms.
4. Final analysis was carried out on <u>851 individuals</u>
   A. 36.8% (n =314) were areca nut users
   B. 28.4% (n = 242) were the chewers of areca nut with tobacco additives
   C. 34.7% (n = 295) were regular smokers.
5. Similar <u>average age</u> in all three groups ($\underline{25.5} \pm 5.53$ vs $\underline{25.0} \pm 5.62$ vs $\underline{25.9} \pm 5.81$: p = 0.19).
6. No significant difference of <u>years of formal education</u> between the three groups ($\underline{11.3} \pm 2.56$ vs $\underline{11.8} \pm 3.26$ vs $\underline{11.6} \pm 2.10$).
7. Significant differences were noted in the <u>family history of substance use</u> and <u>the</u>

number of years since they began using these products.

Table 1 Baseline characteristics of sample according to the type of substance used

Characteristics	Number (n)	Areca nut only, %	Areca + tobacco, %	Smokers only, %	p value *
Total participants (n)	851	314 (36.8)	242 (28.4)	295 (34.7)	
Age at screening (years)					
Age 16-20	182	14	22.31	28.47	< 0.001
Age 21-25	311	42	32.64	33.9	
Age 26-30	181	28	16.12	18.31	
Age 31-35	177	15.9	28.93	19.32	
Education (years)					
< 10 years	112	7.96	16.94	15.59	< 0.001
10-12 years	490	57.96	39.67	71.86	
> 12 years	249	34.08	43.39	12.54	
Family history of substance use					
Absent	554	55.1	33.06	25.76	< 0.001
Present	297	44.9	66.94	74.24	
Duration of use (years)					
< 6 years	467	44.59	50	69.83	< 0.001
6-10 years	255	39.49	22.31	26.1	
> 10 years	129	15.92	27.69	4.07	

* p values were calculated using the chi square test.

Dependency syndrome among users

1. The frequency of dependency syndrome between the three groups was significantly different.
   A. Areca only users, 67.2% (n = 211)
   B. Areca with tobacco additives users, 7 8.1% (n = 189)
   C. Smokers, 89.8% (n = 265)
2. Withdrawal symptoms, attempt to cut down and continue use were significantly higher among the cigarette smokers ($p < 0.001$).
3. Excess use than intended and social or recreational activity given up were highest among the areca nut only users ($p < 0.001$).

Table 2 Dependency symptoms among users of areca nuts, areca nut with tobacco additives and cigarette smokers

Symptom	Areca nut only N = 314		Areca + Tobacco N = 242		Smokers only N = 295		P-value
	n	(%)	n	(%)	n	(%)	
Tolerance	101	(32.2)	90	(37.2)	116	(39.3)	< 0.001
Withdrawal	87	(27.7)	158	(65.3)	204	(69.2)	< 0.001
Excess use	239	(76.1)	102	(42.2)	119	(40.3)	< 0.001
Attempt to cut down	93	(29.6)	152	(62.8)	218	(73.9)	< 0.001
Considerable time spent before reuse or recovery	88	(28.0)	100	(41.3)	135	(45.8)	< 0.001
Activity given up	175	(55.7)	95	(39.3)	65	(22.0)	< 0.001
Continue use despite known health hazards	195	(62.1)	138	(57.0)	256	(86.8)	< 0.001

p values calculated using the chi^2 test between the presence or absence of symptom and group of substances use

4. On univariate analysis, increasing age, family history of substance use and increasing duration of use were significantly associated with increased likelihood of dependency syndrome.
5. Taking the areca only as a reference group showed that
   A. Areca nut with tobacco additives (OR = 1.74, 95% CI 1.18-2.56) users
   B. Smoking only group (OR = 4.31, 95% CI 2.76-6.73)
   were more likely to have dependency syndrome.
6. Multivariate analysis also showed similar findings as univariate analysis except that age was no longer associated with dependency syndrome after adjustment for the duration of use.

7. No significant association between <u>years of full time education</u> and dependency syndrome.

Table 3 Univariate and multivariate analyses: factors associated with dependency syndrome

	Univariate analysis			Multivariate analysis*		
	Odds ratio (95% CI)			Odds ratio (95% CI)		
		p value	Wald chi^2		p value	Wald chi^2
Age at screening						
Age 16-20	1			1		
Age 21-25	1.65 (1.11-2.48)	0.014	2.45	1.76 (1.06-2.91)	0.03	2.21
Age 26-30	2.01 (1.25-3.23)	0.004	2.89	0.87 (0.45-1.69)	0.68	-0.41
Age 31-35	6.52 (3.43-12.39)	< 0.001	5.72	1.16 (0.37-3.64)	0.79	0.26
Years of education						
< 10 years	1			1		
10-12 years	1.11(0.68-1.81)	0.68	0.41	0.91 (0.52-1.60)	0.75	-0.32
> 12 years	1.07 (0.63-1.81)	0.81	0.24	0.91 (0.50-1.67)	0.76	-0.30
Family history of substance use						
Absent	1			1		
Present	2.29 (1.57-3.37)	< 0.001	4.26	2.36 (1.39-4.01)	0.002	3.16
Duration of use (years)						
< 6 years	1			1		
6-10 years	2.87 (1.90-4.33)	< 0.001	5.02	3.62 (2.16-6.07)	< 0.001	4.89
> 10 years	5.88 (2.91-11.91)	< 0.001	4.92	7.18 (2.08-24.82)	0.002	3.12
Group						
Areca only	1			1		
Areca with tobacco additives	1.74 (1.18-2.56)	0.005	2.82	2.17 (1.39-3.40)	0.001	3.4
Smokers only	4.31 (2.76-6.73)	< 0.001	6.44	7.87 (4.70-13.15)	< 0.001	7.87

* Multivariate model included all the co-variates listed in the table

Discussion

1. <u>9 out of 10 cigarette smokers</u> had dependency syndrome, while <u>8 out of 10 areca users with tobacco additives</u> had dependency syndrome.
2. This can be explained by the addictive potential of <u>nicotine</u>.
3. It is difficult to exactly differentiate and estimate the dependency symptom associated with areca nut or tobacco independently.
4. Dependency syndrome among the areca nut only group was 67%, although high, but have been found slightly inconsistent in earlier studies as well. Because of
   A. different sample sizes
   B. only included male participants
   C. different regions
5. <u>Biological mechanism</u> underlying the association of areca nut chewing with dependency syndrome is <u>less clear</u>, however <u>Arecoline</u> (a psychoactive agent) has been thoroughly investigated and areca nut chewing has been suggested to produce a sense of well being, euphoria, heightened alertness, sweating, salivation and a hot body sensation.
6. Increasing age was significantly associated with increased likelihood of dependency syndrome in univariate model, but in multivariate model age was not significantly associated with dependency syndrome.
7. <u>The longer duration of substance, the more likely it is to lead to dependency syndrome.</u>
8. <u>Positive family history of substance usage</u> <u>doubles</u> the likelihood of developing dependency syndrome.
9. Previous evidence showed that increasing education decreases the likelihood of areca nut use and dependency, however we did not observe any association between education and dependency.

Limitations of this research

1. The participants were selected by convenient sampling and <u>from one region of</u>

this city.

2. We used <u>only male</u> individuals

3. Most of the individuals were from <u>average or below average socio-economic class.</u>

4. We used a cross-sectional design, so our study was <u>unable to explore any time trends in use</u> and <u>the development of dependency syndrome</u> among areca nut users.

Public health implications

1. Areca nuts may lead to oral diseases and malignancy, adverse pregnancy outcome and systemic diseases.

2. <u>Health education and awareness</u> are perhaps the most crucial interventions required to be delivered so that the adverse effects of the substance can be appreciated by the community.

3. These interventions need to be focused on all age groups, in particular <u>early age school children.</u>

Conclusions

1. Areca nut with and without tobacco additives is significantly associated with the dependency syndrome.

2. In comparison to areca nut only users, the smokers are <u>eight times</u> more likely to develop dependence, while areca nut users with tobacco additives are also significantly more likely to have the dependence.

題號	題目
1	下列有關於口腔癌的流行病學之敘述何者錯誤? (A)　依流行病學調查顯示，頰黏膜是口腔癌最常發生的部位 (B)　在癌症種類分面，約90%都是屬於鱗狀上皮細胞癌 (C)　發生部位依地區不同而有差異，例如東南亞地區常出現於頰黏膜 (D)　在台灣地區，口腔癌發生與檳榔嚼食有十分密切之關係
答案(A)	出處：牙科公共衛生學p.130~131 根據流行病學統計，全球口腔炎最常發生之部位在舌頭。台灣地區依衛生署統計，舌癌占45%，頰黏膜癌占24%，顎部癌17%，牙齦炎8%，口底部癌6%。
題號	題目
2	下列有關白斑症(Leukoplakia)的敘述何者錯誤? (A)　根據統計，約80%的白斑症都和抽菸有關 (B)　吃檳榔較菸草更容易造成白斑症 (C)　過度的紫外線暴露，有可能在下唇區出現白斑症 (D)　微生物也可能成白斑症，例如念珠菌(Candida)
答案(B)	出處：Oral & Maxillary PATHOLOGY 2nd edition p.338~339 (C)紫外線暴露可能造成下唇區的白斑，和actinic cheilosis有關 (D)念珠菌造成的白斑稱作candidal leukoplakia，組織切片下可能出現dysplastic or hyperplastic change