

CHAPTER IV

RESULTS

This chapter presents the findings of the study. The chapter is subdivided into three parts – i) univariate analyses of the characteristics of target population, ii) bivariate analyses to find the association between important dependent and independent variables, and c) multivariable analyses to find out which independent factors are most important for the main dependent variable, the betel nut chewing prevalence.

4.1 Univariate Analyses

This part includes the distribution of frequencies and proportions on the respondent's socio-demographic characteristics, betel-chewing role models and/or environment for school children, use of tobacco, negative affect, depressive symptoms, negative life events or stress, practice of betel nut use and immediate motives for the use of betel nut.

4.1.1 Socio-demographic characteristics of the sample population

As can be seen from Table No. 6, the respondent group consists of 345 students from Grades 7 to 11. Their age ranges between eleven and twenty years with majority within the ages of 15 and 17. The mean age is 15.47 years. The group also consisted of almost equal males (46.7 %) and females (53.3 %). Education authorities in Bhutan believed that in the rural schools the number of males is still slightly more than the females whereas in Thimphu the capital town the balance has tilted slightly in favor of the females. The maximum number of students can be found in Grades 9 (35.9 %) and 10 (26.4 %). As there is a ruling from the Education Ministry that Thimphu schools will accommodate only students whose parents are working in Thimphu, the majority of the

students in the town are under the care of their parents with only 8.1 % with the guardians like uncles, aunts and other relatives. A little over half of the students live with parents or guardians who can write and speak fluently using English language. As explained in Chapter 3, the English language has been given importance here because those who can communicate in English are expected to have much more access to information about health and healthy behavior. 46.1 % of the students belong to parents or guardians who are self-employed, the lowest social class according to the broad classification adopted for this study. The higher the social status the lower is the frequency. Further, Thimphu being located in the western part of the country, (38.8 %) students belong to families that use Dzongkha as the main language. The next is the Sharchop language which amounts to 35.4 %. Lhotshamkha-speaking students amounted to 18.3 % and Bumthap, Keng, and Kurtoep languages combined amount to 7.5%.

Table 6: Socio-demographic characteristic of the respondents

Socio-demographic characteristics		Number	Percentage
Age	Eleven	1	0.3
	Twelve	15	4.3
	Thirteen	25	7.2
	Fourteen	51	14.8
	Fifteen	82	23.8
	Sixteen	75	21.7
	Seventeen	64	18.6
	Eighteen	23	6.7
	Nineteen	5	1.4
	Twenty	4	1.2
Gender	Male	162	47.0
	Female	183	53.0
Grade	7	45	13.0
	8	50	14.5
	9	124	35.9
	10	91	26.4
	11	35	10.1

Table 6: (Cont.) Socio-demographic characteristic of the respondents

Socio-demographic characteristics		Number	Percentage
Student under the care	Parent	317	91.9
	Guardian (uncle, aunt, etc.)	28	8.1
Education status of parents/ guardian	Speak/write fluently in English	193	55.9
	No English education	152	44.1
Social status of parents/ guardian	Senior white collar	9	2.6
	White collar	73	21.2
	Blue collar	104	30.1
	Self-employed	159	46.1
Main language spoken in the family	Bumthap/Kheng/Kurtoepkha	26	7.5
	Lhotshamkha	63	18.3
	Dzongkha	134	38.8
	Sharchopkha	122	35.4

4.1.2 Role models for betel nut chewing

When we look at the betel nut chewing environment that surrounded the students (Table 7), we find that the students have role models all around them in the forms of parents, grandparents, older brothers and sisters, male and female close friends and teachers. Teachers score the highest as role models as 76.8% of the students responded that they have noticed their teachers using the substance. The next are the parents forming 71.9%. Male friends, female friends, and brothers and sisters form 58.8%, 45.5%, and 30.7% of the influence respectively. If we give one score for each of the 5 individual influences (role models), we have the following graph (Figure 2) showing the percentage of students against the number of influences (role models) that surround them.

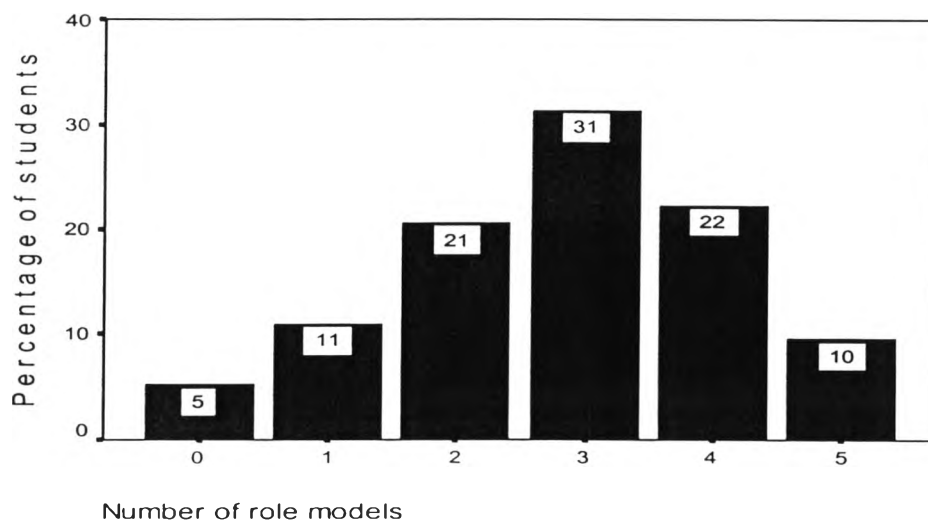


Figure 2: Environment for betel nut use

Table 7: Influence of betel-chewing role models on the students and the total environment of betel chewing that surround the students

Role models	Status of betel nut use	Number	Percentage
Parents/ guardians	Chew betel nut	248	71.9
	Do not eat betel nut	97	28.1
Brothers and sisters	Chew betel nut	106	30.7
	Do not chew betel nut	239	69.3
Male friends	Chew betel nut	203	58.8
	Do not chew betel nut	142	41.2
Female friends	Chew betel nut	157	45.5
	Do not chew betel nut	188	54.5
Teachers	Chew betel nut	265	76.8
	Do not chew betel nut	80	23.2
Number of role models	No role model	18	5.2
	1 role model	38	11.0
	2 role models	71	20.6
	3 role models	108	31.3
	4 role models	77	22.3
	5 role models	33	9.6

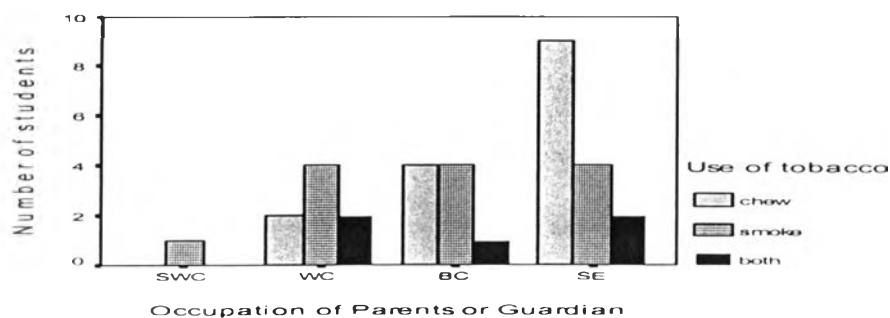
4.1.3 Tobacco and betel nut

Analyses also revealed that 9.5 % of students use tobacco. 4.3% of students chewed tobacco, 3.8% smoked it, and 1.4 % resorted to both chewing and smoking tobacco as seen in Table 8.

Table 8: Use of tobacco and betel nut

Use of tobacco and betel nut		Number	Percentage
Tobacco	Not using tobacco in any form	312	90.4
	Chewing tobacco	15	4.3
	Smoking tobacco	13	3.8
	Chewing and smoking	5	1.4
	Total tobacco user in any form	33	9.5
Tobacco user by gender	<u>Males (N = 162)</u>		
	Not using tobacco in any form	142	87.7
	Chewing tobacco	8	4.9
	Smoking tobacco	7	4.3
	Chewing and smoking	5	3.1
	Total tobacco user in any form	20	12.3
	<u>Females (N = 183)</u>		
	Not using tobacco in any form	170	92.9
	Chewing tobacco	7	3.8
	Smoking tobacco	6	3.3
	Chewing and smoking	0	0
	Total tobacco user in any form	13	7.1

It is interesting to note (Figure 3 below) that chewing of tobacco shows a steadily increasing trend in children whose parents belong to the white collar (WC) group to children whose parents fall in the blue collar (BC) group and self-employed (SE) group. No student with parents from the senior white collar (SWC) group was found to be chewing tobacco. On the other hand, smoking and the combined habit of chewing and smoking remained same in the students whose parents belonged to the three lower classes of occupations. Smoking habit alone went all the way to the SWC showing that smoking habit is prevalent among higher social circles.

**Figure 3: Tobacco use and family occupation**

This finding is further reflected in Figure 4 which compares tobacco use between the children of English-educated parents and parents who are not English-educated. Smoking is much more popular among the children of English-educated parents while chewing is more popular among the children of those parents who are not English-educated. This strongly echoes the findings of a tobacco study the Ministry of Health in Bhutan has carried out in 2001 which indicated that smoking trend in Bhutan is positively associated with education level (Ministry of Health, RGOB, 2001).

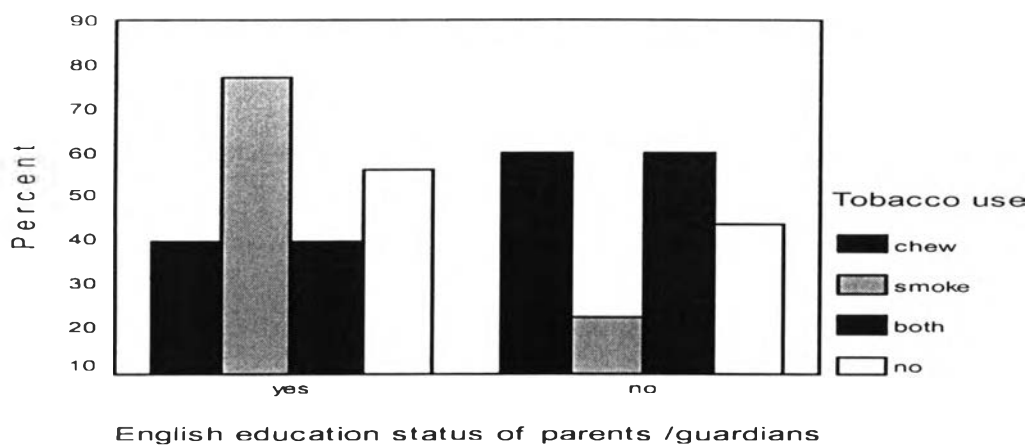


Figure 4: Tobacco use and English education status of families

Across gender there is hardly any difference in chewing tobacco and smoking separately. But the habit of using both chewing and smoking is seen only in the boys as Figure 5 below shows.

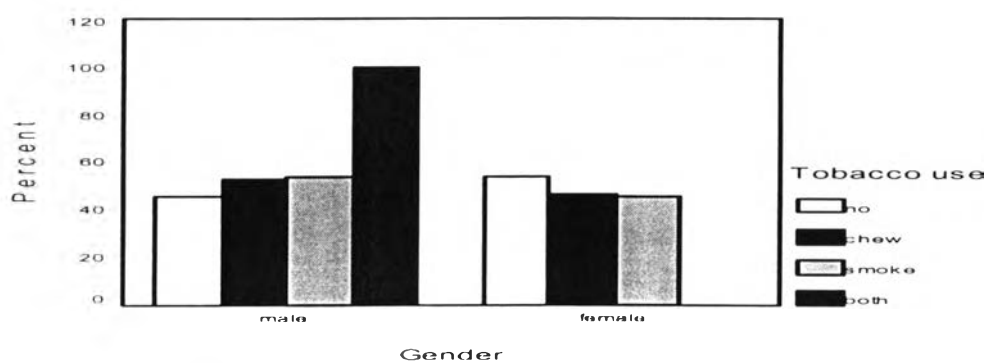


Figure 5: Gender and tobacco use

4.1.4 Negative affective states in the students

The general assessment of negative affects in the respondents revealed that 2.6% of them are not prone to negative affects of mood swings during one-month recall period. 34.2 % of the students scored a negative affect in the range of 25-30 scores. The next range was 19-24 scores with 30.1 % of the students. Two students (0.6 %) were within the highest negative affect range of 43-48 scores. Figure 6 gives the level of negative affect in the students.

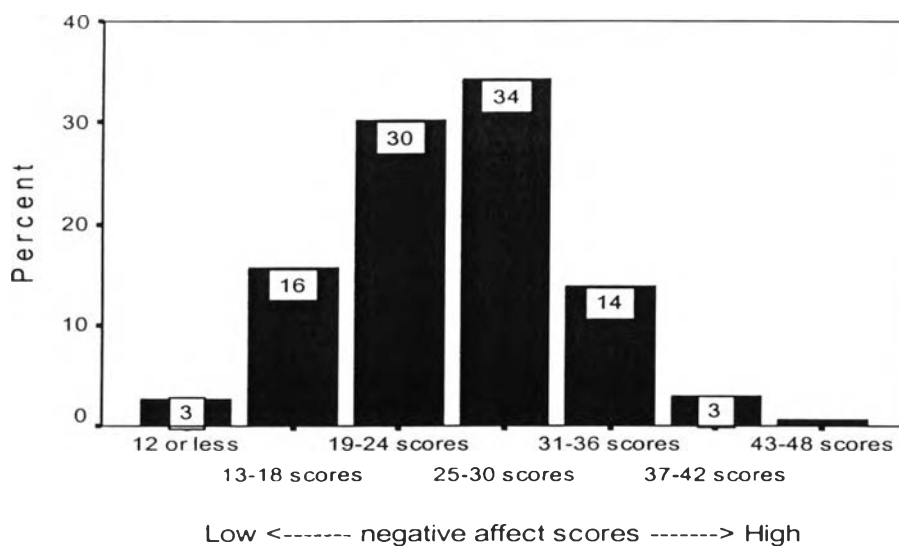


Figure 6: Negative affect in the sample students

4.1.5 Depression as a psychiatric co-morbidity

In terms of depression, 5.5 % of the students had signs of notable depression such as tiredness, trouble going to and staying asleep, unhappiness, hopelessness about the future, nervousness or tenseness, and getting worried about things. Using the same scale in the United States, 15 % of the teens were identified as having notable depressive symptoms (Choi *et al*, 1997). As the pace of life in Bhutan is much slower than US, the findings are quite reasonable.

4.1.6 Negative life events causing stress to the students

Personal problems and family misfortunes were measured as factors causing stress to individual students over a period of one year. The maximum number of students (77.1 %) scored a stress level within the range of 1-5 points while 4.0 % did not face any stressful events during the recall period. The highest score was within the range of 11-15 points with 0.9 % (3 students) although the highest possible score was within the range of 16-20 points. Figure 7 gives the details about the broad types of stress-causing events such as personal stress (p-stress), family stress (f-stress), and both p-stress and f-stress.

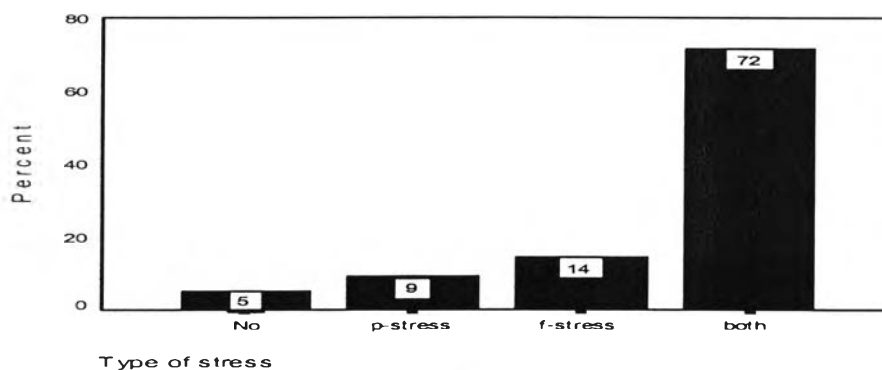


Figure 7: Type of stress faced by the students

Finally, Table 9 below summarizes the findings of all psychological variables in the respondents:

Table 9: Psychological status of students

Psychological conditions		Number	Percentage
Negative affect	Less than 12 (no negative affect)	9	2.6
	13-18 scores	54	15.7
	19-24 scores	104	30.1
	25-30 scores	118	34.2
	31-36 scores	48	13.9
	37-42 scores	10	2.9
	43-48 scores	2	0.6
Depression	Yes	19	5.5
	No	326	94.5

Table 9: (Cont.) Psychological status of students

Psychological conditions		Number	Percentage
Stress-causing negative life events	No stress-causing events	17	4.9
	1-5 stress-causing events	266	77.1
	6-10 stress-causing events	59	17.1
	11-15 stress-causing events	3	0.9
	16-20 stress-causing events	0	0
Stress types	No stress-causing events	17	4.9
	Family-problem stress	50	14.5
	Personal problem stress	31	9.0
	Both family and personal problems	247	71.6

4.1.7 Situation of betel nut use among students

The analysis of the data on the actual use of betel nut reveals that 32.8 % of the students have never used betel nut so far in life. 67.2 % have used it at least once in their life time so far. This group is further divided into current and ex-users. Twenty-eight students (8.1 %) have used betel nut but quitted the habit for more than a year which left 204 students (59.1 %) as current betel nut chewers. If we exclude all those who are not chewing betel nut at the time of data collection, then the percentage of students who chew betel nut at that point is 35.4 (122 students). The pie chart in Figure 8 provides the picture of the situation:

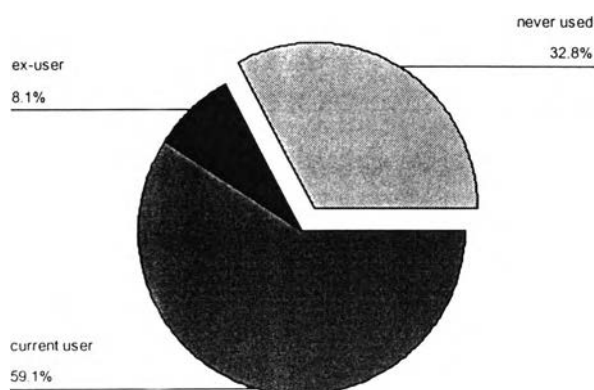


Figure 8: Betel nut use among the students

Among the 232 students who use or have used betel nut, 9.1 % have been introduced to the habit at the age of 7 years or less. From the analysis it is also known that 14.2 % got introduced to betel chewing between the ages of 10 or 11 years and most of them (28 % each) were introduced to the habit between the age range of 12-13 and 14-15. Very few of them started the habit at 18 years or older.

Among the betel nut users, 40.1 % use it only on rare occasions; 14.2 % on special occasions like religious ceremonies, New Year celebrations, etc.; 44.4 % chew betel nut regularly although not daily and 1.3 % used it daily.

The maximum number of students used betel nut when at home. Next most popular place of using it is at their friends' houses. It may be because of the restrictions at school, only 3.4 % use it at school as well. Public places like the market, other places like while going to school, and social events rank 10.3 %, 6.5 %, and 6.0 respectively.

The most favored preparation is the dried, raw betel nut (*supari*) as 33.6 % of the students preferred it. This even beats the use of traditional betel quid (*doma*, *paney*, and *tsuney*) which was favored by 32.3 % of the users. Other listed preferences were betel nut with or without lime (no leaf added) which was liked by 5.2 %, sweetened Indian quid with many ingredients called *mithra paan* liked by 9.5 %, and factory-prepared *supari* sachets favored by 12.9 %. Fifteen students (6.4 %) did not have any particular preference. Except for the traditional betel quid and the *mithra paan* which makes the saliva and the mouth red, the chewers of the other preparations are not obvious.

Among the betel-using 232 students, 26.7 % never made an effort to stop the habit, 20.7% made efforts to stop but relapsed, and 52.6% (122) have made efforts and actually stopped the habit. However, those who have stopped only for less than a year were not treated as ‘ex-users’ because health authorities in Bhutan believe that betel nut habit is peculiar and one cannot be sure of relapses within one year. Besides the instrument also takes into consideration the period of one year, with questions like, “During the past one year, how often did you chew *doma* (betel nut)?” Hence if somebody has chewed betel nut during the year, he is considered a user even if he has stopped for 1-3 months and 4-11 months. Only those who have stopped the habit for more than a year are considered “ex-users”.

Of the 122 students who have made an effort to stop the habit, 59 % have just passed 1-3 months without chewing, 18 % have made it past that period to 11 months, 13.1 % of them have not used it for more than one year. Six students (4.9 %) have stopped the habit for more than two years and the same number has made it past the third year.

Table 10 provides a summary of the betel nut chewing situation.

Table 10: Practice of betel nut use by students

	Use of betel nut	Number	Percentage
Betel nut use among the total 345 students	Never used betel nut in life so far	113	32.8
	Current user (<i>during recall 1 year</i>)	204	59.1
	Ex-user (<i>stopped for more than 1 year</i>)	28	8.1
	Users at data collection (<i>all those who have stopped for more than 3 months</i>)	122	35.4
Among the current and ex-betel users (N=232), the age of starting the habit.	Less than 7 years	21	9.1
	8 or 9 years old	19	8.2
	10 or 11 years old	33	14.2
	12 or 13 years old	65	28.0
	14 or 15 years old	65	28.0
	16 or 17 years old	27	11.6
	18 years or older	2	0.9

Table 10: (Cont.) Practice of betel nut use by students

	Use of betel nut	Number	Percentage
Among the same users (N=232), the frequency of betel nut use.	Rare occasions	93	40.1
	Special occasions	33	14.2
	Regular but not daily	103	44.4
	Daily	3	1.3
Among the same users (N=232), the usual place of betel nut use.	Home	141	60.8
	School	8	3.4
	Friends' house	30	12.9
	Social events	14	6.0
	Public places	24	10.3
	Others	15	6.5
Type of betel nut preparation mainly preferred by the same group (N=232).	No particular preference	15	6.4
	Traditional <i>doma, paney, tshuney</i>	75	32.3
	Betel nut with or without lime	12	5.2
	<i>Mithra paan</i>	22	9.5
	Dry <i>supari</i>	78	33.6
	Ready-made <i>supari</i>	30	12.9
Among the users and ex-users (N=232), efforts to stop betel-chewing habit	Never made any effort to stop	62	26.7
	Effort made and stopped	122	52.6
	Stopped but relapsed	48	20.7
The duration of betel nut use cessation among those who have ceased to use betel nut (N=122).	Stopped for 1-3 months	72	59.0
	Stopped for 4-11 months	22	18.0
	Stopped for more than 1 year (ex-user)	16	13.1
	Stopped for more than 2 years (ex-user)	6	4.9
	Stopped for more than 3 years (ex-user)	6	4.9

4.1.8 Immediate motives for the use of betel nut

Table 11 summarizes the findings on the immediate motives of chewing betel nut. As this was a skip-question, only betel nut users (N=232) have completed the questionnaire. As may be seen, the level of motive confines to “no motive” and “low motives”. In fact, none of the students have reached the highest range (46-60 scores).

The most popular motives appear to be those under boredom-relief with 169 (72.8 %) students scoring positively. Social motives such as fitting with other people, being sociable, enjoying parties and social get-togethers rank second 144 students (62.1%) scoring positively. Third in the rank were the affect-regulation motives with 135 students (58.2 %) positive scorers. Self-enhancement motives rank the last with 126 (54.3 %) students scoring positively.

Table 11: Immediate motives of betel nut users (N=232)

Motive Types	Scores	Number	Percentage	Rank
Social motives	No motive (4 scores or less)	88	37.9	2
	Low (5-8 scores)	131	56.0	
	Medium (9-12 scores)	12	5.2	
	High (13-16 scores)	1	0.4	
	Total positive scores	144	62.1	
Self-enhancement motives	No motive (4 scores or less)	106	45.7	4
	Low (5-8 scores)	107	46.1	
	Medium (9-12 scores)	16	6.9	
	High (13-16 scores)	3	1.3	
	Total positive scores	126	54.3	
Boredom-relief motives	No motive (2 scores or less)	63	27.2	1
	Low (3-4 scores)	94	40.5	
	Medium (5-6 scores)	57	24.6	
	High (7-8 scores)	18	7.8	
	Total positive scores	169	72.8	
Affect-regulation motives	No motive (5 scores or less)	97	41.8	3
	Low (6-10 scores)	106	45.7	
	Medium (11-15 scores)	26	11.2	
	High (16-20 scores)	3	1.3	
	Total positive scores	135	58.2	
Total motive	No motive (15 scores or less)	23	9.9	
	Low (16-30 scores)			
	Medium (31-45 scores)	190	81.9	
	High (46-60 scores)	19	8.2	
		0	0	

4.2 Bivariate Analyses

4.2.1 Association between grade of students and betel nut use

On the whole, the use of betel nut rises around grade 8 and peaks at grade 9. Then it stabilizes at grade 10 and then falls off in grade 11. Betel nut use is significantly different among various grades with a p-value of 0.001. Further, it can also be seen from the Table 12 that the percentage of current users and ex-users is much higher than non-users in grades 7 and 8. In grade 9 this is reversed with non-chewers more than the other two. And in grade 10 and 11 we again see the percentage of current users and ex-users on the top.

Table 12: Association between grade and betel nut use

Betel nut use	Grades					Total n (%)	Chi-square	p-value
	7 n (%)	8 n (%)	9 n (%)	10 n (%)	11 n (%)			
Current	34 (16.7)	36 (17.6)	57 (27.9)	57 (27.9)	20 (9.8)	204 (100)	25.315	0.001
Ex-user	1 (3.6)	5 (17.9)	10 (35.7)	6 (21.4)	6 (21.4)	28 (100)		
Never	10 (8.8)	9 (8.0)	57 (50.4)	28 (24.8)	9 (8.0)	113 (100)		

4.2.2 Association between gender and betel nut use

As can be seen from Figure 9, the number of male and female students who have never used betel nut is almost equal but the number of females is more than males in the current users and ex-users. This is further shown in Table 13 which gives a significant p-value of 0.05.

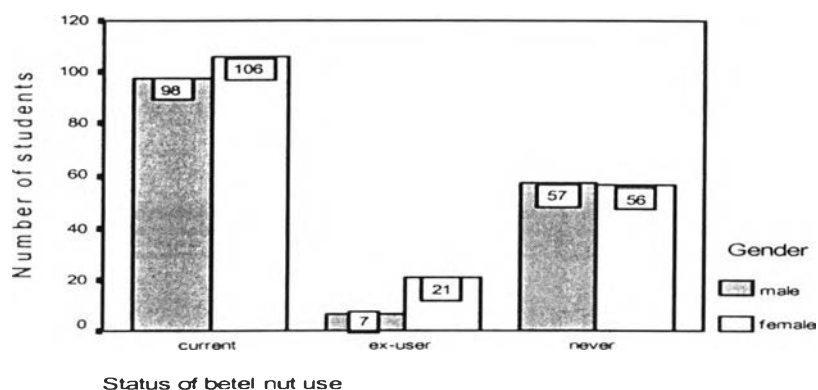


Figure 9: Gender and the status of betel nut use

Table 13: Association between gender and betel nut use

Betel nut use	Gender		Total n(%)	Chi- square	p-value
	Male n(%)	Female n(%)			
Current user	98 (48.0)	106 (52.0)	204 (100)	6.1	0.048
Ex-user	7 (25.0)	21 (75.0)	28 (100)		
Never used	57 (50.4)	56 (49.6)	113 (100)		

4.2.3 Association between gender and place of chewing betel nut

There is also a significance difference in the usual place for betel nut chewing between males and females as can be seen from Figure 10. Girls (59.6%) prefer to use betel nut at home more than boys (40.4%). Girls also tend to use it at friends' house and school more than boys do. On the other hand, boys tend to prefer to use betel nut more than girls at social events, public places and other places such as on the way to school.

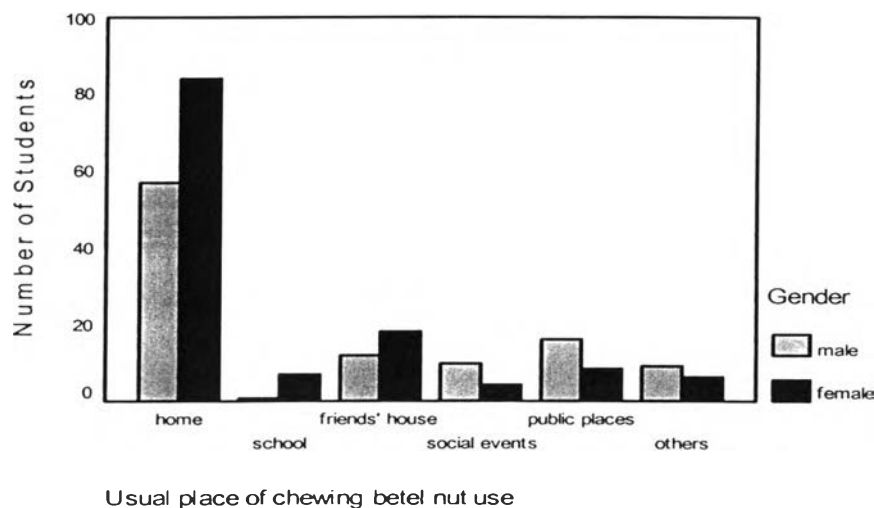


Figure 10: Betel nut users and the usual place of betel nut use

Cross tabulation for the difference between boys and girls and their usual place of betel nut use gave a p-value of 0.017 as indicated in Table 14 below.

Table 14: Association between gender and usual place of betel nut use

Usual place of betel nut use	Gender		Total n(%)	Chi-square	p-value
	Male n(%)	Female n(%)			
Home	57 (40.4)	84 (59.6)	141 (100)	15.496	0.017
School	1 (12.5)	7 (87.5)	8 (100)		
Friends' house	12 (40.0)	18 (60.0)	30 (100)		
Social events	10 (71.4)	4 (28.6)	14 (100)		
Public places	16 (66.7)	8 (33.3)	24 (100)		
Others	9 (60.0)	6 (40)	15 (100)		
Never used	57 (50.4)	56 (49.6)	113 (100)		

4.2.4 Association between betel nut-chewing environment (role models around the child) and the use of betel nut

The use of betel nut by the students is significantly related to the role models around them. The use of betel nut by parents, older brother or sister, male friends, female friends, and teachers were given one score each which gave total score of 5 in all. The

analysis shows that there is a steady increase in the percentage of betel nut users among students giving a p-value of 0.000 as indicated in Table 15.

Table 15: Association between betel nut-chewing environment (role models around the child) and the use of betel nut

Role models forming betel nut using environment	<u>Betel nut use</u>		Total n(%)	Chi- square	p-value
	Yes n(%)	No n(%)			
No role model	6 (33.3)	12 (66.7)	18 (100)	39.5	0.000
One role model	18 (47.4)	20 (52.6)	38 (100)		
Two role models	39 (54.9)	32 (45.1)	71 (100)		
Three role models	74 (68.5)	34 (31.5)	108 (100)		
Four role models	66 (85.7)	11 (14.3)	77 (100)		
Five role models	29 (87.9)	4 (12.1)	33 (100)		

4.2.5 Association between tobacco and betel nut use

Although the actual number of tobacco users (chewing and/or smoking) is only 33, the analysis revealed a clear association between these two variables with a p-value of 0.01. Further if we observe the data carefully in Table 16 and observe the graph (Figure 11) following it, we can notice that among smoking, there some students who are not betel nut chewers. But all tobacco chewers and those who both chew and smoke tobacco are betel chewers showing that chewing tobacco and chewing betel nut have strong associations.

Table 16: Association between tobacco and betel nut use

Use of Tobacco	<u>Betel nut use</u>		Total n(%)	Chi- square	p-value
	Yes n(%)	No n(%)			
Not using	202 (64.7)	110 (35.3)	312 (100)	11.2	0.01
Chewing tobacco	15 (100)	0 (0.00)	15 (100)		
Smoking tobacco	10 (76.9)	3 (23.1)	13 (100)		
Smoking and chewing	5 (100)	0 (00.0)	5 (100)		

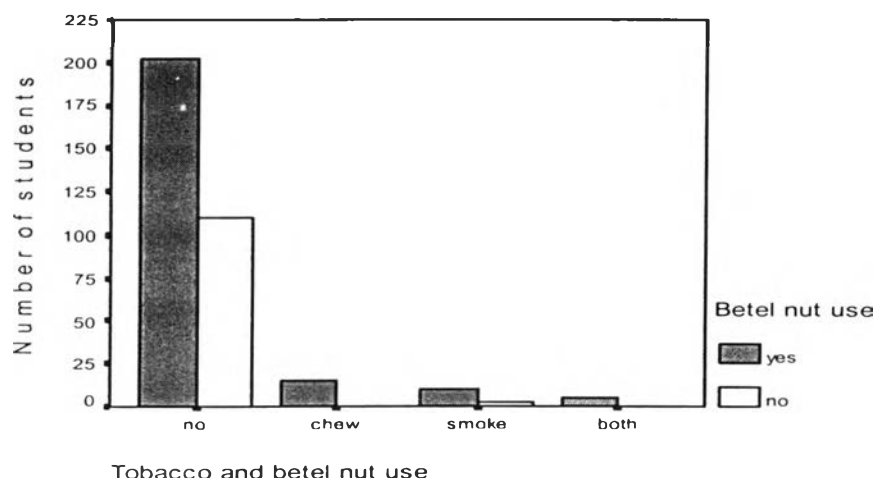


Figure 11: Tobacco and betel nut use among the sample students

4.2.6 Association between gender and the preference of betel nut preparations

As there was a significant difference with a p-value 0.048 between genders in the use of betel nut, data were analyzed to see if there is also a significant difference in their preference for certain types of betel nut preparations. While more males preferred traditional quid (betel nut, piper leaf, and lime), betel nut alone with or without lime, and the sweetened Indian *Mithra Paan* prepared by small shops, more females tend to like dry *supari* (chopped and dried betel nuts) and also the ready-made *supari* sachets prepared large scale by factories from India. The difference in preference is significant with a p-value of 0.008. Table 17 shows the information in detail.

Table 17: Association between gender and the preference of betel nut preparations

Type of betel preparation preferred	Gender		Total n(%)	Chi-square	P-value
	Male n(%)	Female n(%)			
Not using	57 (50.4)	56 (49.6)	113 (100)		
No brand	1 (6.7)	14 (93.3)	15 (100)		
Traditional quid	41 (54.7)	34 (45.3)	75 (100)	19.14	0.008
Betel alone or with lime	8 (66.7)	4 (33.3)	12 (100)		
<i>Mithra paan</i>	13 (59.1)	9 (40.9)	22 (100)		
Dry <i>supari</i>	28 (35.9)	50 (64.1)	78 (100)		
Ready-made <i>supari</i> sachets	14 (46.7)	16 (53.3)	30 (100)		

4.2.7 Association between grade and the level of negative affect

Chi square tests showed that there is significant difference in the level of negative affect among the grades with a p-value of 0.004. As grades represented age, a regression analysis was done for the level of negative affect against age and this too proved that negative affect significantly varied among various ages with a p-value of 0.001. Figure 12 below shows that negative affect rose steadily from grade 7 onwards and peaked at grade 10. By grade 11 it has again come down. Further, the percentage of individual students scoring the highest score (43-48 scores) for negative affect is only seen in grade 10.

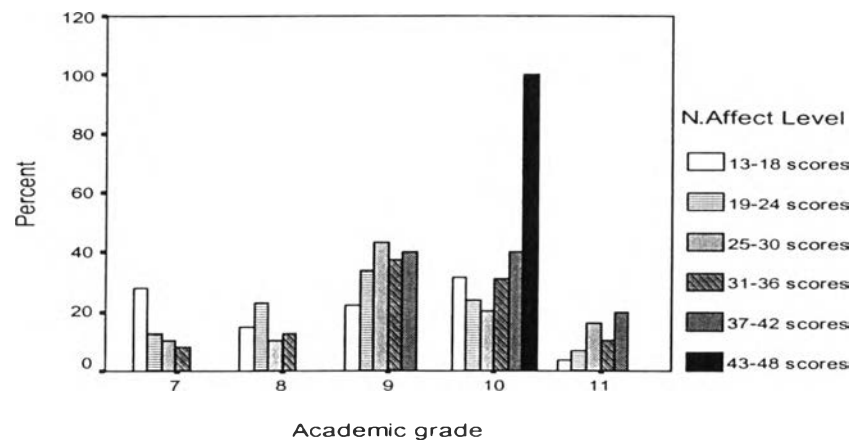


Figure 12: Level of negative affect in different grades

4.2.8 Association between the number of stressors and the English education status in parents.

It was also observed that there is a significant association between the number of stressors for the students and whether or not their parents are English educated as may be seen from Table 18 below. To confirm this fact a T-test was run for non-grouped number of stressors (continuous) and English education status of the parents. This too revealed significant difference with a p-value of 0.024.

Table 18: Association between stress score of students and English education status of parents and guardians

Score of Stressors	English Education of Parents/ Guardians		Total n(%)	Chi-square	P-value
	Yes n(%)	No n(%)			
No stressors	8 (47.1)	9 (52.9)	17 (100)		
1-5	159 (59.8)	107 (40.2)	266 (100)	9.314	0.025
6-10	26 (44.1)	33 (55.9)	59 (100)		
11-15	0 (0)	3 (100)	3 (100)		

Figure 13 shows that smaller number of stressors (1-5 scores) is more among students with English-educated parents but higher number of stressors (6-10 scores and 11-15 scores) are more among students of parents who are not English-educated. But on the whole, the amount of overall stress is quite low as the highest possible stress category was 16-20 which no one has scored.

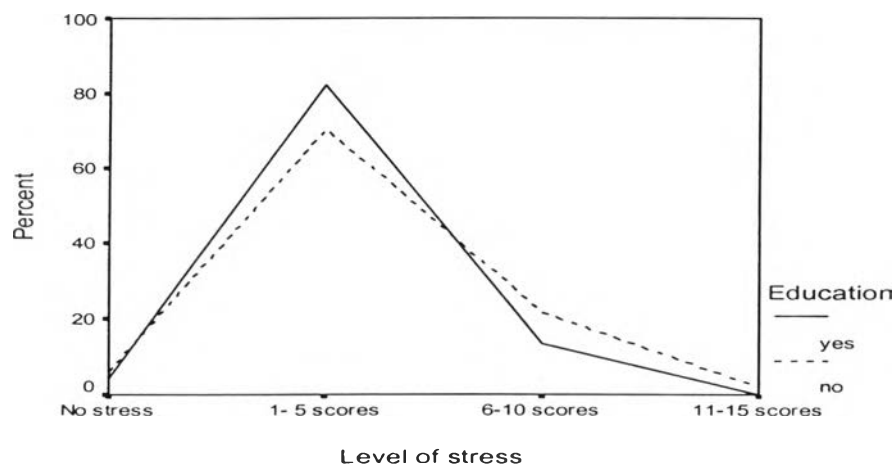


Figure 13: Students' Stress level and parents' English education status

4.2 Multivariable Analyses

Table 19 below shows the result of a binary logistic regression analysis of five significant factors that affect betel nut chewing in the students. As can be seen from the table, students with parents in the habit of chewing betel nut were at higher odds (odds

ratio 1.661) of chewing betel nuts than those students whose parents were not using. Similarly students with their older brothers and sisters chewing betel nut were also at higher odds of chewing betel nut with an odds ratio of 2.429 when compared to students whose did not have older brothers and sisters or whose older brothers and sisters were not in the habit of chewing betel nut. When compared to students whose close male friends were not in the habit of chewing betel nut, the students with close male friends chewing betel nut were at higher odds of doing the same thing with an odds ratio of 2.232. Students with close female friends in the habit of chewing betel nut are more likely to use betel nut (odds ratio 1.847) than those whole close female friends are not in the habit. Likewise, those students who were in the habit of using tobacco are more likely (odds ratio 3.444) to chew betel nut than those who do not use tobacco.

Table 19: Binary Logistic Regression Analysis of the important factors that contribute to the use of betel nut by the students.

Factors contributing to betel nut use in students	Modeled Coefficient (B)	p-value	Modeled Odds Ratio for chewing betel nut (Exp B)
Parental influence	0.507	0.063	1.661
Older brother sister's influence	0.887	0.004	2.429
Male friend's influence	0.803	0.002	2.232
Female friend's influence	0.614	0.021	1.847
Tobacco	1.236	0.052	3.444

Although the difference in gender exhibited differences in the use of betel nut (p-value 0.05) during bi-variable analysis, gender was found not a significant factor during the multi-variable analysis (p-value 0.32). Among the influences from role models, teachers' role ceases to be of significance here (p-value 0.717) and even the influence of parents is on the borderline (p-value 0.063).