

Supplement Table 1 The association between MetS, other factors and prevalence of oral potentially malignant disorders

	OR	95% CI	aOR	95% CI
Metabolic syndrome				
Yes vs No	1.61	1.28 2.02	1.44	1.14 1.82
Sex				
Male vs Female	7.32	4.65 11.53	2.50	1.50 4.16
Age groups (vs 70+)				
30-39	0.83	0.39 1.77	0.87	0.39 1.92
40-49	1.69	1.02 2.77	1.33	0.79 2.25
50-59	2.52	1.58 4.04	2.23	1.38 3.62
60-69	1.83	1.11 3.01	1.73	1.04 2.86
Betel nut chewing (vs Never)				
Quit*	3.33	2.53 4.37	1.40	1.04 1.90
Current	5.71	4.34 7.52	2.00	1.47 2.74
Cigarette smoking (vs Never)				
Quit*	4.72	3.23 6.91	2.66	1.72 4.12
Current	8.89	6.48 12.19	4.74	3.25 6.92
Alcohol drinking (vs Never)				
Quit*	2.49	1.95 3.16	0.98	0.59 1.63
Current	2.62	1.62 4.24	1.01	0.77 1.32
Meat (vs Seldom)				
Infrequent	1.28	0.98 1.67	1.00	0.76 1.32
Frequent	2.85	1.83 4.45	1.67	1.06 2.63
Vegetable (vs Seldom)				
Infrequent	0.82	0.63 1.07	0.88	0.68 1.16
Frequent	0.48	0.15 1.52	0.53	0.17 1.71
Fruit (vs Seldom)				
Infrequent	0.71	0.49 1.02	1.00	0.68 1.46
Frequent	0.54	0.38 0.78	1.02	0.69 1.50
Education level (vs Junior high school or lower)				
Senior high school	1.00	0.77 1.29	1.06	0.80 1.41
University	0.54	0.36 0.82	0.84	0.55 1.30

aOR: adjusted odds ratio; **CI:** confidence interval; ***Quit:** quit betel quid chewing, quit smoking or quit alcohol drinking defined as those who once participated in these oral habits but no longer participate in these habits on the day of interview.

Supplement Table 2 The association between Component of MetS, other factors and oral potentially malignant disorders (MetS → OPMD)

	RR	95% CI		aRR	95% CI	
Component of metabolic syndrome						
Central obesity	1.36	1.17	1.58	1.22	1.04	1.44
Hypertriglyceridaemia	1.78	1.53	2.07	1.26	1.07	1.49
Low HDL-C	1.26	1.08	1.47	1.12	0.95	1.32
Elevated blood pressure	1.00	0.86	1.17	0.93	0.79	1.09
Hyperglycaemia	1.21	1.04	1.42	1.20	1.02	1.41
Sex						
Male vs Female	7.14	3.94	12.94	3.57	1.94	6.59
Age groups (vs 70+)						
30-39	2.89	1.85	4.52	2.19	1.34	3.56
40-49	3.53	2.43	5.12	2.65	1.78	3.94
50-59	3.63	2.52	5.24	3.12	2.13	4.58
60-69	2.85	1.95	4.16	2.56	1.73	3.79
Betel nut chewing (vs Never)						
Quit*	3.03	2.54	3.63	1.94	1.57	2.40
Current	4.92	4.10	5.89	2.59	2.08	3.22
Cigarette smoking (vs Never)						
Quit*	2.32	1.78	3.03	1.32	0.96	1.79
Current	4.90	3.94	6.09	2.42	1.86	3.14
Alcohol drinking (vs Never)						
Quit*	2.18	1.62	2.92	1.24	0.90	1.70
Current	1.95	1.65	2.30	1.03	0.86	1.24
Meat (vs Seldom)						
Infrequent	1.13	0.95	1.35	0.94	0.79	1.13
Frequent	1.77	1.30	2.41	1.22	0.90	1.67
Vegetable (vs Seldom)						
Infrequent	0.83	0.70	0.99	0.93	0.78	1.12
Frequent	0.36	0.15	0.87	0.48	0.20	1.14
Fruit (vs Seldom)						
Infrequent	0.74	0.59	0.93	0.91	0.72	1.15
Frequent	0.51	0.40	0.64	0.77	0.60	0.98
Education level (vs Junior high school or lower)						
Senior high school	1.00	0.84	1.19	0.98	0.81	1.19
University	0.60	0.45	0.81	0.84	0.62	1.14

aRR: adjusted rate ratio; **CI**: confidence interval; ***Quit**: quit betel quid chewing, quit smoking or quit alcohol drinking defined as those who once participated in these oral habits but no longer participate in these habits on the day of interview.

Supplement Table 3 The association between MetS score, other factors and oral potentially malignant disorders (MetS → OPMD)

	RR	95% CI		aRR	95% CI	
Metabolic syndrome						
Score	1.18	1.12	1.24	1.14	1.08	1.20
Sex						
Male vs Female	7.14	3.94	12.94	3.51	1.90	6.47
Age groups (vs 70+)						
30-39	2.89	1.85	4.52	2.18	1.36	3.50
40-49	3.53	2.43	5.12	2.64	1.80	3.87
50-59	3.63	2.52	5.24	3.09	2.13	4.48
60-69	2.85	1.95	4.16	2.53	1.73	3.70
Betel nut chewing (vs Never)						
Quit*	3.03	2.54	3.63	1.98	1.61	2.44
Current	4.92	4.10	5.89	2.63	2.12	3.27
Cigarette smoking (vs Never)						
Quit*	2.32	1.78	3.03	1.31	0.96	1.79
Current	4.90	3.94	6.09	2.48	1.91	3.22
Alcohol drinking (vs Never)						
Quit*	2.18	1.62	2.92	1.23	0.90	1.68
Current	1.95	1.65	2.30	1.03	0.86	1.23
Meat (vs Seldom)						
Infrequent	1.13	0.95	1.35	0.95	0.79	1.14
Frequent	1.77	1.30	2.41	1.23	0.90	1.68
Vegetable (vs Seldom)						
Infrequent	0.83	0.70	0.99	0.92	0.77	1.10
Frequent	0.36	0.15	0.87	0.46	0.19	1.11
Fruit (vs Seldom)						
Infrequent	0.74	0.59	0.93	0.92	0.73	1.15
Frequent	0.51	0.40	0.64	0.79	0.62	1.01
Education level (vs Junior high school or lower)						
Senior high school	1.00	0.84	1.19	0.97	0.81	1.17
University	0.60	0.45	0.81	0.84	0.62	1.14

aRR: adjusted rate ratio; **CI**: confidence interval; ***Quit**: quit betel quid chewing, quit smoking or quit alcohol drinking defined as those who once participated in these oral habits but no longer participate in these habits on the day of interview.

Supplement Table 4 The association between MetS, other factors and oral submucous fibrosis (MetS → OSF)

	RR	95% CI	aRR	95% CI
Metabolic syndrome				
Yen vs No	1.35	0.96 1.90	1.22	0.87 1.71
Sex				
Male vs Female	8.16	2.02 32.94	3.34	0.78 14.26
Age groups (vs 70+)				
30-39	2.88	1.23 6.73	2.61	1.04 6.54
40-49	2.60	1.26 5.34	2.08	0.97 4.47
50-59	2.22	1.08 4.56	1.99	0.96 4.13
60-69	2.25	1.08 4.69	2.07	0.99 4.33
Betel nut chewing (vs Never)				
Quit*	5.31	3.49 8.06	3.71	2.23 6.16
Current	7.82	5.07 12.05	4.77	2.87 7.92
Cigarette smoking (vs Never)				
Quit*	3.58	2.03 6.34	1.60	0.77 3.32
Current	5.10	3.07 8.47	1.96	1.04 3.66
Alcohol drinking (vs Never)				
Quit*	1.78	0.90 3.53	0.72	0.35 1.47
Current	1.80	1.25 2.59	0.83	0.56 1.23
Meat (vs Seldom)				
Infrequent	1.03	0.69 1.52	0.84	0.56 1.24
Frequent	2.65	1.47 4.77	1.71	0.94 3.11
Fruit (vs Seldom)				
Infrequent	0.92	0.54 1.56	1.11	0.65 1.91
Frequent	0.55	0.32 0.95	0.87	0.50 1.51
Education level (vs Junior high school or lower)				
Senior high school	1.11	0.76 1.61	1.07	0.70 1.62
University	0.23	0.08 0.62	0.33	0.12 0.94

aRR: adjusted rate ratio; **CI**: confidence interval ***Quit**: quit betel quid chewing, quit smoking or quit alcohol drinking defined as those who once participated in these oral habits but no longer participate in these habits on the day of interview.

Supplement Table 5 The association between Component of MetS, other factors and oral submucous fibrosis (MetS → OSF)

	RR	95% CI	aRR	95% CI
Component of metabolic syndrome				
Central obesity	1.21	0.87 1.70	1.06	0.74 1.52
Hypertriglyceridaemia	1.67	1.19 2.34	1.21	0.83 1.76
Low HDL-C	1.06	0.74 1.50	0.94	0.64 1.38
Elevated blood pressure	1.04	0.74 1.47	0.95	0.66 1.37
Hyperglycaemia	1.37	0.97 1.92	1.43	0.99 2.05
Sex				
Male vs Female	8.16	2.02 32.94	3.27	0.77 13.93
Age groups (vs 70+)				
30-39	2.88	1.23 6.73	2.60	1.02 6.63
40-49	2.60	1.26 5.34	2.05	0.95 4.43
50-59	2.22	1.08 4.56	1.89	0.91 3.91
60-69	2.25	1.08 4.69	2.03	0.97 4.26
Betel nut chewing (vs Never)				
Quit*	5.31	3.49 8.06	3.77	2.26 6.31
Current	7.82	5.07 12.05	4.88	2.92 8.14
Cigarette smoking (vs Never)				
Quit*	3.58	2.03 6.34	1.59	0.77 3.29
Current	5.10	3.07 8.47	1.91	1.02 3.59
Alcohol drinking (vs Never)				
Quit*	1.78	0.90 3.53	0.73	0.36 1.50
Current	1.80	1.25 2.59	0.84	0.56 1.25
Meat (vs Seldom)				
Infrequent	1.03	0.69 1.52	0.82	0.55 1.21
Frequent	2.65	1.47 4.77	1.67	0.91 3.09
Fruit (vs Seldom)				
Infrequent	0.92	0.54 1.56	1.12	0.65 1.92
Frequent	0.55	0.32 0.95	0.85	0.49 1.48
Education level (vs Junior high school or lower)				
Senior high school	1.11	0.76 1.61	1.09	0.71 1.66
University	0.23	0.08 0.62	0.34	0.12 0.95

aRR: adjusted rate ratio; **CI**: confidence interval; ***Quit**: quit betel quid chewing, quit smoking or quit alcohol drinking defined as those who once participated in these oral habits but no longer participate in these habits on the day of interview.

Supplement Table 6 The association between MetS score, other factors and oral submucous fibrosis (MetS → OSF)

	RR	95% CI	aRR	95% CI
Metabolic syndrome				
Score	1.15	1.03 1.30	1.10	0.98 1.24
Sex				
Male vs Female	8.16	2.02 32.94	3.37	0.79 14.38
Age groups (vs 70+)				
30-39	2.88	1.23 6.73	2.63	1.05 6.62
40-49	2.60	1.26 5.34	2.10	0.98 4.50
50-59	2.22	1.08 4.56	1.99	0.96 4.12
60-69	2.25	1.08 4.69	2.07	0.99 4.33
Betel nut chewing (vs Never)				
Quit*	5.31	3.49 8.06	3.68	2.21 6.11
Current	7.82	5.07 12.05	4.70	2.83 7.80
Cigarette smoking (vs Never)				
Quit*	3.58	2.03 6.34	1.60	0.77 3.33
Current	5.10	3.07 8.47	1.96	1.05 3.67
Alcohol drinking (vs Never)				
Quit*	1.78	0.90 3.53	0.72	0.35 1.47
Current	1.80	1.25 2.59	0.83	0.56 1.23
Meat (vs Seldom)				
Infrequent	1.03	0.69 1.52	0.84	0.57 1.24
Frequent	2.65	1.47 4.77	1.71	0.94 3.11
Fruit (vs Seldom)				
Infrequent	0.92	0.54 1.56	1.12	0.65 1.92
Frequent	0.55	0.32 0.95	0.87	0.50 1.51
Education level (vs Junior high school or lower)				
Senior high school	1.11	0.76 1.61	1.07	0.70 1.63
University	0.23	0.08 0.62	0.33	0.12 0.94

aRR: adjusted rate ratio; **CI**: confidence interval; ***Quit**: quit betel quid chewing, quit smoking or quit alcohol drinking defined as those who once participated in these oral habits but no longer participate in these habits on the day of interview.

Supplement Table 7 The association between MetS, other factors and Leukoplakia (MetS → Leukoplakia)

	RR	95% CI	aRR	95% CI
Metabolic syndrome				
Yen vs No	1.45	1.22 1.73	1.37	1.14 1.64
Sex				
Male vs Female	6.48	3.36 12.52	3.29	1.67 6.48
Age groups (vs 70+)				
30-39	2.92	1.63 5.22	2.08	1.13 3.81
40-49	4.38	2.72 7.05	3.20	1.97 5.18
50-59	4.86	3.04 7.78	4.09	2.55 6.57
60-69	3.51	2.16 5.71	3.13	1.92 5.09
Betel nut chewing (vs Never)				
Quit*	2.70	2.20 3.33	1.81	1.42 2.30
Current	4.45	3.61 5.49	2.42	1.88 3.12
Cigarette smoking (vs Never)				
Quit*	2.04	1.49 2.80	1.22	0.86 1.74
Current	4.88	3.80 6.27	2.66	1.98 3.58
Alcohol drinking (vs Never)				
Quit*	2.29	1.63 3.20	1.36	0.95 1.96
Current	1.95	1.61 2.36	1.06	0.86 1.31
Meat (vs Seldom)				
Infrequent	1.12	0.91 1.37	0.93	0.76 1.15
Frequent	1.47	1.00 2.16	1.01	0.68 1.51
Vegetable (vs Seldom)				
Infrequent	0.84	0.69 1.03	0.93	0.75 1.14
Frequent	0.49	0.20 1.19	0.60	0.25 1.45
Fruit (vs Seldom)				
Infrequent	0.68	0.53 0.89	0.85	0.65 1.11
Frequent	0.51	0.39 0.66	0.78	0.59 1.03
Education level (vs Junior high school or lower)				
Senior high school	0.99	0.80 1.22	0.98	0.78 1.22
University	0.74	0.55 1.01	1.03	0.74 1.43

aRR: adjusted rate ratio; **CI**: confidence interval; ***Quit**: quit betel quid chewing, quit smoking or quit alcohol drinking defined as those who once participated in these oral habits but no longer participate in these habits on the day of interview.

Supplement Table 8 The association between Component of MetS, other factors and Leukoplakia (MetS → Leukoplakia)

	RR	95% CI	aRR	95% CI
Component of metabolic syndrome				
Central obesity	1.43	1.20 1.70	1.30	1.07 1.57
Hypertriglyceridaemia	1.85	1.56 2.21	1.29	1.06 1.57
Low HDL-C	1.34	1.12 1.60	1.17	0.97 1.42
Elevated blood pressure	0.99	0.83 1.18	0.90	0.75 1.09
Hyperglycaemia	1.20	1.00 1.44	1.16	0.96 1.41
Sex				
Male vs Female	6.48	3.36 12.52	3.43	1.74 6.75
Age groups (vs 70+)				
30-39	2.92	1.63 5.22	2.15	1.14 4.06
40-49	4.38	2.72 7.05	3.34	2.00 5.57
50-59	4.86	3.04 7.78	4.30	2.61 7.08
60-69	3.51	2.16 5.71	3.29	1.97 5.49
Betel nut chewing (vs Never)				
Quit*	2.70	2.20 3.33	1.73	1.36 2.20
Current	4.45	3.61 5.49	2.31	1.79 2.98
Cigarette smoking (vs Never)				
Quit*	2.04	1.49 2.80	1.23	0.86 1.75
Current	4.88	3.80 6.27	2.60	1.93 3.50
Alcohol drinking (vs Never)				
Quit*	2.29	1.63 3.20	1.37	0.95 1.98
Current	1.95	1.61 2.36	1.06	0.86 1.32
Meat (vs Seldom)				
Infrequent	1.12	0.91 1.37	0.94	0.76 1.16
Frequent	1.47	1.00 2.16	1.02	0.68 1.51
Vegetable (vs Seldom)				
Infrequent	0.84	0.69 1.03	0.92	0.75 1.14
Frequent	0.49	0.20 1.19	0.60	0.25 1.45
Fruit (vs Seldom)				
Infrequent	0.68	0.53 0.89	0.85	0.65 1.11
Frequent	0.51	0.39 0.66	0.78	0.59 1.03
Education level (vs Junior high school or lower)				
Senior high school	0.99	0.80 1.22	0.98	0.78 1.22
University	0.74	0.55 1.01	1.04	0.75 1.44

aRR: adjusted rate ratio; **CI**: confidence interval; ***Quit**: quit betel quid chewing, quit smoking or quit alcohol drinking defined as those who once participated in these oral habits but no longer participate in these habits on the day of interview.

Supplement Table 9 The association between MetS score, other factors and Leukoplakia (MetS → Leukoplakia)

	RR	95%CI	aRR	95%CI
Metabolic syndrome				
Score	1.20	1.13 1.27	1.16	1.09 1.24
Sex				
Male vs Female	6.48	3.36 12.52	3.31	1.68 6.51
Age groups (vs 70+)				
30-39	2.92	1.63 5.22	2.09	1.14 3.84
40-49	4.38	2.72 7.05	3.22	1.99 5.22
50-59	4.86	3.04 7.78	4.08	2.54 6.54
60-69	3.51	2.16 5.71	3.12	1.92 5.08
Betel nut chewing (vs Never)				
Quit*	2.70	2.20 3.33	1.79	1.40 2.27
Current	4.45	3.61 5.49	2.37	1.84 3.05
Cigarette smoking (vs Never)				
Quit*	2.04	1.49 2.80	1.22	0.86 1.74
Current	4.88	3.80 6.27	2.68	1.99 3.60
Alcohol drinking (vs Never)				
Quit*	2.29	1.63 3.20	1.37	0.95 1.97
Current	1.95	1.61 2.36	1.05	0.85 1.30
Meat (vs Seldom)				
Infrequent	1.12	0.91 1.37	0.94	0.76 1.16
Frequent	1.47	1.00 2.16	1.02	0.68 1.51
Vegetable (vs Seldom)				
Infrequent	0.84	0.69 1.03	0.92	0.75 1.14
Frequent	0.49	0.20 1.19	0.60	0.25 1.45
Fruit (vs Seldom)				
Infrequent	0.68	0.53 0.89	0.85	0.65 1.11
Frequent	0.51	0.39 0.66	0.78	0.59 1.03
Education level (vs Junior high school or lower)				
Senior high school	0.99	0.80 1.22	0.98	0.78 1.22
University	0.74	0.55 1.01	1.04	0.75 1.44

aRR: adjusted rate ratio; **CI**: confidence interval; ***Quit**: quit betel quid chewing, quit smoking or quit alcohol drinking defined as those who once participated in these oral habits but no longer participate in these habits on the day of interview.

Supplement Table 10 The association between MetS, other factors and Verrucous hyperplasia (MetS → Verrucous hyperplasia)

	RR	95% CI	aRR	95% CI
Metabolic syndrome				
Yen vs No	1.32	0.51 3.40	1.33	0.51 3.46
Betel nut chewing (vs Never)				
Quit*	1.92	0.64 5.71	1.24	0.40 3.82
Current	2.71	0.84 8.81	1.13	0.34 3.74
Cigarette smoking (vs Never)				
Quit*	1.91	0.12 30.49	1.72	0.09 31.37
Current	17.03	2.26 128.38	15.80	2.04 122.28

aRR: adjusted rate ratio; **CI**: confidence interval; ***Quit**: quit betel quid chewing, quit smoking or quit alcohol drinking defined as those who once participated in these oral habits but no longer participate in these habits on the day of interview.

Supplement Table 11 The association between Component of MetS, other factors and Verrucous hyperplasia (MetS → Verrucous hyperplasia)

	RR	95% CI		aRR	95% CI	
Component of metabolic syndrome						
Central obesity	1.05	0.41	2.71	1.17	0.47	2.89
Hypertriglyceridaemia	1.26	0.47	3.42	0.98	0.40	2.40
Low HDL-C	0.88	0.31	2.50	0.79	0.31	1.99
Elevated blood pressure	1.04	0.40	2.69	1.34	0.46	3.85
Hyperglycaemia	1.13	0.42	3.05	1.28	0.52	3.19
Betel nut chewing (vs Never)						
Quit*	1.92	0.64	5.71	1.22	0.39	3.80
Current	2.71	0.84	8.81	0.84	0.23	3.13
Cigarette smoking (vs Never)						
Quit*	1.91	0.12	30.49	1.72	0.09	31.29
Current	17.03	2.26	128.38	16.34	2.00	133.78

aRR: adjusted rate ratio; **CI**: confidence interval; ***Quit**: quit betel quid chewing, quit smoking or quit alcohol drinking defined as those who once participated in these oral habits but no longer participate in these habits on the day of interview.

Supplement Table 12 The association between MetS score, other factors and Verrucous hyperplasia (MetS → Verrucous hyperplasia)

	RR	95% CI	aRR	95% CI
Metabolic syndrome				
Score	1.01	0.67 1.54	1.02	0.68 1.54
Betel nut chewing (vs Never)				
Quit*	1.92	0.64 5.71	1.24	0.40 3.85
Current	2.71	0.84 8.81	1.15	0.34 3.91
Cigarette smoking (vs Never)				
Quit*	1.91	0.12 30.49	1.73	0.09 31.58
Current	17.03	2.26 128.38	15.73	2.01 122.98

aRR: adjusted rate ratio; **CI**: confidence interval; ***Quit**: quit betel quid chewing, quit smoking or quit alcohol drinking defined as those who once participated in these oral habits but no longer participate in these habits on the day of interview.

Supplement Table 13 The association between MetS, other factors and Erythroplakia + Erythroleukoplakia (MetS → Erythroplakia + Erythroleukoplakia)

	RR	95% CI	aRR	95% CI
Metabolic syndrome				
Yen vs No	1.88	0.80 4.43	1.59	0.67 3.75
Betel nut chewing (vs Never)				
Quit*	4.31	1.16 16.03	4.47	0.93 21.46
Current	18.24	5.88 56.54	17.81	4.95 64.12
Cigarette smoking (vs Never)				
Quit*	1.91	0.48 7.62	0.84	0.15 4.60
Current	3.46	1.13 10.61	0.96	0.26 3.49

aRR: adjusted rate ratio; **CI**: confidence interval; ***Quit**: quit betel quid chewing, quit smoking or quit alcohol drinking defined as those who once participated in these oral habits but no longer participate in these habits on the day of interview.

Supplement Table 14 The association between Component of MetS, other factors and Erythroplakia + Erythroleukoplakia (MetS → Erythroplakia + Erythroleukoplakia)

	RR	95% CI		aRR	95% CI	
Component of metabolic syndrome						
Central obesity	1.24	0.52	2.94	0.94	0.37	2.36
Hypertriglyceridaemia	2.10	0.89	4.95	1.39	0.54	3.58
Low HDL-C	1.30	0.54	3.13	1.18	0.47	2.97
Elevated blood pressure	1.33	0.54	3.29	1.22	0.50	3.00
Hyperglycaemia	1.03	0.42	2.56	0.99	0.37	2.64
Betel nut chewing (vs Never)						
Quit*	4.31	1.16	16.03	4.49	0.94	21.55
Current	18.24	5.88	56.54	17.86	5.10	62.54
Cigarette smoking (vs Never)						
Quit*	1.91	0.48	7.62	0.85	0.15	4.65
Current	3.46	1.13	10.61	0.91	0.24	3.50

aRR: adjusted rate ratio; **CI**: confidence interval; ***Quit**: quit betel quid chewing, quit smoking or quit alcohol drinking defined as those who once participated in these oral habits but no longer participate in these habits on the day of interview.

Supplement Table 15 The association between MetS score, other factors and Erythroplakia + Erythroleukoplakia (MetS → Erythroplakia + Erythroleukoplakia)

	RR	95% CI		aRR	95% CI	
Metabolic syndrome						
Score	1.22	0.89	1.68	1.13	0.83	1.55
Betel nut chewing (vs Never)						
Quit*	4.31	1.16	16.03	4.49	0.94	21.54
Current	18.24	5.88	56.54	17.92	4.96	64.68
Cigarette smoking (vs Never)						
Quit*	1.91	0.48	7.62	0.84	0.15	4.60
Current	3.46	1.13	10.61	0.95	0.26	3.49

aRR: adjusted rate ratio; **CI**: confidence interval; ***Quit**: quit betel quid chewing, quit smoking or quit alcohol drinking defined as those who once participated in these oral habits but no longer participate in these habits on the day of interview.