

Chapter 3

TOBACCO RELATED CANCERS

There are several anatomical sites associated with the use of tobacco (TRCs) and NCRP has been using the conservative basis which is the International Agency for Research on Cancer (IARC) monographs on overall evaluations of carcinogenicity (IARC, 1987). The list of anatomical sites of cancer (along with corresponding ICD-10 codes) considered to be associated with the use of tobacco is given in Table 3.1.

In 2004, IARC (IARC 2004) in a newer monograph states, that, there is now sufficient evidence to establish a causal association between cigarette smoking and cancers of the nasal cavities and nasal sinuses, oesophagus (Adenocarcinoma), stomach, liver, kidney (Renal Cell Carcinoma), uterine cervix and myeloid leukaemia apart from the sites in the earlier monograph (IARC,1987).

Table 3.1: Sites of Cancer included in TRCs along with corresponding ICD Codes

Site	ICD-10 Code
Lip	C00
Tongue	C01-C02
Mouth	C03-C06
Pharynx	C10 and C12-C14
Oesophagus	C15
Larynx	C32
Lung	C33-34
Urinary Bladder	C67

Table 3.2: Number (#) and Proportion (%) of Cancers associated with Use of Tobacco relative to all sites of Cancer (2004-2006)

Registry	Males			Females		
	All sites	#	%	All sites	#	%
Mumbai*	19399	8819	45.5	15313	2556	16.7
Bangalore	10293	4650	45.2	11842	2547	21.5
Chennai	12523	5357	42.8	13589	2214	16.3
Thi'puram	12563	5984	47.6	11394	1654	14.5
Dibrugarh	1782	1092	61.3	1063	310	29.2
All Registries	56560	25902	45.8	53201	9281	17.4

* Only 2004-05 data

Table 3.2 and Figure 3.1 provide the number and relative proportion of sites of cancer associated with use of tobacco as a whole relative to all sites of cancer, in different registries. The highest percentage of TRC was observed in Dibrugarh: both in males (61.3%) and in females (29.2%). In the other registries, it varied from 42.8 to 47.6% of all cancers in males and from 14.5 to 21.5% in females.

Table 3.3 and Figure 3.2 indicate the number and relative proportion according to the specific sites of TRC in different HBCRs.

Males (Relative proportion (%) of TRC is given in parentheses)

Mumbai: Mouth (28.2%), lung (17.3%) and tongue (15.3%) were the main sites that contributed to overall TRCs.

Bangalore: Hypopharynx (20.5%), Oesophagus (18.0%) and lung (15.5%) were the three leading sites among TRCs.

Chennai: Mouth (19.2%) was the leading contributor to TRCs followed by lung (18.3%) and oesophagus (16.5%).

Thiruvananthapuram: Cancer of lung accounted for 29.9% of TRCs followed by mouth (19.8%) and tongue (14.5%).

Dibrugarh: Cancer of the hypopharynx constituted 27.9% of TRCs followed by oesophagus (25.3%) and mouth (12.5%).

Females

Mumbai: Mouth (29.7%), oesophagus (20.0%) and lung (17.3%) were the leading sites among TRCs.

Bangalore: Mouth (47.1%) contributed almost half of the TRCs. Another important site was oesophagus (26.7%).

Chennai: Mouth (31.8%) accounted for most of TRCs followed by oesophagus (24.5%) and hypopharynx (14.0%).

Thiruvananthapuram: Like in Chennai, in Thiruvananthapuram also mouth (39.8%) accounted for most of TRCs followed by tongue (21.0%) and lung (15.8%).

Dibrugarh: Oesophagus (47.1%) was the leading site in TRCs followed by mouth (18.1%) and hypopharynx (15.8%).

Table 3.4 gives the number and proportion of the TRCs by five year age groups. Among males the higher proportion of TRCs was seen in 50-54 year age group in Mumbai, in 55-59 year age group in Bangalore & Thiruvananthapuram and in 60-64 year age group in Chennai & Dibrugarh. In females, the higher proportion of TRCs was seen in age groups above 60 years except in Chennai where the age group 55-59 years had higher values.

Among males, the mean age (+SD) of TRCs varied between 55.1 + 12.0 in Mumbai to 59.8 + 10.84 in Thiruvananthapuram. In females, the mean age (+SD) of TRCs varied between 54.8 + 12.4 in Mumbai to 59.5 + 12.2 in Thiruvananthapuram.

Fig. 3.1: Proportion (%) of Tobacco Related Cancers Relative to All Sites - 2004-2006

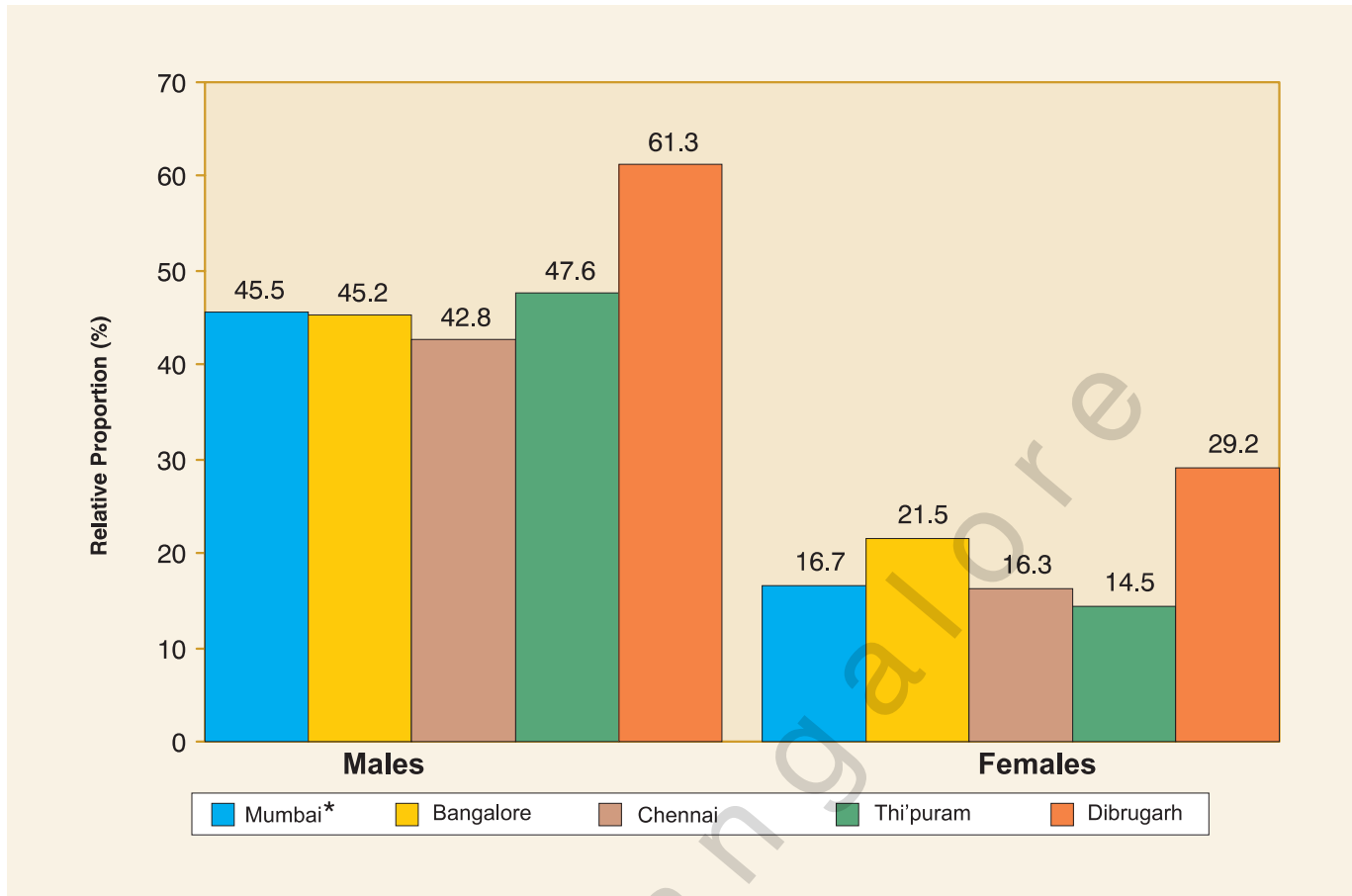


Fig. 3.2: Stack (100%) Diagram showing Proportion of Specific Tobacco Related Sites Relative to all Tobacco Related Cancers (2004-2006)

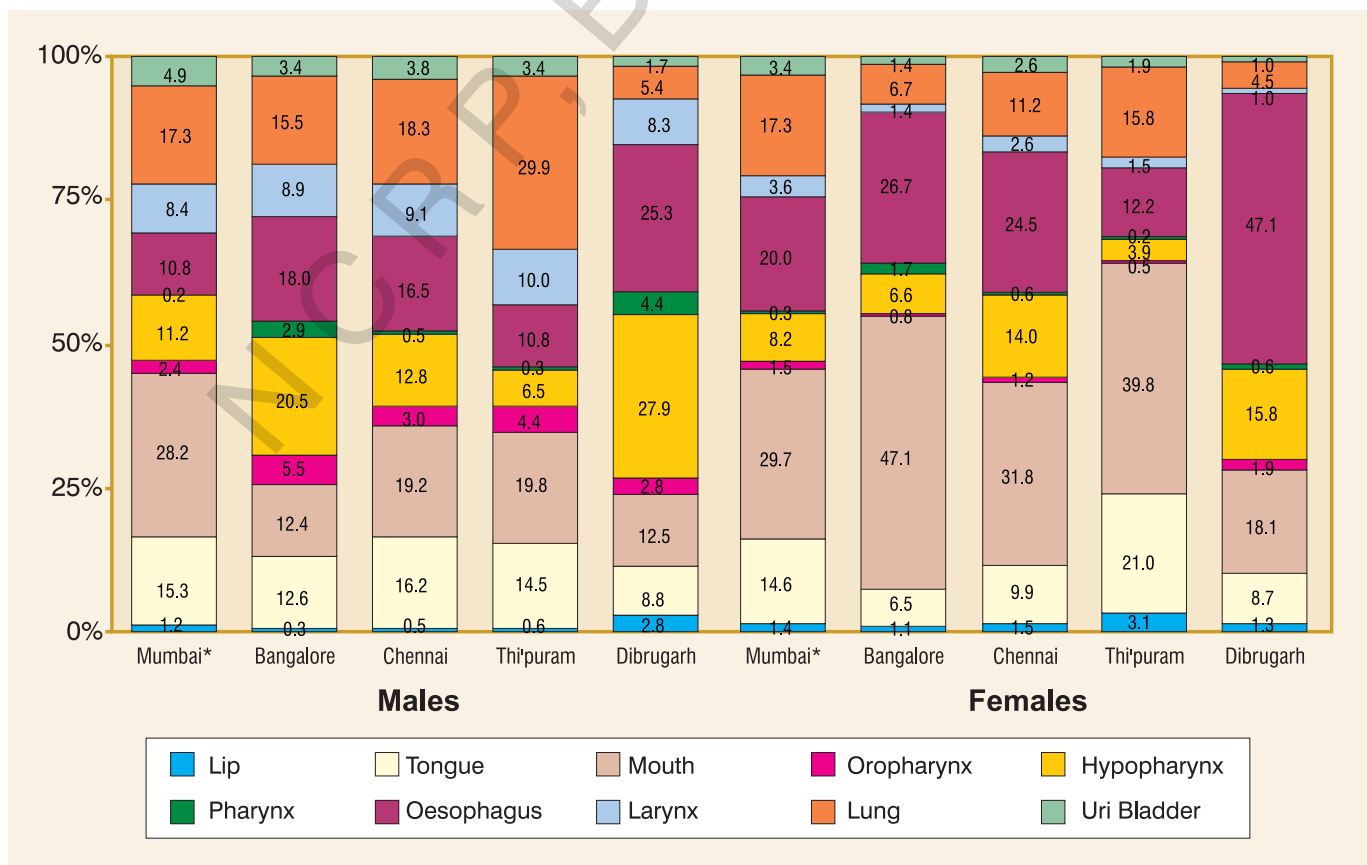


Table 3.3: Number and Relative Proportion of Specific Sites of Cancer among Tobacco Related Cancers (TRC) - (2004-2006)**Males**

Sites of Cancer	Mumbai*		Bangalore		Chennai		Thi'puram		Dibrugarh	
	#	%	#	%	#	%	#	%	#	%
Lip	103	1.2	16	0.3	29	0.5	38	0.6	31	2.8
Tongue	1347	15.3	585	12.6	868	16.2	865	14.5	96	8.8
Mouth	2488	28.2	578	12.4	1031	19.2	1182	19.8	136	12.5
Oropharynx	213	2.4	256	5.5	160	3.0	261	4.4	31	2.8
Hypopharynx	988	11.2	953	20.5	685	12.8	387	6.5	305	27.9
Pharynx	21	0.2	135	2.9	25	0.5	18	0.3	48	4.4
Oesophagus	956	10.8	837	18.0	886	16.5	644	10.8	276	25.3
Larynx	742	8.4	415	8.9	488	9.1	597	10.0	91	8.3
Lung	1526	17.3	719	15.5	983	18.3	1787	29.9	59	5.4
Uri. Bladder	435	4.9	156	3.4	202	3.8	205	3.4	19	1.7
TRC	8819	100.0	4650	100.0	5357	100.0	5984	100.0	1092	100.0

Females

Sites of Cancer	Mumbai*		Bangalore		Chennai		Thi'puram		Dibrugarh	
	#	%	#	%	#	%	#	%	#	%
Lip	35	1.4	28	1.1	34	1.5	51	3.1	4	1.3
Tongue	374	14.6	165	6.5	220	9.9	347	21.0	27	8.7
Mouth	759	29.7	1200	47.1	703	31.8	658	39.8	56	18.1
Oropharynx	39	1.5	21	0.8	27	1.2	9	0.5	6	1.9
Hypopharynx	210	8.2	169	6.6	311	14.0	65	3.9	49	15.8
Pharynx	7	0.3	44	1.7	13	0.6	4	0.2	2	0.6
Oesophagus	511	20.0	679	26.7	542	24.5	202	12.2	146	47.1
Larynx	91	3.6	35	1.4	58	2.6	25	1.5	3	1.0
Lung	443	17.3	171	6.7	248	11.2	261	15.8	14	4.5
Uri. Bladder	87	3.4	35	1.4	58	2.6	32	1.9	3	1.0
TRC	2556	100.0	2547	100.0	2214	100.0	1654	100.0	310	100.0

* Only 2004-05 data

Table 3.4: Number and Relative Proportion of Tobacco Related Cancer by Five-Year Age Groups with Standard Deviation (SD) (2004-2006)**Males**

Age Group	Mumbai*		Bangalore		Chennai		Thi'puram		Dibrugarh	
	#	%	#	%	#	%	#	%	#	%
0-14	6	0.1	1	0.0	1	0.0	4	0.1		0
15-19	5	0.1	3	0.1	4	0.1	0	0.0	1	0.1
20-24	39	0.4	15	0.3	25	0.5	10	0.2	2	0.2
25-29	116	1.3	34	0.7	52	1.0	15	0.3	9	0.8
30-34	259	2.9	63	1.4	108	2.0	56	0.9	14	1.3
35-39	531	6.0	127	2.7	210	3.9	124	2.1	42	3.8
40-44	736	8.3	270	5.8	354	6.6	259	4.3	61	5.6
45-49	1104	12.5	489	10.5	492	9.2	557	9.3	121	11.1
50-54	1352	15.3	715	15.4	771	14.4	851	14.2	158	14.5
55-59	1331	15.1	774	16.6	874	16.3	996	16.6	142	13.0
60-64	1229	13.9	751	16.2	896	16.7	974	16.3	186	17.0
65-69	1073	12.2	605	13.0	709	13.2	911	15.2	153	14.0
70-74	631	7.2	456	9.8	505	9.4	640	10.7	109	10.0
75+	407	4.6	347	7.5	356	6.6	587	9.8	94	8.6
All Ages	8819	100.0	4650	100.0	5357	100.0	5984	100.0	1092	100.0
Mean		55.09		58.13		57.49		59.80		58.36
SD		12.00		11.25		11.71		10.84		11.62

Females

Age Group	Mumbai*		Bangalore		Chennai		Thi'puram		Dibrugarh	
	#	%	#	%	#	%	#	%	#	%
0-14	3	0.2	1	0.0	4	0.2	2	0.1		0.0
15-19	6	0.5	4	0.2	2	0.1	3	0.2		0.0
20-24	14	1.1	15	0.6	24	1.1	8	0.5	1	0.3
25-29	44	3.5	25	1.0	36	1.6	12	0.7	2	0.6
30-34	79	6.3	49	1.9	55	2.5	20	1.2	10	3.2
35-39	141	11.3	138	5.4	137	6.2	58	3.5	22	7.1
40-44	258	20.7	212	8.3	188	8.5	75	4.5	33	10.6
45-49	325	26.0	376	14.8	260	11.7	168	10.2	32	10.3
50-54	335	26.8	376	14.8	310	14.0	196	11.9	43	13.9
55-59	345	27.6	363	14.3	348	15.7	235	14.2	35	11.3
60-64	376	30.1	407	16.0	335	15.1	215	13.0	54	17.4
65-69	334	26.8	284	11.2	223	10.1	284	17.2	41	13.2
70-74	171	13.7	170	6.7	174	7.9	182	11.0	19	6.1
75+	125	10.0	127	5.0	118	5.3	196	11.9	18	5.8
All Ages	2556	204.8	2547	100.0	2214	100.0	1654	100.0	310	100.0
Mean		54.8		55.3		55.0		59.5		55.4
SD		12.4		11.7		12.5		12.2		12.1

* Only 2004-05 data