

AN EPIDEMIOLOGICAL SURVEY ON AWARENESS AND PSYCHOLOGICAL CONCERN OF MALOCCLUSION AMONG 10-16 YEARS SCHOOL CHILDREN IN KARNATAKA

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ABSTRACT

Aims: To assess the awareness and psychological concern of malocclusion among 10-16 years school children in Karnataka State.

Settings and Design: School settings and Descriptive cross-sectional survey.

Methods and Material: A cross-sectional epidemiological survey was conducted in all the 30 districts of Karnataka. School children in the age group of 10-16 years were the target population. Population proportionate technique was employed for the sample size estimation. Two sets of pre-structured questionnaire were constructed and used as study tool.

Statistical analysis used: Simple Descriptive statistics.

Results and Conclusion: According to the results of the study a good awareness in children regarding orthodontic treatment and psychological concern about their personal appearance and social issues is observed.

Keywords: Awareness, Orthodontic treatment, Psychological concern, Malocclusion, School children.

INTRODUCTION

Smile is a reflection of the facial appearance. Smile plays a major role in every stage of human life. During pre-adolescent and adolescent phases appearance has a paramount importance and children are conscious of their outer-look. Societal standards of appearance are given more priority despite the fact that appearance is not everything. Acceptance by their peers is important among school children as they spend major time with their peers; if not their self-confidence and self-esteem is not sufficient and can easily develop a feeling of inferiority.

Bullying or teasing by their peers in everyday life might lead them to develop stress and psychological discomfort followed by disinterest, fear, anxiety to go to school which may also lead to school dropouts. Inappropriate reactions of peers to various dental conditions may also carry a negative status. Studies have been reported of teasing, singling out by nickname and social discrimination of children with facial disfigurement.[1]It is important that psychological factors in individual's desire might lead them to undergo orthodontic treatment.[2,3] Brown et al[4]reported that adolescents with greater severity of malocclusion had desire for seeking orthodontic treatment than those without malocclusion. Abdullah et al[5] reported the reasons and motivating factors, which stimulated or influenced patients in seeking orthodontic treatment. Results of their study revealed that the most important motivating factor was attaining straight teeth among 48% of the respondents; the other reason was to improve dental health (20%) and to enhance self-confidence in 20% of the respondents. The clinical experience and the results of various studies have influenced the researcher to take

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up the present study to assess the awareness and the psychological concern about malocclusion among 10-16 years school children in Karnataka State.

MATERIALS AND METHODOLOGY

Study design and setting

A cross-sectional epidemiological survey was designed in Karnataka State, India, after obtaining a prior permission from the Ministry of Higher Primary and Secondary Education Board of Karnataka. The survey was conducted during July 2012-March 2013 in Karnataka State (191,976 square kilometres, 5.83% of the total geographical area of India) which comprises of 30 districts.

Sampling methodology

The survey was carried out in all the 30 district headquarters. In each district, the list of schools was obtained by the Karnataka Higher Primary and Secondary Education Board. School children in the age group of 10-16 years were included in the study and constituted the study population. Population proportionate technique was employed for sample size estimation. According to the population census 2011, the total population in Karnataka was 61130704 out of which 10-16 years old children constitute 29%

(According to National Family Health Survey-2, India [1998-99], child population in the age group of 10-16 years was taken as a reference). With 95% confidence interval, the estimated sample size was 9505.

A total of 102 schools all over Karnataka were selected using simple random sampling technique. 9,505 children in the age group of 10-16 years were included from the randomized schools in each district all over Karnataka. Children who obtained written informed consent from parents to participate in the study were included. Exclusion criteria used were history of previous orthodontic treatment, rampant caries, multiple missing teeth, mutilated malocclusion and other craniofacial anomalies like cleft lip and palate, facial hemiatropy, cleidocranial dysplasia etc.

Study tool

After clinical examination, the pre-structured self-administered questionnaire were briefed to the children and later administered to them. First set was awareness questionnaire consisting of 15 questions with multiple answers were to assess their knowledge and awareness towards Orthodontic treatment. The responses of the children to the questions were recorded on a 3 point Likert scale [a. yes, b. no, c. don't know]. Awareness was later graded as 1. Poor, 2. Moderate and 3. Good.

Table 1: Questionnaire-Awareness towards orthodontic treatment

Awareness about Dentist/Orthodontist

1. Are you aware of a dentist?
2. Have you visited a dentist before?
3. Have you heard of an Orthodontist?
4. Are you aware that they align your teeth?

Knowledge about irregular teeth

5. Have you noticed people having irregular teeth?
6. Do you believe teeth should be properly aligned for a better facial appearance?
7. Do you know crooked teeth have ill effects?
11. Are you aware that few teeth may have to be removed for aligning irregular teeth?
12. Does thumb-sucking has an effect on the front teeth alignment?

13. Did you know taking braces treatment at the earlier age would improve facial appearance?
14. Do you know the duration for braces treatment is longer than other dental procedures?
15. Do you know the orthodontic treatment is costly?

Awareness about Dentist/Orthodontist

8. Have you seen people wearing braces?
9. Have you ever felt the need to wear braces?
10. Has anyone advised you to get your teeth aligned?

Later, psychological questionnaire consisting of 15 questions with multiple answers to assess their psychological concern towards malocclusion were administered. The responses of the children to the questions were recorded on a 3 point Likert scale [a.

Never, b. Sometimes, c. Often]. Cronbach alpha were checked for the questions and were found to be reliable ($\alpha=0.7$). For the ease of analysis, the psychological concern questions were categorised to personal issues and the social issues. Later the psychological concern of children was graded on a 3 point Likert scale as 1. Low, 2. Moderate and 3. High.

Table 2: Questionnaire-Psychological concern towards malocclusion

Personal issues
1. Have you ever been concerned what other people think about your teeth, jaws, lips or mouth
2. Have you ever worried that you are not as good looking as others
3. Have you ever been upset for your appearance
4. Have you ever felt nervous or afraid of your look
5. Have you ever felt shy or embarrassed
6. Have you ever felt irritable or frustrated
7. Have you ever felt unsure of yourself
8. Have your friends asked you questions about your teeth, lips, mouth or jaws
9. Have you ever worried that you are not healthy as others
Social issues
10. Have you ever felt that you did not wanted to speak loud in class
11. Have you ever felt that you did not wanted to talk to other children
12. Have you ever avoided smiling or laughing when with other children
13. Have other children teased you or called you names
14. Have other children made you feel left out
15. Have you ever avoided taking part in activities like sports, music or school trips

After the data collection, oral health education on General Health and Orthodontic treatment were given to all the children in the school to create awareness about Dental health and Orthodontic treatment. Ethical clearance to conduct the survey was obtained from the Institutional Review Board and prior permission to conduct the survey was taken from the concerned school authorities.

Statistical analysis: Data was coded and entered into excel sheet. To maintain the data quality (validity)

rechecking and cross checking was done during data entry phase. 10% of the observations were randomly selected and cross-checked to detect any error and validate the data entry. Later, data was transformed into SPSS version 16 and analysis of the data was done.

Results: The written informed consent form was taken from the parents and the respective school teachers of the children who participated in the survey. Gender and school type distribution of the sample were analysed with the frequency and it is observed that 52% of the boys and 48% of the girls belonging to Government, Aided and Private schools (34%, 33% and 33% respectively) as shown in Graph 1.

Graph 1: Gender and school category distribution of the sample

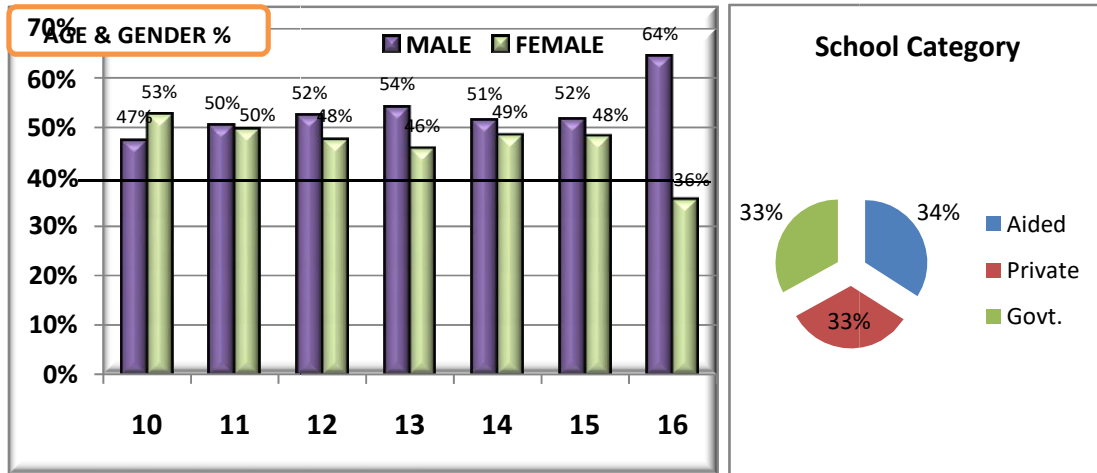


Table no 3 shows the total mean awareness about Orthodontic treatment among boys and girls. Boys and girls showed a mean awareness of 8.21±2.96 and 8.22±2.98 which was not statistically significant i.e., -0.17(>0.05). The total means Psychological concern

about malocclusion in the aspect of personal appearance and social issues among boys and girls were 7.14±4.91 and 6.89±4.83 which was found to be statistically highly significant 5.16(<0.05).

Table 3: Awareness of Orthodontic treatment and Psychological concern among the Gender

Items	Gender		t value	Sig
	Boys	Girls		
Awareness of orthodontic treatment				
Awareness about Dentis /Orthodontist	2.27±1.56	2.23±1.06	1.57	.115
Knowledge about irregular teeth	3.09±1.36	3.15±1.40	-2.14	.032
Knowledge about irregular teeth	1.23±1.05	1.20±1.06	1.34	.179
Awareness about Dentis /Orthodontist	1.63±0.90	1.64±0.88	-0.17	.466
Total	8.21±2.96	8.22±2.98	-0.17	.861
Psychological concern				
Personal issues	4.15±3.20	3.89±3.15	3.91	.000
Social issues	3.26±2.40	3.00±2.36	5.33	.000
Total	7.14±4.91	6.89±4.83	5.16	.000

Table no 4 shows the total mean awareness about Orthodontic treatment among 10-12 years and 13-16 years children. 10-12 years children and 13-16 years children showed a mean awareness of 8.08±3.13 and 8.32±2.82 which was found to be statistically highly significant i.e., -3.19(<0.05). The total means of

Psychological concern about malocclusion in the aspect of personal appearance and social issues among 10-12 years children and 13-16 years children were 7.15±4.95 and 7.18±4.81 which was statistically not significant - 0.29(>0.05).

Table 4: Awareness of Orthodontic treatment and Psychological concern among the different age groups

Items	Age groups		t value	Sig
	10-12 years	13-16 years		
Awareness of orthodontic treatment				
Awareness about Dentist/Orthodontist	2.28±1.09	2.23±1.03	2.36	.018
Knowledge about irregular teeth	3.09±1.43	3.15±1.33	-7.49	.000
Knowledge about irregular teeth	1.18±1.07	1.24±1.04	-2.87	.004
Awareness about Dentist/Orthodontist	1.63±0.92	1.64±0.87	-0.94	.344
Total	8.08±3.13	8.32±2.82	-3.19	.000
Psychological concern				
Personal issues	4.03±3.23	4.02±3.14	0.88	.930
Social issues	3.12±3.14	3.15±2.33	-0.713	.476
Total	7.15±4.95	7.18±4.81	-0.29	.770

Table 5 shows mean scores of awareness of Orthodontic treatment and Psychological concern among the school categories. The total mean awareness in Government school (8.05±3.23), Aided school (8.46±3.01) and in Private school (8.13±2.85) was found to be statistically

highly significant i.e., 17.66(<0.05). The total mean Psychological concern about malocclusion in Government school (7.11±4.81), Aided school (7.13±4.90) and in Private school (7.25±4.92) was not found to be statistically significant i.e., .781(>0.05).

Table 5: Awareness of Orthodontic treatment and Psychological concern among the school categories

Items	School Categories			Total	F value	p value
	Government	Aided	Private			
Awareness of orthodontic treatment						
Awareness about Dentist/Orthodontist	2.21±1.07	2.28±1.05	2.26±1.06	2.25±1.06	3.553	.029
Knowledge about irregular teeth	3.05±1.51	3.22±1.27	3.09±1.38	3.12±1.38	12.67	.000
Knowledge about irregular teeth	1.15±1.15	1.27±0.99	1.22±1.03	1.21±1.03	10.13	.000
Awareness about Dentist/Orthodontist	1.63±0.93	1.70±0.87	1.57±0.87	1.64±0.90	16.02	.000
Total	8.05±3.23	8.46±3.01	8.13±2.85	8.22±2.97	17.66	.000
Psychological concern						
Personal issues	3.91±3.07	4.03±2.98	4.13±3.01	4.02±3.18	4.013	.018
Social issues	3.20±2.44	3.10±2.07	3.12±2.34	3.14±2.39	1.652	.192
Total	7.11±4.81	7.13±4.90	7.25±4.92	7.16±4.88	.781	.458

Table 6: Awareness of Orthodontic treatment in children across different Districts

*Note: F-Fisher's Value; P-Probability; HS-Highly significant; dfs= 29, 9475. Means with different superscripts are significantly different from each other as indicated by Scheffe's Post hoc test (Alpha=.05).

DISTRICTS	AWARENESS OF ORTHODONTIC TREATMENT									
	Awareness of Dentist/Orthodontist		Knowledge about Irregular teeth		Knowledge about Orthodontic treatment		Awareness of Braces treatment		Total	
	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
Bagalkot	2.39 ^{abc}	1.10	2.89 ^{abcdefgh}	1.51	1.35 ^{abc}	1.15	1.65 ^{abc}	0.93	8.28	3.23
Bangalore Rural	2.35 ^{abc}	1.15	3.66 ^h	1.27	1.25 ^{abc}	0.99	1.82 ^{abc}	0.87	9.08	3.01
Bangalore urban	2.24 ^{abc}	1.04	3.40 ^{cdefgh}	1.32	1.09 ^{abc}	1.03	1.71 ^{abc}	0.87	8.43	2.85
Belgaum	2.12 ^{abc}	0.98	2.65 ^{abc}	1.37	1.10 ^{abc}	1.06	1.50 ^{ab}	0.88	7.37	2.97
Bellary	2.11 ^{abc}	1.00	2.80 ^{abcdefg}	1.31	1.08 ^{abc}	0.95	1.42 ^a	0.82	7.40	2.58
Bidar	2.11 ^{abc}	1.09	2.57 ^{ab}	1.52	1.34 ^{abc}	1.16	1.67 ^{abc}	1.00	7.69	3.47
Bijapur	2.44 ^{abc}	1.13	2.78 ^{abcdef}	1.38	1.11 ^{abc}	1.08	1.55 ^{abc}	0.91	7.89	3.09
CH Nagar	2.16 ^{abc}	1.10	3.28 ^{bcdefgh}	1.29	1.16 ^{abc}	1.08	1.88 ^{abc}	0.95	8.48	3.13
Chikballapur	1.89 ^a	0.91	2.82 ^{abcdefg}	1.37	0.90 ^{ab}	0.92	1.72 ^{abc}	0.89	7.33	2.77
Chikmagalur	2.41 ^{abc}	1.09	3.30 ^{bcdefgh}	1.33	1.41 ^{abc}	0.95	1.57 ^{abc}	0.85	8.68	2.90
Chitradurga	2.62 ^C	1.03	3.50 ^{bcdefgh}	1.22	1.47 ^{bc}	1.04	1.55 ^{abc}	0.94	9.15	2.78
Davangere	2.23 ^{abc}	1.06	3.11 ^{bcdefgh}	1.43	1.28 ^{abc}	1.16	1.45 ^{ab}	0.87	8.08	3.07
Dharwad	2.28 ^{abc}	1.08	3.14 ^{abcdefgh}	1.34	1.19 ^{abc}	1.02	1.52 ^{ab}	0.85	8.13	2.70
Gadag	2.41 ^{abc}	1.09	2.70 ^{abcd}	1.45	1.33 ^{abc}	1.11	1.52 ^{ab}	0.91	7.96	2.95
Gulbarga	2.33 ^{abc}	1.12	2.84 ^{abcdefg}	1.45	1.28 ^{abc}	1.19	1.57 ^{abc}	0.99	8.02	3.42
Hassan	2.39 ^{abc}	1.06	3.50 ^{efgh}	1.25	1.46 ^{abc}	1.07	1.58 ^{abc}	0.82	8.93	2.68
Haveri	2.46 ^{abc}	1.14	3.23 ^{bcdefgh}	1.29	1.43 ^{abc}	1.09	1.62 ^{abc}	0.94	8.74	3.01
Karwar	2.36 ^{abc}	1.04	2.71 ^{abcde}	1.24	1.52 ^c	0.99	1.61 ^{abc}	0.86	8.20	2.52
Kolar	2.30 ^{abc}	0.99	3.50 ^{defgh}	1.36	1.37 ^{abc}	1.09	2.06 ^C	0.90	9.23	3.14
Koppal	2.28 ^{abc}	1.10	3.22 ^{bcdefgh}	1.22	1.37 ^{abc}	1.09	1.66 ^{abc}	0.80	8.53	2.89
Madikeri	2.63 ^C	1.21	3.11 ^{abcdefgh}	1.20	1.03 ^{abc}	0.85	1.83 ^{abc}	0.93	8.61	2.90
Mandya	2.41 ^{abc}	1.03	3.67 ^h	1.18	1.50 ^{bc}	1.05	1.95 ^{bc}	0.87	9.53	2.77
Mangalore	2.23 ^{abc}	1.00	2.91 ^{abcdefgh}	1.34	1.00 ^{abc}	0.91	1.57 ^{abc}	0.88	7.71	2.52
Mysore	2.10 ^{abc}	1.04	3.34 ^{bcdefgh}	1.33	1.27 ^{abc}	1.01	1.75 ^{abc}	0.89	8.46	2.84
Raichur	1.98 ^{ab}	1.00	2.41 ^a	1.42	0.84 ^a	1.00	1.50 ^{ab}	0.86	6.73	3.06
Ramanagar	2.33 ^{abc}	0.93	3.54 ^{bcdefgh}	1.33	1.27 ^{abc}	1.00	1.91 ^{abc}	0.86	9.05	2.72
Shivmoga	2.20 ^{abc}	0.98	3.10 ^{abcdefgh}	1.28	1.37 ^{abc}	1.06	1.57 ^{abc}	0.89	8.23	2.78
Tumkur	2.03 ^{abc}	0.98	3.59 ^{gh}	1.24	1.14 ^{abc}	0.97	1.54 ^{abc}	0.90	8.28	2.59
Udupi	2.54 ^{bc}	1.12	3.32 ^{bcdefgh}	1.28	1.30 ^{abc}	1.01	1.61 ^{abc}	0.92	8.77	2.86
Yadagir	2.34 ^{abc}	1.21	2.88 ^{abcdefgh}	1.45	1.22 ^{abc}	1.14	1.69 ^{abc}	0.92	8.13	3.44
Total	2.25^{abc}	1.06	3.12	1.38	1.21^{abc}	1.06	1.64^{abc}	0.90	8.22	2.97
F value	7.052		22.239		8.087		8.198		14.044	
p value	.000 (HS)		.000 (HS)		.000 (HS)		.000 (HS)		.000 (HS)	

Table 6 shows the results of One-way Analysis of Variance of the awareness of Orthodontic treatment among the subjects included in the study from various

districts of Karnataka. F value for awareness about Dentist and Orthodontist is 7.052 which are found to be significant at .000 levels revealing a significant

association among the mean scores. Scheffe's post hoc-test indicates subjects included from Udupi (2.54), Chitradurga (2.62) and Madikeri (2.63) have shown the highest awareness. Subjects from Raichur (1.98) and Chikkaballapur (1.89) have shown the least awareness. Mean awareness of the subjects in rest of the districts were statistically same.

F value for the knowledge about irregular teeth is 22.24 which are found to be significant at .000 levels revealing a significant association among the mean scores. Scheffe's post hoc-test indicates subjects included from Tumkur (3.59), Bangalore rural (3.66) and Mandya (3.67) have shown the highest awareness. Subjects from Bidar (2.57) and Raichur (2.41) have shown the least awareness. Mean awareness of the subjects in rest of the districts were statistically same.

F value for the knowledge about orthodontic treatment is 8.087 which are found to be significant at .000 levels revealing a significant association among the mean scores. Scheffe's post hoc-test indicates subjects

included from Karwar (1.52) and Mandya (1.50) have shown the highest awareness. Subjects from Raichur (0.84) and Chikkaballapur (0.90) have shown the least awareness. Mean awareness of the subjects in rest of the districts were statistically same.

F value for the awareness of braces treatment is 8.198 which are found to be significant at .000 levels revealing a significant association among the mean scores. Scheffe's post hoc-test indicates subjects included from Kolar (2.06) and Mandya (1.95) have shown the highest awareness. Subjects from Bellary (1.98) and Davangere (1.45) have shown the least awareness. Mean awareness of the subjects in rest of the districts were statistically same.

The overall result shows moderate awareness regarding Orthodontic treatment is present among the school children across different districts of Karnataka.

Table 7: Psychological concern about malocclusion in children across different Districts

DISTRICTS	PSYCHOLOGICAL CONCERN					
	Personal appearance		Social issues		Total	
	Mean	S.D	Mean	S.D	Mean	S.D
Bagalkot	3.88 ^{abcde}	3.07	3.01 ^{abcd}	2.44	6.89 ^{bcd}	4.77
Blore Rural	2.02 ^a	2.98	1.74 ^a	2.07	3.76 ^a	4.40
Blore urban	3.82 ^{abcde}	3.01	3.03 ^{abcd}	2.34	6.85 ^{bcd}	4.78
Belgaum	4.50 ^{bcde}	3.22	3.58 ^{bcd}	2.33	8.08 ^{bcd}	4.70
Bellary	4.53 ^{bcde}	2.92	2.95 ^{abcd}	2.27	7.48 ^{bcd}	4.58
Bidar	4.61 ^{cde}	3.53	3.63 ^{bcd}	2.53	8.23 ^{bcd}	5.24
Bijapur	3.40 ^{abcde}	3.07	2.34 ^{ab}	2.57	5.74 ^{abc}	4.84
CH Nagar	4.50 ^{bcde}	3.59	3.35 ^{bcd}	2.47	7.85 ^{bcd}	5.49
Chikballapur	5.05 ^e	3.15	4.08 ^d	2.67	9.13 ^d	5.01
Chikmagalur	3.43 ^{abcde}	2.78	2.82 ^{abcd}	1.99	6.25 ^{abc}	4.25
Chitradurga	3.13 ^{abcd}	2.81	2.56 ^{abc}	2.41	5.69 ^{abc}	4.63
Davangere	3.20 ^{abcde}	2.67	3.38 ^{bcd}	2.34	6.58 ^{abcd}	4.16
Dharwad	3.68 ^{abcde}	3.09	2.70 ^{abcd}	2.27	6.38 ^{abcd}	4.53
Gadag	4.31 ^{bcde}	3.12	2.98 ^{abcd}	2.44	7.28 ^{bcd}	4.92
Gulbarga	4.96 ^{de}	3.92	3.31 ^{bcd}	2.91	8.27 ^{bcd}	6.31
Hassan	3.31 ^{abcde}	3.04	2.77 ^{abcd}	2.12	6.08 ^{abc}	4.32
Haveri	4.21 ^{bcde}	3.25	3.46 ^{bcd}	2.05	7.67 ^{bcd}	4.51
Karwar	4.72 ^{bcde}	2.83	3.18 ^{bcd}	2.01	7.90 ^{bcd}	4.13
Kolar	4.34 ^{bcde}	3.24	3.43 ^{bcd}	2.54	7.76 ^{bcd}	5.25
Koppal	3.71 ^{abcde}	3.19	3.03 ^{abcd}	2.30	6.75 ^{bcd}	4.74

Madikeri	4.80 ^{bcd}	2.92	3.57 ^{bcd}	2.06	8.37 ^{cd}	4.13
Mandya	4.65 ^{bcd}	3.57	3.31 ^{bcd}	2.49	7.97 ^{bcd}	5.50
Mangalore	3.05 ^{abc}	2.52	2.54 ^{abc}	1.99	5.60 ^{abc}	3.93
Mysore	4.03 ^{bcd}	3.27	2.93 ^{abcd}	2.16	6.96 ^{bcd}	4.74
Raichur	4.24 ^{bcd}	3.19	3.89 ^{cd}	2.37	8.13 ^{bcd}	4.59
Ramanagar	4.24 ^{bcd}	2.95	3.54 ^{bcd}	2.32	7.78 ^{bcd}	4.54
Shivmoga	4.13 ^{bcd}	3.09	3.61 ^{bcd}	2.25	7.73 ^{bcd}	4.61
Tumkur	4.50 ^{bcd}	3.03	3.19 ^{bcd}	2.40	7.69 ^{bcd}	4.54
Udupi	2.71 ^{ab}	2.70	2.75 ^{abcd}	2.72	5.46 ^{ab}	4.65
Yadagir	4.23 ^{bcd}	3.82	3.33 ^{bcd}	2.55	7.56 ^{bcd}	5.86
Total	4.02	3.19	3.14	2.39	7.16 ^{bcd}	4.88
F value	12.249		10.158		13.011	
p value	.000 (HS)		.000 (HS)		.000 (HS)	

*Note: F-Fisher's Value; P-Probability; HS-Highly significant; dfs= 29, 9475. Means with different superscripts are significantly different from each other as indicated by Scheffe's Post hoc test (Alpha=.05).

Table-7 shows the results of One-way ANOVA of the Psychological Concern of Malocclusion among the subjects included from various districts of Karnataka. F value for the psychological concern about personal appearance is 12.249 which are found to be significant at .00 levels revealing a significant association among the mean scores. Scheffe's post hoc-test indicates subjects from Chikkaballapur (5.05), Gulbarga (4.96) and Madikeri (4.80) have shown the highest psychological concern about personal appearance. Subjects from Bangalore rural (2.02) and Udupi (2.71) have shown the least concern. Mean concern about the personal appearance of the subjects in rest of the districts were almost similar. F value for the psychological concern about social issues is 10.158 which are found to be significant at .000 levels revealing a significant association among the mean scores. Scheffe's post hoc-test indicates subjects from Chikkaballapur (4.08) and Raichur (3.89) have shown the highest psychological concern about the social issues. Subjects from Bangalore rural (1.74) and Bijapur (2.34) have shown the least concern. Mean concern about the personal appearance of the subjects in rest of the districts were statistically same.

The overall results indicate that the school children across different districts of Karnataka have moderate concern with their personal appearance and the social issues which reflect their psychological concern about malocclusion.

DISCUSSION

The current study was designed to assess the awareness of malocclusion and its psychological concern among school children in Karnataka state. Children had awareness of malocclusion which varied according to the Districts and also expressed their psychological concern which included personal appearance and the social issues like teasing, bullying which had affected their self esteem. The appearance of teeth and the smile are critical components of facial attractiveness. [6,7] the media and society in general reinforce this message that "beauty is good." Study findings of Shaw et al[8] revealed that deviations of dental appearance have been found to be target for teasing and were also found to be at a higher risk of harassment in school children. He also reported that greater the deviations of the dental appearance, the greater the implication to the child and comments about teeth appeared to be more hurtful than those about other features. Evidence suggests that people who express dissatisfaction with their teeth may have some psychological problems which may impact their social behaviour. Those who are satisfied with their teeth seem to be self-confident and boost their self-esteem. [9]Adolescents attribute a high importance to dental appearance [10] among school children the awareness about Orthodontic treatment is been equally achieved by both boys and girls. In the present study, psychological concern regarding personal appearance is slightly higher among boys compared to girls wherein the social issues are being similar. Due et al investigated the knowledge concerning orthodontic treatment in Beijing area. He found a gender difference in teeth concerns with the

percentage of women being higher than men.[11]Another study by Hagg et al suggested that females have a higher demand for subjective orthodontic treatment[12]wherein the present research did not reflect that difference. The age group of the children in our study was between 10-16 years which did not make much difference with awareness and the psychological issues. The results also revealed that overall school categories showed not much difference among the awareness and the psychological concern among the school children. The major reason would be due to well equipped technology and established glowing advertisements regarding dental care portraits in the mass media leading to increase in awareness.

Malocclusion plays a vital role among children being bullied at school but a persistent bullying represents psychological issues. Physical attractiveness includes facial and dental features which are more appropriately graded by a child with malocclusion which in turn influences the child for orthodontic treatment. The benefits of orthodontic treatment in children are difficult to quantify in psychological terms, but these benefits become apparent in adulthood, as awareness of malocclusion increases with age. It is therefore probable that, by treating such a child, we are helping to create a psychologically healthier adult with a better body image. The guidelines produced by the British Psychological Society on Clinical Psychology in Dentistry estimates, that about 10% of children with malocclusions would have significant anxieties or other emotional or behavioural problems. [12]In order to improve the quality of Orthodontic treatment which enhances self-esteem among young adolescents, further research work needs to be done. The study design is a cross-sectional type and no distinction is made between children with and without malocclusion.

CONCLUSION

The awareness regarding orthodontic treatment and the psychological concern towards malocclusion is observed to be moderate among the school children of Karnataka state.

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