Original Article

Self-Reported Obstacles to Regular Dental Care among Information Technology Professionals

L. SWETHA REDDY[1], DOLAR DOSHI[2], B. SRIKANTH REDDY[3], SUHAS KULKARNI[4],
M. PADMA REDDY[5], D. SATYANARAYANA[6], PAVAN BALDAVA[7]

ABSTRACT

Introduction: Good oral health is important for an individual as well as social well-being. Occupational stress and work exhaustion in Information Technology (IT) professionals may influence the oral health and oral health related quality of life.

Aim: To assess and compare self-reported obstacles for regular dental care and dental visits among IT professionals based on age, gender, dental insurance and working days per week.

Materials and Methods: A cross-sectional study was conducted among 1,017 IT professionals to assess the self-reported obstacles to regular oral health care in Hyderabad city, Telangana, India. The Dental Rejection of Innovation Scale (DRI-S) was employed in this study. Comparison between means of DRI-S based on variables was done using t-test and ANOVA. The association between variables and DRI-S was determined using Chi-square test.

Results: A total of 1017 participants comprising of 574 (56%) males and 443 (44%) females participated in the study. As age increased, a significant increase in mean DRI-S scores was seen for total and individual domains except for the "Situational" domain wherein higher mean score (9.42±2.5; p=0.0006) was observed among 30–39 years age group. Even though females reported higher mean scores for total and individual domains when compared to males, nevertheless significant difference was seen only for total (p=0.03) and "Lack of Knowledge" (p=0.001) domain.

Conclusion: Self-reported obstacles to regular dental care was more with increasing age, increased number of working days per week, irregular dental visits and absence of dental insurance facility.

Keywords: Dental visit, Knowledge, Oral care, Questionnaire, Utilization

INTRODUCTION

Over the years, evidence based information has suggested that the health of our mouth, mirrors the conditions of our body as a whole. Good oral health is not only important for individual well-being but also essential for social well-being. Poor dental health can have a negative influence on growth, development, learning, communication and self-esteem. As oral diseases constitute a considerable public health problem in the world by not only causing pain, agony, functional and aesthetic problems, but they also limit social interactions and affects psychology and economy of individuals, families and society [1].

One of the prime reasons for oral health diseases have been found to be associated with poor dental knowledge which can be successfully prevented by dental health education programs [2]. These programs can bring about positive changes in oral health behaviour by altering an individual's knowledge, attitudes and beliefs. Regular home oral care like proper brushing and flossing and yearly dental check-ups are one of the effective ways for saving one's own teeth [3].

However, decline in utilization of oral health care services is largely influenced by oral health attitudes and behaviour of an individual and prioritization of people towards health. Also, the psycho-social factors like dental anxiety, financial costs, and perceptions of need and lack of access acts as a barrier to regular dental care [4]. They not only form the source for an individual to adopt a particular dental health action, but they may also provide the basis for the formation of obstacles in accepting and accessing dental health care [5,6].

At present, India is one of the biggest Information Technology (IT) capitals of the modern world. IT is the fastest growing industry

and also the most vulnerable to life style diseases. As jobs of IT professionals are highly skilful and to meet the targets, challenges and deadlines, they usually work for extended hours and under such conditions stress is an inevitable consequence [7]. This stress in turn takes an impact on the oral health [7]. Most of the IT professionals tend to inculcate deleterious oral habits like smoking, tobacco chewing, alcohol etc., in order to overcome stress [7]. Occupational stress and work exhaustion in IT professionals may influence the oral health and oral health related quality of life [8].

A search of the literature revealed that there are no studies on the impact of work stress on oral health behaviours and reasons preventing for regular oral health care among IT professionals. Henceforth, the present study aimed to assess the self-reported obstacles to regular dental care among IT professionals in Hyderabad City.

MATERIALS AND METHODS

A cross-sectional questionnaire survey was conducted among IT professionals with an objective to assess and compare self-reported obstacles for regular dental care using Dental Rejection of Innovation Scale (DRI-S) and dental visits based on age, gender, dental insurance and working days per week. Ethical clearance for this study was obtained from the Institutional Review Board of Panineeya Mahavidyalaya Institute of Dental Sciences and Hospital, Hyderabad, Telangana, India (PMVIDS/PHD/00190/2015).

The survey was scheduled after obtaining permission from Human Resources (HR's) of respective IT companies. A sample of 1017 participants who were present on the day of survey and willing to participate were included in the study. The questionnaire consisted

of two parts; first part included demographic details like age, gender, previous dental visits, dental insurance facility and working days per week. The second part included questions on reasons preventing regular dental care using the instrument DRI-S.

The instrument DRI-S developed by Syrjala A-MH et al., (1992), with split-half reliability of 0.71, was employed [3]. DRI-S comprises of 14 questions of which 04 items evaluates the reasons for preventing daily home oral care and 10 items for preventing yearly dental check-ups, on a three point Likert scale: very much (scored-1), somewhat (scored-2) and not at all (scored-3). DRI-S puts forward the self-reported obstacles to regular dental care into five domains: Lack of Knowledge (Q1), Experimental Rejection (Q 2, 7, 4), Situational Rejection (Q6, 8, 9, 10, 12), Personal Reasons (Q3, 4, 5, 11, 13) and Suspended Judgment (Q5).

Statistical analysis was done using Statistical Package for Social Sciences (SPSS) software (21.0) version. Comparison between means of DRI-S and variables was done using t test and ANOVA test. The association between variables and DRI-S was determined using Chi square test. The correlation between variables and domains was determined by Karl Pearson's correlation coefficient. Multiple Logistic Regression analysis was performed to determine association between domains and variables.

RESULTS

A total of 1017 subjects comprising of 574 (56%) males and 443 (44%) females participated in the study. Majority of them belonged to the age group of 20-29 years (581; 57%) with mean age of 29.95±6.04 years. About 429 subjects (42%) had their dental visits over 2 years ago and 945 subjects (93%) did not have a dental insurance facility. Furthermore, most of the subjects (910; 89%) were working for five days per week [Table/Fig-1].

Among the study population, majority of the subjects responded for the option "somehow" to all the questions of DRI-S, except for the question "Earlier unpleasant experiences of dental procedures" (Q14) for which the most common response was "Not at all" (448; 44%). Moreover, half of the study respondents (501; 49%) felt that teeth decay inspite of brushing (Q2) and 491 (48%) subjects believed that they haven't had any symptoms in teeth (Q12), regular dental check-ups are not necessary. In addition, 464 (46%) subjects thought that "Dental care is expensive" (Q8); whereas,

Factors	No of respondents n (%)
Age Group	
20-29 yrs	581 (57)
30-39 yrs	350 (34)
40-49 yrs	73 (7)
50+ yrs	13 (1)
Gender	
Male	574 (56)
Female	443 (44)
Dental Visits	
Within a year	273 (27)
Between 1-2 years	315 (31)
Over 2 years ago	429 (42)
Dental Insurance	
Present	72 (7)
Absent	945 (93)
Working Days/Week	
4 days	20 (2)
5 days	910 (89)
6 days	87 (9)
Total	1017 (100)

[Table/Fig-1]: Demographic distribution of study population.

S.No.	Questions	No of respondents n (%)		
	Evaluate how much the following things have hindered your daily cleaning of your teeth	Very much (1)	Some how (2)	Not at all (3)
Q1	Lack of knowledge on how to take care of teeth	283 (28)	447 (44)	287 (28)
Q2	Lack of meaning, because my teeth decay inspite of brushing	173 (17)	501 (49)	343 (34)
Q3	Lack of time in the morning or evening	142 (14)	450 (44)	425 (42)
Q4	Lack of interest in taking care of my own teeth	149 (15)	436 (43)	432 (42)
	Evaluate how much the following things have hindered your yearly dental check-ups			
Q5	Lack of time	285 (28)	453 (45)	279 (27)
Q6	Difficulty in arranging an appointment with a particular dentist	211(21)	410 (40)	396 (39)
Q7	Fear of painful dental procedures	240 (24)	390 (38)	387 (38)
Q8	Dental care is expensive	263 (26)	464 (46)	290 (28)
Q9	A long distance to a dentist	168 (17)	431 (42)	418 (41)
Q10	Restraint because of work	245 (24)	425 (42)	347 (34)
Q11	I have been lazy	194 (19)	446 (44)	377 (37)
Q12	I haven't had any symptoms in my teeth	215 (21)	491 (48)	311 (31)
Q13	I don't think dental diseases are very serious	152 (15)	448 (44)	417 (41)
Q14	Earlier unpleasant experiences of dental procedures	128 (13)	441 (43)	448 (44)

[Table/Fig-2]: Frequency distribution of responses n (%) to DRI-S questions among the study population.

453 (45%) subjects revealed that "Lack of time" (Q5) had hindered regular dental check-ups. Meanwhile, 44% of the subjects reported that "Lack of knowledge on how to take care of teeth" (Q1) and "Lack of time in the morning or evening" are obstacles for regular dental check-ups. On the other hand, 448 (44%) subjects stated that the previous unpleasant experiences are not an obstacle to regular dental care [Table/Fig-2].

Question wise comparison of mean DRI-S scores by age showed that, younger age group (20–29 years) had significantly higher mean scores for the questions Q1, Q2, Q3, Q5 and Q6 as obstacles for regular dental care compared to other age groups. Whereas, middle age group of 30–39 years showed higher significant mean scores for questions Q8 "Dental care is expensive" (2.05±0.77; p = 0.0087*) and Q11 "I have been lazy" (2.21±0.75; p = 0.03*) [Table/Fig-3].

Based on gender, females showed higher significant mean score of 2.31±0.72 (p=0.02*) only for Q13 "I don't think dental diseases are very serious". On the other hand, though males reported a higher mean score for all of the questions, it was significant only for Q1, Q3 and Q5. When comparison was done with regard to regular dental visits, subjects who visited dentist "Over 2 years ago" had shown higher mean scores for all the questions except for questions Q7, Q11 and Q12. For Q7, higher significant mean score 2.22±0.76 (p=0.02*) was observed for the dental visit "Within a year" and for Q11 higher significant mean score 2.23±0.72 (p=0.004*) for the dental visit "Between 1-2 years". Though higher mean score was observed for Q12 (2.15±0.70) for the dental visit "Between 1-2 years", this difference was not statistically significant (p=0.07) [Table/Fig-3].

Furthermore, comparison based on dental insurance facility, revealed that subjects without dental insurance facility showed higher mean scores for all questions except for Q12, Q13 and

Variables		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14
Age Groups	20-29yrs	2.09±0.73	2.24±0.66	2.29±0.70	2.36±0.68	2.03±0.71	2.23±0.72	2.14±0.77	2.05±0.70	2.27±0.70	2.11±0.75	2.19±0.70	2.12±0.69	2.28±0.68	2.34±0.64
	30-39yrs	1.93±0.76	2.13±0.70	2.29±0.69	2.21±0.73	1.98±0.78	2.15±0.78	2.18±0.77	2.05±0.77	2.24±0.75	2.09±0.75	2.21±0.75	2.05±0.71	2.25±0.69	2.32±0.71
	40+yrs	1.73±0.76	1.79±0.75	2.15±0.68	2.02±0.65	1.80±0.79	1.98±0.83	2.03±0.79	1.79±0.77	2.13±0.72	2.06±0.86	1.98±0.80	2.13±0.84	2.13±0.82	2.12±0.82
	p - value	0.00001*	0.00001*	0.16	0.00001*	0.02*	0.02*	0.31	0.008*	0.23	0.81	0.03*	0.31	0.29	0.06
Gender	Males	2.07±0.72	2.20±0.67	2.33±0.68	2.31±0.71	2.05±0.73	2.20±0.73	2.18±0.76	2.04±0.74	2.27±0.70	2.12±0.73	2.19±0.71	2.11±0.69	2.22±0.69	2.32±0.66
	Females	1.92±0.77	2.12±0.72	2.21±0.70	2.24±0.69	1.93±0.76	2.16±0.78	2.10±0.78	2.01±0.74	2.22±0.74	2.07±0.79	2.17±0.75	2.07±0.74	2.31±0.72	2.31±0.71
	p - value	0.002*	0.10	0.003*	0.07	0.01*	0.46	0.15	0.50	0.38	0.36	0.69	0.43	0.02*	0.86
Dental Visits	Within a year	1.86±0.77	2.15±0.68	2.28±0.70	1.85±0.71	1.85±0.71	2.11±0.78	2.22±0.76	1.99±0.76	2.17±0.71	2.01±0.75	2.06±0.70	2.02±0.70	2.19±0.71	2.26±0.69
	Between 1-2 years	1.98±0.79	2.17±0.74	2.22±0.70	2.03±0.75	2.03±0.75	2.19±0.73	2.05±0.77	1.99±0.74	2.23±0.74	2.09±0.76	2.23±0.72	2.15±0.70	2.25±0.71	2.27±0.70
	Over 2 years ago	2.11±0.69	2.18±0.66	2.32±0.68	2.06±0.75	2.06±0.75	2.22±0.75	2.16±0.78	2.08±0.72	2.31±0.71	2.16±0.76	2.21±0.75	2.10±0.73	2.31±0.69	2.38±0.66
	p - value	0.0001*	0.87	0.17	0.06	0.001*	0.19	0.02*	0.15	0.03*	0.02*	0.004*	0.07	0.07	0.03*
Dental Insurance Facility	Present	1.83±0.79	2.03±0.82	2.11±0.76	2.22±0.65	1.88±0.75	2.00±0.86	2.07±0.88	1.90±0.73	2.22±0.74	2.01±0.80	2.15±0.76	2.22±0.79	2.49±0.63	2.46±0.60
	Absent	2.02±0.74	2.18±0.68	2.29±0.69	2.28±0.71	2.00±0.74	2.20±0.74	2.15±0.76	2.04±0.74	2.25±0.72	2.11±0.75	2.18±0.73	2.08±0.71	2.24±0.70	2.30±0.69
	p - value	0.04*	0.13	0.05*	0.37	0.15	0.06	0.50	0.14	0.79	0.33	0.78	0.09	0.005*	0.08
Working Days Per Week	4 days	1.40±0.60	1.75±0.44	2.45±0.76	1.85±0.67	2.00±0.73	1.85±0.75	2.20±0.77	1.95±0.69	2.15±0.49	2.00±0.65	2.25±0.55	2.25±0.85	2.40±0.68	1.90±0.85
	5 days	1.99±0.74	2.14±0.69	2.26±0.69	2.26±0.70	1.99±0.77	2.16±0.75	2.11±0.77	2.01±0.73	2.22±0.72	2.08±0.75	2.19±0.74	2.07±0.71	2.22±0.70	2.32±0.68
	6 days	2.25±0.73	2.53±0.64	2.41±0.72	2.52±0.71	2.01±0.64	2.53±0.70	2.47±0.73	2.20±0.82	2.57±0.68	2.34±0.78	2.07±0.66	2.36±0.70	2.64±0.63	2.34±0.70
	p - value	0.00001*	0.00001*	0.03*	0.00*	0.97	0.00001*	0.00001*	0.07	0.00001*	0.004*	0.24	0.00*	0.00001*	0.06
Total		2.00±0.75	2.17±0.69	2.28±0.69	2.28±0.70	1.99±0.75	2.18±0.75	2.14±0.77	2.03±0.74	2.25±0.72	2.10±0.76	2.18±0.73	2.09±0.71	2.26±0.70	2.31±0.68

[Table/Fig-3]: Question wise comparison of mean scores to DRI-S - based on variables.
*p ≤ 0.05 statistically significant. Student t-test and ANOVA were used

Variables		Total	Lack of Knowledge (Mean±SD)	Experimental Rejection (Mean±SD)	Situational Rejection (Mean±SD)	Personal Reasons (Mean±SD	Suspended Judgment (Mean±SD)
Age Groups	20-29 years	25.27±5.2	1.91±0.7	5.28±1.4	9.23±2.3	6.88±1.8	1.97±0.7
	30-39 years	25.90±6.1	2.07±0.8	5.37±1.6	9.42±2.5	7.03±1.9	2.02±0.8
	40+ years	28.16±7.4	2.27±0.8	6.06±2	9.92±2.9	7.72±2.2	2.20±0.8
	p–value	0.0001*	0.00001*	0.0001*	0.03*	0.0006*	0.02*
Gender	Males	25.40±5.7	1.93±0.7	5.31±1.5	9.26±2.4	6.95±1.8	1.95±0.7
	Females	26.16±5.9	2.08±0.8	5.46±1.6	9.47±2.4	7.08±2.0	2.07±0.8
	p-value	0.03*	0.001*	0.11	0.16	0.27	0.009*
Dental Visits	Within a year	26.61±5	2.14±0.8	5.37±1.4	9.70±2.1	7.26±1.8	2.15±0.7
	Between 1-2 years	25.89±6	2.02±0.8	5.51±1.6	9.35±2.4	7.04±1.9	1.97±0.8
	Over 2 years ago	25.05±6	1.89±0.7	5.28±1.5	9.13±2.6	6.81±2	1.94±0.8
	p-value	0.002*	0.0001*	0.13	0.009*	0.009*	0.001*
Dental Insurance	Present	26.40±5.7	2.17±0.8	5.44±1.7	9.64±2.3	9.33±2.4	2.13±0.8
	Absent	25.68±5.8	1.98±0.7	5.37±1.5	9.33±2.4	7.03±1.8	2.00±0.7
	p-value	0.30	0.04*	0.68	0.29	0.90	0.15
Working Days/Week	4 days	27.60±4.1	2.60±0.6	6.15±1.5	9.80±1.8	7.05±1.5	2.00±0.7
	5 days	25.97±5.8	2.01±0.7	5.43±1.5	9.47±2.4	7.06±1.9	2.01±0.8
	6 days	22.75±5.3	1.75±0.7	4.66±1.4	8.00±2.5	6.36±1.8	1.99±0.6
	p-value	0.00001*	0.00001*	0.00001*	0.0000*	0.004*	0.97
Total		25.73 ± 5.81	2.00 ±- 0.75	5.37 ± 1.55	9.35 ± 2.41	7.00 ± 1.91	2.01 ± 0.75

[Table/Fig-4]: Comparison of individual mean domain scores based on variables.
*p ≤ 0.05 statistically significant. Student t-test and ANOVA were used

Q14. Moreover, significant difference was noted only for Q1, Q3 and Q13 (p = 0.005*). Also comparison based on working days per week, subjects who worked six days per week revealed higher mean scores for all the questions except for Q11. All the questions

Variables	Age	Gender	Dental Visits	Dental Insurance	Working Days/ Week
Total	r=0.1253*	r=0.0652*	r=-0.1101*	r=0.0320	r=-0.1583*
Lack of Knowledge	r=0.1442*	r=0.0973*	r=-0.1341*	r=0.0629*	r=-0.1395*
Experimental Rejection	r=0.1140*	r=0.0494	r=-0.0314	r=0.0126	r=-0.1564*
Situational Rejection	r=0.0768*	r=0.0432	r=-0.0954*	r=0.0330	r=-0.1626*
Personal Reasons	r=0.1062*	r=0.0340	r=-0.0955*	r=0.0036	r=-0.0928*
Suspended Judgment	r=0.0753*	r=0.0809*	r=-0.1050*	r=0.0441	r=-0.0058

[Table/Fig-5]: Correlation between total and mean domain scores based on variables by Karl Pearson's Correlation method.
*p<0.05 statistically significant, Karl Pearson's Correlation was used

Variables	Total	Lack of Knowledge	Experimental Rejection	Situational Rejection	Personal Reasons	Suspended Judgment
Age	0.00001*	0.00001*	0.0005*	0.0237*	0.0003*	0.002*
Gender	0.01*	0.0004*	0.03*	0.14	0.19	0.008*
Dental Visits	0.0004*	0.00001*	0.31	0.003*	0.001*	0.002*
Dental Insurance	0.90	0.32	0.88	0.70	0.49	0.45
Working Days/ Week	0.00001*	0.0001*	0.00001*	0.00001*	0.01*	0.8477

[Table/Fig-6]: Multiple regression analysis of total and its dimensions as dependent variables.
*p<0.05 statistically significant, Multiple regression analysis was used

of DRI-S showed statistical significant difference with working days per week except for Q5, Q8, Q11 and Q14 [Table/Fig-3].

The overall mean score for DRI-S was 25.73±5.81. The questions under each domain and their individual mean domain scores were as follows: "Lack of knowledge" – one question (Q1) - 2.00±0.75; "Experimental rejection" – three questions (Q 2, 7, 4) - 5.37 ± 1.55; "Situational rejection" – five questions (Q6, 8, 9, 10, 12) - 9.35±2.41, "Personal reasons" – five questions (Q3, 4, 5, 11, 13) - 7.00±1.91 and "Suspended judgment" – one question (Q5) - 2.01±0.75 [Table/Fig-4].

As age increases, a significant increase in mean score was seen for total and all the domains of DRI-S. Females reported higher mean scores for total and individual domains when compared to males, nevertheless significant difference was seen only for total (p=0.03*), "Lack of knowledge" (p=0.001*) and "Suspended judgement" (p=0.009*) domain. When comparison was done with regard to dental visits, subjects who visited dentist "Within a year" noted significant higher mean scores for total and all individual domains except "Experimental rejection" for which high mean score of 5.51±1.6 (p=0.13) was observed for subjects who visited dentist "Between 1-2 years" [Table/Fig-4].

Based on dental insurance facility, it was seen that though subjects with dental insurance had higher mean scores for total (26.40±5.7) and all individual domains of DRI-S; it was significant only for the domain "Lack of kowledge" (p=0.04*). Likewise, subjects who worked for four days per week showed higher significant (p=0.00001*) mean scores for total (27.60±4.1) and all individual domains except for "Personal reasons" (7.06±1.9; p=0.004*) and "Suspended judgement" (2.01±0.8; p=0.97), wherein subjects working for five days per week had higher mean scores [Table/Fig-4].

All the domains of DRI-S showed a significant and positive correlation with age. Based on gender, significant positive correlation was

observed with total (r=0.0652*), "Lack of knowledge" (r=0.0973*) and "Suspended judgement" (r=0.0809*) domains. Based on regular dental visits negative significant correlation was observed for all the domains of DRI-S except for "Experimental rejection". Moreover, though positive correlation was observed with dental insurance facility, it was significant only for the domain "Lack of knowledge" (r=0.0629*). Likewise, significant negative correlation was observed with working days per week for all the domains of DRI-S except for "Suspended judgement" (r= -0.0058) [Table/Fig-5].

Multiple regression analysis revealed that total and "Lack of knowledge" domain showed significant association with all independent variables except for dental insurance facility. Moreover, "Experimental rejection" domain showed statistically significant difference with all independent variables except for dental visits (p=0.31) and dental insurance facility (p=0.88). Likewise the domains "Situation rejection" and "Personal reasons" showed significant difference with all independent variables except for gender and dental insurance facility. Meanwhile "Suspended judgement" domain showed statistically significant difference with all independent variables except for dental insurance facility (p=0.45) and working days per week (p=0.84) [Table/Fig-6].

DISCUSSION

Oral diseases are one of the most common chronic non-communicable diseases and are influenced mainly by lifestyle related risk factors. They form an important public health problem because of their prevalence, their impacts on individuals and on the society. Evidence based dentistry reveals that to ensure optimal oral health, a person should able to adopt an "innovation" into his life [3]. One of the most effective ways to ensure the prime oral health is through appropriate preventive measures and behavioural modifications.

The gold standard approaches for maintaining good oral health is through regular home oral care along with regular dental check-ups [9]. Regular home oral health care such as daily brushing, using fluoride toothpaste, mouth rinsing habit, flossing, sticking to a healthy diet, avoiding tobacco and excessive alcohol usage helps in preventing dental diseases. Likewise, regular dental check-ups can help in diagnosing oral diseases such as tooth decay, periodontal diseases, cancers etc., in early stages and directing towards prompt treatment [10].

In the present scenario, even though most of the people are educated, they tend to neglect their oral health due to their scheduled lifestyles and hectic workload. One such cultured and emerging sector in India is an IT profession. Though, they are educated, their sedentary and stressful lifestyles tend them to inculcate deleterious habits and to overlook the significance of good oral health.

Therefore, the current study was undertaken to focus on subjective and personal reasons that restrict these professionals from their regular oral health care. The only available instrument which measures the subjective self-reported obstacles to regular dental care is DRI-S developed by Syrjala A-MH et al., [3]. This questionnaire measures the causes of irregular dental care in a homogeneous manner and has good internal consistency, validity and reliability [3].

The present study comprised of 1017 subjects; of which 574 (56%) were males and 443 (44%) were females with a mean age of 29.9±6.04 years. Similarly, a study conducted by Acharya S et al., among IT professionals on work stress and oral health related quality of life in Bangalore, noted that 76.1% were males with a mean age of 25.97±4.68 years [8].

In the current study, majority of the study subjects 429 (42%) visited a dentist "over two years ago" only in case of severe problem

that leads to pain, whereas only 273 (27%) subjects visited the dentist regularly. The results present study were in agreement with the study by Fotedar S et al., among Shimla population, wherein 159 (52.3%) had dental visits more than 2 years ago and 46 (15.1%) visited the dentist regularly [11]. This reflects a need to increase awareness through oral health education programs and reinforcement of more positive attitude towards oral health.

When individual dimensions of DRI-S were taken into consideration, subjects aged 40+ years reported higher mean score (9.92±2.9) for the domain "Situational reason". Similarly, a study done by Nandhini et al., among 18 – 60 years old population in Chennai city, noticed that age was found to be a main barrier for regular dental care [9]. The practical reasons cited by Nandhini et al., were being difficulty in arranging an appointment, expensive dental care, restraint because of work and haven't had any symptoms in teeth could also explain the obstacles in the present study [9]. Likewise, Hill KB et al., reported that dental anxiety, costs of dental treatment, lack of access to dental services and individual's perception of need were practical barriers to regular dental care among England, Wales and Northern Ireland dentate adults [10].

The existing study revealed that females had a higher mean score for all the domains of DRI-S compared to males. This could be because women have to balance between professional career and family life equally, so they might give lesser importance to regular home oral care and dental visits. On the other hand study done by Syrjala A-MH et al., among Finnish population, reported that females had fewer barriers to "Daily brushing" as compared to males, whereas females noticed more barriers for "Unpleasant experience" [5].

In this study, all the domains of DRI-S showed significant negative correlation with dental visits. Most of the younger age group subjects in the present study reported "Lack of time" was an obstacle for not visiting the dentist regularly, which was in agreement with the other studies [8,11-14]. This might be due to greater stress within the younger age group to adapt to the working environment along with short deadlines in the workplace; often they may tend to show negligence towards regular dental care. However, self-reported laziness was also found to be an important reason for irregular dental visits and it is interrelated with the subject's latest dental visit [1].

In the current study, middle age group (30–39 years) subjects and male subjects reported that "Fear of painful dental procedures" was restricting them from regular dental care. On the contrary, in Syrjala A-MH et al., [3] study most of the older age group (>45 years) female subjects reported "Fear of painful dental procedures" as a barrier to regular dental care and was comparable to other studies [11-13,15-19]. Moreover, studies on Norwegian and Spanish adults, stated that even though dental fear was more common in females, they utilized dental services more frequently than males possibly due to the fact that females have a greater tendency to expect a good outcome from dental attendance [20,21].

In the present study, a higher mean score was noticed among subjects with dental insurance for all the domains of DRI-S and hence, was not a barrier to regular dental care, which was in agreement with the studies by Obediat et a., [6] and Halasa and Nandakumar [22] among Jordanian adults. This was contradictory to the findings of other studies [12,13,23], wherein the subjects with dental insurance were more likely to have regular dental visits than those who were not insured.

In the existing study, number of working days per week showed negative correlation with domains of DRI-S, subjects who worked four days in a week reported more obstacles to regular dental care. The reason could be delaying the dental visit until they suffer with chronic dental problem, i.e., a problem oriented visits rather than a prevention oriented one.

"An ounce of prevention is worth than a million pounds of cure". Henceforth, having regular dental visits helps to promote health and prevent illness. To prevent hindrances for regular dental care, it is necessary to motivate through appropriate oral health education programs which further help to adopt and endure health promoting lifestyle and practices.

The strength of the present study was a homogenous sample of employees from multiple companies.

LIMITATION

The present study has to be determined with certain limitations like relying on self-reported data, therefore subjected to bias. Also, the present study failed to measure other relevant variables like socioeconomic status and exact working hours, as the subjects were reluctant to reveal the same.

CONCLUSION

The present study concludes that age, gender, inadequate insurance facilities and working days per week act as a barriers regular dental care. Therefore, these findings support that, there is a need to increase awareness and reinforce more positive attitudes towards oral health care. In order to promote good oral health and prevent illness, regular dental visits are recommended. To improve the regular dental visits, the obstacles have to be controlled by appropriate education and intervention.

REFERENCES

[1] Slade GD. Measuring oral health and quality of life. Chapel Hill, NC: University of North Carolina, Department of Dental Ecology; 1997.

[2] Vignarajah S. Oral health knowledge and behaviours and barriers to dental attendance of school children and adolescents in the Caribbean island of Antigua. *Int Dent J.* 1997 ;47(3):167-72.

[3] Syrjala A-MH, Knuuttila ML, Syrjala LK. Reasons preventing regular dental care. *Community Dent Oral Epidemiol*. 1992;20(1):10-14.

[4] Freeman R. Barriers to accessing dental care: Patient factors. *Br Dent J*. 1999;187(3):141-44.

[5] Syrjala A-MH, Knuuttila ML, Syrjala LK. Obstacles to regular dental care related to extrinsic and intrinsic motivation. *Community Dent Oral Epidemiol*. 1994;22(4):269-72.

[6] Obeidat SR, Alsadi AG, Taani DS. Factors influencing dental care access in Jordanian adults. *BMC Oral Health*. 2014;14:127-33.

[7] Kumar SM, Siddique MA. A study on occupational stress among IT professionals Chennai. *IJEIMS*. 2011;2(2):119-24.

[8] Acharya S, Pentapati KC. Work stress and oral health-related quality of life among Indian information technology workers: An exploratory study. *Int Dent J*. 2012;62(3):132-36.

[9] Nandhini L, Barani K, Prabu D, Manipal S, Ahamed A, Adusumilli P. Self-reported barriers to regular dental care in Chennai, Tamil Nadu. *J Orofac Res*. 2013;3(3):161-65.

[10] Hill KB, Chadwick B, Freeman R, O'Sullivan I, Murray JJ. Adult dental health survey 2009: Relationships between dental attendance patterns, oral health behaviour and the current barriers to dental care. *Br Dent J*. 2013;214(1):25-32.

[11] Fotedar S, Sharma KR, Bhardwaj V, Sogi GM. Barriers to the utilization of dental services in Shimla, India. *Eur J Gen Dent*. 2013;2:139-43.

[12] Kakatkar G, Bhat N, Nagarajappa R, Prasad V, Sharda A, Asawa K, et al. Barriers to the utilization of dental services in Udaipur, India. *J Dent (Tehran)*. 2011;8(2):81-89.

[13] Al-Shammari KF, Al-Ansari JM, Al-Khabbaz AK, Honkala S. Barriers to seeking preventive dental care by Kuwaiti adults. *Med Princ Pract*. 2007;16(6):413-19.

[14] Poudyal S, Roa A, Shenoy R, Priya H. Utilization of dental services in field practice area in Mangalore, Karnataka. *Indian J Community Med*. 2010;5(3):424-25.

[15] Liddell A, Locker D. Gender and age differences in attitudes to dental pain and dental control. *Community Dent Oral Epidemiol*. 1997;25:314-18.

[16] Moore R, Birn H, Kirkegaard E, Brodsgaard I, Scheutz F. Prevalence and characteristics of dental anxiety in Danish adults. *Community Dent Oral Epidemiol.* 1993;21:292-96.

[17] Fukai K, Takaesu Y, Maki Y. Gender differences in oral health behavior and general health habits in an adult population. *Bull Tokyo Dent Coll*. 1999;40:187-93.

[18] Skaret E, Raadal M, Kvale G, Berg E. Gender based differences in factors related to nonutilization of dental care in young Norwegians: A longitudinal study. *Eur J Oral Sci*. 2003;111:377-82.

[19] Holtzman JM, Berg RG, Mann J, Berkey DB. The relationship of age and gender to fear and anxiety in response to dental care. *Spec Care Dent*. 1997;17:82-87.

[20] Heloe LA, Aaro LE, Soggard AJ. Dental health practices in Norwegian adults. *Community Dent Oral Epidemiol*. 1982;10(6):308-12.

[21] Pizarro V, Ferrer M, Domingo-Salvany A, Benach J, Borrell C, Pont A, et al. The utilization of dental care services according to health insurance coverage in Catalonia (Spain). *Community Dent Oral Epidemiol*. 2009;37:78-84.

[22] Halasa Y, Nandakumar AK. Factors determining choice of health care provider in Jordan. *East Mediterr Health J*. 2009;15(4):959-68.

[23] Crocombe LA, Broadbent JM, Thomson WM, Brennan DS, Slade GD, Poulton R. Dental visiting trajectory patterns and their antecedents. *J Public Health Dent*. 2011;71(1):23–31.

PARTICULARS OF CONTRIBUTORS:
1. Postgraduate Student, Department of Public Health Dentistry, Panineeya Institute of Dental Sciences and Hospital, Hyderabad, Telangana, India.
2. Professor, Department of Public Health Dentistry, Panineeya Institute of Dental Sciences and Hospital, Hyderabad, Telangana, India.
3. Reader, Department of Public Health Dentistry, Panineeya Institute of Dental Sciences and Hospital, Hyderabad, Telangana, India.
4. Professor and Head, Department of Public Health Dentistry, Panineeya Institute of Dental Sciences and Hospital, Hyderabad, Telangana, India.
5. Reader, Department of Public Health Dentistry, Panineeya Institute of Dental Sciences and Hospital, Hyderabad, Telangana, India.
6. Senior Lecturer, Department of Public Health Dentistry, Panineeya Institute of Dental Sciences and Hospital, Hyderabad, Telangana, India.
7. Reader, Department of Public Health Dentistry, Panineeya Institute of Dental Sciences and Hospital, Hyderabad, Telangana, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Dolar Doshi,
Professor, Department of Public Health Dentistry, Panineeya Institute of Dental Sciences and Research Centre
Road No. 5, Kamala Nagar, Dilsukhnagar, Hyderabad – 500060, Telangana (State), India.
E-mail: doshidolar@yahoo.com

FINANCIAL OR OTHER COMPETING INTERESTS: None.