

**ORIGINAL ARTICLE****KNOWLEDGE REGARDING ORAL HEALTH STATUS AMONG OUTPATIENT DEPARTMENT (OPD) OF PRIVATE DENTAL COLLEGE**

Samreen Mazhar<sup>1\*</sup>, Ujala Tauqir<sup>2</sup>, Raza Abbas<sup>3</sup>, Mahwish Bano<sup>4</sup>, Asghar Ali<sup>5</sup>, Farhan Sufi<sup>6</sup>

**ABSTRACT**

**Objective:** Study aimed to find out the point of consideration and the practices of oral health status among all the patients seen in the outpatient department of a private dental hospital in Karachi.

**Method:** This is a descriptive cross-sectional questionnaire-based study. Study participants were engaged through (non-probability) convenience sampling method. The self-structured questionnaires were designed. The survey form was filled out by a trained team of dental surgeons. The questions consisted of two parts, the first part comprised of demographic data and the second part was related to the knowledge about oral hygiene practices among outpatient department of private dental college.

**Result:** A total of 382 subjects visiting to out-patient departments were included. It includes 192 male and 190 female patients (mean of 1.50 and standard deviation of 0.26). The frequency, knowledge and awareness of patient's knowledge were assessed in this study. In this research study, 48.7% of people uses toothpaste to clean their teeth and 51.3% of people not use uses toothpaste, 17.0% of people uses Miswak, 1.0% of people uses charcoal and 3% of people use dental floss to clean their teeth.

**Conclusion:** This survey reveals that oral health amongst study participants was poor and needs to be better. It also showed that population of low socioeconomic area are deficient in awareness and have lack of positive attitude toward dental treatment.

**Key Words:** Awareness, Oral health status, Oral hygiene practices.

**Cite this article as:** Mazhar S, Tauqir U, Abbas R, Bano M, Ali A, and Sufi F. Knowledge regarding oral health status among outpatient department (OPD) of private dental college. Baqai J Health Sci. 2023; 24(2): 24 - 31

1\*, 3 & 4. Assistant Professor, Department of Community Dentistry  
 2. Dental Graduate  
 5. Professor, Department of Community Dentistry  
 6. Lecturer, Department of Community Dentistry  
 1-6: Baqai Dental College (BDC), Baqai Medical University (BMU)

Date of Submission: Aug 22, 2023

Date of Acceptance: Dec 11, 2023

Date of online Publication: Dec. 30, 2023

**INTRODUCTION**

The World Health Organization states that human beings free from dental diseases and other medical illnesses that limit an individual capability in biting, chewing, smiling, speaking, and psycho-social strength [1].

Oral hygiene is measured as essential to specific health however it is frequently taken for granted. On the other hand, the oral cavity is like a windowpane into the health of the individual, Oral well-being can expose signs of dietary deficiency, common bacterial contagion and many systemic illnesses that explain the oral manifestation. Communicable and non-communicable infections are closely interlinked by

the distribution of common chance such as increased sugar ingestion, tobacco use and essential inflammatory pathways [2,3]. The majority of recognizable dental diseases like dental caries, gum diseases, oral cancer, infectious disease, trauma in the form of injuries and contagious lesions. Caries involve the soft and hard tooth tissues, going on to the establishment of a cavity; just about a hundred percent of adolescents have developed dental cavities. It's an illness with significant cost-effectiveness with also increases the burden of disease [4,5].

Oral well-being is an essential part of general health and factors such as diet, oral hygiene practices, literacy, socioeconomic status and influence oral health to a great extent [6]. Poor oral health resulting from untreated dental ailments can have a considerable impact on the quality of life which may lead to deterioration of general health [7]. The thoughts of citizens on the way to their teeth and the thoughts of dental professionals who grant dental concern play a significant role in prevailing the dental strength situation of the populace [8] whereas the result of progression in medical technologies, the life expectancy has increased and nowadays the patients tend to retain their teeth for a longer time [9].

Awareness regarding the health status of the mouth is considered to be a fundamental precondition for fitness-related activities and the majority of medical diseases have oral manifestations that are frequently the 1<sup>st</sup> sign of a systemic condition [10]. Patients with cardiovascular diseases; mainly hypertensive and ischemic heart disease that include increased in number. The stage of dental procedures on these patients may concern the acute exacerbations of preexisting disease [11]. The compromised medical condition can alter the oral therapy due to their special effects on tissues of the oral cavity. Systemically sick conditions can also subsidize patients' easiness to interventions and occasionally limit the ability of an individual to maintain appropriate oral hygiene [12]. Consequently oral health has to identify the hold regarding the occurrence of previous medical conditions of the person earlier than the planning of any treatment as

occasionally these conditions may cause difficulties to the dental treatment [13,14]. The causes of diseases related to the oral cavity are mainly entrenched in poor socio-economic, environment, unhealthy lifestyle and oral health-associated behavior [15,16].

The residents of our country have been expected to be around 145.5 million followed by 18,000,000 of Karachi population occupying an area of 3,528 km<sup>2</sup>. This is the largest city and biggest port in Pakistan it is also the world's second most populated city. A different research study was to evaluate the knowledge, attitude and activities of the Pakistani population relative to treatment in dentistry among patients living in the city of Karachi, the continuation of participation through socioeconomic status (SES) and deficient knowledge. Through a good quality of education, the concept of oral health and its protection is easily understood by the community [17].

According to Pakistan's National Oral Health Survey (NOHS), the common part of citizens do not have contact with fundamental therapeutic health care services in the public and private sectors and the bulk of residents in Southeast Asian region do not have a particular trend to visit competent health facilities [18].

This might be due to low socioeconomic and learning factors but decreased knowledge and negative perceptions are important [19]. However, in our country, the prevalence of dental caries, gum disease and tartar, calculus was found as 45.9 %, 14.5%, and 14.3% respectively. World Health Organization, health promotion at community level is a cost-effective strategy to reduce the burden of dental disease and to maintain oral health. The most likely etiological factors that lead to the diseases are genetic predisposition, developmental problems, poor oral hygiene and painful incidences [20]. The purpose of this study was to determine the level of understanding and the practices of oral hygiene status among all the patients seen in outpatient department of a private dental college of Karachi.

## METHODOLOGY

This was a cross-sectional study. The total sample

size of this study was 382 and the convenience sampling technique was used. This research study was conducted from 20<sup>th</sup> December 2019 to 20<sup>th</sup> May 2020. The 192 male and 190 female patients attending the private dental college were the targeted population. The self-structured questionnaire was made and administered to the targeted population. The questionnaire was taken from different sources of research articles [21].

The survey consisted of two parts. The first part of the survey form contain personal and professional data involving age, gender, qualification and address. The second part was enclosed with 20 questions based on evaluation, knowledge and awareness including maintenance of oral hygiene, frequencies of tooth brushing, usage of Chlorhexidine mouthwashes, and consumption of bakery products

etc. The entire questions in the questionnaire were closed-ended. The team of dental surgeons attributed the questionnaires to the outpatient department. The permission for this research study was taken from the ethical review board of Dental College with the reference no BDC/ERB/2019/011.

By using the Statistical Package for Social Sciences version 20 software, the result of this study was coded and analyzed as descriptive statistics, frequency in percentages of oral hygiene status.

## RESULTS

A total of 382 outpatient departments were included. It includes genders, 192 male and 190 female patients. The frequency, knowledge and awareness of the patient's knowledge were assessed (table 1).

**Table 1: Descriptive Statistics of Age and Education Status**

Parameters		n(%)
N		382
Gender	Male	192(50.3%)
	Female	190(49.7%)
Age	10-20 years	74(19.6%)
	20-30 years	193(50.3%)
	30-40 years	80(20.9%)
	40-50 years	35(9.2%)
Education	Primary	187(49.0%)
	Secondary	105(27.5%)
	Intermediate	35(9.2%)
	Graduation	55(14.4%)

Data presented as n (%)

In the second part of the study 77.2% of people had positive feedback about knowledge of oral hygiene 22.8% had negative feedback. 58.1% of people were observed with bad breath in mouths and 41.6% of people had no bad breath. People use toothpaste to clean their teeth was 48.7% and 51.3% of people not use it. Therefore, 81.4% of people use a toothbrush, 17.0% of people use miswak, 1.0% of people use charcoal and only 3% people uses dental floss to clean their teeth. 61.8% of people have

fluoride in their toothpaste and 38.0% of people have no fluoride in their toothpaste. The group of people cleaned their tongues was 61.5% and 38.2% of people not clean their tongues. Those people have a knowledge about mouthwash was 61.5% and 38.5% of people do not know about it. People rinse their mouth after eating was 71.5% and 28.5% of people not rinsing their mouth. 78.8% of individuals think sweets and candies are bad for oral health and 20.9% people do not think so, As well as 75.9%

people think that increase consumption of sweets and cold drinks can cause dental caries while 23.8% do not think this way.

Persons have positive feedback about fizzy drinks that affect oral health were 44.5% and 55.5% of people have a negative feedback, 47.4% people feel hot and cold sensitivity and 52.4% people do not feel teeth sensitivity, 71.7% use cigarettes, cigars, niswar, chalia pan and gutka and know that is bad for oral health and 28.0% people do not use it. According to individuals, they know about dental plaque build-up on the tooth surface was 60.2%,

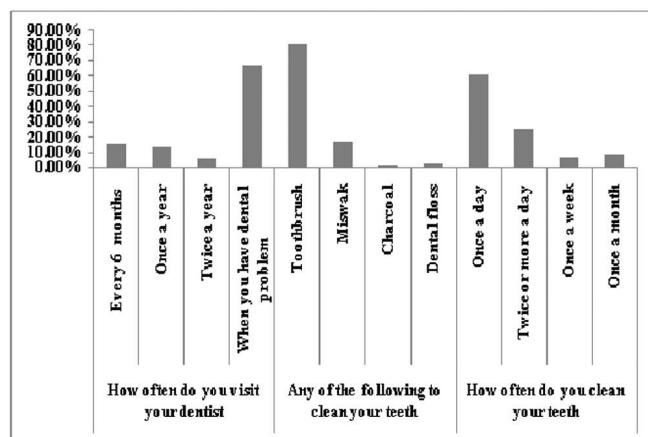
39.5% people do not know about it and 44.8% of people have inflammation and bleeding in their gums, 55.2% people have not any complain about this. 56.8% visit a dentist in dental OPD and 41.1% people don't visit the dental OPD. While 15.2% people visit the dentist every 6 months, 13.1% people visit one time a year, 05% people twice a year and 66.8% people visit when they have dental problem. The 85.3% people know that dental diseases can impact the oral health and 14.7% people do not know. However, 90.3% people think that teeth are as important as any part of the body and 9.7% people do not think in this way (table 2).

**Table 2: Awareness Regarding Oral Hygiene Status**

Parameters	YES n(%)	NO n(%)
Knowledge about oral hygiene	294(77.2%)	87(22.8%)
Bad breathe in mouth	222(58.1%)	158(41.6%)
Toothpaste to clean your teeth	186(48.7%)	196(51.3%)
Toothpaste that contain fluoride	237(61.8%)	145(38%)
Rinse your mouth after eating	274(71.5%)	108(28.5%)
Sweet candies is bad for oral health	302(78.8%)	80(20.9%)
Consumption of sweets and drinks	291(75.9%)	91(23.8%)
Fizzy drinks affect oral health	169(44.5 %)	213(55.5%)
Feel hot and cold sensitivity	182(47.4%)	200(52.4%)
Cigarette, cigar, niswar, chalia, pan and gutka bad for oral health	275(71.7%)	107(28%)
Dental plaque build-up on tooth surface	229(60.2%)	153(39.5%)
Inflammation and bleeding in your gums	171(44.8%)	211(55.2%)
Do you visit a dentist	220(56.8%)	160(41.9%)
Dental diseases can impact oral health	325(85.3%)	56(14.7%)
Teeth is important as any part of the body	344(90.3%)	37(9.7%)
Do you clean your tongue	234(61.5%)	146(38.3%)
Knowledge about mouth wash	234(61.5%)	147(38.5%)

Data presented as n (%)

Figure 1 shows the frequency of tooth brushing. Most of the people are involved in brushing teeth and do once a day.



## DISCUSSION

Oral health behavior is affected by socioeconomic circumstances, education and psychological, cultural and religious beliefs [22]. The poor health services available in rural areas are oral health of individuals was compromised [23]. The burden of oral health of the Pakistani population can be decreased by focusing on the preventive dentistry rather than management and treatment [24]. Another research study showed that 8% of the population never cleaned their teeth while 36% cleaned their teeth every day but in this study, 51.3% persons does not clean their teeth whereas 48% individuals cleaned their teeth on regular basis.

This study done in Pakistan, bad breath has been described as a serious problem that may ultimately become a social problem and the individual may refrain making from socializing with family, friends and colleagues as observed in 53% of males and 47% of females [25]. But, in our study, 58.1% of individuals faced halitosis problems due to GI disturbances. Another study reported that the tendency of brush teeth with the paste regularly was more frequent among study participants with high socioeconomic status while the low socioeconomic subjects were either not regular in the brushing or they preferred miswak [26]. In this present study, 48.7% of subjects cleaned their teeth regularly with

toothpaste and 61.8% of persons used fluoride-containing toothpaste for teeth-cleaning purposes.

The oral health burden on the Pakistani populace can be decreased by focusing on preventive dentistry rather than treatment [27]. The American Dental Association suggests that the adult dentate population must clean with toothbrush and floss their teeth at least once daily in organize to prevent dental problems and diseases. It is conventional information that a toothbrush alone is not sufficient for the complete removal of dental plaque hence the use of dental floss daily is being emphasized by dentists across the globe as part of daily oral health cleaning every day. Similar findings were found regarding the knowledge about importance of dental floss as an interdental cleaning device was rarely found in this study.

71.7% of persons had chewed smokeless tobacco in the form of betel nuts, pan, Chalia etc., whereas they also smoked cigarettes, cigars and e-cigarettes found in this present study. However in another research findings were found, Areca nut and tobacco are the key etiological causes of oral cancer. The tendency to chew betel quid with or without tobacco is very common in the Pakistani population. The use of chewing stick as the only oral cleaning material was observed in 20% of our respondents; it is comparable with this study the use of miswak or teeth stick used for teeth cleaning material was observed in 17% of our study participants.

The impact of oral diseases would be increased in this study due to socioeconomic conditions because they never visit dental hospital OPD as compared to high socioeconomic status individuals reported in other research studies [28]. According to different studies, protective oral health care is better than curative approaches health education programs take part the major significant role in prevention and tertiary care hospitals were helpful for this type of education. Many learning models related to oral hygiene aids are more useful for the prevention of oral diseases. Strong-minded hard work must be made to employ preventive dental procedures

consequently and predictable future problems. A constructive health approach and activities are closely related to good oral health. The high quality oral well-being is significant for receiving a good job; improving self-worth and success in life. Quite a few factors may affect the health activities of a person including the acquirement of Western education, cultural norms, and values [29].

### Strength and Limitations

The strength of this study is that it addresses an important public health issue by investigating the level of awareness of oral hygiene status among outpatients of a private dental hospital. The findings of the study can provide valuable insight that can be used to develop effective oral health promotion strategies and improve the overall oral health of the community. This research study did not investigate the underlying causes of poor awareness of oral hygiene, which limits its potential for public health interventions to improve oral health and did not include the control group as well.

### CONCLUSION

The findings of the study showed that most of the patients had a fair amount of knowledge about oral hygiene. They are also aware that teeth should be brushed at least twice each day along with that the toothbrush needs to be changed every three months. Additionally, it suggested that the respondents' level of education and monthly income were associated with how much they knew about oral hygiene. We could conclude that awareness of and adherence to oral health require knowledge of this topic.

**Acknowledgment:** None

**Funding Source:** None

**Author's Contribution:**

SM: Conceived idea, Manuscript writing, and responsible for data integrity

UT: Data collection

RA: Data analysis

MB: Critical analysis, proof reading

AA: Questionnaire design

FS: Data interpretation

### REFERENCES

1. Santosh AB, Muddana K. Viral infections of oral cavity. *J Fam Med Prim Care*. 2020;9(1):36-40. DOI: 10.4103/jfmpc.jfmpc\_807\_19.
2. Petrauskienė S, Mushayev H, Zemgulytė G, Narbutaitė J. Oral health awareness among international dental and medical students at Lithuanian University of Health Sciences: a cross-sectional study. *J Oral Maxillofac Res*. 2019;10(4):1-9. DOI: <http://dx.doi.org/10.5037/jomr.2019.10403>.
3. Al-Wesabi AA, Abdelgawad F, Sasahara H, El Motayam K. Oral health knowledge, attitude and behaviour of dental students in a private university. *BDJ Open*. 2019;5(1):16-20. DOI: <https://doi.org/10.1038/s41405-019-0024-x>.
4. Frencken JE, Sharma P, Stenhouse L, Green D, Laverty D, Dietrich T. Global epidemiology of dental caries and severe periodontitis—a comprehensive review. *J Clin Periodontol*. 2017; 44 (18): 94–105. DOI: 10.1111/jcpe.12677.
5. Hussein AA, Helder MN, de Visscher JG, Leemans CR, Braakhuis BJ, de Vet HC, et al. Global incidence of oral and oropharynx cancer in patients younger than 45 years versus older patients: a systematic review. *Europ J Canc*. 2017;115-27. DOI: <https://doi.org/10.1016/j.ejca.2017.05.026>.
6. Randhawa AK, Veerasha KL, Gambhir RS, Sohi RK, Bansal V, Dodamani A. Assessment of oral health status, treatment needs, coverage and access barriers of patients reporting to a rural dental college in Northern India. *J Indian Assoc Pub Healt Dent*. 2011;9(18):899-905. Website link: [https://journals.lww.com/aphd/Abstract/2011/09004/Assessment\\_of\\_oral\\_health\\_status,\\_treatment\\_needs,.44.aspx](https://journals.lww.com/aphd/Abstract/2011/09004/Assessment_of_oral_health_status,_treatment_needs,.44.aspx).
7. Petersen PE. The World Oral Health Report 2003: continuous improvement of oral health in the 21st century—the approach of the WHO Global Oral Health Programme. *Com Dent Oral Epi*. 2003;1-45. Website link: [https://iris.who.int/bitstream/handle/10665/68506/WHO\\_NMHNPH\\_ORH\\_03.2.pdf;j](https://iris.who.int/bitstream/handle/10665/68506/WHO_NMHNPH_ORH_03.2.pdf;j).
8. Gholami M, Pakdaman A, Montazeri A, Jafari A, Virtanen JI. Assessment of periodontal

knowledge following a mass media oral health promotion campaign: a population-based study. *BMC Oral Healt.* 2014;14(1):31-36. DOI: <https://doi.org/10.1186/1472-6831-14-31>.

9. Sherman P, Moscou S, Dang-Vu C. The primary care crisis and health care reform. *J Healt Care Poor Underserv.* 2009;20(4):944-50. Website link: [http://www.clinicians.com/images/upload/JHCPU\\_Sherman.pdf](http://www.clinicians.com/images/upload/JHCPU_Sherman.pdf).
10. Al-Ansari J, Honkala E, Honkala S. Oral health knowledge and behavior among male health sciences college students in Kuwait. *BMC Oral Healt.* 2003;3(1):1-6. DOI: <https://doi.org/10.1186/1472-6831-3-2>.
11. Dajani AS, Taubert KA, Wilson W, Bolger AF, Bayer A, Ferrieri P, et al. Prevention of bacterial endocarditis: recommendations by the American Heart Association. *Circulat.* 1997;96(1):358-66. DOI: <https://doi.org/10.1161/01.CIR.96.1.358>.
12. Defabjanis P. Impact of nasal airway obstruction on dentofacial development and sleep disturbances in children: preliminary notes. *J Clin Pediat Dent.* 2004;27(2):95-100. Website link: [http://meridian.allenpress.com/jcpd/article-pdf/27/2/95/1746330/jcpd\\_27\\_2\\_2793422111846711.pdf](http://meridian.allenpress.com/jcpd/article-pdf/27/2/95/1746330/jcpd_27_2_2793422111846711.pdf) by Bharati Vidyapeeth Dental College & Hospital user on 25 June 2022.
13. Kaur J. Assessing the Medical Health Statistics of patients in a Dental Institute. *J Advanc Med Dent Sci Res.* 2017;5(9):64-8. DOI: 10.21276/jamdsr.2017.5.9.15.
14. Brindley MJ, Longman LP, Randall C, Field EA. Drug profile of adult patients attending five general dental practices in Merseyside: oral side-effects and potential interactions with dentally prescribed medication. *Prim Dent Car.* 2003;10(4):113-8. DOI: <https://doi.org/10.1308/135576103322363479>.
15. Haider T, Yousaf Z, Khan AG, Fatima S. Awareness and practice of oral hygiene and its relation to socio-demographic factors among patients attending general OPD: Oral Hygiene & its Relation to Socio-Demographic Factors. *Pak BioMed J.* 2022;80-3. DOI: <https://doi.org/10.54393/pbmj.v5i2.301>.
16. Singh M, Saini A, Saimbi CS, Bajpai AK. Prevalence of dental diseases in 5-to 14-year-old school children in rural areas of the Barabanki district, Uttar Pradesh, India. *Ind J Dent Res.* 2011;22(3):396-401. DOI: <https://doi.org/10.4103/0970-9290.87060>.
17. Sharda AJ, Shetty S. Relationship of periodontal status and dental caries status with oral health knowledge, attitude and behavior among professional students in India. *Int J Oral Sci.* 2009;1(4):196-206. DOI: <https://doi.org/10.4248/IJOS09061>.
18. Uribe SE, Innes N, Maldupa I. The global prevalence of early childhood caries: a systematic review with meta-analysis using the WHO diagnostic criteria. *Int J Paediat Dentis.* 2021;31(6):817-30. DOI: <https://doi.org/10.1111/ipd.12783>.
19. Blaggana A, Grover V, Kapoor A, Blaggana V, Tanwar R, Kaur H, et al. Oral health knowledge, attitudes and practice behaviour among secondary school children in Chandigarh. *J Clinic Diagnost Res: JCDR.* 2016 Oct;10(10):ZC01. DOI: <https://doi.org/10.7860%2FJCDR%2F2016%2F23640.8633>.
20. Paul B, Basu M, Dutta S, Chattopadhyay S, Sinha D, Misra R. Awareness and practices of oral hygiene and its relation to sociodemographic factors among patients attending the general outpatient department in a tertiary care hospital of Kolkata, India. *J Fam Med Prim Care.* 2014;3(2):107. DOI: <https://doi.org/10.4103/2F2249-4863.137611>.
21. Shah SM, Merchant AT, Luby SP, Chotani RA. Addicted schoolchildren: Prevalence and characteristics of areca nut chewers among primary school children in Karachi, Pakistan. *J Paediat Child Healt.* 2002;38(5):507-10. DOI: <https://doi.org/10.1046/j.1440-1754.2002.00040.x>.
22. Guarnizo-Herreño CC, Watt RG, Fuller E, Steele JG, Shen J, Morris S, et al. Socioeconomic position and subjective oral health: findings for the adult population in England, Wales and Northern Ireland. *BMC Pub Healt.* 2014;14(1):1-9. DOI: <https://doi.org/10.1186/1471-2458-14-827>.

23. Shah MA, Darby ML, Bauman DB. Improving oral health in Pakistan using dental hygienists. *Int J Dent Hyg.* 2011;9(1):43-52. DOI: <https://doi.org/10.1111/j.1601-5037.2009.00434.x>.
24. McKeown L. Social relations and breath odour. *Int J Dent Hyg.* 2003;1(4):213-7. DOI: <https://doi.org/10.1034/j.1601-5037.2003.00056.x>.
25. Al-Qahtani SM, Razak PA, Khan SD. Knowledge and practice of preventive measures for oral health care among male intermediate schoolchildren in Abha, Saudi Arabia. *Int J Environment Res Pub Healt.* 2020;17(3):703. DOI: <https://doi.org/10.3390/ijerph17030703>.
26. Al-Ansari J, Honkala E, Honkala S. Oral health knowledge and behavior among male health sciences college students in Kuwait. *BMC Oral Healt.* 2003;3(1):1-6. DOI: <https://doi.org/10.1186/1472-6831-3-2>.
27. Al-Darwish MS. Oral health knowledge, behaviour and practices among school children in Qatar. *Dent Res J.* 2016;13(4):342-348. DOI: <https://doi.org/10.4103%2F1735-3327.187885>.
28. Maida CA, Marcus M, Hays RD, Coulter ID, Ramos-Gomez F, Lee SY, et al. Child and adolescent perceptions of oral health over the life course. *Qual Life Res.* 2015;24(11): 2739-51. DOI: <https://doi.org/10.1007/s11136-015-1015-6>.
29. Aliyu I, Michael GC, Teslim LO, Ibrahim ZF. Oral hygiene practices among patients seen in the general outpatient clinic of a tertiary health center. *SRM J Res Dent Sci.* 2017;8(4):152-6. DOI: [10.4103/srmjrd.srmjrd\\_28\\_17](https://doi.org/10.4103/srmjrd.srmjrd_28_17).

## REFERENCES

Number references consecutively in the order in which they are first mentioned in the text. Identify references in text, tables and legends for illustrations by arabic numerals in parenthesis. References cited only in tables or in legends should be numbered in accordance with a sequence established by the first identification in the text of the particular table or illustration. Use the style of the examples that follow, which are based, with slight modifications, on the formats used by the US National Library of Medicine in Index Medicus. The titles of journals should be abbreviated according to the style used in Index Medicus. Consult List of Journals Indexed in Index Medicus, published annually as a sepa rate publication by the library and as a list in the January issue of Index Medicus. Try to avoid using abstracts as references; unpublished observations and personal communications may not be used as references, although references to writ ten, not oral, communications may be inserted (in parenthesis) in the text. Include among the references papers accepted but not yet published; designate the journal and add "in press" in parenthesis. Information from manuscripts submitted but not yet accepted should be cited in the text as "unpublished observations" (in parenthesis). The references must be verified by the author(s) against the original documents.

*(Uniform requirements for manuscripts submitted to biomedical journals)*