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Original Research Article

Assessment of oral health awareness and hygiene practice in hemophilic patients in Indore: A cross-sectional study

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ABSTRACT

Background: Haemophilia is a genetic X linked recessive bleeding disorder characterized by a deficiency or absence of certain clotting factors in the blood, primarily factors VIII (haemophilia A) or factor IX (haemophilia B). Dental caries and periodontal diseases are two main oral diseases affecting majority of population, but their effects are enhanced in hemophiliacs and medically compromised patients. There is a lack of epidemiological studies regarding oral health and oral hygiene of hemophilic patient especially in central India. This study therefore, aimed to evaluate the oral hygiene awareness and hygiene practices of patients with hemophilia in Indore district.

Materials and Methods: This cross-sectional study was conducted on 30 hemophilic patients who were selected via snow ball sampling technique. The patients who were ready to participate voluntarily in the study were included. A study questionnaire in Hindi and English was given to the patients to obtain their knowledge about oral hygiene and dental health awareness.

Results: Thirty hemophilic patients participated in the study with a mean age of 20 ± 15 years. All the participants were male. Although hemophilic patients were conscious of oral hygiene, the study found most of them had poor dental practices. The majority of participants (56.67%) reported of using soft-bristled brushes. Only 56.67% of the participants reported cleaning their mouths after meals and having seen gum bleeding. The majority of hemophilia patients (46.15%) reported using Factor VIII, while some also used Tranexamic acid (15.39%).

Conclusion: Oral hygiene is crucial for everyone, but it holds particular importance for individuals with hemophilia. Good oral hygiene reduces the need for invasive dental treatments, minimizing potential complications.

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1. Introduction

Hemophilia is a genetic X linked recessive bleeding disorder characterized by a deficiency or absence of certain clotting factors in the blood, primarily factors VIII (hemophilia A) or factor IX (hemophilia B). This condition is typically inherited, and it predominantly affects males, while females

are usually carriers of the disease. This condition can result in prolonged bleeding episodes, difficulty in clot formation, and increased susceptibility to spontaneous bleeding or excessive bleeding after injury. According to the World Federation of Hemophilia (WFH), there are an estimated 815,100 cases of hemophilia worldwide.¹ The prevalence of hemophilia in India is 1 in 5,000 for Hemophilia A and 1 in 30,000 for Hemophilia B. In case

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of haemophilia B, the prevalence rate of 0.1 per 1,00,000 population in India is 13 times lower to the prevalence rate of the USA (1.3 per 1,00,000).²

Dental caries and periodontal diseases are two main oral diseases affecting majority of population, but their effects are enhanced in hemophilic and medically compromised patients. Hemophilic patients are prone to spontaneous bleeding. These individuals fear tooth-brushing and recommended prophylactic measures in their daily routine to prevent bleeding episodes, hence these are more prone than the general population to dental caries and periodontal disorders.³ Good oral hygiene is linked to overall health. Poor oral health has been associated with various systemic conditions, and individuals with hemophilia need to maintain their overall health to manage the challenges posed by their bleeding disorder. Good oral health reduces the risk of bleeding in daily routine and even complications during dental treatments, allowing for a smoother and safer experience.

Hemophilic patients who prioritize oral hygiene can avoid the discomfort and complications associated with oral health issues, leading to an improved overall well-being. Consistent and gentle oral care, combined with proper maintenance of plaque control and good oral hygiene, can play a significant role in minimizing the risk of bleeding complications in individuals with hemophilia.

Though the majority of dental procedures carry no risks, patients with hemophilia are often anxious about getting dental care. Anxiety can be greatly increased by the fear of bleeding during or after dental treatments. To promote effective oral hygiene in hemophilic patients, it is essential to provide education on gentle brushing techniques, the use of soft-bristled brushes, and the importance of regular dental check-ups. Oral health education develops awareness in the patient about the importance of regular professional prophylaxis, examination, and treatment. Additionally, collaboration between dental and medical professionals is crucial to develop personalized oral care plans that address the unique needs and challenges of individuals with hemophilia.

There is a lack of epidemiological studies regarding oral health and oral hygiene of hemophilic patient especially in central India. This study therefore, aimed to evaluate the oral hygiene awareness and hygiene practices of patients with hemophilia in Indore district.

2. Aims and Objectives

1. To assess the oral health awareness among hemophilic people in Indore district.
2. To study the oral hygiene practices adopted and practiced by the haemophilic patients in Indore district.

3. Materials and Methods

3.1. Pilot study

A pilot study was carried out in 10% study subjects to assess the operational feasibility of the study.

3.2. Sample size

This cross-sectional study was conducted on 30 hemophilic patients via snow ball sampling technique, who gave informed consent. Sample Size was obtained based on the previous studies.

3.3. Study procedure

This cross-sectional study was conducted on 30 hemophilic patients who were selected via snow ball sampling technique. The patients who were ready to participate voluntarily in the study were included. A study questionnaire in Hindi and English was given to the patients to obtain their knowledge about oral hygiene and dental hygiene practices. The questionnaire was split into two sections. Section A- General Section which was made to collect socio-demographic details of the participants (age, gender, occupation, education, etc.). Section B included the questions to evaluate the knowledge, practices, and awareness related to oral health and frequency of dental visits in a year. The questionnaire was distributed as Google form. After the study subjects fill the Google forms, the MS excel sheets were obtained from these Google forms. In the end, patient education was done on telephonic call and an e-brochure containing information about oral health and dental hygiene practices and necessary precautions to be taken by hemophilic patients was provided to them.

4. Results

Thirty hemophilic patients participated in the study with a mean age of 20 ± 15 years. All the participants were male.

Although hemophilic patients were conscious of oral hygiene, the study found most of them had poor dental practices. All participants used toothbrush and toothpaste to clean their teeth; 90% reported doing so once day, while 10% reported doing so twice. Also, there was variation among the subjects regarding the time taken for tooth brushing ranging from 30 secs in 6.6% to more than 2 minutes in 26.67%.

The majority of participants (56.67%) reported of using soft-bristled brushes, and few individuals (43.3%) were using medium-hard bristled brushes. There was significant variation in the time interval between change of toothbrush ranging from three months (46.67%) to six months (30%), and 23.33% of participants reported they changed their toothbrushes when the bristles began to fray.

70% of participants utilize a variety of techniques to brush their teeth, however the majority (83.33%) do not use

either mouthwash or dental floss (86.67%).

Only 56.67% of the participants reported cleaning their mouths after meals and having seen gum bleeding. The majority of these participants (82.35%) employed self-medication to stop the bleeding, while 11.76% sought medical attention, and 5.88% did nothing to stop the bleeding. 63.33% of respondents said they have never complained about poor mouth odor.

The majority of them (50%) claimed to only see the dentist when they had a problem, while 6.67% claimed to go once a year and 43.33% claimed to have never been to a dentist before.

The majority of hemophilia patients (46.15%) reported using Factor VIII, while some also used Tranexamic acid (15.39%), followed by those who used both (30.77%) and those who did not take any medicine at all (13.33%).

While 13.33% of hemophilic patients reported teeth blackening and 10% reported tooth decay. 76.67% of patients reported having no oral health issues at present, though they had often noticed on and off bleeding episodes during brushing or eating.

In contrast to 20% who claimed to have used painkillers for toothaches, 80% of hemophiliacs mentioned they had never used any medications.

Only 13.33% of patients reported complications following surgical intervention, including bleeding, pain, infections, and decreased mouth opening while 86.67% reported no complications at all.

All participants used a toothbrush and toothpaste to clean their teeth; 90% reported doing so once day, while 10% reported doing so twice. (p-value – 0.979)

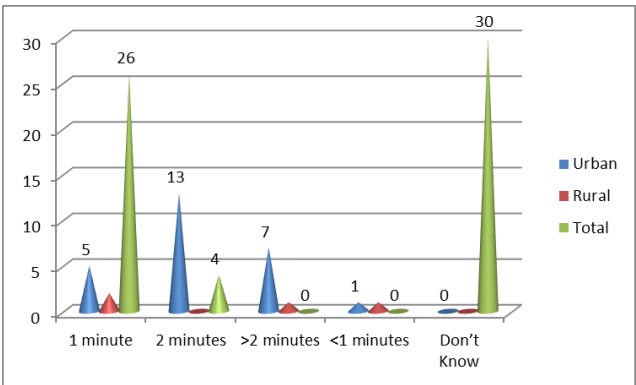


Figure 1: Shows the frequency of brushing teeth among urban and rural patients

Among those who, said they brushed their teeth, 43.33% said they did so for two minutes each day, 26.67% said they did so for more than two minutes, and 23.33% said they did so for just one minute. (p-value – 0.06).

Table 1: (A) Knowledge regarding Oral hygiene among hemophilia patient

Variables	Frequency	Percentage (%)
Do you clean your teeth?		
Yes	30	100
No	0	0
Do you agree oral health is related to your overall systemic health ?		
Yes	25	83
No	5	17
Do you know regular dental check-up essential for individuals with hemophilia?		
Yes	30	100
No	0	0
What sources do you use for information about oral health?		
Television and media	21	70
Family and friends	5	16.6
Internet/Online articles	3	10
Medical and Oral health professionals	04	13.3
Do you know most dental treatments are safer in hemophilic patients?		
Yes	10	33.33
No	20	66.66
Do you know type of toothbrush and brushing technique recommended for individuals with hemophilia?		
Yes	4	13.33
No	26	86.66
Do you know preventive measures recommended to prevent excessive bleeding in hemophilic patients?		
Yes	12	40
No	18	60
Are you aware of dental diseases such as gingivitis and periodontitis and dental caries		
Yes	30	100
No	0	0
Do you believe individuals with hemophilia have specific oral health considerations?		
Yes	23	76.66
No	7	23.33
How often do you think individuals with hemophilia should have dental check-ups for optimal oral health?		
Only during emergencies	0	0
Every 6 months	5	17
Once a year	25	83
No specific frequency	0	0

5. Discussion

There is a lack of epidemiological studies on oral health practices among hemophilia patients. The present study aims to assess the awareness among hemophilic patients and the oral hygiene practices adopted by the hemophilic patients of Indore district. As hemophilia is a X linked genetic disease, all the participants included in the study were male.

Table 2: Oral hygiene practices among hemophilic patients

What hygiene aid do you use to clean your teeth?		
Neem Stick	0	0
Charcoal	0	0
Brush and Finger	0	0
Brush and toothpaste	30	100
Toothpowder and finger	0	0
Toothpowder and toothbrush	0	0
Any other (Specify)	0	0
How many times a day you brush your teeth?		
Once daily	27	90%
Twice daily	3	10%
After every meal	0	0
More than 2 times	0	0
How much time do you take for brushing?		
1 minute	7	23.33%
2 minutes	13	43.33%
More than 2 minutes	8	26.67%
Less than 1 minutes	2	6.67%
Don't know	0	
Do you clean your tongue?		
Yes	17	56.67%
No	13	43.33%
How often you change your tooth brush?		
3 months	14	46.67%
6 months	9	30%
A year	0	0
Till bristles fray	7	23.33%
What type of tooth brush you use?		
Hard	0	0
Medium	13	43.33%
Soft	17	56.67%
What technique you use to brush your teeth?		
Vertical	1	3%
Horizontal	5	16.67%
Circular	3	10%
Combined	21	70%
Do you use mouthwash?		
Yes	5	16.67%
No	25	83.33%
Do you use dental floss?		
Yes	4	13.33%
No	26	86.67%
Do you rinse your mouth after eating?		
Yes	17	56.67%
No	13	43.33%
Do you ever notice bleeding in your gums?		
Yes	17	56.67%
No	13	43.33%
If, the answer to the above question is yes, What Step you took		
Have you or your friends/ relatives noticed bad smell from your mouth?		
Yes	11	36.67%
No	19	63.33%
How often you visit Dentist?		
Never	13	43.33%
Once a year	2	6.67%
Once in 6 months	0	0
Only in problem	15	50%
Always	0	0

Table 3: Shows the frequency of brushing teeth among rural and urban areas

	Urban	Rural	Total
Once Daily	26	1	27
Twice Daily	3	0	3
After Every Meal	0	0	0
>2 times	0	0	0
Total	29	1	30

Table 4: Depicts the average time taken for brushing teeth

	Urban	Rural	Total
1 minute	7	0	7
2 minutes	13	0	13
>2 minutes	7	1	8
<1 minutes	2	0	2
Don't Know	0	0	0
Total	29	1	30

Table 5: Shows frequency of changing toothbrush in both urban and rural areas where the average interval between changes is three months (46.67%), followed by six months (30%). 23.33% of participants said they changed their toothbrushes when the bristles began to fray. (p-value – 0.261)

	Urban	Rural	Total
3 months	11	0	11
6 months	8	1	9
12 months	3	0	3
Till bristles fray	7	0	7
Total	29	1	30

Table 6: Shows the preferred type of toothbrush where the majority of participants— 56.67%—uses soft-bristled brushes. (p-value – 0.016)

	Urban	Rural	Total
Hard	0	0	0
Medium	12	1	13
Soft	17	0	17
Total	29	1	30

Table 7: Shows the prevalence of gum bleeds where only 56.67% of the participants reported cleaning their mouths after meals and having seen gum bleeding. (p-value – 0.004)

	Urban	Rural	Total
Yes	16	1	17
No	13	0	13
Total	29	1	30

Table 8: Shows the prevalence of poor mouth odor in the participants where 63.33% of respondents said they never had complaint about poor mouth odor. (p-value – 0.044)

	Urban	Rural	Total
Yes	11	0	11
No	18	1	19
Total	29	1	30

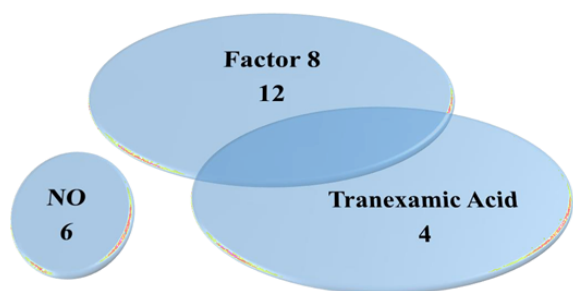


Diagram 1: Venn diagram showing that majority of hemophilia patients (46.15%) reported using Factor VIII, while some also used Tranexamic acid (15.39%), followed by those who used both (30.77%) and those who did not take any medicine at all (13.33%)

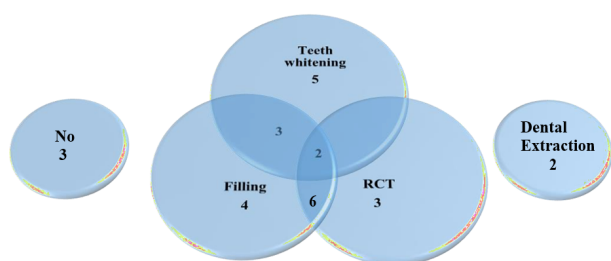


Diagram 2: Venn diagram show the different procedures/interventions/oral surgery undergone by the participants where 90% of people had any kind of oral surgery, intervention, or procedure

In the present study, it was found that although hemophilic patients were fairly conscious of oral hygiene, most of them had poor dental practices. S Sharma et al.⁴ in their recent study found that the dental health status of hemophilic children was poor and treatment requirement was high among them.³ Similar results were found in another study where the oral hygiene of hemophilic patients was poor when compared to the healthy controls.^{4,5} In a study by KS Reddy et al.⁶ oral hygiene status of hemophilic children was poor and treatment requirement was high among hemophilic children.⁷ On contrary to this, some authors^{8–11} have observed that in most hemophilic patients have good oral health status and oral hygiene status of hemophilic patients was fair.

The present study shows that the majority of hemophilic patients do not use dental floss due to fear of bleeding which is similar to the results of the study by Katayoun Salem et al.¹² This finding indicates a lack of awareness and adequate knowledge regarding oral hygiene and the means of preventing dental disease, which in turn has resulted in gross neglect of the oral health of hemophilic patients. In another study it was observed that people with hemophilia

may neglect their oral hygiene due to the fear of bleeding during brushing, leading to an increase in dental caries, gingivitis and periodontitis.¹³

In the present study 56.67% hemophilic patients noticed bleeding gums out of which only 11.76% sought for medical attention and 82.35% employed self-medication. Regular dental care is therefore of prime importance for this group of patients. Proper guidance and motivation, including preventive and restorative measures, should be given to hemophiliacs. At each routine hemophilia follow-up visit, there should be written documentation about the patient's oral health status and advice should be provided on preventive care. The use of patient leaflets should be encouraged.

However, in the present study, most of the patients (50%) visit the dentist only when they had problem while some (6.6%) claimed to go once a year and 43.33% claimed to have never been to the dentist before.

In the present study, 13.33% hemophilic patients were not taking any kind of medication. 5 patients (16.6%) received factor VIII, 2 patients (6.6%) received factor IX, 1 patient (3.3%) used blood products, and 1 patient (3.3%) received recombinant factor therapy.

6. Conclusion

Oral hygiene is crucial for everyone, but it holds particular importance for individuals with hemophilia. Good oral hygiene reduces the need for invasive dental treatments, minimizing potential complications. Preventive measures, such as proper brushing and flossing, play a pivotal role in minimizing the risk of gingival and periodontal diseases. Guidelines for dental treatment of patients with inherited bleeding disorders (The World Federation of Hemophilia 2006) suggest that regular dental check-ups are crucial for individuals with hemophilia to monitor oral health and address any issues promptly. Dental education on oral hygiene and oral health in individuals with hemophilia is essential to empower patients and healthcare providers with the knowledge and skills needed to manage oral health effectively.

7. Source of Funding

None.

8. Conflict of Interest


None.

References

1. Ndoumba-Mintya A, Diallo YL, Tayou TC, Mbanya DN. Optimizing Haemophilia Care in Resource-Limited Countries: Current Challenges and Future Prospects. *J Blood Med*. 2023;14:141–6.
2. Kar A, Phadnis S, Dharmarajan S, Nakade J. Epidemiology & social costs of haemophilia in India. *Indian J Med Res*. 2014;140(1):19–31.

3. Gupta A, Epstein JB, Cabay RJ. Bleeding disorders of importance in dental care and related patient management. *J Can Dent Assoc.* 2007;73(1):77–83.
4. Sharma S, Shahi AK, Chandra S, Abdul NS, Singh B, Singh R, et al. State of Dental Health and Management Needs of Young Hemophilic Patients: A Case-control Study. *Int J Clin Pediatr Dent.* 2023;16(2):380–7.
5. Mulders G, Verseveld HV, Geer JVD, Wolvius E, Leebeek F. The state of oral health in patients with haemophilia in the Netherlands. *Haemophilia.* 2023;29(2):466–78.
6. Reddy KS, Reddy NV, Niharika P, Reddy MA, Danaeswari V, Noorjahan MD. Oral health status and treatment needs among hemophilic children in Hyderabad, Telangana, India. *Int J Clin Pediatr Dent.* 2019;12(1):30–2.
7. Abrisham M, Tabrizizadeh M, Ghateh A. Knowledge of oral hygiene among hemophilic patients referred to Iranian Hemophilia Society. *J Dent Res Dent Clin Dent Prospects.* 2009;3(2):60–3.
8. Kumar M, Pai KM, Kurien A, Vineetha R. Oral hygiene and dentition status in children and adults with hemophilia: A case-control study. *Spec Care Dentist.* 2018;38(6):391–4.
9. Baskirt EA, Ak E, Zulfikar B. Oral and general health-related quality of life among young patients with haemophilia. *Haemophilia.* 2009;15(1):193–8.
10. Katz JO, Terezhalmay GT. Dental management of the patient with hemophilia. *Oral Surg Oral Med Oral Pathol.* 1988;66(1):139–44.
11. Gupta A, Epstein JB, Cabay RJ. Bleeding disorders of importance in dental care and related patient management. *J Can Dent Assoc.* 2007;73(1):77–83.
12. Kanjani V, Annigeri RG, Hanagavadi S, Manjunath MR. Comparative analysis of oral health and treatment necessities in hemophilia individuals of Davangere population-A case control study. *J Family Med Prim Care.* 2020;9(9):4774–7.
13. Salem K, Seyyedkhamesi S, Aminian M. Evaluation of oral and dental health status in hemophilic children and adolescents in the city of Rasht. *J Pediatr Res.* 2018;5(4):182–6.


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