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Original Research Article

A study on open air defecation practices among the population above 6 years in rural field practice area of Santhiram Medical College, Nandyal, Kurnool dist, Andhra Pradesh

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ABSTRACT

Background: Open air defecation can be defined as the excretion of human excreta in open places such as park, roadside, vegetable patch, agricultural fields and railway track other than toilets. Open air defecation may leads to various health problems such as soil pollution, water pollution, contamination of foods and propagation of flies. Nearly 74% of India's population live in rural areas and the majority of them "go to the fields" for defecation and thereby pollute the environment with human excreta. The aims and objectives of the study were to find the association between defecation practices and socio-demographic variables; to assess the prevalence of hook-worm infestation and anemia among them.
Methods: A cross sectional study was conducted. Sample size was 550 and simple random sampling. Chi-square test was applied.
Results: The prevalence of open air defecation was 441 (80.2%). 270 (61.2%), 171 (38.8%) were males and females; 23.3% were habit of hand washing with soap after toilet. 87 (19.7%), 63 (14.3%), 43 (9.7%) were found to be having hook worm, round worm, and pin worm infestation in the stool examination. 32 (35.5%), 21 (23.3%), 37 (41.1%) were having severe anemia, moderate anemia, and mild anemia.
Conclusions: 335 (60.9%), 106 (19.3%) people were going for open air defecation and inspite of having toilet at home. 226 (51.2%) belong to lower socio economic class. The association between socio demographic profile and open air defecation was significant (χ^2=0.02, p<0.05).

Keywords: Open air defecation, Sanitary latrine, Contamination of water, Hand washing

INTRODUCTION

Health is a fundamental human right. It is central to the concept of quality of life. Health and its maintenance is a major social investment and is World-wide social goal. Health is multidimensional. This health may be assessed by such indicators as death rate, infant mortality rate and expectation of life. Ideally, each piece of information should be individually useful and when combined should permit a more complete health profile of individuals and communities.[1]

WHO and UNICEF estimated that one third of the population still lack access to basic sanitation facilities. The unserved population primarily resides in lower income countries in Africa and South Asia and within rural areas. The lacks of adequate sanitation for half of the earth's population indicate that open air defecation is practiced by millions of people. Open air defecation is generally found in developing countries, particularly in low income rural and peri-urban communities.[2]

Excreta disposal is undoubtedly one of the key elements of any emergency sanitation programme. Containment and safe disposal of human excreta is the primary barrier to transmission of excreta related diseases. Implementing agencies often focus solely on the quantity of toilets in emergency situation, however, and pays scant attention to their quality and usage.[3]

The sanitation millennium development goal is way off track. If the current trend persists, more than half a billion people will not get the sanitation they need by 2015; and the goal will only be met in 2026. As a result, in the years from 1990 and 2026 another 10 million children will have needlessly died. Even if the goal is met by 2015, 5.4 million children will still die.[4]

Human faeces left in the open fields, bushes or drains generate millions of viruses, bacteria and parasites. House flies usually fly between these faeces and the food we eat including fruits. And when we eat these contaminated foods, we have inadvertently eaten our own or other people's faeces! We therefore open ourselves up for illness that can even lead to deaths.[5]

Human excreta and the lack of adequate personal and domestic hygiene have been implicated in the transmission of many infectious diseases including cholera, typhoid, hepatitis, polio, cryptosporidiosis, ascariasis, and schistosomiasis.[12] Hence proper excreta disposal and minimum levels of personal and domestic hygiene are essential for protecting public health. Safe excreta disposal and handling act as the primary barrier for preventing excreted pathogens from entering the environment.[6]

Swachh Bharat Abhiyan is a clean India drive and Mission launched as a national campaign by the Indian Government in order to covering the 4041 statutory towns aiming maintained cleanliness of streets, roads and infrastructure of the country. Indian Prime Minister, Narendra Modi has officially launched this mission on 2nd of October (the birth anniversary of the Mahatma Gandhi) in 2014 at the Rajghat, New Delhi (cremation of Bapu). While launching the event Prime Minister himself had cleaned the road. It is the biggest cleanliness drive ever in India when approximately 3 million government employees including students from schools and colleges took part in the cleanliness activities.

On the day of launch of the event PM himself has nominated the name of nine people to participate in the cleanliness drive in their own areas. Schools and colleges have participated in the event by organizing many cleanliness activities according to their own themes. Students of India participated in this event. PM had also requested to all those nine nominees to call another nine people separately to participate in this cleanliness drive as well as continue the chain of calling nine people by each and every participated candidate of the mission until the message reach to the every Indian in every corner of the country to make it a national mission.

This mission aimed to join each and every Indian people from all walks of life by making the structure of branching of a tree. Swachh Bharat mission aimed to construct individual sanitary latrines for household purposes for the people living under poverty line, converting dry latrines into low-cost sanitary latrines, provide facility of hand pumping, safe and secure bathing, set up sanitary marts, construct drains, disposal of solid and liquid wastes, enhance health and education awareness, provide household and environmental sanitation facilities and many more.[7]

Need for the study

The primitive methods of excreta disposal, especially in rural areas where 80% of population lives. The causes of most of the leading diseases are our country is deeply rooted in the environment. It is therefore essential to have some changes in the environment especially with regard to disposal of waste and human excreta which is vital importance to keep diseases away.[8]

Open air defecation is widely prevalent in rural India where even today not more than 3% population has access to sanitary latrines. Many efforts have been made by governmental and non-governmental agencies in the past to popularize the sanitary latrines in Indian villages.[9]

A study shows that in Andhra Pradesh more than 72% of the villagers do not have toilet facilities and open air defecation has become an integral part of their life.[10]

In my study was assessed to the hazards of open air defecation and to motivate the peoples to the use of sanitary latrines and educate the people to the maintain personal hygiene.

METHODS

The present study was a community based cross-sectional study taken up in the rural field practice area of Department of Community Medicine, Santhiram Medical College, Nandyal. This area is located within a radius of 22 kms from the college having a population of 24,680 from which the 550 sample size of persons was collected at random.

Majority of the population belonged to the lower and middle socio-economic status, having both literates and illiterates and unskilled workers and the main language spoken was Telugu. The majority of the population was Hindus and followed by Muslims and Christians. The main occupation was agriculture.

Majority of the people were practicing open air defecation and some people were practicing open air defecation inspite of having their own latrine at home and

few people were using latrine at home. For open air defecation people were choosing deferent locations-mostly at agricultural farms and at near surroundings of the house and even near the drinking water sources.

Sample size

550 people above 6 years age group.

Sample method

Simple random sampling.

Nature of study

Community based cross sectional study.

Study place

Nandivargam village, Nandyal Taluk, Kurnool District, A.P.

Study group

All residents above 6 years of age in the rural field practice area of Santhiram Medical College, Nandyal.

Inclusion criteria

Inclusion criteria were all people of above 6 years of age in rural practicing area of Santhiram Medical College, Nandyal.

Exclusion criteria

Exclusion criteria were people who are not willing to participate in the study; children below 6 years of age; those were not present at their residences during the study

Data analysis

The following soft wares were used for the data analysis: Microsoft Excel- 2013 for entering the data; SPSS version 16 for cross tabulation and analysis.

RESULTS

The defecation practices among the study population (550) were: majority 335 (60.9%) were practicing open air defecation as they did not possess own latrine; 109 (19.8%) were using own latrine at home; 106 (19.3%) were practicing open air defecation in spite of having own latrine at home (Figure 1).

The prevalence of open air defecation was 441 (80.2%); in this 46 (10.4%) of people were 6-15 years age group practicing open air defecation, 187 (42.4%) of people were in 16-44 years, 169 (38.3%) of people were in 45-60 years and 39 (8.8%) of people were in >60 years (Figure 2).

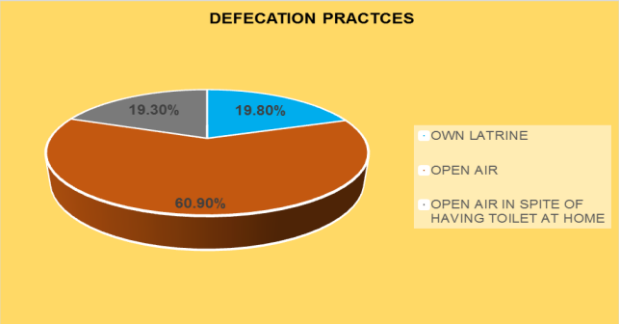

Figure: 1: Distribution of defecation practices.

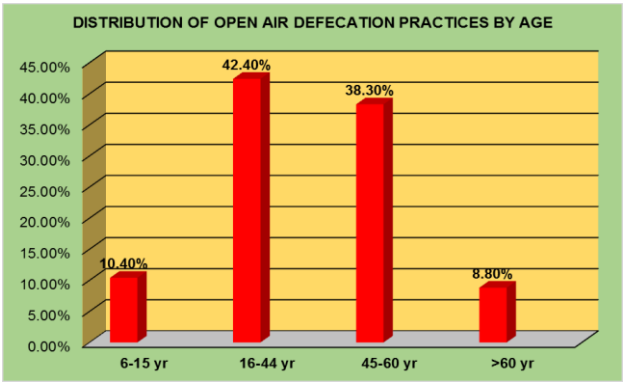

Figure 2: Distribution the people practicing open air defecation by age.

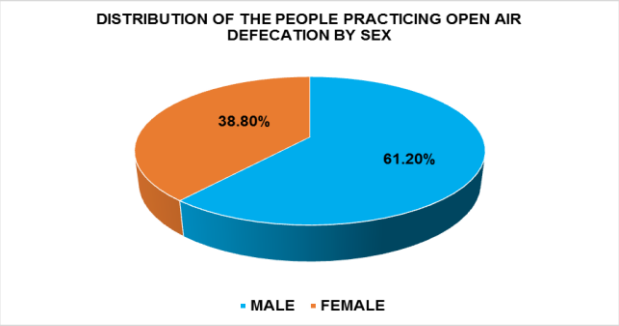

Figure 3: Distribution of the sample by sex.

The prevalence of open air defecation was 441 (80.2%), in this 270 (61.2%) of people were males practicing open air defecation and 171 (38.8%) of people were females practicing open air defecation (Figure 3).

Among the people practicing open air defecation 115 (26.1%) belong to lower class, 226 (51.2%) belong to upper lower class, 94 (21.3%) belong to lower middle class, and 6 (1.4%) belong to upper middle class (Figure 4).

Among the population who were practicing open air defecation (441) the reasons revealed for practicing open

air defecation were: accustomed to age old customs 111 (25.2%); did not want to have stinking toilet at home 27 (6.2%); a sort of socialization 39 (8.8%); can fulfill morning walk along with open air defecation 113 (25.6%); felt more comfortable in open air defecation than at home 151 (34.2%) (Figure 5).

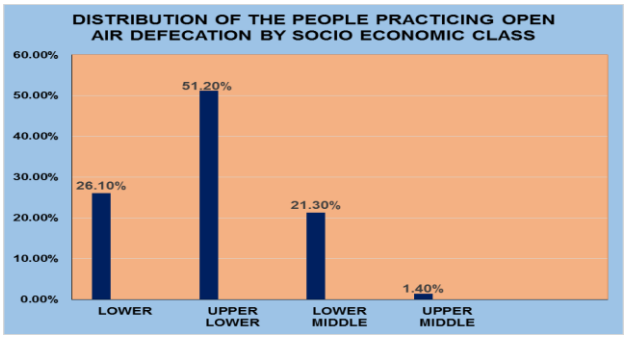

Figure 4: Distribution of the people practicing open air defecation by socio economic classification.

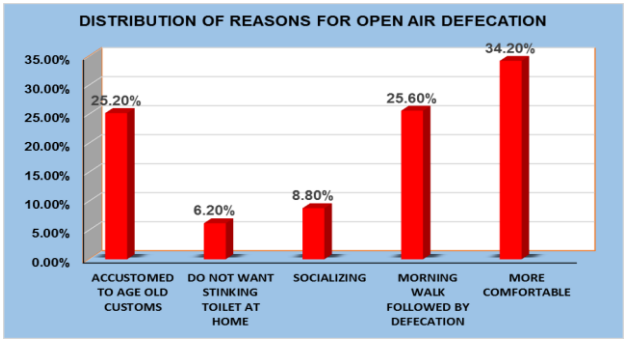

Figure 5: Distribution of reasons for practices in open air defecation.

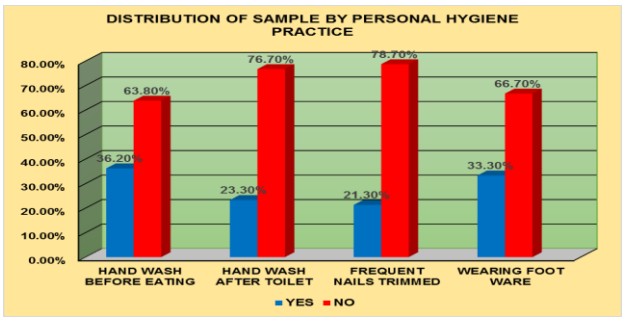

Figure 6: Distribution of sample by personal hygiene practices.

199 (36.2%) of people were washing hands before eating, and 351 (63.8%) of people were not washing hands before eating. 128 (23.3%) of people were washing hands after toilet, and 422 (76.7%) of people were not washing hands after toilet. 117 (21.3%) of people were trimming nails frequently, and 433 (78.7%) of people were not trimming nails frequently. 183 (33.3%) of people were wearing foot ware and 367 (66.7%) of people were not wearing foot ware (Figure 6).

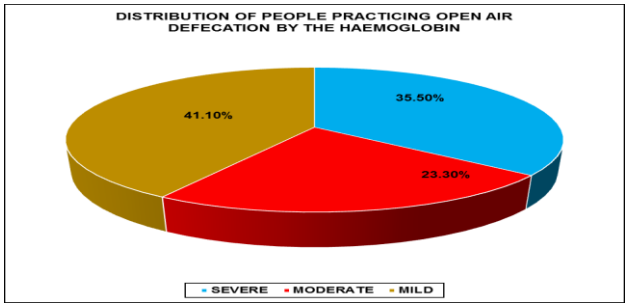

Figure 7: Distribution of people practicing open air defecation by the haemoglobin estimation (Sahli's method).

Out of the people practicing open air defecation (441); 90 (20%) were selected randomly for haemoglobin estimation. Among these 90 persons 32 (35.5%) had severe anaemia; 37 (41.1%) had mild anemia; and the rest 21 (23.3%) had moderate anemia. None had normal hemoglobin levels (Figure 7).

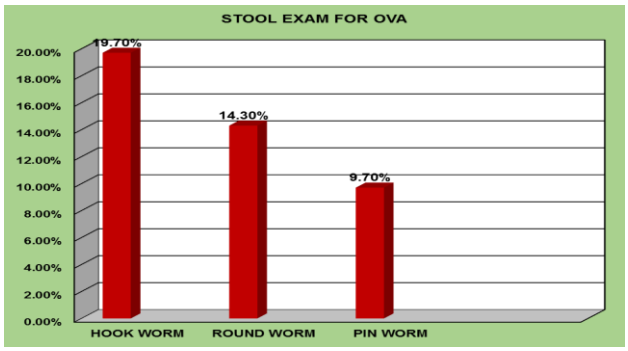

Figure 8: Distribution of sample by worm infestation.

Stool examination for worm infestation was conducted in the people practicing open air defecation (441); 87 (19.7%) of people were having hook worm infestation, 63 (14.3%) of people were having round worm infestation and 43 (9.7%) of people were having pin worm infestation in stool examination (Figure 8).

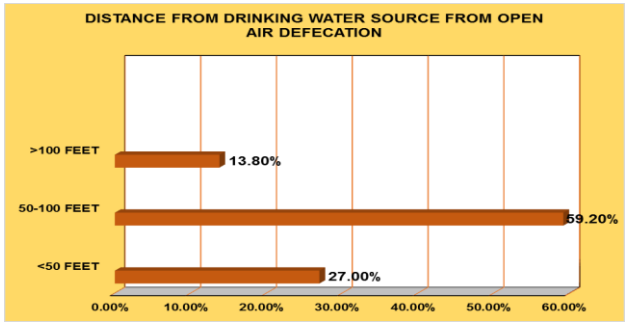

Figure 9: Distribution of the people practicing open air defecation by the distance from drinking water source.

119 (26.9%) of people were said the distance from drinking water source from location of open air

defecation <50 feet distance, 261 (59.3%) of people were said the distance from drinking water source from location of open air defecation 50-100 feet, 61 (13.8%) of people were said the distance from drinking water source from location of open air defecation >100 feet distance (Figure 9).

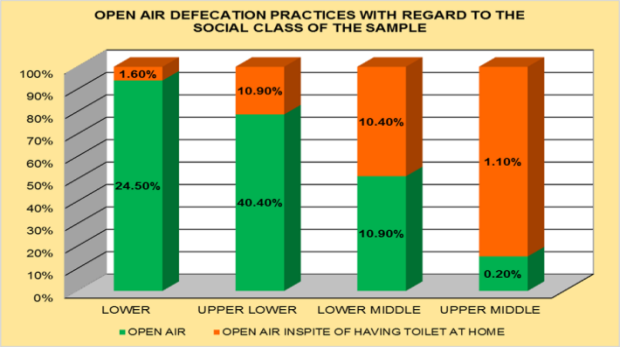

Figure 10: Open air defecation practices with regard to social class of the sample.

Among the population who were practicing open air defecation (441); 115 (26.1%) were belong to lower social class; 226 (51.2%) were belong to upper lower social class; 94 (21.3%) were belong to lower middle class; 6 (1.4%) were belong to upper middle social class (Figure 10).

Among lower social class 108 (24.5%) were practicing defecation in open air and 7 (1.6%) were practicing defecation in open air inspite of having toilet at home; Among upper lower social class 178 (40.4%) were practicing defecation in open air 48 (10.9%) were practicing defecation in open air inspite of having toilet at home; Among lower middle class 48 (10.9%) were practicing defecation in open air and 46 (10.4%) were practicing defecation in open air inspite of having toilet at home; Among upper middle social class 1 (0.2%) practicing defecation in open air and 5 (1.1%) were practicing defecation in open air inspite of having toilet at home.

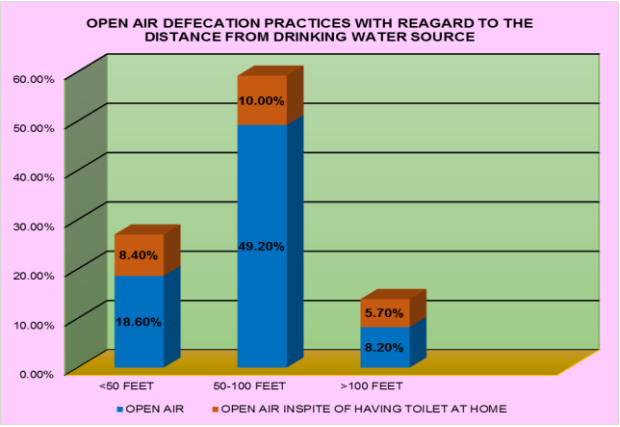

Figure 11: Open air defecation practices with regard to distance from drinking water source of the sample.

Among the population who were practicing open air defecation (441); 119 (27.0%) were < 50 feet distance from drinking water source; 261 (59.2%) were 50-100 feet distance from drinking water source; 61 (13.9%) were >100 feet distance from drinking water source (Figure 11).

Among <50 feet distance from drinking water source 82 (18.6%) were practicing defecation in open air and 37 (8.4%) were practicing defecation in open air inspite of having toilet at home; among 50-100 feet distance from drinking water source 217 (49.2%) were practicing defecation in open air and 44 (10.0%) were practicing defecation in open air inspite of having toilet at home; Among >100 feet distance from drinking water source 36 (8.2%) were practicing defecation in open air and 25 (5.7%) were practicing defecation in open air inspite of having toilet at home.

DISCUSSION

A study was conducted in rural field practice area of Santhiram Medical College, Nandyal, Kurnool district. The study conducted in 550 households. The prevalence of open air rural field practice area of 441 (80.2%) which was very high. Among the people open air defecation 270 (61.2%) were males; 171 (38.8%) were females; Okechukwu et al conducted a study among the inhabitants of Kintampo district of Northern Ghana. Majority of the household heads interviewed 176 (70.4%) were males, 74 were (29.6%) females, 134 (53.6%) were not educated, and 55.5% were either farmers or labourers.[11] Okechukwu et al conducted a study concludes while 36.4% of those who prefers open defecation do so because of insufficient toilet facilities in their vicinity.[11] In that study was most of the people were low income (38.3%), and lower socio economic status people were practiced open air defecation. According to G Howard et al the study conclusion is open air defecation generally found in developing countries particularly in low income rural population.[12] Spencer et al conducted a study in Prampram, Ghana in summer 2011, 61% of participants had practiced open defecation.[13] Bhardwaj et al conducted a community based cross sectional study was carried out in a village of district Pune (Maharashtra) during May- June 2011 among 282 subjects. 67% of the population resorted to open air defecation.[14] Benerjee et al conducted a study found significant association was between lower socio economic status and open air defecation practice. Study concluded that prevalence of open air defecation is high (74.57%).[15] Jha was conducted a study around 34 -66% of population practices open defecation and this leads to infection and high mortality and morbidity in the community.[16] Singh and Arora was conducted the study reveals that fresh open air and opportunity for morning walk were told as main advantages of open air defecation by 51 to 64% responds in 2 villages.[17] The Nilkheni report reveals a fact and figures, 72% of the ruralites use open air defecation.[10] A study was conducted on

knowledge on water handling sanitation and defection practices in rural Southern India (Tamil Nadu). Hand washing with soap after defecation and before meals was common only in children under 15 years (86.4%).[18] A study was conducted on rural community regarding perception on water quality and water borne diseases. 110 sample from Bungmati Village (Nepal) were collected as subject matter. Over one third of the sample households had used hand washing practice by water and soap after defecation which might be a major cause of water borne diseases.[19] The study also reveals only 50% of population wash their hands with soap and water after defecation. Out of 50%, just 43%wash their hands with water but don't use soap, the remaining 7% wash their hands with soap and ash.[10] The study was 87 (19.7%) of people were having hook worm infestation, 63 (14.3%) of people were having round worm infestation and 43 (9.7%) of people were having pin worm infestation in stool examination. The prevalence of hookworm infection was ascertained in the rural areas of Eluru, West Godavari District, A.P. that are represented by only scheduled caste population at different periods of the year i.e. summer season, rainy season and winter season. The prevalence of hookworm infection was 17.3%, 29.3%, 16.3% in children and 37.2%, 48.2%, 17.4% in adults in summer, winter and rainy season's respectively.[20] A cross-sectional pilot study of hookworm infection was carried out among 292 subjects from 62 households in Kintampo North, Ghana. The overall prevalence of hookworm infection was 45%.[21] The study was 32 (35.5%) of people were having severe anemia, 21 (23.3%) of people were having moderate anemia and 37 (41.1%) of people were having mild anemia. A study was carried out to investigate the prevalence of anemia and its relation to hookworm Ancylostoma duodenale infection. Anemia is a common health problem all over the world and Iron Deficiency Anemia (IDA) is the most common and important type of anemia which is causally associated with developmental delay and with poor growth. Hookworm infection is one of the important common cause of IDA. Overall anemia percentage was 58.7%. Overall percentage of hookworm infection was 25.4%.[22]

CONCLUSION

The prevalence of open air defecation was 441 (80.2%). The association between socio economic status and open air defecation was significant (χ^2=0.02, p<0.05). The association between distance from drinking water source and open air defecation is significant (χ^2=0.04, p<0.05).

Limitations

- Haemoglobin examination was done on 20% sample only.
- Stool examination for ova and cyst microscopic examination only
- I have not used kato-katz technique for stool examination.
- Distance of open air defecation from drinking water source is only an approximate measurement mentioned by the people.

Recommendations

- There is a need to use sanitary latrine in every house. We have to create awareness by organizing awareness campaigns through mass media, and including topics like sanitation and hazards of open air defecation in the curriculum of school children.
- Anaemia by hookworm infestation can be reduced by the usage of sanitary latrines. If sanitary latrines provided morbidity and mortality can be reduced.
- The rural local bodies should support designing, executing, operating waste disposal systems.
- There is a need to facilitate private sector participation in capital expenditure and operation and maintenance costs for sanitary latrines.
- Dedicated frontline workers are required to promote and implement sanitation strategies. They should receive training, management and supervision.
- There is a need to integrate social and behaviour change communication elements in to the government programme, i.e.; Swatchh Bharat Mission (SBM) and Gram Panchayats in order to stimulate demand for toilets. The process like Information, Education, and Communication (IEC) and Inter-Personal Communication (IPC) elements are to be integrated.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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