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Original Paper

Knowledge, Symptoms, Quality of Life, and Health-seeking Behavior in Menopausal Nuns

Jolly Joseph[1], **Leena Sequira**[2*], **Soumya Christabel**[3]

1. Nursing (MSc), M.Phil. (Nursing), MBAHCS. Vice Principal, Thiruhrudaya College of Nursing, Kerala, India.
2. Associate Professor, Manipal College of Nursing, Manipal Academy of Higher Education, Manipal, India.
3. Assistant Professor- Senior scale, Manipal College of Nursing, Manipal Academy of Higher Education, Manipal, India.

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ABSTRACT

Introduction: Menopause is a critical phase in a woman's life, associated with various physical and psychological changes. Many women experience menopausal symptoms, which are not life-threatening but self-recovering. Investigating the effectiveness of multimodal interventions can contribute to understanding how to enhance the health and well-being of menopausal nuns.

Objective: To assess the knowledge on menopause, analyze the symptoms, understand the health-seeking behavior, describe the Quality of Life (QoL), and evaluate the effect of a multimodal intervention on knowledge, symptoms, health-seeking behavior, and QoL among menopausal-age women.

Materials and Methods: A quantitative, pre-test-post-test experimental study was conducted among 78 nuns of menopausal age residing in selected convents in Kottayam District, India, through an enumeration sampling technique. These respondents were divided into experimental (n=39) and control (n=39) groups. The study tools used were a sociodemographic proforma, a structured knowledge questionnaire on menopause, a modified menopause rating scale, and a modified 5-point Scale on the Utian QoL (UQoL) scale and health-seeking behavior of women at menopausal age. Multimodal intervention includes a booklet on menopause and a video on pranayama and relaxation techniques. Descriptive statistics like frequency and percentage and inferential statistics consisted of Mann-Whitney U test, chi-square test, Spearman rank correlation, and one-way MANCOVA were used to analyze the obtained data.

Results: The study's findings showed that most participants (48.7%) were in the age group of 54-58 years in the experimental and 45-48 in the control group. There was significant improvement in the knowledge score (P=0.01) as well as in the QoL (P=0.01) and the menopausal symptoms (P=0.01). Hence, the multimodal interventions effectively improved the quality of knowledge of life and reduced menopausal symptoms. However, the Multivariate Analysis of Covariance (MANCOVA) did not reveal a significant effect of the intervention on the dependent variables.

Conclusion: Knowledge of women at menopausal age about menopause was low, and experience of menopausal symptoms was more. There is a need to educate menopausal women to improve their knowledge, reduce the symptoms experienced, and maintain a good QoL and health-seeking behavior.

*** Corresponding Author:**
Leena Sequira, Associate Professor.
Address: *Manipal College of Nursing, Manipal Academy of Higher Education, Manipal, India.*
Tel: *+91 (81) 971214*
E-mail: *cliffleena@gmail.com*

Highlights

- Understanding and knowledge of menopause to improve health and the QoL is important.
- Cultural values and beliefs and technological, religious/philosophical, kinship/social, political/legal, educational, and economic factors influence menopausal symptoms, experiences, and health care.
- The multimodal intervention effectively improves the knowledge, QoL, and reduction of menopausal symptoms.

Plain Language Summary

The "menopausal transition" causes various bodily and mental changes in women. Many of them experience different symptoms, like irregular menstrual cycles, sleep disturbance, and vaginal dryness. Menopausal symptoms affect the Quality of Life (QoL) of women in various ways. Therefore, we aimed to determine the knowledge of menopausal symptoms and understand the multimodal intervention's effectiveness in terms of expertise, symptoms, health-seeking behavior, and QoL among menopausal-age women. Women of menopausal age residing in selected convents in the Kottayam District, India, were selected. These respondents were divided into experimental and control groups. Multimodal interventions, such as a booklet on menopause and a video on pranayama and relaxation techniques, were given to the study group. The result of the study showed that the intervention effectively enhances the knowledge and QoL and reduces menopausal symptoms in the participants.

Introduction

In women, menopause is the phase of ending of menstruation. Many women experience menopausal symptoms, which are not life-threatening but self-recovering. At the same time, it leads to vasomotor, somatic, sexual, and psychological symptoms that decrease the overall Quality of Life (QoL) of women [1]. The "menopausal transition" causes various bodily and mental changes for women. Many of them experience different symptoms, like irregular menstrual cycles, sleep disturbance, and vaginal dryness [2]. The association between menopause and menopausal symptoms appears transient, showing an increase in perimenopause and a compensatory decrease during the postmenopause [3].

Symptoms of menopause due to hormonal changes may greatly affect various organ systems, including the musculoskeletal and cardiovascular systems, affecting QoL [4]. A noticeable negative correlation to the QoL indicates symptoms for both users and nonusers of hormonal therapy, except for stress and frequency of symptoms for users [5]. A study on menopause showed a notable difference in vasomotor symptoms in the perimenopausal and postmenopausal groups. The prevalence of postmenopausal symptoms, health-seeking behavior, and associated factors were explored in postmenopausal women. The study shows a high range of physical and vasomotor symptoms. Most participants did not seek treatment for their problems [4]. The study reiterated the need for behavior change in communication toward healthcare practices [6]. An 8-week exercise program for postmenopausal women revealed an expressive decline in menopausal symptoms other than urogenital manifestations, and it was found that there was a powerful rise in lumbar strength and flexibility after 8 weeks of the Pilates exercise program [7].

Menopause is the edge of women's reproducing action, but it proposes them to a new phase of life. The challenge is facilitated by the culture of silence that shrouds this phase. During menopause, women undergo many changes in their bodies. It can be taken in a positive or negative aspect. Many women are not aware of the symptoms that can occur and how they can be managed. Hence, teaching menopausal women about managing menopausal symptoms helps improve their QoL [1, 2].

Nuns often live in a unique cultural and social context. The study can explore the effectiveness of multimodal interventions, contributing to a more nuanced understanding of healthcare practices in this demographic. Our study findings can have implications for public health policies aimed at improving the health and well-being of nuns. It may guide the development of tar-

geted interventions and support systems for this demographic. It provides valuable insights that can apply to nuns and other populations, contributing to advancing scientific understanding of women's health. Multimodal interventions often involve a holistic approach, addressing physical, emotional, and spiritual aspects. The study may highlight the importance of comprehensive care, promoting empowerment and well-being among menopausal nuns. Thus, this study was done to assess the knowledge on menopause nuns, analyze the symptoms, understand the health-seeking behavior, describe the QoL, and evaluate the effect of multimodal intervention on the knowledge, symptoms, health-seeking behavior, and QoL among nuns at menopausal age.

Materials and Methods

This study used a quantitative experimental pre-test-post-test design. The present study assessed the knowledge, symptoms, health-seeking behavior, and QoL of nuns at menopausal age in 2020.

Kerala has 14 districts, and Kottayam District was selected using purposive sampling. There are 26 convents under St. Mathew's Province in Kottayam District in India 20 were selected using the chit method. The St. Mathew's Province consists of 437 sisters. An enumeration sampling technique was used to recruit women of menopausal age (nuns) residing in those selected convents. A pilot study was conducted in a subset of convents before the full-scale study, which allowed for the refinement of intervention protocols, assessment tools, and sampling strategies based on feedback from the pilot phase. The baseline characteristics such as health status, educational background, and previous exposure to menopause-related information can be used to assess the homogeneity or heterogeneity of the sample.

A total of 78 women of menopausal age who fulfilled the inclusion criteria (women in the menopausal period who are religious nuns) were selected. Women with serious medical illnesses like stroke and musculoskeletal problems were not included in the study. These respondents were divided into experimental and control groups. Accordingly, 39 subjects were designated to the experimental group, and the remaining 39 were treated as the control group. To facilitate the experiment's smooth conducting, the experimental group was chosen from the first 10 convents and the control group from the remaining 10 (Figure 1). The sample size was calculated based on the findings of the pilot study.

The datasets include sociodemographic proforma. The tool consisted of age, educational status, occupation, information regarding menopause, attainment of menopause, and type of menopause. The structured knowledge questionnaire on menopause was developed based on definition, incidence, causes, physiology, symptoms, management, and complications. This tool's validity (Content Validity Index [CVI]=0.747) and reliability (Intraclass Correlation [ICC]=0.877) were confirmed.

The menopausal symptoms were assessed using the modified menopause rating scale. It is a validated questionnaire comprising 25 items grouped into four categories: Vasomotor, psychosomatic, psychological, and urinary symptoms. Each item is a menopausal symptom, which is graded on a 4-point rating scale with a minimum score of 1 and a maximum of 4. The tool's validity (CVI) and reliability (Cronbach α) were 0.876 and 0.877, respectively.

The QoL of menopausal-aged women is assessed by the modified 5-point Utian QoL (UQoL) scale [8]. The scale consists of 20 items and three domains: Occupation (7 items numbered 2, 3, 4, 14, 15, 16, 20), health (7 items numbered 5, 6, 7, 8, 13, 18, 19), emotional (6 items numbered 1, 9, 10, 11, 12, 17). Every item in the UQoL scale is scored using a 5-point Likert scale. The validity and reliability of the tool were 0.890 and 0.863, respectively.

The health-seeking behavior questionnaire had 9 questions that assessed the individuals in maintaining and improving their health and wellbeing. In the context of menopausal women, it could involve seeking medical advice, adopting healthy lifestyle practices, undergoing screenings, or following recommended healthcare guidelines. The approach involved using straightforward, dichotomous, and close-ended questions to gather specific and structured information about the health-seeking behavior of women in the menopausal age group. The minimum score was 0, and the maximum score was 9. The higher score is interpreted as good health-seeking behaviors.

Multimodal intervention includes a booklet on menopause and a video on pranayama and relaxation techniques. A booklet on menopause was given to the experimental group with a one-to-one teaching. The researcher demonstrated pranayama and relaxation techniques and a video to the participants. Instructed the participants to practice pranayama and relaxation techniques for 10 minutes daily for one month and to maintain a logbook. A post-test was conducted after

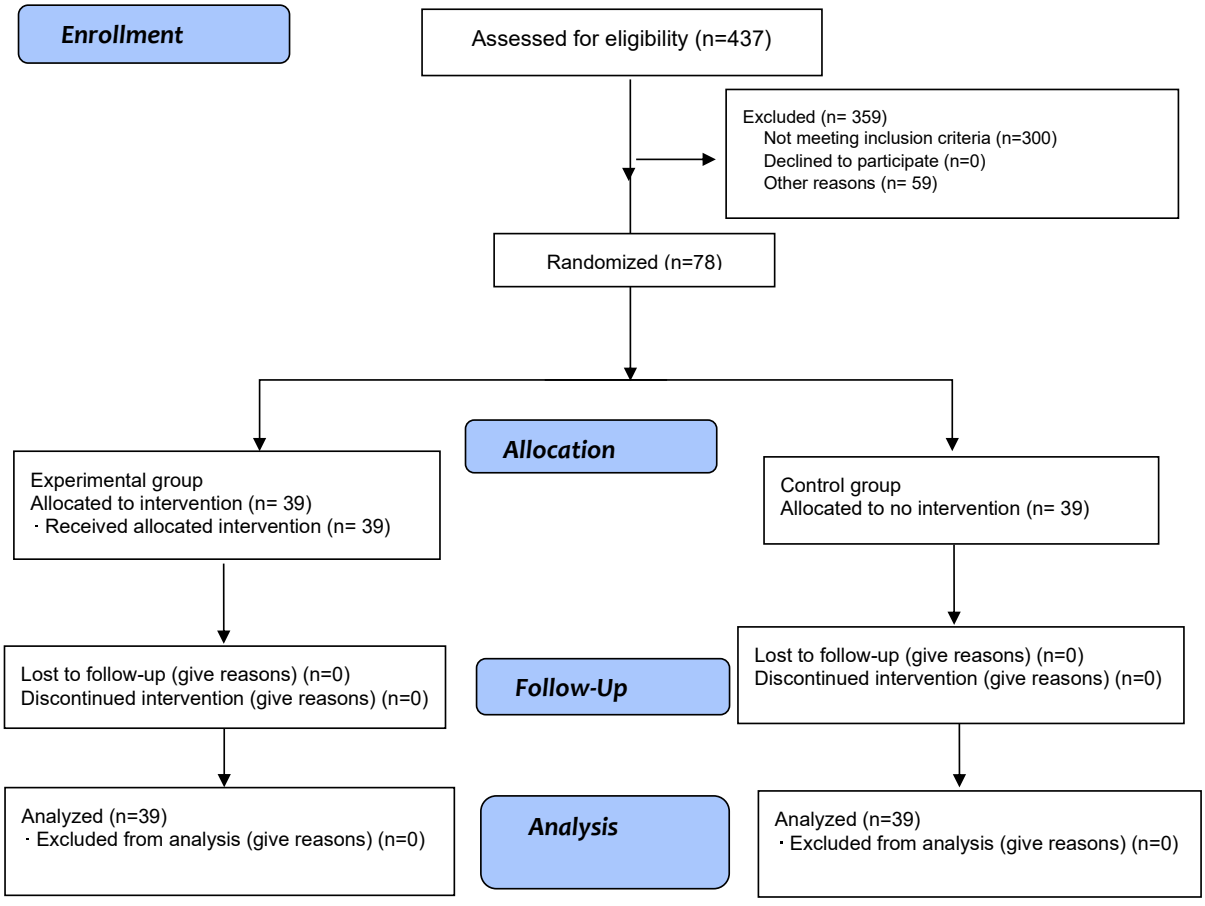

Figure 1. CONSORT flowchart of study

one month to understand the effectiveness of multimodal interventions. After this, multimodal interventions were given to the control group as well.

The study was conducted among religious nuns who know how to read and write English. The participants were identified directly by the principal investigator. Written consent was obtained from the institution's authority. Women at menopausal age who fulfilled the inclusion criteria were selected. Twenty institutions (convents) were chosen from the Kottayam District and divided into two groups of 10 each. Thirty-nine participants were selected from 10 convents and assigned as an experimental group; another 39 were selected from the other 10 convents and assigned as the control group. The researcher gave a self-introduction to the participants.

An explanation of the study and its confidentiality was provided. A pre-test on a structured knowledge questionnaire on menopause, a rating scale on symptoms experienced by women at menopausal age, a questionnaire on health-seeking behavior, and a modified Utian 5-point scale on QoL were administered to the experimental and control group, and the resulting data were collected. A booklet on menopause was given to the experimental group, and one-to-one teaching was given. The researcher underwent training on premenopausal exercise at the Punarjani School of Yoga. The researcher conducted one hour of training for the participants on pranayama and relaxation techniques, along with a video. Instructions were given to the participants on how to practice pranayama. Relaxation techniques of 10 minutes daily in the morning and evening for one month and maintaining a logbook are also included. The training was conducted at their respective convents. An information booklet on menopause was prepared for the participants by the researcher based on the literature review and suggestions from the experts. It briefly described the definition, incidence, causes, physiology, symptoms, management, and complications. A post-test was conducted after one month to understand the effectiveness of multimodal interventions, and the resulting data were collected.

Sample characteristics based on demographic variables, knowledge of menopause, menopausal symptoms, health-seeking behavior, and QoL among menopausal-age women were described using frequency and percentage. Effectiveness of multimodal intervention on knowledge, menopausal symptoms, and QoL assessed by Mann-Whitney U test. The association between knowledge, symptoms, and QoL among menopausal women was assessed by the chi-square test. The correlation between the score of symptoms and health-seeking behavior, QoL, and health-seeking behavior was evaluated using the Spearman rank correlation, and the Multivariate Analysis of covariance (Mancova) test was also used for the study.

Results

The study's findings showed that most participants (48.7%) were 54-58 years in the experimental group and 45-48 years old in the control group (Table 1). The comparison of knowledge on menopause groups before and after multimodal intervention revealed a significant change (P=0.01) between the knowledge scores of menopause women between the groups (Table 2). A comparison of menopausal symptoms between the groups shows a significant difference (P=0.01) in menopausal symptoms in the experimental group after the intervention (Table 3). The distribution of women's health-seeking behavior at menopause in two groups is given in Table 4. Based on this Table, the health-seeking behavior is most related to the phrases "doctor advised to take more calcium-containing food" (74.4%) and "doctor suggested to do more exercises as a tranquilizer" (50%).

Table 1. Distribution of samples sociodemographic characteristics (n=78)

Variables		No. (%)	
		Experimental Group (n=39)	Control Group (n=39)
Age (y)	45–48	15(38.5)	19(48.7)
	49–53	5(12.8)	6(15.4)
	54–58	19(48.7)	14(35.9)
Educational status	Diploma	19(48.7)	13(33.3)
	Graduation	15(38.5)	14(35.9)
	Postgraduation and above	5(12.8)	12(30.7)
Occupation	Medical and paramedical	11(28.2)	23(59)
	Teacher	22(56.4)	15(38.5)
	Social worker	4(10.3)	0
	Unemployed	2(5.1)	1(2.6)
Information regarding menopause	Peer group	10(25.6)	4(10.3)
	Magazine	9(23.1)	6(15.4)
	Classes	20(51.3)	29(74.4)
Attainment of menopause (y)	Not attained	7(17.9)	6(15.4)
	1–5	12(30.8)	14(35.9)
	5-10	5(12.8)	5(12.8)
	≥10	15(38.5)	14(35.9)
Type of menopause	Natural	16(50)	24(72.7)
	Surgical	16(50)	9(27.3)

Table 2. Comparing knowledge on menopause between the groups before and after multimodal intervention

Time	Groups	Mean±SD	P*
Before the intervention	Experimental	15.1±3.4	0.110
	Control	16.7±5	
After the intervention	Experimental	25.0±2.3	0.01
	Control	17.1±5.2	

*The Mann-Whitney U test.

Table 3. Comparing menopausal symptoms between the study groups

Menopausal Symptom		Mean±SD		P*
		Experimental (n=39)	Control (n=39)	
Vasomotor	Before	4.49±3.13	5.41±3.15	0.230
	After	1.05±1.26	5.18±2.82	0.01
Psychosomatic	Before	6.59±3.33	6.51±2.64	0.928
	After	1.56±1.41	5.28±2.39	0.01
Psychological	Before	3.15±1.98	3.18±1.85	0.836
	After	0.56±0.79	2.82±1.73	0.01
Urinary symptoms	Before	0.87±1.08	1.08±1.24	0.570
	After	0.15±0.37	1.05±1.1	0.01

*The Mann-Whitney U test.

Table 4. Distribution the health-seeking behavior of the samples ((n=78)

Health-seeking Behavior	No. (%)
Consult the doctor when experiencing somatic problems	34(43.6)
Use hormone replacement therapy	11(14.1)
Consult the doctor for psychological problems	2(2.6)
A doctor prescribes the bone density test	14(17.9)
Doctor advice to take more calcium-containing food	58(74.4)
Talk about the emotional symptoms to a doctor	11(14.1)
Consult the doctor for problems related to osteoporosis	27(34.6)
The doctor advised me to do more exercises as a tranquilizer	39(50)

Table 5. Comparing the QoL score of women at menopausal age between study groups

QoL		Mean±SD		P*
		Experimental (n=39)	Control (n=39)	
Occupational QoL	Before	28.1±4	27.7±4	0.671
	After	29.9±2	27.3±3.9	0.01
Health QoL	Before	26.6±4	27.2±3.4	0.468
	After	30±2	26.6±3.8	0.01
Emotional QoL	Before	22.1±4.2	22.6±3.4	0.538
	After	24.9±2.1	22.5±3.3	0.01
Overall QoL	Before	76.7±9.6	77.5±8.7	0.712
	After	84.9±4.6	76.4±8.8	0.01

*The Mann-Whitney U test.

The QoL of women at menopausal age is shown in Table 5. It shows that intervention effectively improved the QoL of women at menopausal age, and the average QoL score in the two study groups after the intervention had a statistically significant difference based on the Mann-Whitney U test (P=0.01).

One-way MANCOVA was done with the respondents' vasomotor, psychosomatic, and urinary symptoms as dependent variables and knowledge levels of the respondents versus low, moderate, and high as independent variables and their psychological core as a covariate. Since the P of Pillai's Trace as per the multivariate test is <0.01, the null hypothesis is rejected at a 1% significance level. Hence, the respondents' knowledge levels significantly influence their vasomotor, psychosomatic, and urinary symptoms (Table 6).

Similarly, the level of health and QoL of the respondents and the occupational level of the respondents significantly influence their vasomotor, psychosomatic, and urinary symptoms.

Discussion

The multimodal intervention was an effective strategy to increase the knowledge of women at menopausal age regarding menopause. The findings revealed reduced menopausal symptoms, improved QoL, and health-seeking behavior. A booklet on menopause, a video on pranayama, and relaxation techniques were the interventions provided to the participants. A positive result was seen in the knowledge, reduced symptoms, improved QoL, and health-seeking behavior.

Table 6. Menopausal symptoms and knowledge of the experimental group by multivariate analysis of covariance

Univariate Test	Dependent Variable	Sum of Squares	df	Mean Square	F	P
Group (experimental)	Vasomotor	23.71	1	23.71	0.4055	0.526
	Psychosomatic	3.28	1	3.28	0.0406	0.841
	Urinary symptoms	10.78	1	10.78	3.3241	0.072
Residuals (variation in the dependent variables)	Vasomotor	4442.51	76	58.45		
	Psychosomatic	6136.56	76	80.74		
	Urinary symptoms	246.51	76	3.24		

Multivariate Test		Value	F	df1	df2	P
Group (experimental)	Wilk's lambda	0.957	1.11	3	74	0.350

A cluster randomized trial study was done in Iran among 68 women to assess the impact of multimedia intervention on the uncertainty about menopause. Implementing the education program helped improve knowledge and decrease uncertainty scores [9]. A quasi-experimental study among 99 middle-aged elementary, junior, and secondary teachers to determine the impact of health education on knowledge and attitude toward menopause. The multimodal intervention included lectures, leaflets, booklets, and group discussions. The study findings showed a significant increase in their knowledge and positive attitude towards menopause, which helped the women handle the symptoms of menopause [10]. A study in France on 5004 postmenopausal women shows that vaginal dryness and urinary urgency were the commonly reported symptoms and suggested the need for the education of the public through various educational programs [11]. Another study shows regular physical exercise intervention helps postmenopausal women to improve their vasomotor symptoms and overall wellbeing [12]. Multidisciplinary health education is effective in enhancing the menopausal syndrome and healthy lifestyle behavior of menopausal women [13], and the another study results show that the age of the women is not significantly correlated with QoL as the women did not find much difference in post menopause which contradict the present study [14].

According to the World Health Organization (WHO), menopausal symptoms can be managed with proper information. Researchers have emphasized that menopausal symptoms can be best handled by appropriate education, counseling, and symptom management. However, it is ineffective in practice because of the lack of proper resources and medical professionals [15]. Regarding the broad impact of social determinants of health on menopause, education and counseling are necessary to improve women's attitudes towards menopause. Besides, improving emotional and social support, planning for lifestyle enhancement, and improving socioeconomic status are needed, which results in promoting women's health during menopause [16]. Depression and urinary incontinence in menopausal women are related to each other, indicating the need for screening postmenopausal women with urinary incontinence and depression. Then, timely treatment and proper management can be given to improve their QoL [17].

Technological advancements such as music therapy are important in reducing menopausal symptoms. This therapy assists in achieving positive health outcomes by helping to alleviate issues during the menopausal period [18]. In the realm of menopausal women's well-being, it is evident that they are frequently entangled in a web of physical symptoms and depressive states. This condition highlights the need for educational interventions, integrating cognitive behavioral therapy and tailored education addressing the physical aspects of menopausal transition. Therefore, it is necessary to develop and implement more comprehensive programs that consider lifestyle management and psychological support for menopausal women [19]. A balanced diet has a positive effect on the quality of sleep. Foods and meals containing sufficient protein, carbohydrates, and fats are also essential for good sleep quality. Scientific evidence indicates that good nutrition and quality sleep help maintain better health during menopause and perimenopause [20].

Based on the study results, intervention can be given to all menopausal women through mass media, drama, puppet shows, and role-play to improve knowledge, reduce menopausal symptoms, and improve the QoL.

The study was confined to a limited number of women at menopausal age and was organized in selected institutions, which limited the generalization of the study. A structured knowledge questionnaire was used for data collection, limiting the information that respondents could obtain.

The knowledge of women at menopausal age about menopause was low, and experience of menopausal symptoms was more. There is a need to educate menopausal women to improve their knowledge, reduce the symptoms experienced, and maintain a good QoL and health-seeking behavior.

Ethical Considerations

Compliance with ethical guidelines

The study was approved by the Kasturba Medical College and Kasturba Hospital Institutional Ethics Committee (Code: IEC 499/2020) and was registered at the Clinical Trial Registry of India (CTRI), New Delhi, India (Code: CTRI 2020/11/038529). Informed consent was acquired from all study participants.

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Authors' contributions

All authors contributed equally to the conception and design of the study, data collection and analysis, interception of the results and drafting of the manuscript. Each author approved the final version of the manuscript for submission.

Conflict of interest

All authors declared no conflict of interest.

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