

A Quasi-Experimental Study to Evaluate the Effectiveness of Acupressure in the Reduction of Hot Flashes Among Perimenopausal Women of Selected Community Areas at Durg District (C.G.)

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ABSTRACT

This research study was undertaken to discover the effectiveness of acupressure in decreasing the occurrences of hot flashes in perimenopausal women. A total of 62 perimenopausal women were chosen through a non-probability purposive sampling method. The research tool was made of three sections: Section A consisted of socio-demographic information, Section B consisted of the Hot Flash Daily Diary for finding out the frequency of hot flashes pre-test, and Section C was the Post-Intervention Likert Scale for finding out perceived improvement. The pre-test was on day 1, and then the acupressure treatment was given for 15 days on 4 acupressure points: HT6, HT7, SP6, and LI4. The post-test of hot flash frequency was done at the end of the treatment period. In this study, both descriptive and inferential statistical methods were employed to analyze the collected data in order to determine the effectiveness of acupressure in managing hot flashes. The results showed a significant decrease in hot flash frequency after acupressure intervention, as the t-value showed a significant difference at a 0.05 level of significance, which also supported the research hypothesis. It was found that there were significant associations between post-test scores and some socio-demographic factors like age and profession, but not with the rest of the factors. The study, therefore, concluded that acupressure was a safe, effective method of managing hot flashes among perimenopausal women. It is suggested that acupressure could be incorporated into community health services as a simple self-care technique for controlling hot flashes.

KEYWORDS: Acupressure, Hot Flashes, Perimenopausal Women, Quasi-Experimental Study.

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1. INTRODUCTION

Menopause, the most critical stage of middle-aged women, refers to a complete stop of menstruation for 12 straight months, resulting from a lack of ovarian follicles and a reduction in estrogen. It occurs on average at the age of 51 years. Menopause, which is the cessation of menstruation, is a physiological process of the female reproductive system [1]. Decreased estrogen and progesterone production in the ovaries leads to various physiological and psychological symptoms which are not only distressing but may affect the quality of life in some as well. The vasomotor symptoms of menopause include hot flashes, sweating at night, disturbances in sleep, and mood disorders. Menopause has three phases: perimenopause, menopause, and post menopause. The perimenopause phase represents the last few years before menopause, when women start to have irregular

menstrual cycles and hot flashes. Menopause is about experiencing a full year without a monthly menstrual cycle. In this phase, many menopausal symptoms start to show up [2]. The post-menopause phase demonstrates the rest of women's lives after menopause. Perimenopause refers to the last years of a woman's reproductive period, from the onset of menstrual irregularity until the end of amenorrhoea 1 year later. Perimenopause is a physiological transition period for women. Due to the gradual decline of ovarian function and the decline of estrogen levels, women will have a variety of clinical symptoms such as insomnia, hot flashes, palpitations, menstrual disorders, irritability, osteoporosis, etc [3]. Hot flashes, the most common symptoms of perimenopause, are characterized by sudden fluctuations in body temperature, as well as redness and profuse sweating of the face and neck, sometimes accompanied by chills. Although vasomotor

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disturbances, such as hot flashes, are not an organic impairment, severe hot flashes can significantly impact quality of life by increasing the risk of disrupted sleep, depression and anxiety, cognitive changes, and other serious illnesses[4]. The incidence of hot flashes increases significantly during menopause, peaking in late perimenopause or early menopause, with approximately 80% of postmenopausal women experiencing hot flashes. It has been reported that the incidence of hot flashes in sexually mature, perimenopausal, and menopausal women is as high as 21%, 30%, and 36%, respectively. It is extremely important to identify effective treatments to relieve the symptoms or reduce the incidence of hot flashes in perimenopausal and postmenopausal women [5].

2. RESEARCH METHODOLOGY

A quantitative research approach was adopted for the study. A quasi-experimental research design was used to evaluate the effectiveness of acupressure therapy in reducing hot flashes among perimenopausal women. The accessible population comprised perimenopausal women residing in selected community areas of Durg District, Chhattisgarh. The study was conducted in the community area of Kurud, Durg (C.G.). A non-probability purposive sampling technique was employed to select the study participants. The sample size consisted of 62 perimenopausal women who met the inclusion criteria [6]. The independent variable of the study was acupressure therapy, while the dependent variable was the frequency of hot flashes experienced by the participants. Initially, a pre-test assessment was conducted on Day 1 to determine the baseline frequency of hot flashes among the

participants. Following the pre-test, acupressure therapy was administered to the experimental group according to the planned intervention schedule [7]. After completion of the intervention period, a post-test assessment was carried out to evaluate the effectiveness of the therapy in reducing hot flashes. The collected data were organized, tabulated, and analyzed using descriptive and inferential statistical methods. The findings of the study indicated a significant reduction in the frequency of hot flashes among perimenopausal women following the administration of acupressure therapy. The results supported the effectiveness of acupressure as a non-pharmacological intervention for managing hot flashes. Finally, the study findings were compiled, interpreted, and presented in the form of a thesis report [8].

3. SAMPLING CRITERIA FOR SELECTION OF SAMPLE

Sampling criteria were established to ensure that the participants selected for the study possessed the characteristics necessary to achieve the study objectives. In the present study, specific inclusion and exclusion criteria were formulated to select appropriate perimenopausal women experiencing hot flashes. The participants were included in the study if they were women aged between 40 and 55 years, were currently experiencing hot flashes, were willing to participate in the study, and were available during the period of data collection. Participants were excluded from the study if they were receiving hormone replacement therapy or any medication for hot flashes, had known chronic medical or psychiatric illnesses, or were unwilling to perform acupressure therapy daily during the intervention period.

4.1. RESULT AND DISCUSSION

4.1.1 Distribution of Participants According to Socio-Demographic Variables

Table 1. Showing the distribution of participants according to age by using frequency and percentage

Age in years	N	%	N= 62
40-45 years	42	67.74	
46-50 years	20	32.26	
51-55 years			
Total	62	100	

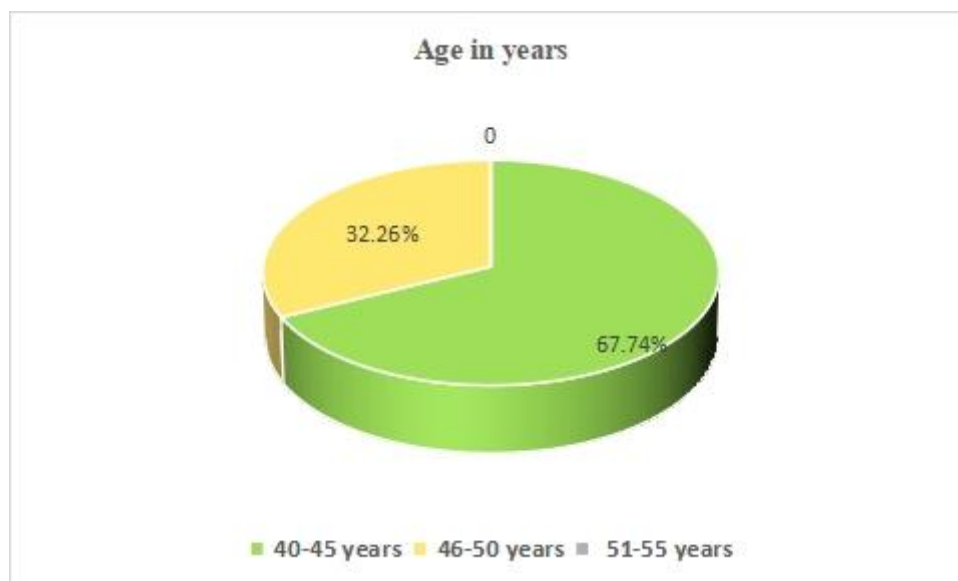


Figure 1. Pie chart showing distribution of participant according to age by using frequency and percentage. The majority of the participants (67.74%) belonged to the age group of 40–45 years, followed by 32.26% in the 46–50 years category. This indicates that most women experiencing hot flashes in the selected community were in their early perimenopausal age range.

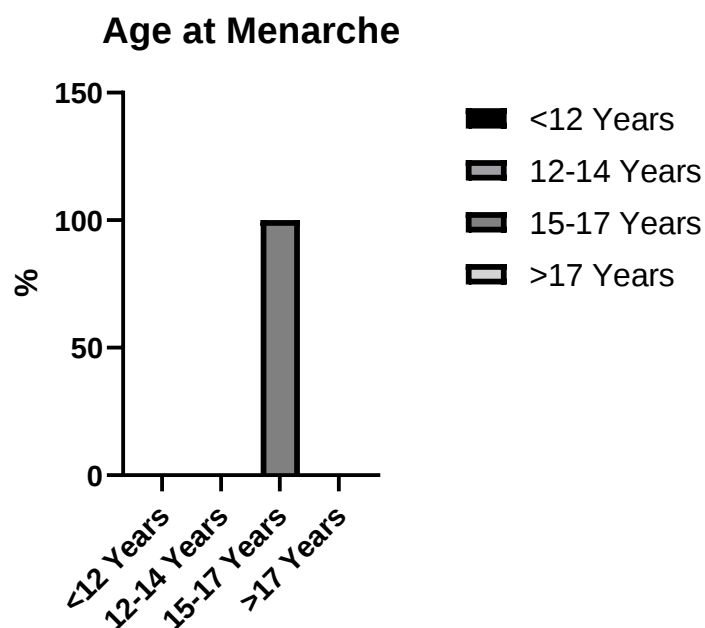


Figure 2. Column bar diagram showing the distribution of participants according to age at menarche. All participants (100%) attained menarche between 15 and 17 years of age. This reflects a normal monarchical range and suggests homogeneity in reproductive onset among the sample.

Table 2. Showing distribution of participants according to marital status

Marital status	N	%
Single		
Married	52	83.87
Divorced /Separated		
Widowed	10	16.13
Total	62	100

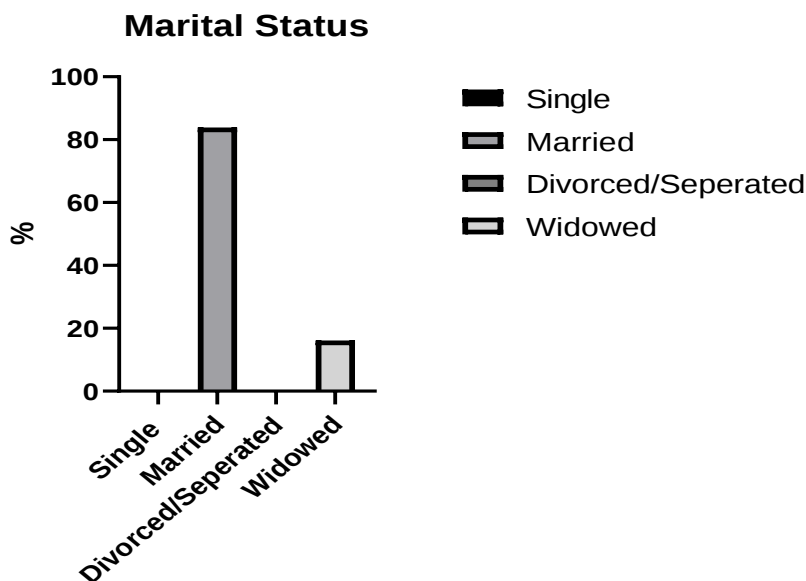


Figure 3. Column bar diagram showing the distribution of participants according to marital status

Table 2. Most women (83.87%) were married, whereas 16.13% were widowed. None were single or divorced. This shows that the majority of the study population were living with their spouse, which may influence lifestyle and support systems during perimenopause.

Table 3. Showing the distribution of participants according to educational level

Education level	N	%
Illiteracy		0
Primary	28	45.16
Secondary	33	53.23
Higher secondary	1	1.61
Graduate and above.		0
Total	62	100

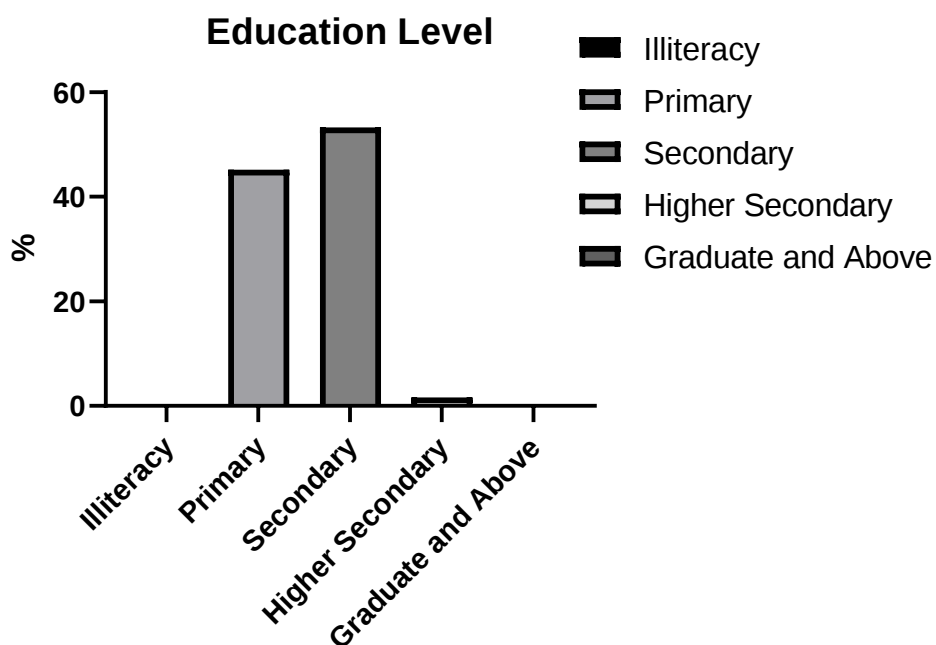


Figure 4. Pyramid diagram showing the distribution of participants according to educational level

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Table 3 More than half of the participants (53.23%) had completed secondary education, and 45.16% had primary education. Only 1.61% had completed higher secondary schooling, and none were graduates. This indicates a predominance of women with lower educational levels in the study setting.

Table 4. Showing the distribution of participants according to how many hours of sleep do you usually get at night.

How many hours of sleep do you usually get at night?	N	%
Less than 4 hours		0
4-6 hours		0
6-8 hour	62	100
> 8 hours		0
Total	62	100

How many hours of sleep do you usually get at night

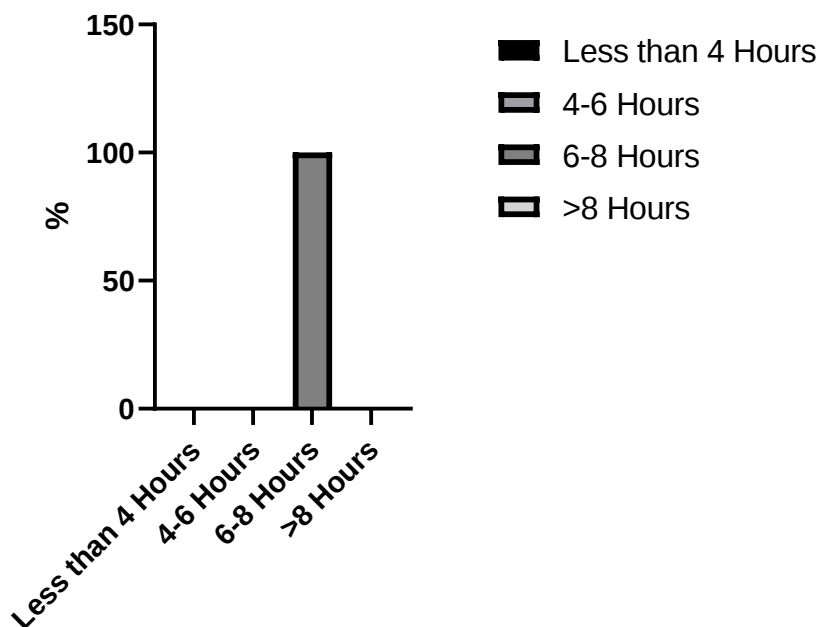


Figure 5. Column bar diagram Showing distribution of participant according to how many hours of sleep do you usually get at night All participants (100%) reported sleeping 6–8 hours per night. Adequate sleep duration may be associated with overall health status, although quality of sleep was not assessed in this section.

Table 5 Showing the distribution of participants according to how many children you have.

How many children do you have?	N	%
0		
1		
2	22	35.48
≥3	40	64.52
Total	62	100

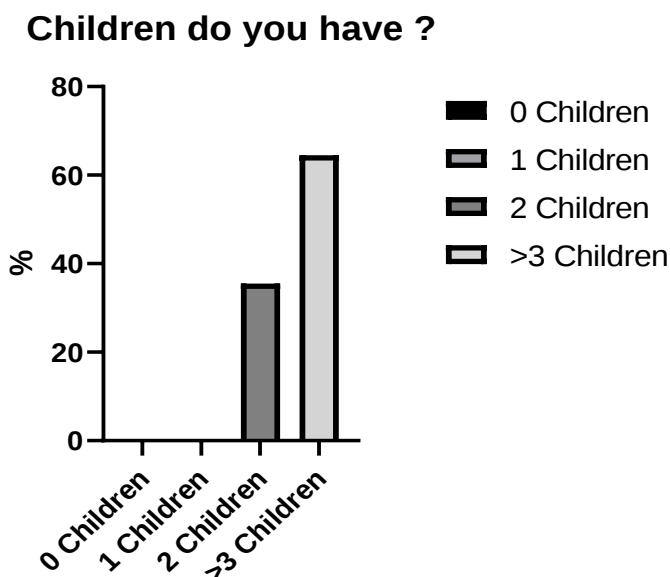


Figure 6. Column bar diagram showing distribution of participant according to how many children to you have. A majority (64.52%) had three or more children, while 35.48% had two children. None reported fewer than two children. This suggests that high parity is common among perimenopausal women in the selected community.

Table 6. Showing distribution of participant according to taking on medication for hot flashes

Taking On Medication for hot flashes	N	%
Yes		0
No	62	100
Total	62	100

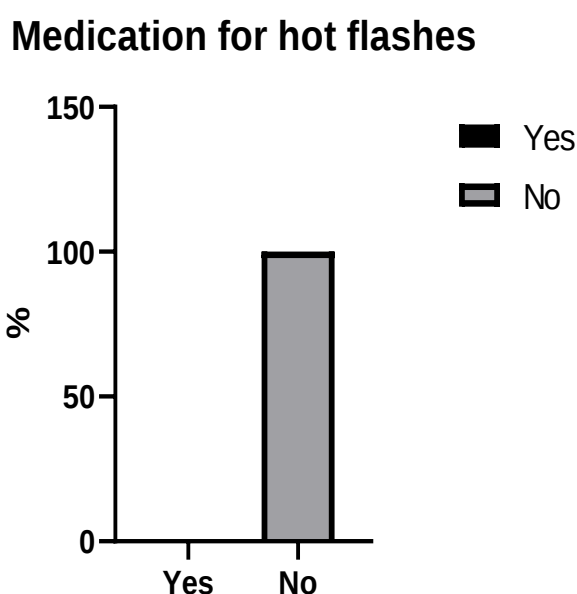


Figure 7. Column bar diagram showing distribution of participant according to taking on medication for hot flashes. None of the participants (0%) were taking any medication for hot flashes at the time of data collection. This highlights the need for non-pharmacological interventions such as acupressure.

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Table 7. Showing distribution of participant according to personal habits.

Personal habits	N	%
Smoking		
Alcohol		
Tobacco chewing	8	12.9
Other		
None	54	87.1
Total	62	100

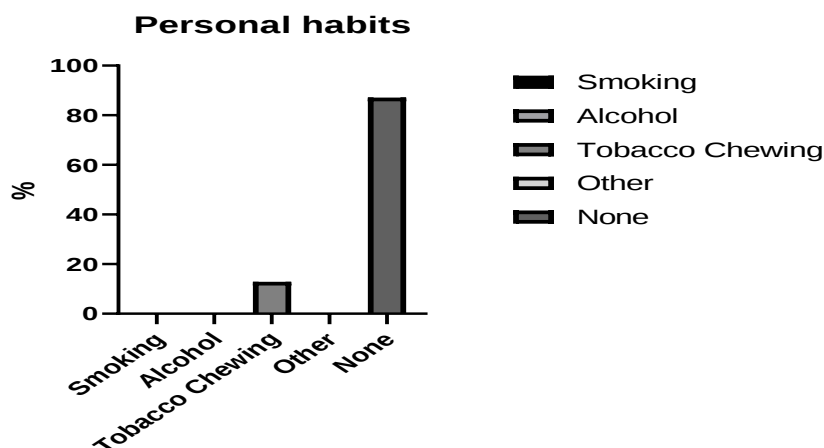


Figure 8. Column bar diagram showing distribution of participant according to personal habits Most women (87.1%) reported no personal habits, such as smoking, alcohol or tobacco use. However, 12.9% reported tobacco chewing. The absence of high-risk habits may reflect cultural practices in the community.

Table 8. Showing distribution of participant according to currently experiencing hot flashes

Currently Experiencing Hot Flashes	N	%
Yes		0
No	62	100
Total	62	100

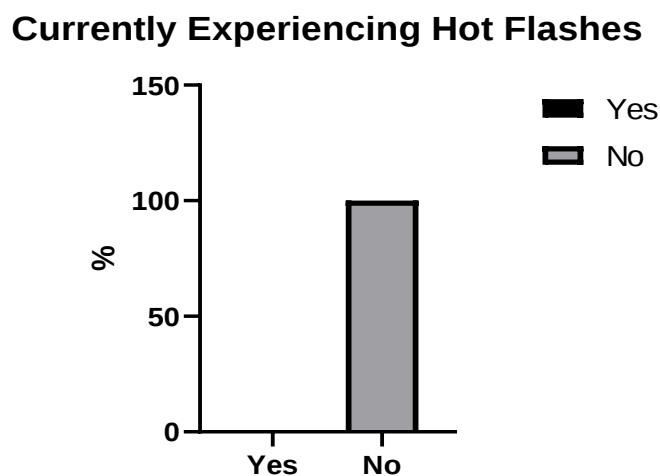


Figure 9. Column bar diagram showing distribution of participant according to currently experiencing hot flashes. All participants (100%) reported not currently experiencing hot flashes during initial assessment, based on their subjective response. However, they had a history of hot flash episodes, which justified their inclusion in the study.

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Table 9. Showing distribution of participant according to age at first hot flash

Age at First Hot Flash	N	%
43 years	1	1.61
44 years	5	8.06
45 years	39	62.9
46 years	17	27.42
Total	62	100

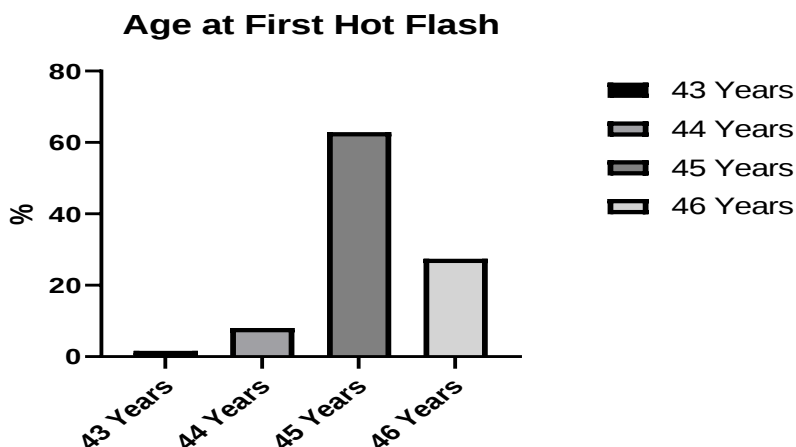


Figure 10. Column bar diagram showing distribution of participants according to age at first hot flash The majority (62.9%) first experienced hot flashes at 45 years of age, followed by 27.42% at 46 years, and fewer at 44 years (8.06%) and 43 years (1.61%). This indicates that the onset of vasomotor symptoms commonly begins around the age of 45 among the study population.

SECTION- II

Table 10. Assessment of pre and post intervention of acupressure in reduction of hot flashes among perimenopausal woman

	Pre and post intervention of acupressure in reduction of hot flashes among premenopausal woman		
	Median	Mean	SD
Pre-test	3.86	3.77	0.68
Post-test	3.00	2.85	0.92

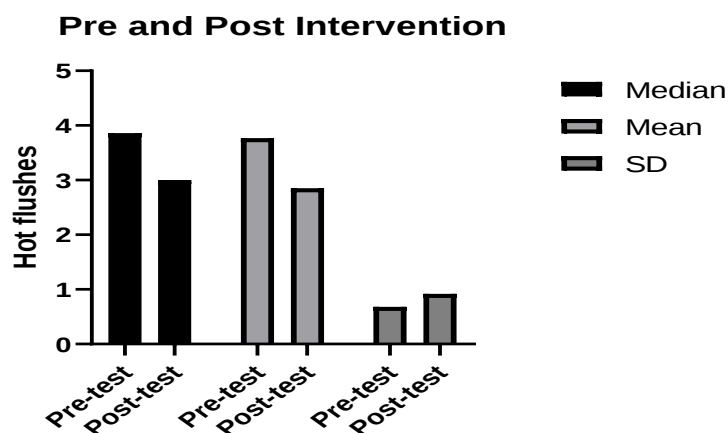


Figure 11. Clustered column bar diagram assessment of pre and post intervention of acupressure in reduction of hot flashes among perimenopausal woman, The pre-test mean (3.77 ± 0.68) and median (3.86) were higher than the post-test mean (2.85 ± 0.92) and median (3.00), indicating a reduction in hot flash frequency following the acupressure therapy.

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Table 11. Pre and post intervention of acupressure in reduction of hot flashes among perimenopausal woman

	Pre and post intervention of acupressure in reduction of hot flashes among premenopausal woman				
	No Hot flushes (0)	1-3 Hot flushes	4-6 Hot flushes	>6 Hot flushes	Total
Pre-test		22(35.48%)	40(64.52%)		62(100%)
Post-test		46(74.19%)	16(25.81%)		62(100%)

Pre and Post intervention acupressure in reduction

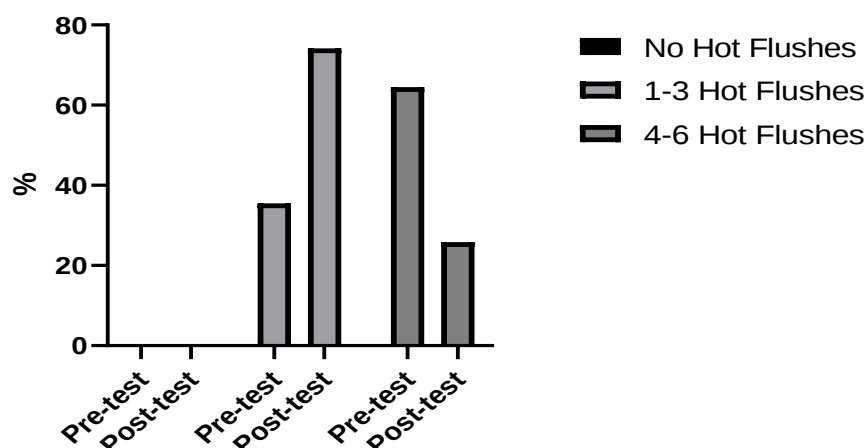


Figure 12. Column bar diagram pre and post intervention of acupressure in reduction of hot flashes among perimenopausal woman. Before intervention, most women (64.52%) experienced 4–6 hot flashes daily, whereas after intervention, the majority (74.19%) reported only 1–3 hot flashes daily, showing a clear reduction.

SECTION -III

Effectiveness of acupressure in reduction the frequency of hot flashes among perimenopausal woman

Table 12. Paired t-test analysis of pre-test and post-test hot flash frequency (N=62)

	Pre and post intervention of acupressure in reduction of hot flashes among premenopausal woman				
	Mean	SD	Difference	Paired 't' value/Critical value	Significance
Pre-test	3.77	0.68	0.92	8.05/3.46	P<0.001 HS
Post-test	2.85	0.92			

. Reveals that in experimental group the mean pre-test score of hot flashes was 3.77 ± 0.68 , which decreased to 2.85 ± 0.92 in the post-test after acupressure intervention.

The mean difference of 0.92 indicates a reduction in hot flash severity following 14 days of acupressure therapy. A paired *t*-test was performed to compare pre- and post-intervention scores. The obtained *t* value (8.05) was higher than the critical value (3.46) at 0.001 level of significance, indicating that the reduction in hot flash scores was highly significant ($P < 0.001$, HS).

SECTION -IV

Association between post-test event of hot flashes among perimenopausal woman with selected demographic variables.

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Table 13. Chi-square test for pre-test vs post- test hot flash distribution

	Pre and post intervention of acupressure in reduction of hot flashes among premenopausal woman				
	No Hot flushes (0)	1-3 Hot flushes	4-6 Hot flushes	>6 Hot flushes	Total
Pre-test		22(35.48%)	40(64.52%)		62(100%)
Post-test		46(74.19%)	16(25.81%)		62(100%)

Table and figure no.4.4.1: The above table compares occurrence of hot flushes in pretest and post-test using non-parametric chi-square test. On applying the test the difference in the distribution of samples according to incidence of hot flushes was found to be highly significant $p < 0.001$ (chi

square=18.75). In the pretest 64.52% were in having 3-4 hot flushes daily and 35.48% were having 1-3 hot flushes daily. But in post-test 74.19% were in 1-3 hot flushes level and 25.81% were in 4-6 hot flushes. This shows acupressure was very effective in reducing incidence of hot flushes.

Table 14. Association between post-test event of hot flashes among perimenopausal woman with selected demographic variables.

Tables:

1.Age in years	Post test event of hot flashes among peri menopausal woman					DF/Critical value	Chi-square value	Inference	
	No Hot flushes (0)	1-3 Hot flushes	4-6 Hot flushes	>6 Hot flushes	Total				
40-45 years	0	35(83.33%)	7(16.67%)	0	42(100%)	1/3.84	5.68	P<0.05 Significant	
46-50 years	0	11(55%)	9(45%)	0	20(100%)				
51-55 years		0	0	0	0				
2.Age at menarche									
Below 12 years									
12–14 years		46(74.19%)	16(25.81%)		62(100%)			P<0.05 Significant	
15–17 years	NA								
>17 years									
3.Marital status									
Single	NA					1/3.84	1.55	P>0.05 NS	
Married		37(71.15%)	15(28.85%)		52(100%)				
Divorced /Separated	NA								
Widowed		9(90%)	1(10%)		10(100%)				
4.Education level									
Illiteracy	NA					1/3.84	4.15	P>0.05 NS	
Primary		23(82.14%)	5(17.86%)		28(100%)				
Secondary		23(69.7%)	10(30.3%)		33(100%)				
Higher secondary		0(0%)	1(100%)		1(100%)				
Graduate and above.	NA								
5. How many hours of sleep do you usually get at night?									
Less than 4 hours	NA								
4-6 hours									

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6-8 hour		46(74.19%)	16(25.81%)		62(100%)			
> 8 hours	NA							
6. How many children do you have?	Posttest event of hot flashes among peri menopausal woman					DF/Critical value	Chi-square value	Inference
	No flushes (0)	1-3 flushes	Hot	4-6 flushes	Hot >6 flushes	Total		
0							1/3.84	0.27
1								P>0.05 NS
2		15(68.18%)		7(31.82%)		22(100%)		
≥3		31(77.5%)		9(22.5%)		40(100%)		
8. Personal habits								
Smoking							1/3.84	6.46
Alcohol								P<0.05 S
Tobacco chewing		3(37.5%)		5(62.5%)		8(100%)		
Other								
None		43(79.63%)		11(20.37%)		54(100%)		
10. Age at First Hot Flash								
43 years		1(100%)		0(0%)		1(100%)	1/3.84	3.19
44 years		4(80%)		1(20%)		5(100%)		P>0.05 NS
45 years		29(74.36%)		10(25.64%)		39(100%)		
46 years		12(70.59%)		5(29.41%)		17(100%)		

The above table shows that the hypothesis was tested using χ^2 tests to study the relationship between the post-test event of hot flashes among peri-menopausal women using age and some socio-demographic variables. As per chi-square results, Age (in years) and Personal habits showed a significant association with post-test events of hot flashes among peri-menopausal women. The value of chi-square of age in years was found to be 5.68, which is greater than the table value of 3.84 at $P=0.05$ with a df of one. Similarly, the chi-square value of personal habits was found to be 6.46, which is greater than the table value of 3.84 with $P=0.05$ and df of 1. Consequently, the alternative hypothesis is accepted, which states that there is an association of post-test event of hot flashes among peri-menopausal women with socio-demographic variables (age in years and personal habits). However, no significant association was found between the post-test event of hot flashes and other socio-demographic factors like marital status ($\chi^2=1.55$, $p>0.05$), education ($\chi^2=4.55$, $p>0.05$), number of children ($\chi^2=0.27$, $p>0.05$), among others.

5. CONCLUSION

In the current study, most of the perimenopausal women suffered from moderate to severe hot flashes during the pre-test period. After using the treatment for a period of 14 days, many of the participants showed a decrease in the number of hot flashes in the post-test period. The study confirms that there is a significant difference between pre-test and post-test

hot flash frequencies. Therefore, one can conclude that there was an improvement after the use of acupressure. The computed t value was greater than the table value, significant for $p < 0.05$, which means that acupressure was successful in the prevention of hot flashes. Regarding correlations, the chi-square test discovered that some demographic predictors of post-test hot flashes, such as age, occupation, and menstrual history, were significantly correlated to post-test hot flash scores. Other predictors, such as education, religion, type of family, dietary pattern, and income, did not appear to be correlated with the outcomes of the study. In such a way, acupressure may be viewed as a safe, simple, and non-pharmacological practice that is used in order to reduce hot flashes.

CRediT Authorship Contribution Statement

Purnalata Mahant: Writing – original draft, **Mrs. Sunita Verma:** Data curation, **Dr. Mrs. Bhavna Chakraborty,** Investigation: **Roshy Kujur:** Formal analysis, **Akash Gupta:** Writing – original draft, Writing– Reviewing and editing, Figure production, Language editing, Data curation· Conceptualization, Investigation, Supervision, Final editing and Approval: **Sumit Sahu:** Citation management

Declaration of competing interest

The authors declare that they have no known competing interests.

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Data Availability

“Not Applicable”

Ethical Statement

The manuscript is a comprehensive review on the topic, and no animals or humans are used for the experimental study; hence, the ethical requirement is “Not Applicable”.

Declaration of generative AI in scientific writing

During the preparation of this work, the author(s) used BioRender for the production of figures. “Grammarly” is used for Grammatical improvement, and no AI is used in this scientific writing. The author is fully responsible for the content.

Consent to participate

“Not Applicable”

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