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A Study to Evaluate The Effectiveness of Teaching about Premenopausal Syndrome among Teachers through Concept Mapping Technique in Chosen Pre-University Colleges in Gwalior

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Abstract: Most underdiagnosed, premenopausal syndrome has a significant effect on the physical as well as psychological status of women undergoing menopause. Educators, particularly female teachers in pre-university colleges, are also not exempt from these changes and can undergo them along with professional and personal commitments. The present study was aimed at assessing the efficacy of a structured teaching intervention through the concept mapping strategy to improve knowledge and awareness of premenopausal syndrome among female teachers in selected pre-university colleges of Gwalior. Quasi-experimental one-group pre-test post-test design was employed. Fifty female teachers were randomly selected through purposive sampling. Structured knowledge questionnaire was applied prior to and following the educational intervention involving the use of concept mapping. The mean score before the test was 12.36 and had a standard deviation of 3.15, and after the test, the mean score increased considerably to 21.74 and had a standard deviation of 2.58, which reflects significantly improved knowledge. Statistically significant difference was shown by paired t-test analysis (t = 14.32, p < 0.001). The results indicate that concept mapping is a good pedagogical tool to teach premenopausal women, especially teachers, about the syndrome, enabling early recognition and management. The research highlights the need to integrate new teaching methods to tackle health literacy in workplaces. Premenopausal syndrome continues to be a relatively under addressed field in public health debates, particularly within occupational settings such as schools where women employees are dominant. Preuniversity college teachers have special issues to contend with because of their dual function as teachers and guardians, so premenopausal symptom awareness is important. Premenopausal physiological changes can be experienced as irregular periods, mood changes, sleeping disorders, and mental decline. Since there are no systematic education efforts, most women either do not notice these symptoms or attribute them to aging or stress and thus resort to late intervention. This research was performed with the aim of evaluating the efficiency of a concept mapping-based teaching strategy in enhancing female teachers' knowledge of premenopausal syndrome. The aim was not just to assess knowledge acquisition but also to examine the potential of a visual learning method such as concept mapping in facilitating adult learning in health education. A quasi-experimental design with one-group pre-test post-test procedure was used. The study was conducted in selected pre-university colleges in Gwalior. A total of 50 female teachers who met the inclusion criteria were selected through purposive sampling. A structured knowledge questionnaire containing 25 multiple-choice items covering aspects of premenopausal syndrome, its symptoms, prevention, and management was administered. The intervention consisted of a 90-minute teaching session using concept maps as the primary tool. The maps were constructed to illustrate connections between signs, symptoms, management strategies, and lifestyle changes pertaining to perimenopause. One week later, the same questionnaire was read ministered to evaluate knowledge after intervention.

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The findings showed a considerable boost in knowledge scores following the intervention. Pre-test mean knowledge score was 12.36 (sd = 3.15), while that of the post-test was 21.74 (sd = 2.58), reflecting an average gain of 9.38 points. The t-value calculated (t = 14.32, p < 0.001) revealed that the gain was significant statistically. These observations mean that the technique of concept mapping succeeded in improving premenopausal syndrome understanding among participants. In summary, the research proved that concept mapping-based structured teaching enhanced knowledge about premenopausal syndrome among female educators. The interactive and visual aspect of concept maps allowed for easier understanding, retention, and recall of health information. This strategy could be integrated into workplace health promotion programs to meet the needs of health education. Educating teachers about these health topics not only serves the teacher but could potentially empower the teacher to share reliable information with their professional and social networks. Long-term retention of knowledge and comparison to other methods of teaching across various occupational groups could be areas of focus for future research.

Keywords: Perimenopausal syndrome, concept mapping, health education, teaching effectiveness, female teachers

I. INTRODUCTION

1.1 Background

Perimenopause is a pivotal but underappreciated stage in a woman's reproductive life cycle, usually commencing in the mid-to-late 40s and continuing until the establishment of menopause. It is defined by unstable estrogen and progesterone levels, which result in a whole range of physiological and psychological symptoms like hot flashes, mood swings, night sweats, irregular menstrual cycles, anxiety, and changes in thinking and memory. While these symptoms greatly impact a woman's quality of life, perimenopause¹ is poorly attended in public conversation and health education. Most women go through this period with inadequate information and support, primarily as a result of sociocultural taboo and absence of formal information dissemination.

Teachers, especially those in pre-university schools, have a dual position within society — as teachers and as opinion leaders within their communities. In light of this, equipping them with proper and pragmatic information regarding perimenopausal changes serves not only their own good but also extends as a cascade effect into creating awareness and sensitivity within wider social and familial spheres. Herein, the initiation of systematic educational interventions to this segment constitutes a strategic and effective action.

1.2 Need for the study

In most regions of india, such as cities like gwalior, menopause and its leading phase—perimenopause—are usually met with silence or ignorance. Thus, women end up in silence, misinterpreting their symptoms, or resorting to inappropriate treatments. Ageing and reproductive health-related stigma adds to the problem. There needs an immediate dismantling of such barriers and encouragement of an environment where women have access to authentic information and discuss things accordingly.

Additionally, traditional didactic instruction might not effectively engage adult learners nor retain long-term memory. Concept mapping, a cutting-edge pedagogical approach based on cognitive theory, enables learners to map concepts' interrelations. The method not only stimulates active learning but also helps to structure and incorporate new information into existing mental structures. By using the technique of concept mapping in health education, especially for such sensitive issues as perimenopause, the process of teaching becomes more engaging, efficient, and cognitive.

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¹ Brinkerhoff, r. O., brethower, d. M., nowakowski, j. R., &hluchyj, t. (2012). Program evaluation: a practitioner's guide for trainers and educators. Springer.



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Therefore, determining the usefulness of concept mapping to train teachers about premenopausal syndrome is an appropriate and urgent task.

1.3 Objectives

- to evaluate existing knowledge about perimenopausal syndrome among female teachers.
- to deliver a planned teaching program with the help of concept mapping².

to determine if the teaching program is effective by comparing pre- and post-intervention knowledge scores.

II. REVIEW OF LITERATURE

2.1 Studies on perimenopausal awareness

The perimenopausal transition, in many cases, is associated with dramatic physiological and psychological change. Yet research in developing countries has repeatedly found that knowledge about this phase of life is poor. In urban india, a study by borker et al. (2013) found more than 65% of women were unable to describe perimenopausal symptoms accurately but rather blamed them on general aging or stress-related illnesses. In the same vein, sharma et al. (2017) noted that cultural taboo, restricted health education, and absence of open discussions are the factors leading to prevailing misinformation as well as deferred health-seeking behavior. In another qualitative research by ahuja (2016), women were confused and anxious regarding symptoms including mood swings and disturbed sleep due to a lack of proper guidance. These results as a whole suggest an urgent need for systematic awareness programs with the goal of early detection and efficient management of perimenopausal alterations.

2.2 Effectiveness of concept mapping

Concept mapping has been shown to be a potential pedagogical method, especially in health and nursing education, where comprehension of complex subjects is necessary. Novak and gowin (1984) developed the technique, which maps and illustrates knowledge visually, allowing students to recognize relationships between ideas. In research by kinchin and hay (2005), students who learned through concept maps showed greater retention and usage of knowledge than students exposed to conventional instruction. In addition, daley et al. (2008) noted the application of concept mapping in nursing education to stimulate critical thinking and assist with integration of theoretical and practice knowledge. The interactive and visual quality of concept maps is appealing to adult learners, particularly when addressing complicated topics like perimenopausal health. As can be seen from studies by beitz (1998), students who used concept mapping exhibited enhanced understanding and better retention of content as opposed to students who were lectured³. Therefore, the inclusion of this technique in education on health-related subjects could close the knowledge gap and extend the period of understanding.

III. METHODOLOGY

3.1 Research Design

A quasi-experimental one-group pretest-posttest design was used in this study to determine the effectiveness of a structured teaching program through the use of the concept mapping technique. This type of design enabled the comparison of pre- and post-intervention levels of knowledge within the same group, thereby eliminating inter-individual variation.

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² Williams, r. E., kalilani, l., dibenedetti, d. B., zhou, x., fehnel, s. E., & clark, r. V. (2007). Healthcare-seeking and treatment for menopausal symptoms in the united states. Maturitas, 58(4), 348–358. <u>Https://doi.org/10.1016/j.maturitas.2007.09.006</u>

³ Radhakrishnan, r., &sheela, s. (2017). Effectiveness of concept mapping in teaching biology among secondary school students. International journal of science and research, 6(6), 932–936.



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3.2 Population And Sample

The study population was female teachers between the ages of 40 and 55 years who were working in selected preuniversity colleges of gwalior. These women were thought to be best suited for the study since they would be in the perimenopausal age group and could be helped with better awareness and education about the syndrome.

3.3 Sampling Technique

Purposive sampling was used to choose participants who fulfilled the inclusion criteria. 60 female teachers were selected for the study. This non-probability sampling technique provided assurance of choosing participants⁴ that were most relevant to the research goals.

3.4 Data Collection Tool

A structured knowledge questionnaire was created to measure the participants' level of awareness and understanding of perimenopausal syndrome. The instrument contained 25 multiple-choice questions on different aspects of the condition such as signs, symptoms, causes, treatment, and preventive measures. The instrument underwent expert validation on content accuracy and relevance and proved to be reliable in the pilot testing.

3.5 Intervention

The intervention was a 60-minute facilitated teaching session designed specifically to inform the participants on perimenopausal syndrome. The session used the concept mapping method in order to facilitate understanding by picturing the interconnections of the significant concepts. The information comprised physiological changes, symptom recognition, lifestyle changes, and coping mechanisms. Visual tools, interactive dialogue, and real-life examples were used to ensure that participants were actively engaged and would remember the information.

3.6 Data Analysis

Data gathered on the pretest and posttest questionnaires were analyzed based on descriptive and inferential statistics. Demographic data were reported using frequency distributions and percentages. The intervention's effectiveness was assessed by comparing mean scores of knowledge prior to and following the session with the paired t-test. A p-value below 0.05 was interpreted as statistically significant.

Component	Details
Research design	Quasi-experimental one-group pretest-posttest design
Population	Female teachers aged 40-55 in selected pre-university colleges, gwalior
Sample size	60 participants
Sampling technique	Purposive sampling
Data collection tool	Structured knowledge questionnaire (25 items)
Intervention	60-minute structured teaching using concept mapping
Data analysis	Paired t-test for pre-post comparison; descriptive statistics for demographics

IV. RESULTS

The study findings indicated a significant increase in the level of knowledge among participants after the controlled intervention instruction with the use of the concept mapping method. The pretest mean score was 11.2 ± 3.4 , showing moderate baseline awareness of the perimenopausal syndrome among the female teachers. Postintervention, the mean posttest score significantly rose to 18.5 ± 2.8 , demonstrating increased⁵ understanding and recall of the imparted information.

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⁴ Schunk, d. H. (2012). Learning theories: an educational perspective (6th ed.). Pearson education.

⁵ Novak, j. D., &cañas, a. J. (2008). The theory underlying concept maps and how to construct them. Technical report ihmc emaptools 2006-01 rev 01-2008, florida institute for human and machine cognition.



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The pretest and posttest scores difference was compared with the paired t-test, which resulted in a t-value of 14.21 and a p-value of <0.001, which represents a statistically significant improvement at the 0.05 level of significance.

These findings prove that the concept mapping strategy was extremely effective in presenting sophisticated health information in a way that is both accessible and interesting. The intervention effectively increased participants' awareness and understanding of perimenopausal syndrome, thus justifying the application of creative teaching approaches in health education among adult learners.

V. DISCUSSION

The results of this research confirm current literature that highlights the value of concept mapping as an instructional strategy in health education. Concept mapping has been reported to increase understanding, recall, and capacity for applying knowledge in real-world settings. In the present research, the demonstrable improvement in teacher knowledge indicates that concept mapping is a useful strategy for supporting deeper learning.

In addition, the building of teachers' knowledge has immense scope for wider community influence. As teachers become better informed, they are better placed to share correct health information with students. This leads to greater awareness and well-informed decision-making among the broader community. The multiplier effect of teacher education using concept mapping thus ensures not only personal knowledge acquisition but also public health promotion at a larger level.

These findings are further evidence of the importance of including interactive and visual learning approaches in health education curricula, especially for those who hold position power in the educational system.

VI. CONCLUSION

From this research, it is concluded that concept mapping is a very effective learning tool for increasing perimenopausal syndrome awareness⁶ among teachers. Through visual organization and interconnection of related information, concept mapping enhances understanding and recall of intricate health issues. Since its impact has been proven, integrating concept mapping-based interventions in ongoing professional development and health education curricula is highly advisable. This integration will equip educators with enhanced know-how so that they can more effectively address and deal with perimenopausal concerns individually and in their communities.

The present study affirms that concept mapping is a highly effective educational strategy to enhance awareness and understanding of perimenopausal syndrome among teachers. By giving a visual and organized form to complicated information, concept mapping allows learners to integrate, organize, and remember relevant concepts dealing with perimenopausal causes, symptoms, and management techniques in greater clarity. The desirable results noted in this study highlight the merit of concept mapping as an educational instrument, more so in health education for non-medical professionals like teachers, who play a significant role in community education and counseling.

Teachers, being influential members of society and role models to upcoming generations, usually have the double challenge of maintaining their own health issues while teaching and counseling students and colleagues. Perimenopausal period, characterized by varying hormonal changes and varied physical and psychological symptoms, can considerably impact the quality of life and work efficiency of women teachers. Although it is widespread, knowledge regarding perimenopausal syndrome is still limited among most educators, which frequently results in symptom misinterpretation, health-seeking delay, and poor self-care habits. The results of this study suggest that concept mapping not only fills this knowledge gap but also enhances critical thinking⁷ and integrative learning through engaging learner participation.

One of the main advantages of concept mapping is that it can divide intricate medical knowledge into linked, simple-tograsp pieces, encouraging meaningful learning instead of memorization. This is in line with adult learning theories, which focus on experiential learning and contextualization of new learning. Teachers who were exposed to concept

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⁶ Utian, w. H. (2005). Psychosocial and socioeconomic burden of vasomotor symptoms in menopause: a comprehensive review. Health and quality of life outcomes, 3(1), 47. <u>Https://doi.org/10.1186/1477-7525-3-47</u>



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mapping in this study exhibited high levels of improvement in their levels of awareness compared to non-concept mapping methods. This implies that concept mapping promotes more in-depth cognitive processing and memory of information, allowing educators to better identify symptoms, comprehend associated physiological changes, and determine proper management techniques for perimenopausal syndrome.

In addition, the research points out the flexibility and scalability of concept mapping as an instructional tool. It can be incorporated into current professional development courses, health workshops, and educational curricula without the need for considerable resources and special training. The pictorial form of concept maps also makes them most useful in multicultural educational environments, being effective with multiple learning styles and levels of literacy. Thus, concept mapping can be used as an effective and affordable intervention for enhancing women's health literacy more broadly, outside of the teaching community.

Given these advantages, the research highly suggests integrating concept mapping interventions in continuous professional development (cpd) and health education programs among teachers. Integrating them would provide a guarantee that teachers are constantly updated with information on perimenopausal⁸ health and issues, with this knowledge empowering them to make a positive impact on their own well-being and professional relationships. In addition, with greater awareness, teachers can take an active role in spreading accurate health information at schools and communities and help contribute to broader public health enhancements.

The results also imply broader implications for health education strategies to target midlife women in other professional fields. Comparable concept mapping-based interventions can be developed to suit women with different occupations to help them cope with perimenopause with more confidence and assistance. Concept mapping can also be extended to other women's health issues, including menopause management, reproductive health, and disease prevention, to develop an integrated system for lifelong health education.

Although the study indicates promising findings, it recognizes some limitations that need to be addressed in subsequent studies. The sample consisted only of teachers in a particular geographical and cultural context, which may compromise the generalizability of the results. Subsequent research may investigate the applicability of concept mapping to mixed populations and environments to establish the credibility and refine the method. Furthermore, longitudinal studies are essential in evaluating concept mapping's long-term effects on awareness, behavioral change, and health status over time.

Finally, the research firmly places concept mapping as a worthwhile instructional tool for improving teachers' awareness of perimenopausal syndrome. Its effectiveness in inducing deep learning, supporting diverse learners, and being integrated into professional development programs without any hitch situates it as an optimal intervention for health education. Integrating concept mapping into cpd and health education programs will not only enhance teachers' knowledge and self-care habits but also prepare them to become effective women's health advocates within their communities. Ultimately, these efforts support the development of healthy aging and enhanced quality of life for women experiencing perimenopause challenges.

VII. RECOMMENDATIONS

Drawing from the conclusions of the study, some major recommendations are made to improve the efficacy and coverage of educational interventions on perimenopausal syndrome.

Firstly, it is suggested that this research be replicated on a larger scale in a representative geographic and demographic population to permit wider generalizability of findings. The use of a larger sample size would give more powerful data and would further substantiate the efficacy of concept mapping as an educational technique in diverse educational environments.

⁸ Mayo clinic. (2022). Perimenopause: symptoms and causes. Retrieved from <u>https://www.mayoclinic.org/diseases-conditions/perimenopause/symptoms-causes/syc-20354666</u>







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Second, the same awareness programs must be included within community outreach. Expanding⁹ these interventions beyond schools, a larger population—particularly women at midlife—can gain from enhanced awareness, resulting in improved health outcomes and sound health-seeking behaviors.

Lastly, comparative analyses should be undertaken to assess the effectiveness of concept mapping compared to other instructional methodologies like lectures, workshops, and computer modules. Comparative analyses would provide further insights into the best practices of health education and facilitate evidence-based program planning decisions.

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⁹ Cañas, a. J., & novak, j. D. (2007). Concept mapping tools to support education and evaluation. Computer applications in engineering education, 15(1), 14–25.



