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Effectiveness of Structured Teaching Programme on Knowledge and Attitude Regarding Menstrual Blood Banking and Its Usage Among Nursing Staff

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Abstract

Introduction: *Menstruation is the monthly expulsion of the uterine endometrial lining when ovulation does not result in fertilisation. Recently, menstrual blood has garnered attention as a valuable source due to the presence of versatile stem cells, making it a prospective resource for future applications. This study seeks to examine the understanding and perspectives of staff nurses concerning menstrual blood banking.* ***Aim:*** *To evaluate the understanding and perspective concerning menstrual blood banking among staff nurses in designated hospitals in Kolar.* ***Materials and Methods****: A preliminary study was conducted on 60 nursing staff members at R. Jalappa Hospital and Research Centre in Kolar. Non-probability convenience sampling was employed to select participants, with data collection taking place from March 17th to July 16th, 2023, utilising structured knowledge questionnaires and attitude scales. The data were analysed using both descriptive and inferential statistical methods.* ***Result:*** *The study findings indicate that a majority (78.03%) of the staff nurses possessed moderate knowledge concerning menstrual blood banking. Additionally, the research demonstrated a notable correlation between the level of knowledge and various socio-demographic variables. Moreover, the respondents exhibited a favourable attitude towards menstrual blood banking, with most expressing positivity. Furthermore, a significant relationship was observed between knowledge and attitude towards menstrual blood banking.* ***Conclusion:*** *It can be emphasised that nursing staffs possess a moderate level of knowledge concerning menstrual blood banking and exhibit a favourable attitude towards it. Moreover, there exists a correlation between the knowledge and attitude towards menstrual blood banking.*

Keywords: Attitude, knowledge, menstrual blood banking, menstruation, fertilisation

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INTRODUCTION

The menstrual cycle, a natural occurrence in the reproductive years of most women, involves the shedding of the uterine lining along with blood and tissue remnants from the egg released during ovulation. While many biological and histological processes occur during this cycle, it serves as a regular reminder of a woman's fertility and potential for pregnancy. Traditionally, menstrual blood has been disposed of as unhygienic waste. However, recent research has revealed that menstrual blood contains valuable stem cells capable of proliferation and differentiation into various cell types [1, 2].

Stem cells derived from menstrual blood are abundant in mesenchymal stem cells (MSCs). These

stem cells have capability to overcome the difficulty of immune rejection in female patients, as they could utilise their own stem cells for therapies, mainly these menstrual blood stem cells can be easily collected and processed in a non-invasive manner [3].

Menstrual blood banking involves gathering and preserving menstrual blood for potential cell therapy applications. The collection process is painless and straightforward, as a silicone cup is inserted into the vagina during the heaviest flow period. The cup remains in place for approximately three hours to accumulate around 30 millilitres of blood. Subsequently, the collected blood is transferred to a storage kit and sent to a menstrual blood bank laboratory, where it undergoes processing, freezing, and storage. This process is completely easy to the user because, it is absolutely free from pain and non-invasive. Also, any female can store stem cells for future even without for childbirth [4, 5].

Menstrual blood stem cells exhibit rapid proliferation, replicating approximately every 24–36 hours, and have been sub-cultured up to 47 times, surpassing the typical maximum of 12 times for umbilical cord blood stem cells. These stem cells retain embryonic stem cell markers, granting them the remarkable ability to differentiate into various healthy cell types. Their distinctive characteristics hold promise for diverse therapeutic applications, including the treatment of stroke, heart disease, diabetes, neurodegenerative disorders, and ischemic wounds in both pre-clinical and clinical settings. Recognising the immense potential of menstrual blood stem cells, the researcher sought to enhance nursing students' understanding of menstrual blood stem cell banking to facilitate the dissemination of this knowledge to the wider community [6–8].

MATERIALS AND METHODS

The primary objective of the study was to evaluate the knowledge and attitude of nursing staff at R. Jalappa Hospital and Research Centre, Tamaka, Kolar, regarding menstrual blood banking. The research design employed was a pre-experimental study utilising a one-group pre-test-post-test research design. Assessments were conducted using a structured knowledge questionnaire and an Attitude Rating Scale employing a 5-point Likert scale. Formal approval was obtained from the Institutional Ethics Committee (IEC) of SDUCON and the relevant hospital authorities. The study included 60 nursing staff members selected through non-probability convenience sampling.

RESULTS

Data analysis was performed using the Statistical Package for the Social Sciences (SPSSs 20.0), incorporating frequency, mean, and percentage tests. Demographic information including age, marital status, educational background, religion, department of work, work experience, residential area, previous knowledge, and sources of information was gathered using a demographic questionnaire. The study revealed that Hinduism was the predominant religion among the nursing staff. Additionally, a significant portion of participants held leadership roles, and the primary sources of information cited were personal experiences and media outlets.

Table 1. Assessment of knowledge.

Knowledge level	**Pre-test**		**Post-test**	
	Frequency	***%***	***Frequency***	***%***
Poor knowledge (<50%)	19	31.4	00	00
Moderate knowledge (50–75)	10	17	13	21.7
Adequate knowledge (>75%)	31	51.6	47	78.3
Total	60	100	60	100

The data presented in Table 1 depicts that 47(78.3%) had adequate knowledge, and 13(21.7%) had Moderate Knowledge regarding menstrual blood banking among nursingstaffs from R Jalappa Hospital and Research Centre (Figure 1).

The data presented in Table 2 depicts that 50(83.3%) had favourable and 10(16.7%) had unfavourable attitude towards menstrual blood banking among nursing staffs of R Jalappa Hospital and Research Centre (Figure 2).

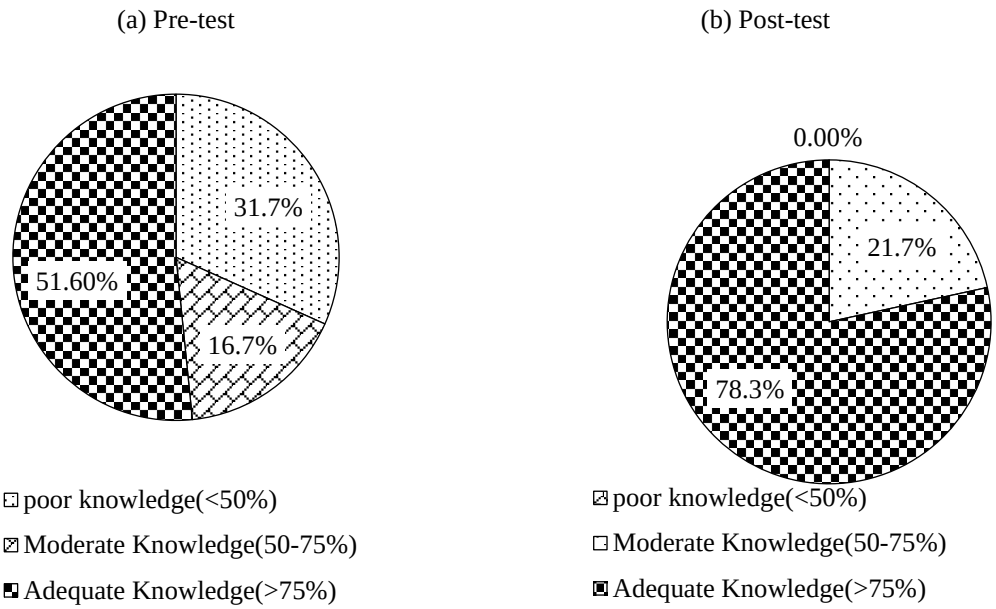
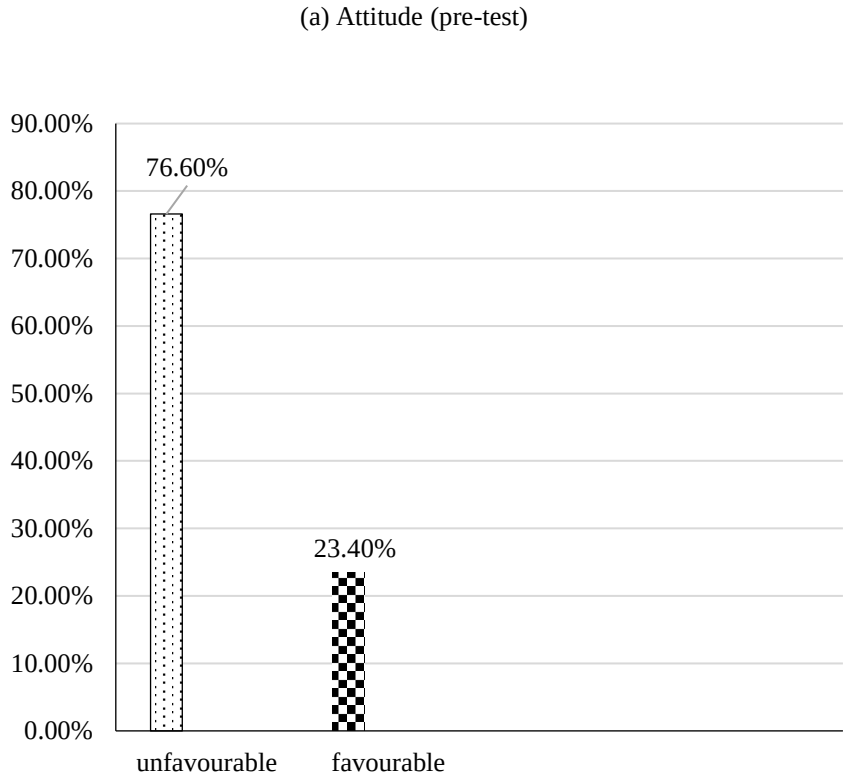


Figure 1. (a and b) Assessment of knowledge showing pre-test and post-test frequency.

Table 2. Assessment of attitude.

Attitude level	**Pre-test**		**Post-test**	
	Frequency	***%***	***Frequency***	***%***
Unfavourable	46	76.6	10	16.7
Favourable	14	23.4	50	83.3
Total	60	100	60	100



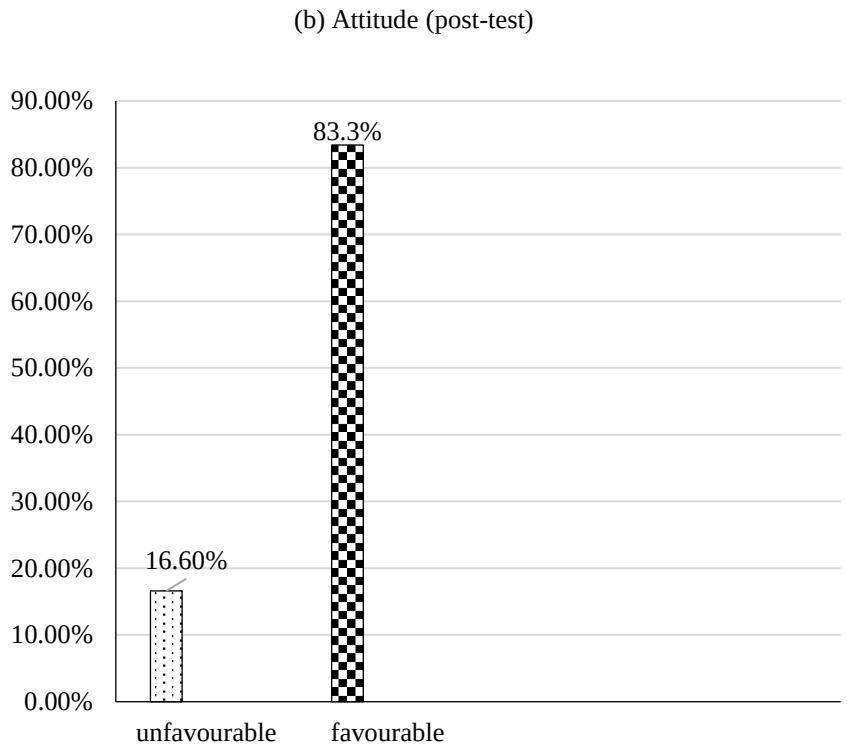


Figure 2. Assessment of attitude showing pre-test and post-test frequency.

DISCUSSION

The study findings indicate that the majority of nursing staff identified as Hindu (46, 76.6%), with a significant portion holding positions of authority (52, 86.6%). Additionally, most respondents cited personal experiences and media as their primary sources of information (40, 66.6%). Regarding knowledge levels, the data revealed that 47 participants (78.3%) demonstrated adequate knowledge, and 13 (21.7%) had moderate knowledge regarding menstrual blood banking among nursing staff at R. Jalappa Hospital and Research Centre. A comparison of mean post-test knowledge scores using a t-test ($t = 19.197$) yielded statistical significance at $p<0.05$ level.

A study with similar objectives regarding the effectiveness of a structured teaching programme among nursing staff on knowledge regarding menstrual blood stem cell banking revealed that 92.7% of nursing staff demonstrated average knowledge in the pre-test phase. Subsequently, following the programme, a significant improvement was observed, with the majority (88.5%) of nursing staff exhibiting a knowledge score higher than their pre-test scores. Statistical analysis using a t-test ($t = 19.183$) indicated significance at the $p<0.05$ level [9–14].

The findings of this study are consistent with those of the present research. In a cross-sectional study conducted among 97 nurses specialising in midwifery and neonatology at a tertiary teaching hospital in Kelantan, Malaysia, it was revealed that the majority of nurses (86.6%) possessed moderate knowledge regarding stem cells in medicine. Additionally, over half of the nurses (60.8%) demonstrated a positive attitude towards the therapeutic potential of stem cells in medicine. Furthermore, a statistically significant correlation was observed between total knowledge scores and nurses' clinical working experiences ($p = 0.003$) [15–18].

The current research aims to evaluate the understanding and perceptions of healthcare professionals concerning menstrual blood banking. Results indicated that a large proportion of participants possessed moderate knowledge, while the majority favorable attitudes during the initial assessment. Based on

these findings, the researchers concluded that healthcare professionals generally lack awareness regarding menstrual blood banking. The newer research evidence should be incorporated in nursing curriculum in order to update future nurses' wise current medical evidence-based practice. The nurses also take the initiatives in educating the public about the importance of menstrual blood banking as a future as in the treatment of various diseases and encourage them to opt for menstrual blood banking facilities [19, 20].

CONCLUSION

The findings of the study reveal a concerning trend, indicating that the majority of the participants held favourable attitudes towards the topic under investigation. Additionally, only 31 out of the total subjects, representing approximately 78.3%, demonstrated adequate knowledge on the subject matter. In response to these results, a structured teaching programme was implemented with the aim of improving participants' knowledge levels and fostering a shift in their attitudes towards the topic. It is crucial for nurses to possess a comprehensive understanding of the subject matter to effectively facilitate positive attitudes towards menstrual blood banking, both within themselves and among other women. By fostering an environment of openness and education, nurses can play a pivotal role in encouraging women to embrace menstrual blood banking as a viable option. Ultimately, this initiative holds the potential to contribute to the establishment of a healthier society by promoting awareness and acceptance of menstrual blood banking practices.

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