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Effectiveness of nurse-led virtual care on physiological and psychological well-being among the post-LSCS mothers

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Abstract
The increasing rate of Caesarean sections (C-sections) globally and in India has necessitated a focus on comprehensive postpartum care. Post-Lower Segment Caesarean Section (LSCS) mothers face significant physiological challenges, such as pain, fatigue, and breastfeeding difficulties, alongside psychological issues like anxiety, depression, and emotional instability. This quasi-experimental study aimed to evaluate the effectiveness of nurse-led virtual care in enhancing the physiological and psychological well-being of post-LSCS mothers at a selected hospital in Erode District. Using Ludwig von Bertalanffy's General Systems Theory, the study adopted a post-test control group design with 60 participants (30 experimental, 30 control) selected through non-probability sampling. A structured interview tool assessed well-being, and a 30-minute virtual educational intervention via WhatsApp video call was provided to the experimental group on the 5th postoperative day. Outcomes were measured on the 21st day post-intervention. Statistical analysis revealed significant improvements in both physiological (t=48.42, $p<0.05$) and psychological (t=27.39, $p<0.05$) well-being in the experimental group compared to controls. Strong correlations were observed between physiological and psychological outcomes (r=+0.622, $p<0.05$). Significant associations were also noted with demographic factors like age and family support. The findings affirm that nurse-led virtual care is an effective, accessible, and cost-efficient intervention for supporting post-LSCS mothers during the postpartum period. It enhances recovery by addressing physical and emotional challenges, enabling a smooth transition to motherhood. Future research should explore virtual care's long-term impacts, its application in community settings, and barriers to implementation. By integrating virtual care into routine postpartum practices, healthcare systems can improve outcomes for mothers and their newborns, contributing to better maternal health globally.

Keywords: Virtual care, physiological well-being, psychological well-being, post LSCS mother, nurse-led care

Introduction
The Caesarean section (C-section) delivery rate has been steadily increasing worldwide due to contributing factors, that include an increase in repeat C-sections, changes in obstetric practices, medico-legal concerns, and evolving societal expectations regarding childbirth outcomes. Maternal preference and autonomy in deciding the mode of delivery also play a significant role. In India, the National Family Health Survey (NFHS-5, 2021) reported a rise in C-section deliveries from 17.2% to 21.5% over five years, with rates in private hospitals nearing 50%. Similarly, the World Health Organization (2021) stated that globally, 21% of childbirths are C-sections, up from 5% in the 1970s.

The postpartum period, lasting six weeks after delivery, is a crucial phase for maternal recovery. Mothers who undergo C-sections face unique challenges, including pain, fatigue, breastfeeding difficulties, and an increased risk of infections. Psychological issues, such as postpartum depression and anxiety, further complicate recovery, often impacting maternal bonding and self-esteem. Research highlights the importance of timely interventions to support mothers during this critical phase.

Nurses play a vital role in postpartum care, offering guidance and support to ensure holistic recovery. With advancements in technology, virtual care has emerged as a promising approach to provide consistent, accessible support to post-LSCS mothers. Virtual consultations allow nurses to address physical and psychological concerns remotely, reducing hospital visits and ensuring timely interventions. This study explores the

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effectiveness of nurse-led virtual care on the physiological and psychological well-being of post-LSCS mothers

Statement of the problem
A study to assess the effectiveness of nurse-led virtual care on physiological and psychological well-being among post-LSCS mothers in a selected hospital in Erode District.

Objectives
- To assess the physiological well-being among post-LSCS mothers after intervention in the experimental and control groups.
- To assess the psychological well-being among the post-LSCS mothers after intervention in the experimental and control groups.
- To assess and compare the effectiveness of nurse-led virtual care on physiological well-being after intervention.
- To assess and compare the effectiveness of nurse-led virtual care on psychological well-being after intervention.
- To correlate the physiological and psychological well-being in the experimental and control group after intervention.
- To associate the level of physiological well-being with selected demographic variables in the control group.
- To associate the level of psychological well-being with selected demographic variables in the control group.

Hypothesis
- **H1:** There will be a significant difference in the mean score of physiological well-being of post-LSCS mothers between experimental and control groups after intervention.
- **H2:** There will be a significant difference in the mean score of psychological well-being of post-LSCS mothers between the experimental and control groups after intervention.
- **H3:** There will be a significant correlation between physiological and psychological well-being in the experimental and control groups after intervention.

Assumptions
- The mothers who underwent LSCS have physiological issues for a month.
- The mothers who underwent LSCS have psychological issues for a month.
- Primiparous mothers have more physiological and psychological issues than multiparous mothers.

Delimitations
- The study was delimited to a selected hospital
- The study was delimited to the postnatal mothers who had undergone LSCS delivery.
- Virtual care will be provided to the mothers through WhatsApp video calls only.

Methodology
The conceptual framework used in the study was Ludwig von bertaalanffy general system theory (1968) and it includes two systems such as open and closed system. A quantitative evaluation approach with a quasi-experimental post-test -control group design was adopted. A non-probability sampling technique was used to include 60 post LSCS mothers, 30 in the experimental group to receive intervention and 30 in the control group. The data collection tool and technique involved an interview schedule for demographic data and structured interview questionnaire for assess the level of physiological and psychological wellbeing. The virtual educational intervention involved a 30 minutes on the 5th post operative day through WhatsApp video call and the effectiveness was evaluated and observed on the 21st day after intervention. Tools validity was ensured through expert feedback and reliability by interrater method. A pilot study was done to confirm the feasibility, prior to the main study. Ethical considerations included obtaining ethical clearance from the Institutional Ethical Committee, formal written permission from hospital authorities, informed consent from the post LSCS mothers and privacy and confidentiality were maintained throughout the study. Data were analysed using descriptive and inferential statistics, including t-test, chi-square test and pearson correlation by SPSS software.

Results
The demographic variables revealed that the age of participants ranged from 18 to 40 years, with the majority, 63.3% (19 mothers) in the experimental group and 53.3% (16 mothers) in the control group in the 26-30 age group. Regarding educational status, 43.3% (13 mothers) in the experimental group and 40.0% (12 mothers) in the control group were graduates. Employment status revealed that 56.7% (17 mothers) in the experimental group were private employees, compared to 23.3% (7 mothers) in the control group. In terms of religion, half of the participants in the experimental group (50.0%) and most 70.0% (21 mothers) in the control group were Hindus. Family structure indicated that 46.7% (14 mothers) in the experimental group and 40.0% (12 mothers) in the control group came from nuclear families. Regarding the sex of the newborns, 60.0% (18 mothers) in the experimental group and 53.3% (16 mothers) in the control group had male babies. The obstetrical data revealed that in the experimental group, 56.7% (17 mothers) were first-time mothers, while 36.7% (11 mothers) in the control group were also first parities. For second parities, 40.0% (12 mothers) were in the experimental group compared to 46.7% (14 mothers) in the control group. Regarding deliveries, 73.3% (22 mothers) in the experimental group and 86.7% (26 mothers) in the control group had one delivery. Similarly, 70.0% (21 mothers) in the experimental group and 86.7% (26 mothers) in the control group had one child. Notably, 80.0% (24 mothers) in the experimental group had not experienced abortions, while 40.0% (12 mothers) in the control group. Additionally, 80.0% (24 mothers) in the experimental group reported having family support during the postpartum period, in contrast to only 33.3% (10 mothers) in the control group.

The result revealed that there was a significant difference in the mean score of physiological wellbeing between the experimental and control groups after the intervention at $p<0.05$.(t=48.42, df=58, P=0.000).There was a significant difference in the mean score of psychological wellbeing between the experimental and control groups after the intervention at $p<0.05$. (t=27.39, df=58, P=0.000)
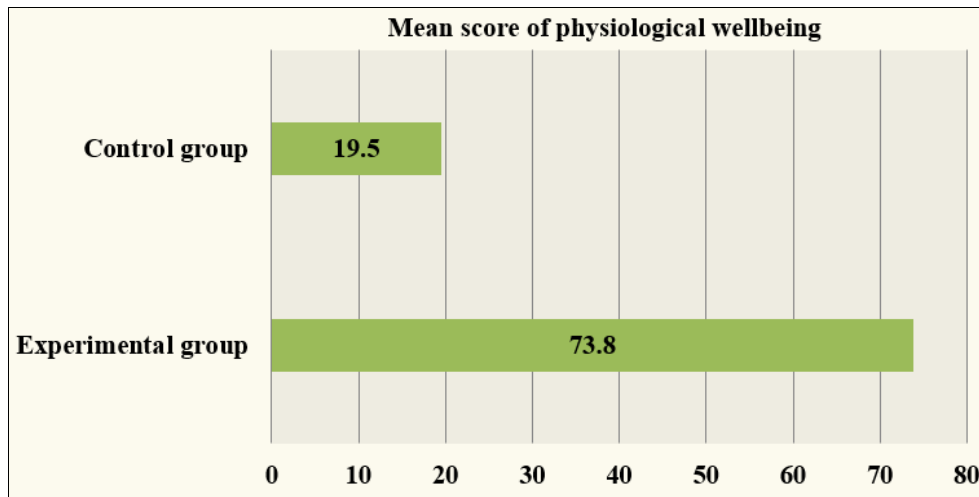
Fig 1: Presents the mean score of physiological well-being between the experimental and control group.
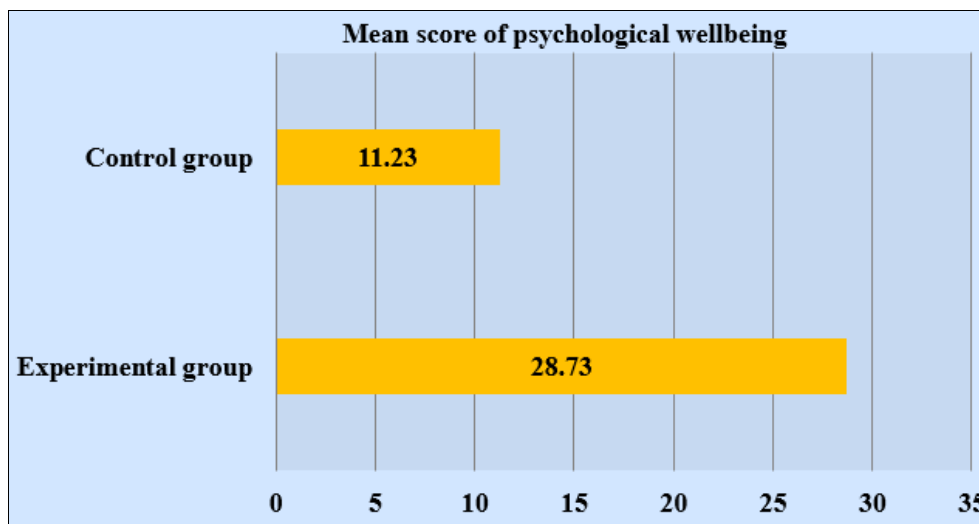
Fig 2: Presents the mean score of psychological wellbeing between the experimental and control group

Also, there was a significant correlation between the physiological and psychological wellbeing in the experimental group at $p<0.05$ (r-value = +0.622, significant value=0.000) and in the control group (r-value = +0.816, significant value=0.000)

Additionally, there was a significant association between age of the mother and the level of psychological wellbeing at $p<0.05$($\chi2$=8.542, df=3, P=0.036) and a significant association between No. of abortion and the level of psychological wellbeing at $p<0.05$ ($\chi2$=6.111, df=2, P=0.047).

Also, there was a significant association between family support available during postpartum period and the level of psychological wellbeing at $p<0.05$ ($\chi2$=10.000, df=2, P=0.002)

Discussion
The study findings were supported with the quasi-experimental study conducted by Khatun F *et al*. (2021) [14] to assess the nurse-led postpartum self-care intervention at reducing postpartum fatigue and depressive mood and promoting maternal functioning among primi mothers. The results of their study revealed that the intervention group experienced a significant reduction in fatigue (ß = -6.17, SE = 1.81, t = -3.39, $p<.01$). Maternal functioning significantly improved at 2 weeks (ß = 12.76, SE = 1.55, t = 8.20, $p<.01$) and 6 weeks (ß = 24.54, SE = 3.12, t = 7.84, $p<.01$). The overall treatment effect was notably better after 6 weeks (ß = 13.72, SE = 3.67, t = 3.73, $p<.01$) in the experimental group compared to the control group. Their study concluded that the nurse-led postpartum self-care intervention was highly effective in reducing fatigue, which was an aspect of the physiological well-being, and improving maternal functioning after 6 weeks of intervention.

The findings were also supported by a randomized controlled trial done by H Liu and Y Yang (2021) [15] to assess the effect of psychological nursing intervention on preventing anxiety and depression in the postpartum period among primiparous women who exhibited tendencies for postpartum depression during delivery at Cangzhou Central Hospital, China. Their results showed that after the intervention, the incidence of postpartum depression was significantly higher in the control group (24.3%) compared to the experimental group (11.5%). Their study concluded that psychological nursing interventions, which include cognitive behavioral therapy combined with routine postpartum care, significantly reduced the incidence of anxiety and depression.

Conclusion

The study concludes that nurse-led virtual care is both feasible and effective in enhancing the physiological and psychological well-being of post-LSCS mothers during their postpartum period. The intervention significantly improved both physiological and psychological outcomes in the experimental group and highlighted a strong correlation between these aspects of well-being. The results underscore the value of nurse-led virtual care in providing comprehensive, cost-effective, and accessible support to postpartum mothers, promoting a stress-free recovery environment. This approach improves mothers' well-being and enhances care outcomes for both mothers and their newborns, demonstrating its potential as a valuable tool in postpartum care.

Limitations

- The sample size was small, limiting the generalizability of the results.
- The samples were selected using a non-probability purposive sampling technique.
- Limited review studies on nurse-led virtual care among postpartum mothers.

Implications

The study has implications for nursing practice, nursing education, nursing administration, and nursing research. The findings of this study emphasize the crucial role nurses can play in implementing virtual care interventions to improve the well-being of postpartum mothers, particularly those who have undergone cesarean sections. The study findings emphasize that Nurse educators should incorporate nurse-led virtual care interventions into the nursing curriculum, and their students will be prepared to offer remote assistance, assessments, and support, equipping them with essential skills like communication, empathy, and critical thinking in digital care environments. The study findings emphasize that Nurse administrators should organize continuing education programs, conferences, workshops, and in-service training to keep nurses updated on the latest maternal and child healthcare advancements in digital healthcare, including virtual care interventions. Nurse researchers should explore the feasibility of implementing virtual care interventions across various healthcare and midwifery settings. Research should focus on identifying barriers to integrating the interventions in midwifery practice and assessing the long-term benefits of nurse-led virtual care on postpartum outcomes. Disseminating findings through seminars, conferences, and publications in national and international journals will help expand knowledge, benefiting midwifery care and advancing the field of postpartum nursing care.

Recommendations

- The study can be replicated in diverse populations with a larger sample size to validate and generalize the findings.
- Conduct a similar study to investigate the long-term effects of virtual care interventions on patient outcomes and well-being.
- Conduct a comparative study to evaluate the effectiveness of virtual care on the well-being of mothers with normal deliveries versus cesarean deliveries.
- Conduct a study to identify the barriers to implementing nurse-led virtual care in the community setting among healthcare provider training.
- Conduct a mixed-method study to evaluate the effectiveness of virtual care on postpartum maternal satisfaction.

Conflict of Interest

Not available

Financial Support

Not available

References

1. Dutta DC, Konar H. Textbook of Obstetrics. 9th ed. New Delhi: Jaypee Brothers, c2018. p. 143-145, 562.
2. Myles MF, Marshall JE, Ayers S. Myles Textbook of Midwifery. 17th ed. Edinburgh: Churchill Livingstone; 2022. p. 716, 740-750, 800-801.
3. Sharma JB. Textbook of Midwifery and Gynecological Nursing. 2nd ed. New Delhi: Avichal Publishers, c2015. p. 157.
4. Bhaskar N. Midwifery & Obstetric Nursing. 3rd ed. Bengaluru: Emmess Medical Publishers, c2019. p. 251-310.
5. International Institute for Population Sciences (IIPS) and ICF. National Family Health Survey (NFHS-5), 2019-21: Volume I. Mumbai: IIPS; c2021 [cited 2024 Nov 28]. Available from: https://dhsprogram.com/pubs/pdf/FR375/FR375.pdf
6. Duran S, Vural G. Problems experienced by the mothers in post-cesarean period: A narrative review. Iran J Public Health. 2023 Oct;52(10):2036-2041. DOI: 10.18502/ijph.v52i10.13841. PMID: 37899917; PMCID: PMC10612559.
7. Rowlands IJ, Redshaw M. Mode of birth and women's psychological and physical wellbeing in the postnatal period. BMC Pregnancy Childbirth. 2012 Dec;12:1-1.
8. Nazari S, Hajian S, Abbasi Z, Majd HA. Postpartum care promotion based on maternal education needs: A mixed study. J Educ Health Promot. 2021 Jan 1;10(1):261.
9. Rezaei N, Tavalaee Z, Sayehmiri K, Sharifi N, Daliri S. The relationship between quality of life and methods of delivery: A systematic review and meta-analysis. Electron Physician. 2018 Apr 25;10(4):6596-6607. DOI: 10.19082/6596. PMID: 29881521; PMCID: PMC5984013.
10. Radha C, Bommi K, Sumithra S. Effectiveness of Benson's relaxation therapy on pain and stress among post-cesarean mothers. Int J Adv Nurs Manag. 2019;7(4):316-320. DOI: 10.5958/2454-2652.2019.00074.X.
11. De Jong JM, Ogink PA, Van Bunningen CG, Driessen RJ, Engelen LJ, Heeren B, et al. A cloud-based virtual outpatient clinic for patient-centered care: Proof-of-concept study. J Med Internet Res. 2018 Sep 24;20(9):e10135.
12. Sung S, Mahdy H. Cesarean section. [Updated 2023 Jul 9]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK546707/
13. Saad M, Chan S, Nguyen L, et al. Patient perceptions of the benefits and barriers of virtual postnatal care: A

qualitative study. BMC Pregnancy Childbirth. 2021;21:543. DOI: 10.1186/s12884-021-03999-9.

14. Khatun MN, Sarker MN, Mitra S. Green banking and sustainable development in Bangladesh. Sustainability and climate change. 2021 Oct 1;14(5):262-271.

15. Yang H, Liu H, Chen Y, Zhu C, Fang W, Yu Z, *et al*. Long-term efficacy of neoadjuvant chemoradiotherapy plus surgery for the treatment of locally advanced esophageal squamous cell carcinoma: the NEOCRTEC5010 randomized clinical trial. JAMA surgery. 2021 Aug 1;156(8):721-729.