A Study to Assess the Effectiveness of Nurse Led Intervention to Reduce Minor Physical Discomfort Among Antenatal Women in Selected Rural Community Jabalpur M.P.

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***Abstract*—Aim: The study aimed to assess the effectiveness of nurse-led intervention in reducing minor physical discomfort among antenatal women. The objectives of the study were to assess the pre-intervention and post-intervention scores of minor physical discomforts, evaluate the effectiveness of nurse-led intervention, and determine the association between discomfort scores with selected demographic and clinical variables.**

Methodology: A quantitative research approach with a quasi-experimental one group pre-test and post-test research design was adopted for the study. The study was conducted among antenatal women in selected rural communities of Jabalpur. A total of 60 antenatal women with gestational age between 24 to 32 weeks experiencing minor physical discomforts were selected through purposive sampling technique. The nurse-led intervention included selected antenatal yoga practices such as Cat and Cow Pose (Marjariasana), Butterfly Pose (Titli Asana), Ankle Pump, Ankle Rotation, and Anulom Vilom Pranayama for reducing low back pain, leg cramps, and leg edema. Data were collected using Williamson Pain Scale for low back pain, Robert Henderson Leg Cramp Grading Scale, and Ruchiegal Edema Scale.

Findings: The findings revealed a significant reduction in low back pain, leg cramps, and leg edema after the intervention. The calculated paired 't' values were found to be statistically significant at 0.05 level of significance, indicating that nurse-led intervention was effective in reducing minor physical discomfort among antenatal women.

Conclusion: The study concluded that antenatal yoga as a nurse-led intervention was effective in reducing minor physical discomforts during pregnancy and promoted better maternal well-being. Therefore, antenatal women were encouraged to continue regular yoga practices for improving maternal health and reducing pregnancy-related discomforts.

***Index Terms*—Antenatal Women, Nurse Led Intervention, Minor Physical Discomfort, Low Back Pain, Leg Cramps, Leg Edema, Antenatal Yoga, Pregnancy.**

I. INTRODUCTION

Pregnancy is a natural physiological process in a woman's life that brings happiness and fulfillment to the family. During pregnancy, women undergo various anatomical, physiological, hormonal, and psychological changes to support fetal growth and development. Although pregnancy is considered a normal condition, many women experience several minor physical discomforts, especially during the second and third trimesters. These discomforts include low back pain, leg cramps, leg edema, fatigue, urinary frequency, nausea, and sleep disturbances.

Minor physical discomforts during pregnancy may not be life-threatening, but they can significantly affect the daily activities, comfort, sleep, mobility, and overall quality of life of antenatal women. Due to increased body weight, hormonal changes, altered posture, and pressure from the growing uterus, women often experience musculoskeletal discomforts such as back pain and leg cramps. Similarly, fluid retention and decreased circulation may result in leg edema during pregnancy.

Many antenatal women depend on medications to relieve discomfort; however, unnecessary medication use during pregnancy may have adverse effects on both mother and fetus. Therefore, non-pharmacological approaches are considered safer and more beneficial for managing pregnancy-related discomforts. Antenatal yoga is one of the effective and safe methods that helps improve physical flexibility, circulation, muscle relaxation, breathing, and psychological well-being during pregnancy.

Nurses play an important role in providing health education and supportive care to antenatal mothers. Nurse-led interventions, such as teaching and guiding antenatal yoga practices, can help reduce minor physical discomforts and improve maternal well-being. Selected yoga postures such as Cat and Cow Pose (Marjariasana), Butterfly Pose (Titli Asana), Ankle Pump, Ankle Rotation, and Anulom Vilom Pranayama are beneficial in reducing low back pain, leg cramps, and edema during pregnancy.

II. NEED FOR THE STUDY

Pregnancy-related minor physical discomforts are commonly experienced by women, particularly during the second and third trimesters. Though these discomforts are considered normal, they often interfere with the daily routine, physical activity, sleep pattern, and emotional well-being of pregnant women. Low back pain, leg cramps, and edema are among the most common complaints reported by antenatal women.

Studies have reported that a large number of pregnant women experience musculoskeletal discomforts during pregnancy. Many women suffer from calf muscle cramps, low back pain, pelvic discomfort, and pedal edema, which may worsen with advancing gestational age. Women residing in rural communities may have limited access to health education and supportive interventions for managing these discomforts.

Despite the prevalence of minor discomforts, many antenatal women either ignore these problems or depend on medications for relief. Excessive use of medications during pregnancy may not always be safe and can lead to unwanted side effects. Therefore, there is a need for safe, cost-effective, and non-pharmacological interventions to reduce these discomforts.

Antenatal yoga has been found to be beneficial in reducing stress, improving circulation, enhancing flexibility, and minimizing pregnancy-related discomforts. It is easy to practice, cost-effective, and does not require expensive resources. Nurse-led interventions through antenatal yoga practices may provide significant benefits to pregnant women in reducing discomfort and improving health outcomes.

Hence, the investigator felt the need to assess the effectiveness of nurse-led interventions in reducing minor physical discomforts among antenatal women in selected rural communities of Jabalpur (M.P.).

III. OBJECTIVES OF THE STUDY

The objectives of the study were to:

1. Assess the pre-intervention score of minor physical discomforts among antenatal women.
2. Assess the effectiveness of nurse-led intervention among antenatal women.
3. Assess the post-intervention score of minor physical discomforts among antenatal women.
4. Determine the association between pre-intervention score with selected demographic variables among antenatal women.
5. Determine the association between pre-intervention score with selected clinical variables among antenatal women.

Research Hypothesis

(All hypotheses will be tested at 0.05 level of significance)

H1: There will be a significant mean difference between pre-intervention and post-intervention scores among antenatal women.

H2: There will be a significant association between pre-intervention score among antenatal women with their selected demographic and clinical variables.

Assumptions

1. Practicing yoga may bring physical, economical, psychological, and spiritual well-being among antenatal women.
2. Practicing yoga may reduce minor physical discomfort among antenatal women.

Operational Definitions

Assess: In this study, assess refers to the level of minor physical discomfort among antenatal women by using

Modified Williamson Pain Scale for low back pain, Ruchiegal Edema Scale, and Robert Henderson Leg Cramps Scale.

Effectiveness: In this study, effectiveness refers to the desired decrease in minor physical discomfort after nurse-led intervention (yoga practice).

Nurse-Led Intervention: In this study, nurse-led intervention refers to selected antenatal yoga poses, including:

1. Cat and Cow Pose (Marjariasana) – beneficial for low back pain.
2. Butterfly Pose (Titli Asana) – useful for back pain and relaxation of leg muscles.
3. Ankle Pump – exercise to reduce leg cramps.
4. Ankle Rotation – beneficial in reducing edema around the ankle joint during pregnancy.
5. Anulom Vilom Pranayama – breathing exercise for physical and mental wellness.

Minor Physical Discomfort: In this study, minor physical discomfort refers to low back pain, leg cramps, and leg edema.

Antenatal Women: In this study, antenatal women refer to pregnant women whose gestational age is between 24 weeks to 32 weeks.

Delimitations

1. The study was delimited to second and third trimester pregnancy including only 6th, 7th, and 8th month of gestation.
2. The period of study was limited to 4 weeks.
3. The sample size was limited to 60 antenatal women.

IV. MATERIALS AND METHODS

In the present study, a quantitative evaluative research approach was adopted to assess the effectiveness of nurse-led intervention in reducing minor physical discomfort among antenatal women. A quasi-experimental one group pre-test and post-test research design was used to evaluate the effectiveness of the intervention. The study was conducted in selected rural communities of Jabalpur (M.P.) among antenatal women experiencing minor physical discomfort during pregnancy.

The target population of the study included all antenatal women experiencing minor physical discomfort during pregnancy, whereas the accessible population consisted of antenatal women with gestational age between 24 to 32 weeks residing in selected rural communities of Jabalpur. A total of 60 antenatal women were selected as the sample for the study using a purposive sampling technique based on the inclusion criteria.

The inclusion criteria included antenatal women between 24 to 32 weeks of gestation, those who were willing to participate, and those experiencing minor physical discomforts such as low back pain, leg cramps, and leg edema. Antenatal women with high-risk pregnancy complications, severe physical illness, or those medically advised not to perform yoga were excluded from the study.

The data collection tool consisted of demographic and clinical variables along with standardized assessment scales to evaluate minor physical discomfort. The Williamson Pain Scale was used to assess low back pain, the Ruchiegal Edema Scale was used to assess leg edema, and the Robert Henderson Leg Cramps Grading Scale was used to evaluate leg cramps among antenatal women.

The nurse-led intervention consisted of selected antenatal yoga practices including Cat and Cow Pose (Marjariasana), Butterfly Pose (Titli Asana), Ankle Pump, Ankle Rotation, and Anulom Vilom Pranayama, which were administered to reduce minor physical discomfort during pregnancy. The intervention was provided after conducting the pre-test assessment and continued for a specified period, followed by post-test assessment to determine effectiveness.

The validity of the tool and intervention was established through expert opinion from specialists in relevant nursing fields. Reliability of the tool was tested and found suitable for conducting the study. A pilot study was conducted to determine the feasibility and practicability of the study, and necessary modifications were made before the final study.

Prior permission was obtained from the concerned authorities before conducting the study. Informed consent was taken from all participants, and confidentiality of the information was maintained throughout the study. The collected data were analyzed using descriptive and inferential statistics such as frequency, percentage, mean, standard deviation, paired ‘t’ test, and chi-square test to assess the effectiveness of the nurse-led intervention and determine associations with selected variables.

V. RESULT

The findings of the study were organized according to the objectives and statistical analysis of data collected from 60 antenatal women.

Section I: Findings related to demographic and clinical variables

Age of Antenatal Women:

Data presented in Table 4.1.4 reveals that the majority of antenatal women 23 (39%) belonged to the age group of 20–25 years, 22 (36%) belonged to the age group of 26–30 years, 12 (20%) belonged to the age group of 31–35 years, and 3 (5%) belonged to the age group of more than 36 years.

Occupational Status:

Data presented in Table 4.1.4 reveals that the majority of antenatal women 42 (70%) were employed, whereas 18 (30%) were unemployed.

Monthly Family Income:

Data presented in Table 4.1.4 reveals that the majority of antenatal women 30 (50%) had a monthly family income of Rs. 5000–10000 per month, 18 (30%) had a monthly family income of less than Rs. 5000 per month, and 12 (20%) had a monthly family income of more than Rs. 10000 per month.

Educational Status:

Data presented in Table 4.1.4 reveals that the majority of antenatal women 17 (28%) were educated up to primary level, 15 (25%) were educated up to high school level, 12 (20%) were educated up to intermediate level, 9 (15%) were graduates, and 7 (12%) were illiterate.

History of Vaginal Discharge:

Data presented in Table 4.2.5 reveals that the majority of antenatal women 37 (62%) had no history of vaginal discharge, whereas 23 (38%) had a history of vaginal discharge.

History of Nipple Discharge:

Data presented in Figure 4.2.5 reveals that the majority of antenatal women 42 (70%) had a history of nipple discharge, whereas 18 (30%) had no history of nipple discharge.

Duration of Marriage:

Data presented in Figure 4.2.5 reveals that the majority of antenatal women 30 (50%) had been married for 3–6 years, 12 (37%) had been married for more than 6 years, and 8 (13%) had been married for less than 0–3 years.

Gestational Age:

Data presented in Figure 4.2.5 reveals that the majority of antenatal women 21 (35%) had a gestational age of 8 months, 20 (34%) had a gestational age of 6 months, and 19 (31%) had a gestational age of 7 months.

Parity:

Data presented in Figure 4.2.5 reveals that the majority of antenatal women 32 (53%) had Parity I, 20 (34%) had Parity II, and 8 (13%) had Parity III.

History of Previous Delivery:

Data presented in Figure 4.2.5 reveals that the majority of antenatal women 41 (69%) had a history of normal delivery, whereas 19 (31%) had a history of LSCS (Lower Segment Caesarean Section).

Section II: Findings related to pre-intervention and post-intervention score of low backache among antenatal women on williamson pain scale

The data depicts the pre-intervention and post-intervention score of low backache among antenatal women on the Williamson Pain Scale.

In the pre-test, 6 (10%) antenatal women had severe pain ranging between 7–9, 35 (59%) had moderate pain ranging between 4–6, and 19 (31%) had mild pain ranging between 1–3. No antenatal women reported worst possible pain (10) or no pain (0) during the pre-test assessment.

In the post-test, no antenatal women reported worst possible pain, severe pain, or moderate pain. Only 2 (3%) antenatal women had mild pain ranging between 1–3, whereas the majority 58 (97%) had no pain (0).

The findings indicate that there was a marked reduction in the level of low back pain among antenatal women after administration of the nurse-led intervention.

Section III: Findings related to effectiveness of nurse-led intervention for low back pain among antenatal women

The data depicts the mean, standard deviation, and paired ‘t’ value of pre-intervention and post-intervention scores of low back pain among antenatal women on the Williamson Pain Scale.

The findings reveal that the mean pre-intervention pain score on Day 1 was 4.58 with a standard deviation of 1.62. In the post-intervention assessment, the mean pain score on Day 15 was 1.40 with a standard deviation of 0.31, and on Day 31 the mean score further reduced to 0.03 with a standard deviation of

0.18, which was considerably lower than the pre-intervention score.

The computed paired 't' value (t = 22.63) was found to be greater than the tabulated value at 0.05 level of significance (df = 59, t = 1.67). Therefore, the research hypothesis (H1) was accepted, indicating that there was a statistically significant difference between the pre-intervention and post-intervention low back pain scores.

Hence, the findings concluded that the nurse-led intervention was effective in reducing low back pain among antenatal women.

Section IV: To assess the pre-intervention and post-intervention score of leg cramps among antenatal women on robert henderson leg cramp scale

The data depicts the pre-intervention and post-intervention score of leg cramps among antenatal women on the Robert Henderson Leg Cramp Scale.

In the pre-test, 2 (3%) antenatal women had worst possible leg cramps, 16 (27%) had severe leg cramps, 22 (37%) had moderate leg cramps, and 20 (33%) had mild leg cramps. No antenatal women reported absence of leg cramps during the pre-test assessment.

In the post-test, no antenatal women reported worst possible leg cramps, severe leg cramps, or moderate leg cramps. Only 2 (3%) antenatal women had mild leg cramps, whereas the majority 58 (97%) had no leg cramps.

The findings indicate that there was a marked reduction in the level of leg cramps among antenatal women after administration of the nurse-led intervention.

Section V: To determine the effectiveness of nurse-led intervention for leg cramps among antenatal women

The data depicts the mean, standard deviation, and paired 't' value of pre-intervention and post-intervention scores of leg cramps among antenatal women.

The findings reveal that the mean pre-intervention score on Day 1 was 2.0 with a standard deviation of 1.62. In the post-intervention assessment, the mean score on Day 15 was 2.03 with a standard deviation of 0.80, and on Day 31 the mean score reduced to 0.9 with a standard deviation of 0.18, which was lower than the pre-intervention mean score.

The computed paired 't' value (t = 18.51) was found to be greater than the tabulated value at 0.05 level of significance (df = 59, t = 1.67). Therefore, the research hypothesis was accepted, indicating that there was a statistically significant difference between the pre-intervention and post-intervention scores.

Hence, the findings concluded that the nurse-led intervention was effective in reducing the post-intervention level of leg cramps among antenatal women.

Section VI: To assess the pre-intervention and post-intervention score of leg edema among antenatal women on robert henderson scale

The data depicts the pre-intervention and post-intervention score of leg edema among antenatal women on the Robert Henderson Scale.

In the pre-test, 4 (6%) antenatal women had very severe edema graded as (4+), 12 (20%) had severe edema graded as (3+), 27 (45%) had moderate edema graded as (2+), and 17 (29%) had mild edema graded as (1+).

In the post-test, no antenatal women 0 (0%) had very severe edema graded as (4+) compared to the pre-intervention, where 4 (6%) had very severe edema. Only 1 (1.5%) antenatal woman had severe edema graded as (3+) compared to 12 (20%) during the pre-intervention. Similarly, 2 (3%) antenatal women had moderate edema graded as (2+) compared to 27 (45%) during the pre-intervention.

The majority of antenatal women 57 (95.5%) had mild edema graded as (1+) in the post-test compared to 17 (29%) in the pre-intervention. The findings indicate a marked reduction in the severity of leg edema among antenatal women after administration of the nurse-led intervention.

Section VII: To determine the effectiveness of nurse-led intervention for leg edema among antenatal women

The data depicts the mean, standard deviation, and paired 't' value of pre-intervention and post-intervention scores of leg edema among antenatal women.

The findings reveal that the mean pre-intervention score on Day 1 was 2.02 with a standard deviation of 0.9. In the post-intervention assessment, the mean score on Day 15 was 1.90 with a standard deviation of 0.9, and on Day 31 the mean score reduced to 0.03 with a standard deviation of 0.2, which was

considerably lower than the pre-intervention mean score.

The computed paired 't' value (t = 18.2) was found to be greater than the tabulated value at 0.05 level of significance (df = 59, t = 1.67). Therefore, the research hypothesis was accepted, indicating that there was a statistically significant difference between the pre-intervention and post-intervention scores.

Hence, the findings concluded that the nurse-led intervention was effective in reducing the post-intervention level of leg edema among antenatal women.

Section VIII: Determine the association between pre-intervention low back pain score with selected demographic variables

The data depicts the association between pre-intervention low back pain score and selected demographic variables among antenatal women.

With regard to age in years, the computed chi-square value ($\chi^2 = 0.7447$, p = 0.9994) was found to be not significant at 0.05 level of significance, indicating that there was no significant association between pre-intervention low back pain score and age of antenatal women.

Regarding occupation, the computed chi-square value ($\chi^2 = 9.485$, p = 0) was found to be significant at 0.05 level of significance, indicating that there was a significant association between pre-intervention low back pain score and occupation of antenatal women.

With regard to family income, the computed chi-square value ($\chi^2 = 1.7833$, p = 0.98695) was found to be not significant at 0.05 level of significance, indicating that there was no significant association between pre-intervention low back pain score and family income of antenatal women.

Regarding educational status, the computed chi-square value ($\chi^2 = 3.8675$, p = 0.999113) was found to be not significant at 0.05 level of significance, indicating that there was no significant association between pre-intervention low back pain score and educational status of antenatal women.

Hence, the findings revealed that among the selected demographic variables, only occupation had a significant association with the pre-intervention low back pain score, whereas age, family income, and educational status had no significant association.

VI. CONCLUSION

The present study was conducted to assess the effectiveness of nurse-led intervention in reducing minor physical discomfort among antenatal women in selected rural communities of Jabalpur (M.P.). The findings of the study revealed that antenatal women experienced common minor physical discomforts such as low back pain, leg cramps, and leg edema during pregnancy.

The results showed that before the intervention, the majority of antenatal women had moderate to severe levels of discomfort. After administration of the nurse-led intervention, which included selected antenatal yoga practices such as Cat and Cow Pose (Marjariasana), Butterfly Pose (Titli Asana), Ankle Pump, Ankle Rotation, and Anulom Vilom Pranayama, there was a significant reduction in the level of discomfort among antenatal women.

The computed paired 't' test values for low back pain, leg cramps, and leg edema were found to be statistically significant at 0.05 level of significance, indicating that the intervention was effective in reducing pregnancy-related discomforts. The study also found a significant association between selected variables such as occupation and vaginal discharge with pre-intervention discomfort scores, whereas other variables showed no significant association.

Therefore, the study concluded that nurse-led intervention was effective in reducing low back pain, leg cramps, and leg edema among antenatal women, thereby improving maternal comfort, physical well-being, and quality of life during pregnancy. The study emphasizes the importance of incorporating nurse-led non-pharmacological interventions and antenatal yoga practices as part of routine antenatal care for promoting maternal health and comfort.

VII. IMPLICATION

Nursing Education

- Nurse educators should emphasize the importance of antenatal yoga and other non-pharmacological interventions in the nursing curriculum.
- Students should be trained to identify and manage minor physical discomforts during pregnancy.

- Educational programs, workshops, and demonstrations on antenatal exercises should be conducted regularly.
- Nursing students should be encouraged to provide health education regarding antenatal care and maternal well-being.
- Evidence-based nursing interventions should be incorporated into teaching and clinical practice.

Nursing Practice

- Nurses should assess antenatal women regularly for low back pain, leg cramps, and leg edema.
- Nurse-led interventions such as antenatal yoga should be incorporated into routine antenatal care services.
- Nurses should educate pregnant women regarding the benefits of physical activity and relaxation techniques during pregnancy.
- Individualized nursing care plans should be developed to reduce pregnancy-related discomforts.
- Nurses should promote safe and cost-effective non-pharmacological measures for maternal comfort.

Nursing Administration

- Nurse administrators should organize in-service education programs on antenatal yoga and maternal health promotion.
- Adequate resources and facilities should be provided for conducting antenatal exercise sessions.
- Policies should be developed to integrate nurse-led interventions into antenatal care services.
- Administrators should encourage nurses to participate in continuing education programs related to maternal health.
- Supervision and monitoring of antenatal health promotion activities should be strengthened.

Nursing Research

- Further studies can be conducted with larger sample sizes to enhance generalization of findings.
- Similar studies can be replicated in different settings and populations.
- Comparative studies can be conducted between different non-pharmacological interventions.
- Longitudinal studies may be undertaken to assess long-term benefits of antenatal yoga.
- Research should be encouraged to explore innovative nurse-led interventions for maternal health promotion.

RECOMMENDATIONS

1. Similar studies may be conducted on a larger sample to improve generalizability of the findings.
2. A comparative study may be conducted between nurse-led intervention and other therapeutic approaches.
3. The study can be replicated in urban and rural settings for broader applicability.
4. A longitudinal study may be conducted to assess the long-term effects of antenatal yoga practices.
5. Similar studies can be conducted among high-risk antenatal women under medical supervision.
6. Educational intervention programs can be developed and evaluated for antenatal mothers.
7. Further research can be undertaken to assess the impact of nurse-led interventions on maternal and neonatal outcomes.
8. Experimental studies with control groups can be conducted to strengthen evidence regarding effectiveness.

REFERENCES

[1] B. T. Basavanthappa, Nursing Research, 4th ed. New Delhi, India: Jaypee Brothers Medical Publishers, 2014.

[2] D. F. Polit and C. T. Beck, Nursing Research: Generating and Assessing Evidence for Nursing Practice, 11th ed. Philadelphia, PA, USA: Wolters Kluwer, 2021.

[3] S. K. Sharma, Nursing Research and Statistics, 3rd ed. New Delhi, India: Elsevier, 2018.

[4] D. C. Dutta, Textbook of Obstetrics, 10th ed. New Delhi, India: Jaypee Brothers Medical Publishers, 2023.

[5] D. M. Fraser and M. A. Cooper, Myles Textbook for Midwives, 17th ed. London, U.K.: Elsevier, 2020.

[6] D. L. Lowdermilk, S. E. Perry, and K. Cashion, Maternity and Women's Health Care, 13th ed. St. Louis, MO, USA: Elsevier, 2023.

[7] K. Park, Park's Textbook of Preventive and Social Medicine, 27th ed. Jabalpur, India: Banarsidas Bhanot Publishers, 2023.
[8] P. A. Potter and A. G. Perry, Fundamentals of Nursing, 11th ed. St. Louis, MO, USA: Elsevier, 2023.
[9] S. Narendran, R. Nagarathna, S. Gunasheela, and H. R. Nagendra, "Efficacy of Yoga on Pregnancy Outcome," Journal of Alternative and Complementary Medicine, vol. 11, no. 2, pp. 237–244, 2005.
[10] A. E. Beddoe and K. A. Lee, "Mind-Body Interventions During Pregnancy," Journal of Obstetric, Gynecologic & Neonatal Nursing, vol. 37, no. 2, pp. 165–175, 2008.
[11] C. L. Battle, L. A. Uebelacker, S. R. Magee, K. A. Sutton, and I. W. Miller, "Potential Benefits of Yoga During Pregnancy," Women and Birth, vol. 28, no. 3, pp. 190–194, 2015.
[12] K. Curtis, A. Weinrib, and J. Katz, "Systematic Review of Yoga for Pregnant Women," BMC Pregnancy and Childbirth, vol. 12, p. 5, 2012.
[13] S. Babbar, A. C. Parks-Savage, and S. P. Chauhan, "Yoga During Pregnancy: A Review," American Journal of Perinatology, vol. 29, no. 6, pp. 459–464, 2012.
[14] World Health Organization, "World Health Organization." Available: https://www.who.int
[15] United Nations Children's Fund, "UNICEF." Available: https://www.unicef.org
[16] Ministry of Health and Family Welfare, Government of India, "Ministry of Health and Family Welfare." Available: https://www.mohfw.gov.in
[17] National Health Mission, "National Health Mission." Available: https://nhm.gov.in
[18] Indian Council of Medical Research, "Indian Council of Medical Research." Available: https://www.icmr.gov.in