DISSERTATION
ON
A STUDY TO ASSESS THE EFFECTIVENESS OF GARLIC SCENTED MUSTARD OIL FOOT SPA ON FATIGUE AFTER CHILD BIRTH AMONG POSTNATAL MOTHERS IN INSTITUTE OF OBSTETRICS AND GYNAECOLOGY AND GOVERNMENT HOSPITAL FOR WOMEN AND CHILDREN, CHENNAI"

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CERTIFICATE

This is to certify that this dissertation titled **"A study to assess the effectiveness of garlic scented mustard oil foot spa on fatigue after child birth among postnatal mothers in Institute of Obstetrics and Gynaecology and Government Hospital for Women and Children, Chennai"** is a bonafide work done by Mrs. P.Princy Fernando, II year M.Sc Nursing student, College of Nursing, Madras Medical College, Chennai – 600003 submitted to The Tamil Nadu Dr. M.G.R. Medical University, Chennai in partial fulfilment of the requirements for the award of Degree of Master of Science in Nursing, Branch III, Obstetrics and Gynecological Nursing, under our guidance and supervision during the academic period from 2014 – 2016.

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Dissertation

on

A study to assess the effectiveness of garlic scented mustard oil foot spa on fatigue after child birth among postnatal mothers in Government Institute of Obstetrics and Gynaecology and Hospital for Women and Children, Chennai"

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ABSTRACT

TITLE: A study to assess the effectiveness of garlic scented mustard oil foot spa on fatigue after child birth among postnatal mothers in government institute of obstetrics and gynecology and hospital for women and children, Chennai.

The experience of fatigue after child birth is common to nearly all women and severe postpartum fatigue has effects on women that include reduced health and functional status and early weaning from breastfeeding. So, safe and effective nursing interventions to relief fatigue to aid mothers ability to care herself and the infant becomes inevitable.

Need for the study: The birth of a child is generally thought of as a time of great joy for everyone involved. Although this is true, for many women the postpartum becomes less joyful, due to physical and emotional stresses during the time of childbirth and results in symptoms of fatigue. Easing the postpartum discomfort and enhancing the mother to enjoy her motherhood was the sole cause for conducting this study.

Objectives:

- To assess the level of fatigue after childbirth among postnatal mothers.
- To assess the level of fatigue after childbirth, in the experimental group after garlic scented mustard oil foot spa.
- To assess the effectiveness of garlic scented mustard oil foot spa on fatigue after childbirth among postnatal mothers by comparing the experimental and control groups.
- To find out the association between level of fatigue after childbirth and selected variable in the experimental and control groups.

Key words: Mustard oil, foot spa and fatigue after child birth

Methodology:

Research approach : Quantitative evaluative research approach

Research design : A quasi experimental design

Data collection period : Four weeks

Study Setting : Labor ward, IOG

Study population : Postnatal Mothers

Sampling technique : Non probability purposive sampling technique

Sample Size : 30 (experimental) & 30 (control)

Tool : Fatigue symptoms checklist

Data collection procedure: After getting approval from the institutional ethics committee, permission was obtained from Director, IOG, Chennai. An informed and written consent was obtained. Three to five samples were selected every day followed by the pre test and foot spa was given only to experimental group with 25ml of garlic scented mustard oil for 30 minutes and immediately after the foot spa the posttest was administered to record the level of fatigue.

Data analysis: Data were analyzed using descriptive statistics such as mean, standard deviation, frequency and percentage and inferential statistics like chi - square test paired-T test and unpaired- T test.

Study Results: The findings of the study revealed that in the control group, the level of fatigue reduction was 11.7% (95% confidence interval 8.50%-14.92%) where as in the experimental group, the level of fatigue reduction was 42% (95% confidence interval 39.38%-46.57%). Statistical significance was calculated using paired "t" test. The chi-square value between experimental and control group was $\chi 2 = 36.041$ and it was statistically very highly significant with P=0.001 in reducing fatigue after childbirth.

Conclusion: The simple but effective care with garlic scented mustard oil foot spa has the impact on reducing the fatigue level after childbirth among the postnatal mothers.

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INTRODUCTION

CHAPTER-I

INTRODUCTION

"I want to create an environment in my maternity unit, to make every women walk into it, to feel cared but not only treated well"

- Anamica

Around the world, the postpartum period is considered a special time- a time in which a mother is born, as well as a baby. Many cultures have special practices and customs that serve to recognize this very special time in the life of a woman.[1] Postnatal is the period beginning immediately after the birth of a child and extending for about six week. Biologically, it is the time after birth, a time in which the mother's body, including hormone levels and uterus size, return to pre-pregnant states. [2]

In some *East Asian cultures*, such as Chinese and Vietnamese, there is a traditional custom of postpartum confinement known in English as "Doing the month" or "Sitting the month". Confinement traditionally lasts 30 days, although regional variants may last 40, 60 or as many as 100 days. This tradition combines prescribed foods with a number of restrictions on activities. This custom helps heal injuries to the perineum, promote the contraction of the uterus, and promote lactation.[3]

In Nepal, the initial 12 days of post natal period all the house hold and religious activities are restricted. Complete rest with oil massage is given for both mother and baby for a month. During this period mothers are encouraged to take high protein diet and complete rest. *In India* this Period is called as "sutakam" traditionally considered a period of relative impurity. For 10days after delivery, all the religious and house hold activities are restricted for the mother. [3]

As a critical transition period for women, this post natal period affects significantly the physical and mental health of mothers, Tiredness, fatigue, and exhaustion are common experiences after giving birth. Sleep deprivation, healing from child birth, newborn care work, and self/family identity transformations add to women's ongoing everyday care work demands. [1]

The North American Nursing Diagnosis Association (NANDA) definies fatigue as: "the self-recognized state in which an individual experiences an overwhelming, sustained sense of exhaustion and decreased capacity for physical and mental work that is not relieved by rest[4]." The Center for Bio behavioral Studies of Fatigue Management at the University of Kansas School of Nursing systematically studies fatigue and defines fatigue as "the awareness of a decreased capacity for physical and mental activity due to an imbalance in the availability, utilization or restoration of resources needed to perform activity [4]."

The experience of fatigue after child birth is common to nearly all women[5 &6] (Milligan, Lenz, Parks, Pugh and Katzman, 1997; M. O'Reilly, 2004). Postpartum fatigue (i.e., fatigue after child birth) is one of the most distressing and concerning symptoms women have in the early weeks after child birth[7] (Kline, Martin and Deyo, 1998; Troy, 2003). Women experience high levels of fatigue during the first six weeks postpartum (Gjerdingen, Froberg, Chaloner, & McGovern, 1993; Hantos, 1993; Lee & Zaffke, 1999; Milligan, Parks, Kitzman, & Lenz, 1997), often lasting throughout the first postpartum year[8].

An Australian population based survey by Stephanie Brown et al., (2008) to describe the prevalence of maternal physical and emotional health problems at six weeks to six months after child birth was surveyed among 1336 new mothers found that tiredness was a continuing health concern for 69% of women after giving birth. Persistent and enduring tiredness is a defining feature of fatigue [4].

Severe postpartum fatigue has effects on women that include reduced health and functional status and early weaning from breastfeeding [9] (McVeigh, 2000; Pugh and Milligan, 1988; Tulman and Fawcett, 1988; Tulman, Fawcett, Groblewski and Silverman, 1990). Postpartum fatigue as evidenced by difficulty falling asleep or staying asleep is a major symptom of depression [10] (First, Frances and Pincus, 2002). Postpartum psychological problems can interfere with a new mother's ability to care for her infant and may adversely affect her quality of life [7] (Ko, 2004; Milligan, Lenz, Parks, Pugh, & Kitzmon, 1996).

Postpartum fatigue and depression are positively correlated such that when fatigue is high, depression symptoms are also high[11](Rychnovsky, 2007). Postpatum fatigue is a predictor of postpartum depression[12] (Bozoky & Corwin, 2002; Ko 2004). In Taiwan, postpartum fatigue and depression also represent common problems[13] (Chen, Wang, Chung, Tseng, &Chou, 2006; Ko, 2004).

Lucas J. Tiesinga, Theo W.N. Dassen, Ruud J.G. Halfens, Wim J.A. van den Heuvel et al., (1999) assessed the factors related to fatigue; priority of interventions to reduce or eliminate fatigue and the exploration of a multidisciplinary research model for further study of fatigue through meta analysis suggested "energy management", "emotional support" , "activity therapy" and "coping enhancement"[14].

Jennifer Jo Runquist., 2006 explained the two main reasons for this limited success on the interventions to decrease postpartum fatigue. The first reason, nursing does not yet have a firm enough grasp on the antecedents, conditions, contexts, and relationships surrounding postpartum fatigue to develop interventions that consider the diversity of postpartum women. The second reason, it involves the accepted use of time intervals between measurements of postpartum fatigue that are theoretically inconsistent. In other

words, postpartum fatigue can worsen or improve and even completely abate in a matter of hours or days[10].

It is necessary that fatigue relief be safe and effective, that it is not interfere with the mother's ability to move around and care for her infant, and that it is resulted in no adverse neonatal effects in breast-feeding women[15]. The spa therapy can be advised to postnatal mothers in order to aid relaxation, relief from stress, fatigue, back aches, neck and shoulders pain, reduction of fluid retention, help uterus to return to original size, reduction of cellulite and helps to tone up the body. It also provides an important sense of continuing comfort for the new mother. Also it is free from side effects, easy to learn and perform, and requires only a little knowledge, foot massage practice are popular in the general public[16] (Yang, 2005).

Mustard oil is versatile oil that is both aromatic and soothing to the skin, can be used for therapeutic use[17]. A massage with mustard oil helps relieve rheumatic and arthritic pain as well as soothes sprained ankles and other joint aches and pains. Its anti-inflammatory properties can be attributed to the presence of trace mineral called selenium that is good for relieving joint and skin inflammation[17].

Allicin can be a very valuable garlic molecule in terms of its health benefits, crushing the fresh clove of garlic release more allicin. There is some evidence supporting the topical use of garlic for fungal infections like ringworm, jock itch, and athlete’s foot. Heating up of crushed 3 to 4 garlic cloves in 2 tablespoons of mustard oil and rub it on sore joints for relief. Garlic oil application on skin can treat fungal infections, warts, and corns[18].

It is well acknowledged that foot massage therapy effectively facilitates blood and lymph circulation which accelerate the excretion of waste, soften and stabilize the movement of muscle, joints, and tendons, reinforce muscle strength, and promote relaxation A soothing massage using firm yet gentle stroke with garlic scented warm mustered oil reduces stress and muscle tension, enhance blood circulation, decrease pain, promote sleep, reduce swelling, creates a deeper sense of relaxation, and increase oxygen capacity of the

blood[19]. The aim of this foot spa is to give nurturing and emotional support to the mother as well as to alleviate the muscle aches and fatigue from the strain of labor and child birth.

1.1Need for the study:

The birth of a child is generally thought of as a time of great joy for everyone involved. Although this is true, for many women the postpartum becomes less joyful, due to physical and emotional stresses during the time of childbirth. Additionally, the demands of early infant care increase the symptoms of fatigue[8] (Gardner, 1991; Milligan, Lenz, Parks, Pugh, & Kitzman, 1996). Also it is culturally discouraged, however, to voice negative feelings during this period of time, regardless of the dramatic developmental changes occurring[1].

The ability to function optimally during this period in order to regain and maintain health is important for both maternal and newborn wellbeing[20]. Unfortunately, health care professionals often overlook the complexities of the postpartum transition, as they perceive it to be a part of "normal recovery"[7]. Despite the prevalence of these symptoms and the known associations between fatigue, mood and functional status there are few evidence informed guidelines and strategies that might help women manage these symptoms[13].

Easing the postpartum discomfort and enhancing the mother to enjoy her motherhood was the sole cause for conducting this study. As per the above research study reports and statistics of postpartum fatigue the researcher is interested in incorporating complimentary therapies in providing nursing care for helping the clients in reducing the postpartum fatigue. The subject expert's advice and also researcher's curiosity in experimental study, the researcher is intended to find the effectiveness of garlic scented of mustard oil foot spa during the postnatal period on fatigue after child birth.

1.2 Statement of the problem

A study to assess the effectiveness of garlic scented mustard oil foot spa on fatigue after child birth among postnatal mothers in IOG, Chennai.

1.3 Objectives of the study:

- To assess the level of fatigue after child birth among postnatal mothers.
- To assess the level of fatigue after child birth, in the experimental group after garlic scented mustard oil foot spa.
- To assess the effectiveness of garlic scented mustard oil foot spa on fatigue after child birth among postnatal mothers by comparing the experimental and control groups.
- To find out the association between level of fatigue after child birth and selected variable in the experimental and control groups.

1.4 Operational definitions:

Effectiveness refers to the extent to which reduction in fatigue is achieved after the massage with mustard oil foot spa as assessed by Fatigue Assessment Scale.

Garlic scented mustard oil foot spa refers to a procedural way of rubbing and treating of foot with garlic scented mustard oil by hand followed by a bath with hot water.

Fatigue refers to a state of extreme physical and mental tiredness, experienced by mothers after child birth.

After child birth refers to the period beginning immediately after the birth of a child.

Postnatal mother refers to primi and multi-parous women,with in 24 hours after spontaneous or assisted vaginal delivery.

1.5 Assumptions

Foot spa with garlic scented mustard oil may result in muscle relaxation and increase blood circulation and reduces the fatigue after child birth among postnatal mothers.

1.6 Hypothesis

H_1 - There is a significant reduction in fatigue after foot spa with garlic scented mustard oil among postnatal mothers in the experimental group than in the control group.

1.7 Delimitations

1. This study duration period was only four weeks.
2. The study was conducted in observation room, labor ward at IOG, Chennai.

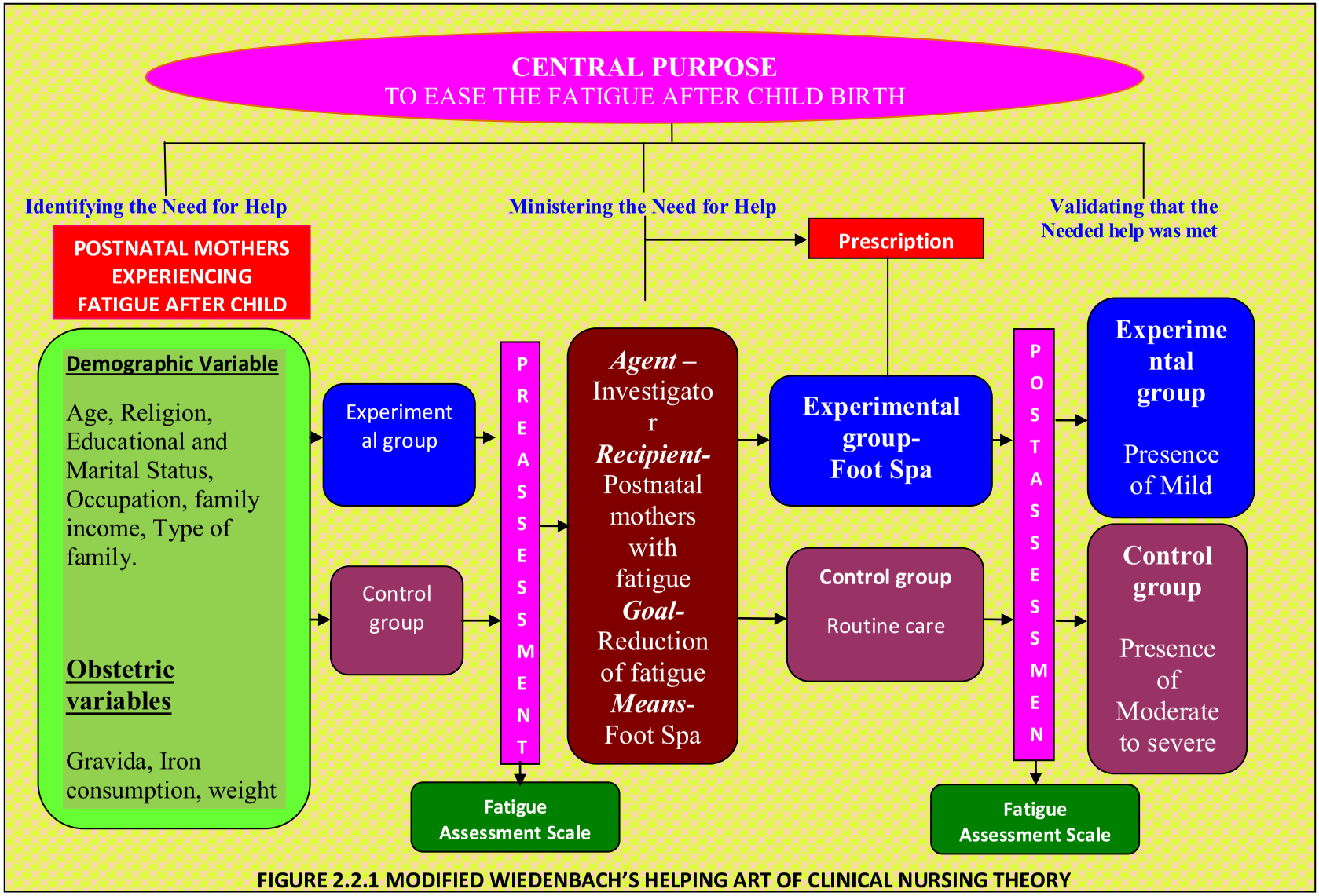


FIGURE 2.2.1 MODIFIED WIEDENBACH'S HELPING ART OF CLINICAL NURSING THEORY

REVIEW OF LITERATURE

CHAPTER-II

REVIEW OF LITERATURE

The purpose of review of literature is the identification, selection, critical analysis and reporting of existing information on the problem chosen for the study[21].

Review of literature helps to know what is already known and helps in developing a broad conceptual content in to which the research problem will fit in. Main goal is to develop a sound study that will contribute to further knowledge in development of nursing theory, education, practice and research[22].

2.1. Literature review related to the study

2.1.1 Literatures related to fatigue after child birth

2.1.2 Literatures related to foot spa

2.1.3 Literatures related to the effectiveness of foot spa on fatigue after child birth

2.1.1 Literatures related to fatigue after child birth

Rebecca Giallo, Catherine Wade & Mandy Kienhuis (2014), examined the suitability, construct validity, and reliability of the Fatigue Assessment Scale (FAS). 779 mothers of young children (aged 0–5 years) living in Australia participated in an online survey about parent health and wellbeing. Confirmatory factor analysis revealed that both one- and two-factor models representing physical and cognitive aspects of fatigue[23].

Theerakulchai & Tiansawad, (2011) A longitudinal descriptive study to determine the associations between physical activity and postpartum functional status, mood and fatigue at 6 and 12 weeks of postpartum were conducted among 73 primiparous women in Canada. This study found that women who were low/moderately physically active at six weeks of postpartum were three

times as likely to have low functional status in comparison to highly physically active women (OR 3.22,95% CI:1.07,9.73). At 12 weeks women with higher mental (OR 1.23, 95% CI: 1.07, 1.40) were more likely to be in the lower functional status group at 12 weeks of postpartum[24].

Rychnovsky & Hunter(2009) in a prospective, longitudinal descriptive study among 109 postpatum women, assessed the relationship between sleep characteristics and fatigue in healthy postpartum women in Oklama, USA. using a 16 item subjective sleep characteristics scale and a 30 statement subjective fatigue measurement. The measurements points were 1-2 days after delivery, 2 weeks of postpartum and 6 weeks of postpartum. The study reported peak level of fatigue immediately after delivery and fatigue had a positive correlation with sleep disturbance at all three measurement points[11].

Webb DA and colleagues (2008) examined the associations among physical symptoms, functional limitations and emotional wellbeing in a prospective study conducted through interviews 9 to 12 months of postpartum women (n=1,323) at nine health centers located in Philadelphia, USA. They found that depressive symptomatology and fatigue were significantly associated with functional limitations (p = .001). Women experience high levels of fatigue during the first six weeks postpartum, often lasting throughout the first postpartum year. Additionally, some women report depressive symptoms. Fatigue and depressed mood can adversely affect functional status[25].

Eugene R. Declercq et al., 2008, The survey listening to mothers by child birth connections were conducted among 1,573 respondents in USA through self completed online questionnaire and telephone interviews to study women's postpartum experiences. This survey reported that 93% of mothers describing themselves as "tired" and only 10% "rested." Other feelings described by at least half of the mothers were "supported" (76%) "messy" (60%) and "confident" (54%). About two in five mothers reported feeling "unsure" (45%) or "isolated" (39%)[26].

J.D.Rychnovsky, (2007) A longitudinal, prospective study conducted among 109 military active duty women at military medical facilities in the south west united states to examine the relationship between the fatigue levels and performance after child birth found fatigue and functional status were correlated at six to eight weeks postpartum ($r = .233$, $p = < .05$), and reported that postpartum fatigue and depression are positively correlated such that when fatigue is high, depression symptoms are also high[27].

Jennifer Runquist, (2007) aimed to construct a substantive theory of postpartum fatigue using grounded theory among thirteen postpartum women in USA. This study summarized that postpartum fatigue in four dimensions: mental, physical, stress-worry and frustration. Each of which had empirical, context dependent manifestations. Profound negative feelings and an overwhelming need to rest and sleep brought on by postpartum fatigue were offset by the use of coping techniques and self –transcendence, which enabled women to preserve in the provision of care to their children [10].

M. O'Reilly, et al., (2006) studied to describe the experience of fatigue in parenthood from the mother's perspective among 30 Thai postpartum women proposed that there are two stages of fatigue. Physical fatigue, with an onset soon after birth, characterizes the first stage of fatigue; attaining sufficient sleep relieves the fatigue experienced during this stage. However, if this first stage of fatigue is not relieved, it progresses into a second phase which later develops to include both physical and psychological fatigue. Overall, the cumulative body of evidence suggests that mild to moderate levels of fatigue exist throughout the first 12-weeks postpartum, though the timing and duration of peak fatigue levels are not yet clear [6].

Kathryn A Lee & Mary Ellen et al., (1999) a longitudinal, prospective study examined the relationships between the perception of fatigue and energy, parity and physiologic indicators of sleep disturbances, thyroid function and iron deficiency among 42 postpartum women at school of nursing, soonchunhyang University, China. The study results revealed that younger age

and lower pregnancy levels of iron, ferritin and hemoglobin explained 1st trimester fatigue. Less total sleep was related to fatigue in the 3rd trimester. Postpartum fatigue was related to reduce amounts of sleep and low levels of ferritin and hemoglobin [28].

2.1.2 Literatures related to foot spa

Jasvir Kaur, Sukhpal Kaur, Neerja Bhardwaj., (2012) study was conducted to assess the effect of foot massage and reflexology on physiological parameters i.e systolic and diastolic blood pressure, heart rate and oxygen saturation of 60 critically ill patients in five intensive care units, Jalandhar, Punjab. After baseline assessment, three days the procedure of 'foot massage and reflexology' was implemented on the same patients. All the physiological parameters were recorded just before and after the implementation of protocol on each day in the morning as well as in the evening hours. There was significant improvement in the oxygen saturation after the intervention [29].

Ling Jun Kong, Min Fang, Hong Sheng Zhan et al., (2012) studied the effect of Chinese foot massage combined with herbal ointment for postnatal mothers with low back pain [30].

Brent A. Bauer et al., (2010) a randomized study was conducted to identify the effect of massage therapy on pain, anxiety and tension after cardiac surgery. Samples of 113 post-operative patients were assigned to experimental (n=62) and control group (n=51), Data was analyzed by using descriptive statistics & t-test. The major finding shows the post-test mean score on pain of an experimental group was significantly lower than of the pre-test (X = 7.230, X = 3.75, t=16.335, p<.001). The post-test mean score of pain of an experimental group was significantly lower than of a control group (X = 3.75, X =6.65, t =-10.627, p<.001). Patients were highly satisfied with the massage therapy and had significantly decreased pain, anxiety and tension [31].

Joseph J, Devadason JM., 2009 In an experimental study done in Erode, Tamilnadu, in the palliative care ward for a period of 5 weeks among 20 palliative care patients selected by convenience sampling technique to determine the effectiveness of mustard oil foot massage on pain proved that there is a significant relationship between foot massage and pain at0.05 level of significance. The tool used was Numerical Intensity Pain Scale [32].

Puthusseril V. (2006) An experimental study to assess the effectiveness of special foot massage as a complimentary therapy in palliative care conducted in 2006, in Trivandrum, Kerala, India, in palliative wards of regional cancer centre among 60 patients proved that 20 minutes foot massage is effective in the overall wellbeing of palliative care patients at 0.05 level of significance [33].

Wan HL, Keck JF. (2004) In pre-test post-test study conducted in Indianapolis, U.S.A., in 2004,among 18 post-operative patients by convenience sampling technique proved that foot and hand massage causes a statistically significant decrease in sympathetic responses to pain, that is, heart rate and respiratory rate and also pain at 0.001 level of significance. The tool used was Numerical Intensity Pain Scale, and 20 minutes foot and hand massage was administered [34].

K.N Agarwal, Ashish Gpta., et al., (2000) assessed the effects of massage & use of oil on growth, blood flow and sleep patterns in full term healthy infants(N=125) at GTB Hospital, Newdelhi. The massage improved the post massage sleep, the maximum being 1.62h in the mustard oil group ($p<.0001$) [35].

Hulme, Waterman et al., (1999) a randomized-controlled study examined the effects of foot massage on patients' perception of care received following surgery. The sample of 59 mothers who underwent laparoscopic sterilization as day care patients were randomly allocated into two groups. The experimental group received a foot massage and analgesia post-operatively,

whilst the control group received only analgesia post-operatively. Each participant was asked to complete a questionnaire on the day following surgery. This examined the satisfaction, memory and analgesia taken. However, the mean pain scores recorded following surgery showed a significantly different pattern over time, such that the 76 percent of experimental group consistently reported less pain following a foot massage than the control group[36].

2.1.3: Literatures related to the effectiveness of foot spa on fatigue after child birth

MK Afshar, ZB Moghadam et al., (2015) study conducted at medical health centers of Zanjan university of medical sciences, Iran, to assess the effectiveness of foot massage using lavender fragrance essential oil at night before sleeping to improve the sleep in 158 Iranian postpartum women. The outcome was measured through the Pittsburgh sleep quality index (PSQI) at baseline, fourth and eight weeks. There is a significant improvement in mother's sleep quality in the intervention group, SD from 8.2911 to 6.7975 ($P<0.05$)[37].

Farzaneh Ashrafinia., Mandana Mirmohammadali. Et al., (2015) assessed the effect Pilates home exercises on postpartum maternal fatigue at rafsanjan health centres in Iran. A total of 80 women were randomly divided into two groups – the intervention group (n = 40) and the control group (n = 40). In the intervention group, performed pilates exercises five times a week (30 min per session) for eight consecutive weeks. The first session was conducted 72 hours after delivery. The control group did not receive any intervention. Each woman's level of fatigue was evaluated at hospital discharge (as a baseline), and at four and eight weeks after delivery, using the standard multidimensional fatigue inventory (MFI-20) questionnaire. The results showed that the intervention group had lower mean MFI-20 scores than the control group with regard to general fatigue (7.80 ± 2.07 vs. 12.72 ± 1.79; $p <$

0.001), Thus confirmed that physical exercise can significantly reduce postpartum maternal fatigue in all subscales[38].

Tiran et al., (2011) explored the use of aromatherapy and massage by midwives in their care of women during pregnancy, postnatal and during labor. They summarized that the massage therapy were beneficial to relive stress and fatigue and to induce good sleep[39].

A study was conducted by ***Chia Yen Li., et al., (2009)*** to examine the effectiveness of using foot reflexology to improve sleep quality in 65 postpartum women in northern Taiwan. The outcome was measured through the Pittsburgh sleep quality index (PSQI) and the outcome was the changes in the mean PSQI were significantly lower in the intervention group (β = -2.24, SE =.38, $p<0.001$) than the control group. It was proven that foot reflexology in the postnatal period improved the quality sleep[40].

Furlan AD (2009) A Study was conducted on massage therapy, to reduce pain among postnatal women, alleviate low back pain and fatigue. Postnatal women (N=47) were randomly assigned to a group that received massage twice weekly from their partners until the 6 weeks of postpartum. Self-reported leg pain, back pain, fatigue, depression, anxiety and anger decreased more for the massaged postnatal women than for the control group women. Finally, scores on a relationship questionnaire improved more for both the women and the partners in the massage group. These data suggest that not only mood states but also relationships improve mutually when fatigued pregnant women were massaged by their partners[41].

Yi-Li Ko, Chi-Li Yang et al., (2008) explored the effectiveness of an exercise program on reducing levels of fatigue and depression among postpartum women who were "doing-the-month" in a maternity center in Taiwan. A low-intensity exercise program was specifically designed and administered to 31 subjects in the study's intervention group. Another 30 subjects (the control group) followed a traditional, non-physically active

postpartum care regimen. A Fatigue Symptom Checklist (FSC) was used to measure fatigue. Results showed statistically significant differences between the two groups in terms of fatigue levels, with statistical improvements ($p < .05$) registered by the intervention group in terms of levels of physical and psychological fatigue and fatigue symptoms[42].

Drista, Da Costa, Dupuis, Lowensteyn, & Khalife, (2008)., assessed the effects of home based exercise intervention on fatigue in postpartum depressed women. 88 women in the postpartum (4-38 weeks) scoring >10 on the Edinburgh Postnatal depression scale were assigned to a home based intervention (n=46) or a control group (n=42). Women in the exercise group showed significantly greater reduction in physical treatment [Mean change= -4.07, (95% CI (-5.15, -2.98)] [43].

Yang JH, (2005)., An experimental study using a non-equivalent pre-post design was conducted at Inje university, Pusan, Korea to identify the effects of foot reflexology on nausea, vomiting and fatigue in breast cancer patients undergoing chemotherapy. The subjects consisted of 34 patients with 18 in the experimental group and 16 in control group. A pretest and 2 posttests were conducted to measure nausea, vomiting and fatigue. For the experimental group, foot reflexology, which was consisted of 4 phases for 40 minutes, was given by a researcher and four research assistants. 15 patients in experimental group reported a significant decrease in nausea, vomiting also significant decrease in fatigue in the experimental group patients[15].

Danielle Symons-Downs & Hausenblas, (2004) in a retrospective study of 74 postpartum women conducted in St.Vinvcent maternity hospital, Norway, 31% reported that massage and exercise during pregnancy improved mood, in the postpartum period and 30% believed massage and exercise increased energy and stamina both during pregnancy and the postpartum period. There is some evidence to support the hypothesized association between exercise and foot massage and the reduction of fatigue and depressive symptoms during the postpartum period [44].

2.2. Conceptual frame work

A group of concepts are broadly defined and systematically organized to provide focus, a rationale, and a tool for the integration and interpretation of information. Conceptual framework serves as a springboard for theory development. The conceptual framework for research study presents the measure on which the purpose of the proposed study is based. The framework provides the prospective from which the investigator views the problem [45].

The study is based on the concept that foot spa reduces the fatigue after child birth among postnatal mothers. The investigator adopted the Weidenbach's Helping Art of Clinical Nursing Theory (1964) as a base for developing the conceptual framework [46]. This theory directs on action towards an explicit goal. It has 3 factors

1. Central purpose
2. Prescription
3. Realities

1. Central Purpose

It refers to what the nurse wants to accomplish. It is the overall goal towards which a nurse strives. In this study the main central purpose is to assess the effectiveness of garlic scented mustard oil foot spa among postnatal mothers in reduction of fatigue after child birth.

2. Prescriptions

It refers to plan a care for a patient. It will specify the nature of action that will fulfill the nurses' central purpose. In this study, the investigator plans to assess the level of fatigue after child birth among postnatal mothers, provides garlic scented mustard oil foot spa to postnatal mothers in the experimental group, and assess postnatal mothers in the experimental group and control group on same day for the presence of fatigue.

3. Realities

It refers to the physical, physiological, emotional and spiritual factors that affect the nursing action. The five realities identified by Weidenbach's theory are agent, recipient, goal, means and activities and framework.

The conceptualization of nursing practice according to this theory consists of three steps as follows:

Step-1: Identifying the Need for Help

Step-2: Ministering the needed Help

Step-3: Validating the Help

Step-1- : Identifying the Need for Help

This step involves determining the need for help. The postnatal mothers are selected and assessed for the presence of fatigue after child birth. Postnatal mothers experiencing moderate to severe fatigue after child birth are randomly assigned to experimental and control group.

Step-2: Ministering the needed Help

This step involves provision of required help for identified need. It has two components.

Prescription

In this study, the investigator provides garlic scented mustard oil foot spa to postnatal mothers experiencing moderate to severe fatigue after child birth in the experimental group and assess the experimental group and control group on the same day for the presence of fatigue.

Realities:

In this study, the five realities identified by Weidenbach's theory are

Agent- Investigator

Recipient- Postnatal mothers with moderate to severe fatigue after child birth

Goal- Reduce the level of fatigue after child birth among postnatal mothers

Means

Experimental group- to assess the presence of fatigue after child birth and provides garlic scented mustard oil foot spa to postnatal mothers.

Control group- to assess the presence of fatigue after child birth and not provides garlic scented mustard oil foot spa to postnatal mothers.

To assess both the group for the presence of fatigue after child birth on same day.

Frame work

Observation Room, Labor Ward, IOG

Step-3: Validating the Help

The nurse validates the ministered help. It is accomplished by means of post assessment on level of fatigue after child birth on the same day after rendering the selected nursing intervention that is, providing garlic scented mustard oil foot spa for postnatal mothers experiencing moderate to severe fatigue after child birth. Then the effectiveness of the intervention is compared between the experimental and control group.

METHODOLOGY

CHAPTER-III

RESEARCH METHODOLOGY

This chapter deals with the methodology which includes research approach, research design, duration of the study, study settings, study population, sample size, sample selection criteria, sampling technique , research variables, development and description of tool, ethical considerations, pilot study and revision, reliability, data collection procedure, data entry and analysis.

3.1 Research Approach

Research approach indicates the procedure for conducting study. The choice of appropriate approach depends on the purpose of the study. The primary objective of the evaluative research approach is to determine the extent to which a given programme or procedure is effective. Hence a quantitative-evaluative research approach was considered as the most appropriate one [47].

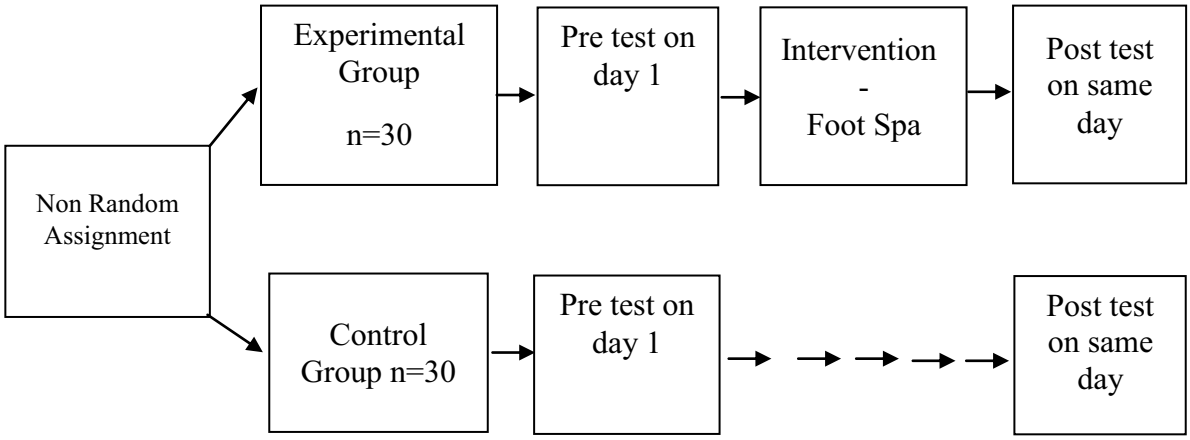
A Quantitative evaluative research approach using pre-assessment and post assessment was adopted for this study in order to accomplish the objectives.

In the present study the researcher aimed at finding the effectiveness of garlic scented mustard oil foot spa on fatigue after childbirth among postnatal mothers in Institute of Obstetrics and Gynaecology & Government Hospital for Women and Children, Chennai.

3.2 Research design

In the study the investigator could not ensure random selection or random allocation. To be precise the research design selected in this study is quasi experimental design. In this design, subjects are selected by purposive sampling technique to the experimental and control group [48].

Quasi – experimental Design (Non- randomized control group design)



Experimental Group – Postnatal mothers experiencing moderate to severe fatigue after child birth are selected. Garlic scented mustard oil foot spa is provided for 30 minutes.

Control Group – Postnatal mothers experiencing moderate to severe fatigue after child birth who are not provided with garlic scented mustard oil foot spa are selected.

In this study, effectiveness of garlic scented mustard oil foot spa is assessed among postnatal mothers on fatigue after child birth.

3.3 Data collection period

Four weeks from 15.07.2015 to 15.08.2015

3.4Study settings

The study was conducted at the Observation room in Labor ward at Institute of Obstetrics and Gynecology, Chennai-08. This is 164 years old Government Institution started serving the poor and the needy people from year 1844. It is a 1075 bedded Hospital for women and children with departments of

medical endocrinology, radiology & radiotherapy, dental surgery, blood bank, medical oncology, fertility and research centre, family welfare, medical genetics, biochemistry, microbiology & pathology. The hospital is also an training center for CEmONC, EmONC, SBA, Laproscopic sterlisation, MBA, RCH for anaesthesia, IGNOU, and USG training. The census of normal delivery was approximately 15,000 and in patients were 3lakh annually.

3.5 Study population

The study population includes all the postnatal mothers who met the inclusion criteria at the observation room at Labor ward, Institute of Obstetrics and Gynaecology, Chennai.

3.6 Sample size

The study sample comprises of postnatal mothers at the observation room at Labor ward, Institute of Obstetrics and Gynaecology, Chennai-08, who fulfils the inclusive criteria. The sample size for the study was 60. Out of which 30 samples who receive garlic scented mustard oil foot spa belong to the experimental group and 30 samples who do not receive garlic scented mustard oil foot spa belong to the control group.

3.7 Sampling criterion

3.7.1 Inclusion criteria:

1) Postnatal mothers experiencing moderate to severe fatigue after giving child birth
2) Postnatal mothers who are available and willing to participate during the study period
3) Postnatal mother with assisted or normal vaginal delivery
4) Postnatal mothers who can understand and speak Tamil or English

3.7.2 Exclusion Criteria:

1) Postnatal mothers with Lower Segment Caesarian Section
2) Postnatal mothers with complications after childbirth
3) Mothers who are not willing to participate
4) Postnatal mothers who can't understand and speak Tamil or English

3.8 Sampling technique

Sampling refers to the process of selecting a portion of the population which refers the entire population. The samples were selected by non probability purposive sampling technique based on the inclusive criteria.

3.9 Research variables

Independent Variable

Garlic scented mustard oil foot spa

Dependent Variable

Fatigue after child birth among postnatal mothers

3.10 Development and description of tool

3.10.1 Development of the tool

The tool was developed after extensive review of literature from various textbook, journals, internet search and discussion with experts in the field of nursing and department of obstetrics and gynecology.

3.10.2 Description of the Tool

Section-A: Demographic variables

This section consisted of 07 demographic variables which include age, religion, educational status, marital status, occupation, monthly income of family and type of family.

Section B: Obstetric variables

This section consisted of obstetric variables which includes gravida, number of iron tablets consumed during current pregnancy, weight gained during present pregnancy, number of children cared at home, mode of delivery, total duration of labor, duration of post natal period (hours), status of Breast feeding and awareness on foot spa.

Section C: Fatigue symptoms checklist

- Score 0-30 - No fatigue
- Score 31-60 – Mild fatigue
- Score 61-90 – Moderate fatigue
- Score 91-120 – Severe fatigue

3.10.3 Intervention protocol

	Experimental Group	**Control group**
Place	Observation room, Labor Ward	Observation room, Labor Ward
Dose	Foot spa with garlic scented mustard oil (25 ml) for 30 mins	Routine care
Frequency	One time	-
Time	8.00am -4.00pm	8.00am -4.00pm
Duration	One day	-
Administered by	The investigator	The investigator
Recipient	Postnatal mothers with moderate to severe fatigue	Postnatal mothers with moderate to severe fatigue

3.10.4 Content validity

The fatigue symptoms checklist by *Pugh et al., 1999* was adapted for this study. Validity of the tool was assessed using content validity. Content validity was determined by experts form Nursing and Medical. This tool can be used for assessing the effectiveness of garlic scented mustard oil foot spa among postnatal mothers experiencing fatigue after child birth, at IOG, Chennai.

3.11 Ethical consideration

This study objective, intervention and the data collection procedure was approved by the research and ethics committee of Madras Medical College, Chennai-3. Permission from the Director of Institute of Obstetrics & Gynaecology and Hospital for Women and Children was obtained. All respondents were carefully informed about the purpose of the study and their part during the study and how the privacy was guarded. The confidentiality of the study result was ensured. The freedom was given to the client to leave the study at her will without assigning any reason. No routine care was altered or withheld. Thus the investigator followed the ethical guidelines which were issued by the institutional ethics committee. Written consent was obtained from all participants.

3.12 Pilot study and revision

A pilot study is a small scale version or trial run, done in preparation for the major study. The principle focus of a pilot study is assessment of the adequacy of the data collection plan.

The investigator conducted the pilot study in Institute of Obstetrics and Gynaecology & Hospital for Women and Children, Chennai. The sample size for the pilot study was 5 in the experimental group and 5 in the control group. The purpose of the study was explained to the subjects and an informed written consent was taken prior to data collection. Data was collected using the prepared

tools. The study was found to be feasible and practical. Data analysis was done using descriptive and inferential statistics.

3.13 Reliability

After pilot study reliability of the tool was assessed by using split half method and its correlation coefficient r – value is 0.82 (reduction of fatigue). This correlation coefficient is very high and it is good tool for assessing the effectiveness of garlic scented mustard oil foot spa on fatigue after childbirth among the postnatal mothers in IOG, Chennai.

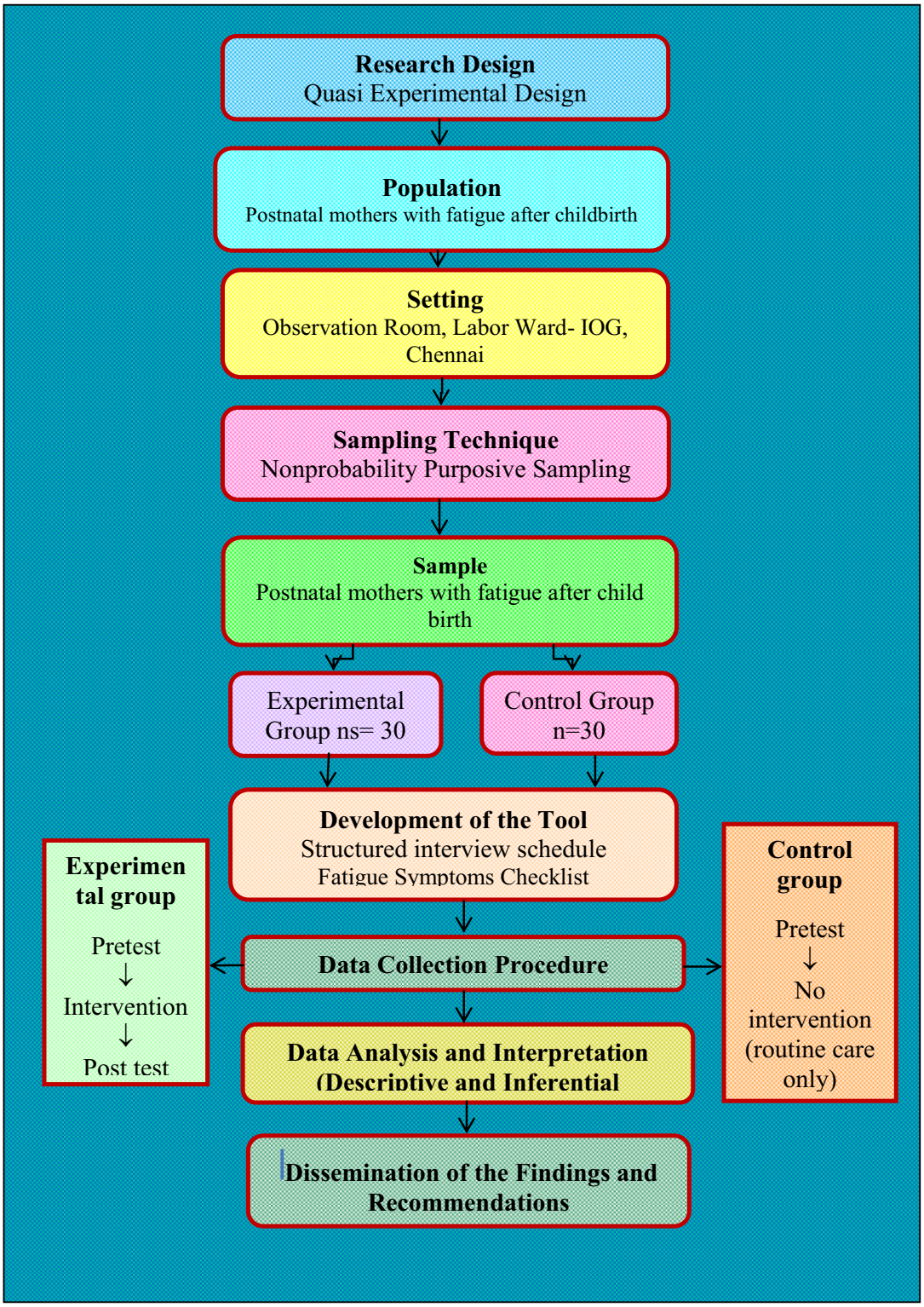
3.14 Data collection procedure

The data collection was conducted at observation room of labor ward from 15.7.15 to 15.8.15 (4 weeks) after obtaining the formal permission from the Director, IOG, and Chennai. Pilot study samples were excluded from the main samples. A self introduction was given by the investigator and after establishing a good rapport with postnatal mothers, an informed and written consent was obtained. The objective and purpose of the study was explained and confidentiality was maintained. Approximately three to five samples were selected every day followed by the pre test and foot spa was given with 25ml of garlic scented mustard oil for 30 minutes to the experimental group and the posttest was administered after the foot spa to record the level of fatigue. The investigator spent 30 to 60 minutes for every postnatal mother for the intervention; meanwhile investigator educated the mother regarding breastfeeding, warning signs of puerperium and newborn as well as breast feeding techniques and clarified the doubts and misconceptions as raised.

3.15 Data entry and analysis

The data were analyzed using descriptive statistic such as mean, standard deviation, frequency and percentage and inferential statistics like chi - square test paired-t test and unpaired- t test.

FIGURE -3.1 SCHEMATIC REPRESENTATION OF THE STUDY



DATA ANALYSIS AND INTERPRETATION

CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with analysis and interpretation of data collected from 60 patients to assess the effectiveness of garlic scented mustard oil foot spa on fatigue after child birth among postnatal mothers at observation room of labor ward in Institute of Obstetrics and Gynecology and Hospital for Women and Children, Chennai-08"

The study aimed to assess the effectiveness of garlic scented mustard oil foot spa on fatigue after child birth among postnatal mothers. The data were collected from 60 samples (30 experimental and 30 control). The findings were tabulated and interpreted in this chapter. The data were analyzed by using descriptive and inferential statistics. The data were analyzed based on the objectives formulated by the researcher. The analyzed data were tabulated under tables and figures under the sections given below.

Organization of the data

Section-I

- Description of demographic profile of postnatal mothers in experimental and control group.

- Description of obstetric variables of postnatal mothers experimental and control group.

Section-II:

- Data on pre assessment of fatigue after child birth among postnatal mothers in experimental and control group.

◎ Data on post assessment of fatigue after child birth among postnatal mothers in experimental and control group

Section-III

◎ Data on comparison of the pre assessment and post assessment level of fatigue after child birth among postnatal mothers in control group.

◎ Data on comparison of the pre assessment and post assessment level of fatigue after child birth among postnatal mothers in experimental group.

Section-IV

◎ Effectiveness of the study of garlic scented mustard oil foot spa on fatigue after child birth among postnatal mothers between the experimental and control group.

Section-V

◎ Data on association of the effectiveness of foot spa on fatigue with the selected demographical variables.

Statistical analysis

1) Demographic variables in categorical/dichotomous were given in frequencies with their percentages.

2) Level of fatigue was given in frequencies with their percentages

3) Association between level of fatigue and demographic variables were analysed using Pearson Chi square test.

4) Effectiveness of foot spa. It was assessed using proportion with 95%CI $P<0.05$ was considered statistically significant.

SECTION-I: **A) This section describes the demographic profiles of postnatal mothers who experiences fatigue after child birth in the experimental and control group.**

Table-4.1: Distribution of the Demographic Profile of postnatal mothers

Demographic variables		Group			
		Control		Experimental	
		frequency	in %	frequency	in %
Age (In years)	<21	4	13.3	7	23.3
	21-25	15	50	14	46.7
	26-30	10	33.3	9	30
	31-35	1	3.3	0	0
	>36	0	0	0	0
Religion	Hindu	22	73.3	18	60
	Muslim	7	23.3	8	26.7
	Christian	1	3.3	3	10
	Other	0	0	1	3.3
Education	Primary education	2	6.7	2	6.7
	Secondary education	19	63.3	18	60
	Graduation	9	30	10	33.3
	Post Graduation	0	0	0	0
Marriage	Married	30	100	30	100
Employment	Home maker	23	76.7	23	76.7
	Self employee	0	0	1	3.3
	Government employee	7	23.3	6	20
Monthly income of family	< 5,000	20	66.7	19	63.3
	5,000- 10, 000	10	33.3	11	36.7
Type of family	Joint family	13	43.3	13	43.3
	Nuclear family	17	56.7	17	56.7
	Extended family	0	0	0	0

The table shows that with regard to **age**, in control group majority of the postnatal mothers (50%) were in the age group between 21-25 yrs and in the experimental group, majority of the postnatal mothers (46.7%) were in the age group between 21-25 yrs.

In relation to **religion**, in control group majority of the postnatal mothers (73.3%) were Hindus and in experimental the group, majority of the postnatal mothers (60.0%) were Hindus.

Majority of postnatal mothers, in control group (63.3%) and in the experimental group, (60%) were studied up to secondary level **education**.

In terms of **marital status**, in both control and experimental group all the postnatal mothers (100%) were married.

With regard to **occupation status**, in both control and experimental group majority of the postnatal mothers (76.7%) were home makers.

Regarding **family monthly income status**, in control group majority of the postnatal mothers (66.7%) were more than 5000 and in the experimental group, majority of the postnatal mothers (63.7%) were more than 5000.

In view of **type of family**, in both experimental and control group majority of the postnatal mothers (56.7%) were living as nuclear family and remaining were (43.3%) were living in joint family.

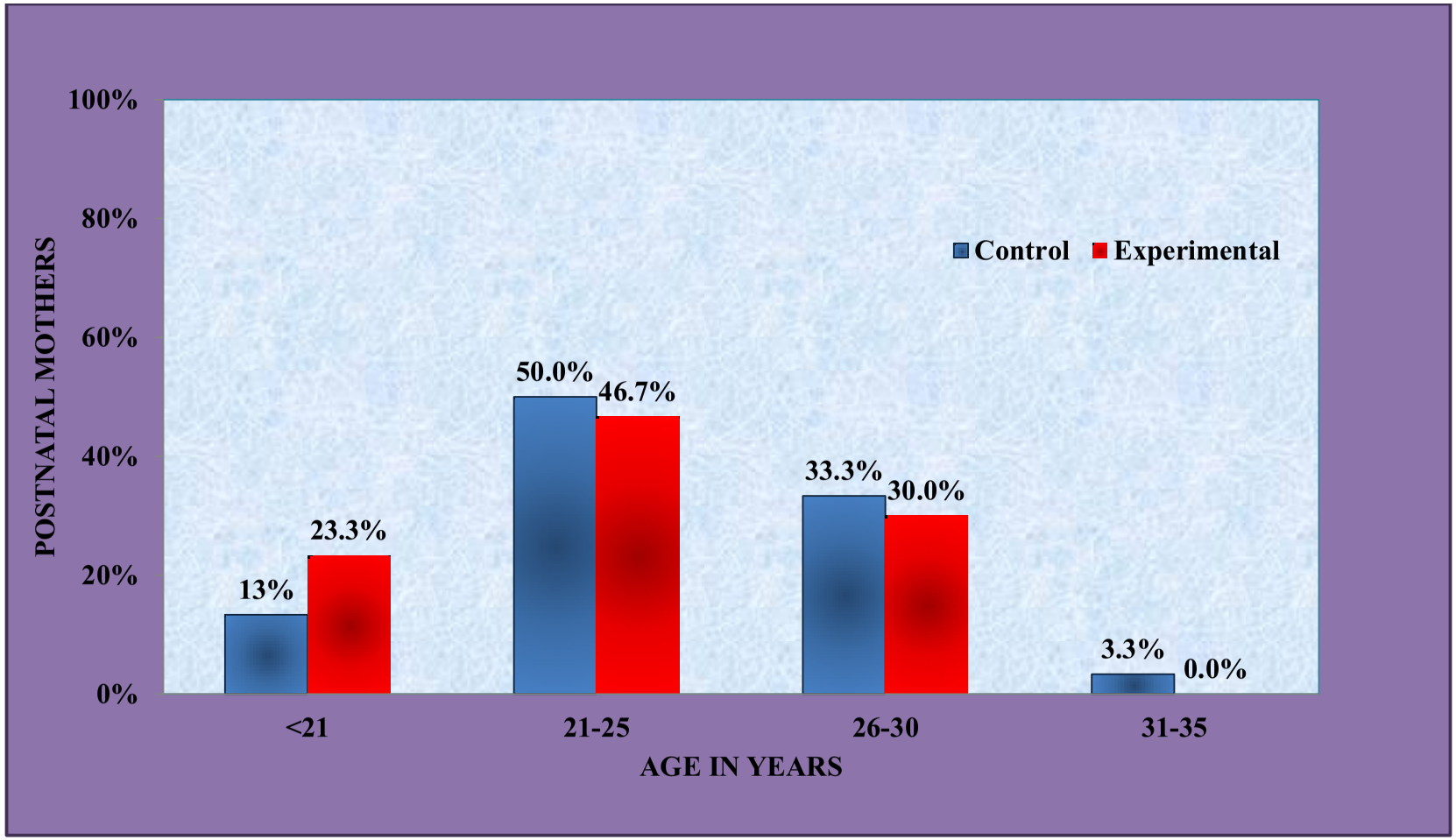


FIGURE 4.1 AGE WISE DISTRIBUTIONS OF POSTNATAL MOTHERS

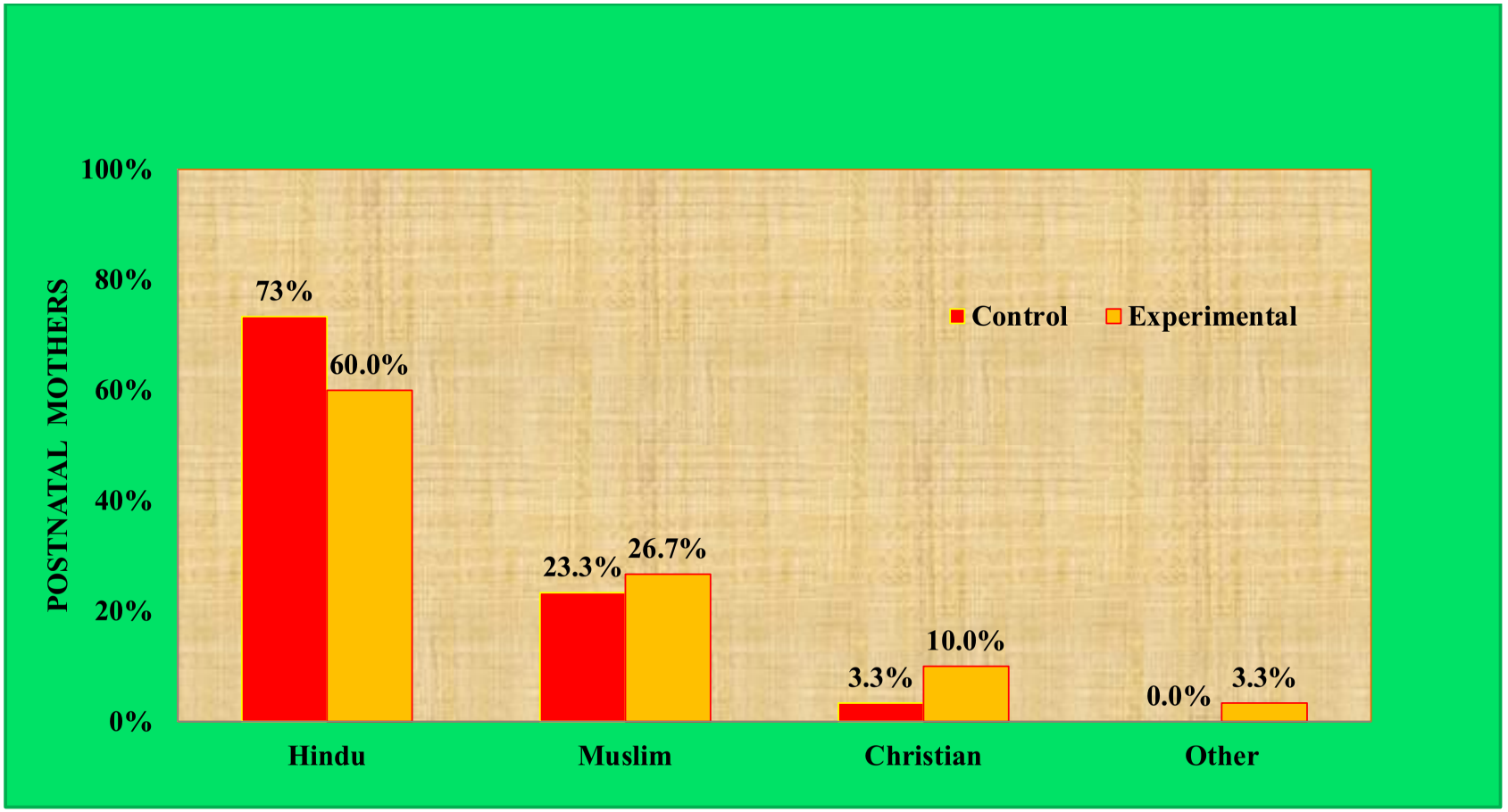


FIGURE 4.2 RELIGION WISE DISTRIBUTIONS OF POSTNATAL MOTHERS

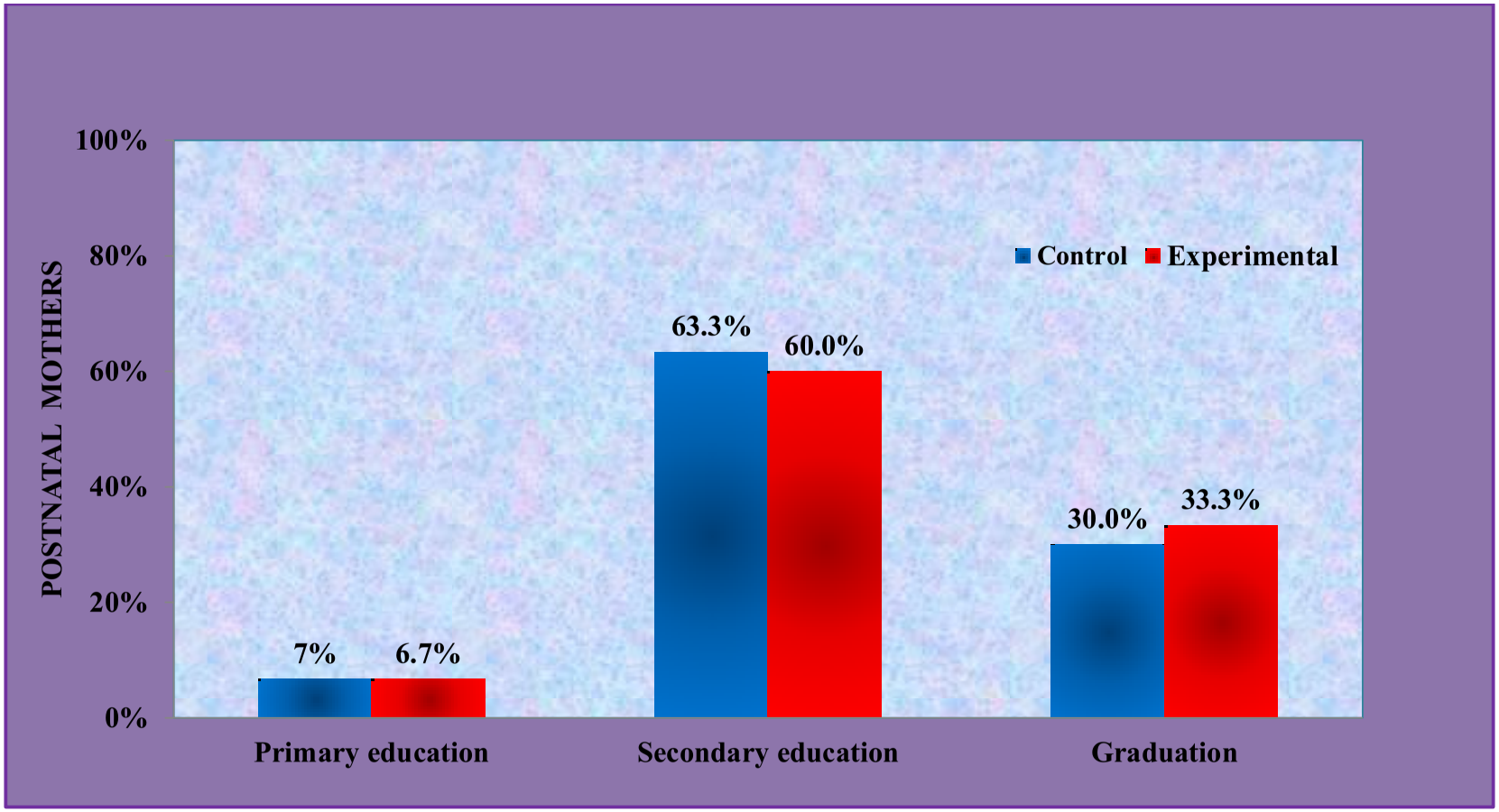


FIGURE 4.3 EDUCATION WISE DISTRIBUTIONS OF POSTNATAL MOTHERS

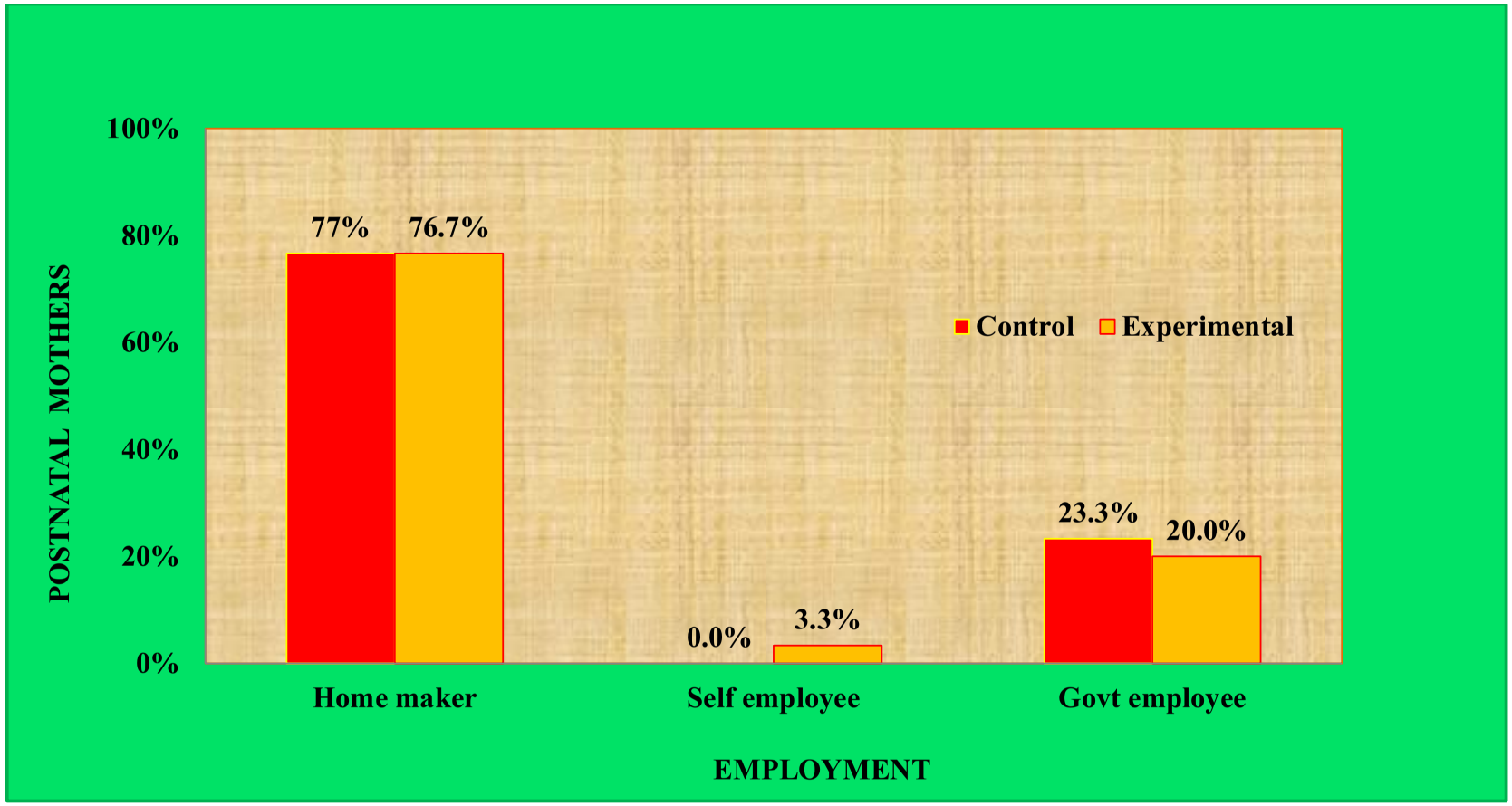


FIGURE 4.4 EMPLOYMENT WISE DISTRIBUTIONS OF POSTNATAL MOTHERS

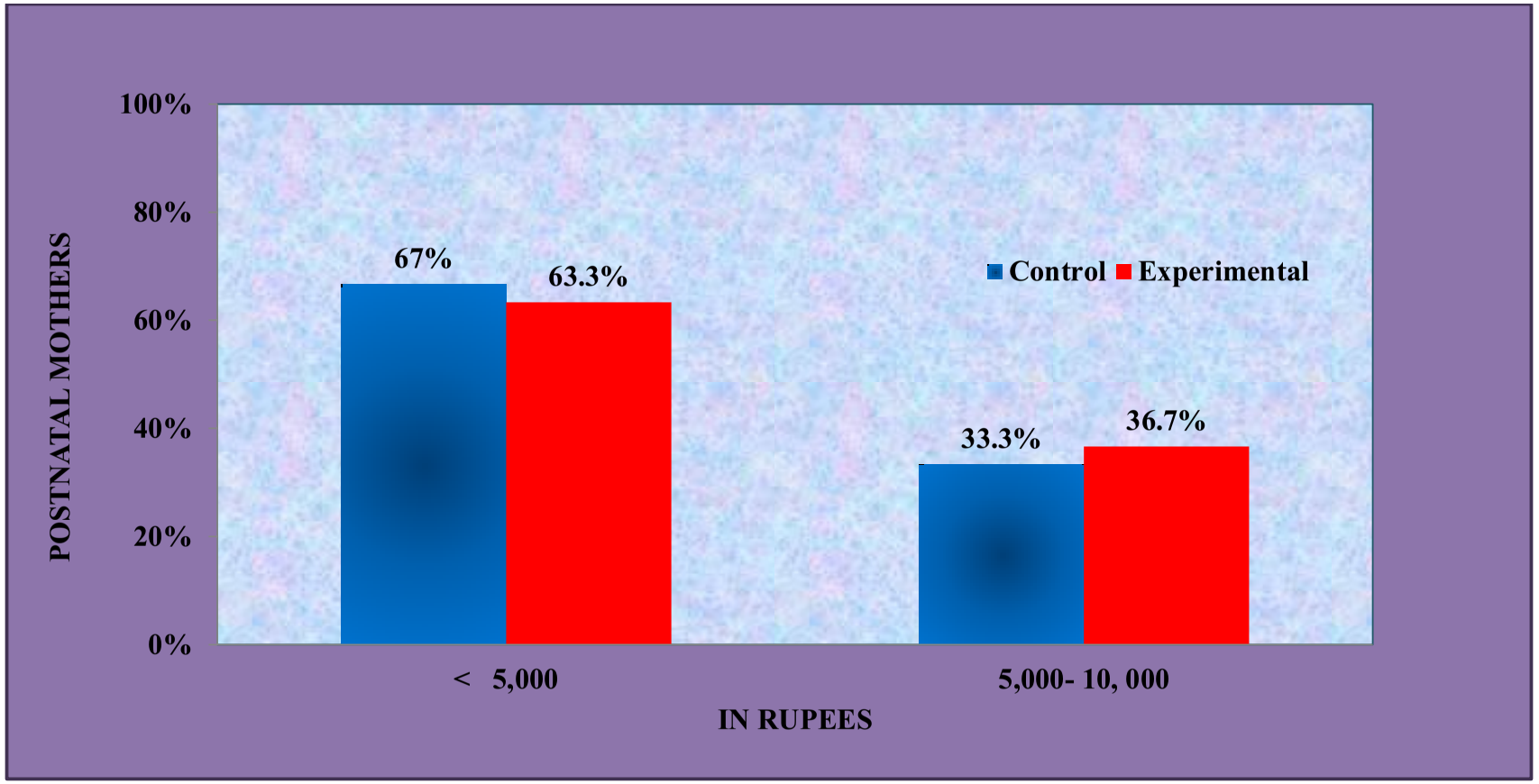


FIGURE 4.5 FAMILY INCOME WISE DISTRIBUTION OF POSTNATAL MOTHERS

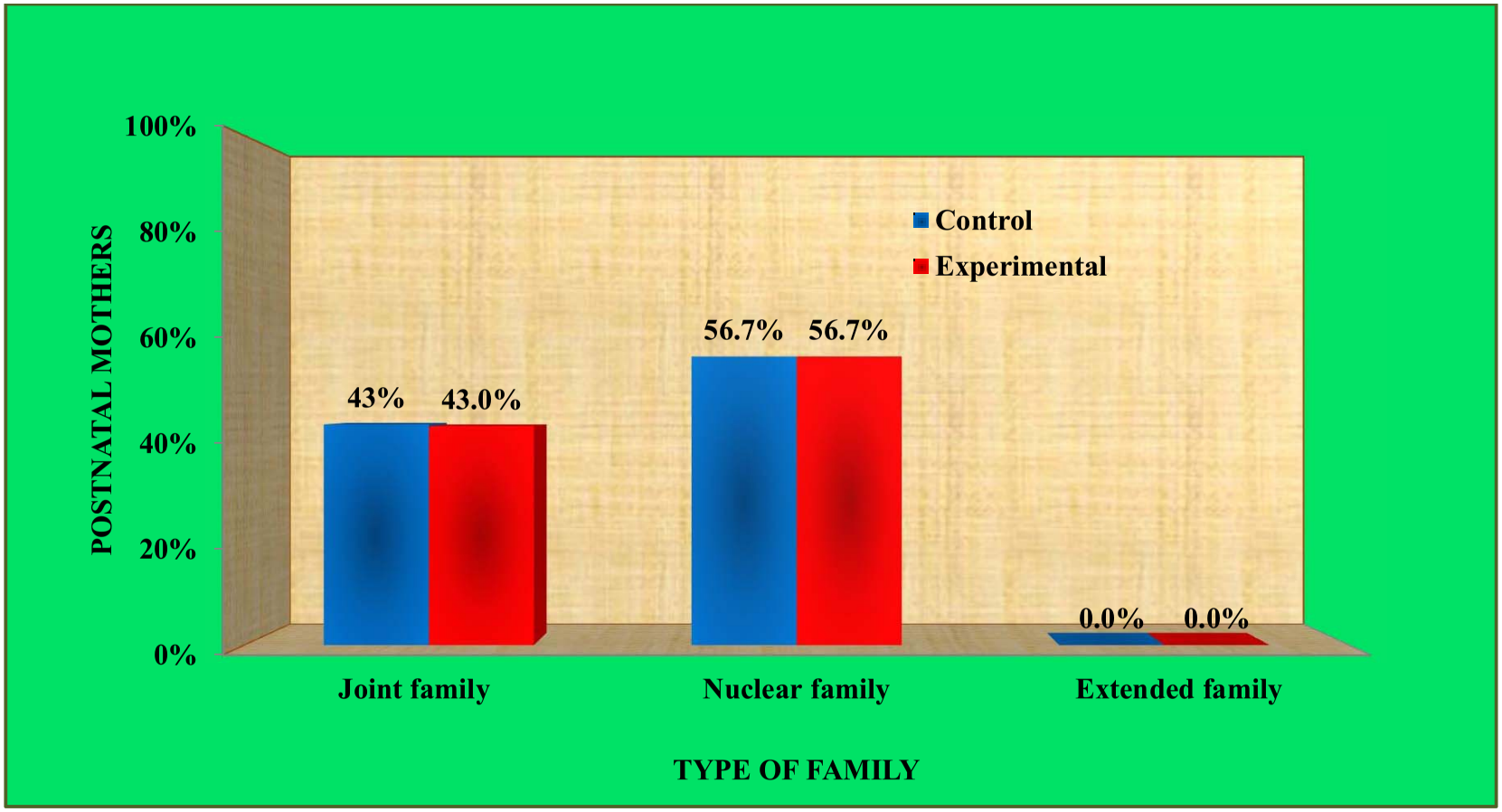


FIGURE 4.6 FAMILY TYPE WISE DISTRIBUTION OF POSTNATAL MOTHERS

SECTION-I: B) This section describes the obstetrical variables of postnatal mothers experiencing fatigue after child birth in the experimental and control group.

Table-4.2: Distribution of Obstetrical Variables of postnatal mothers

Obstetrical Variables		Group			
		Control		Experimental	
		frequency	in %	frequency	in %
Gravida	Primi	17	56.7	14	46.7
	Multi	13	43.3	16	53.3
Iron tablets	<30	9	30	8	26.7
	30-60	7	23.3	9	30
	60-100	8	26.7	8	26.7
	>100	6	20	5	16.7
Weight gain during pregnancy	Yes	26	86.7	19	63.3
	No	4	13.3	11	36.7
Number of children to be cared at home	None	20	66.7	15	50
	One	7	23.3	14	46.7
	Two	3	10	1	3.3
	>Two	0	0	0	0
Mode of delivery	NVD*	4	13.3	4	13.3
	NVD with Episiotomy	25	83.3	26	86.7
	ID	1	3.3	0	0
Total duration of labor	< 8	5	16.7	3	10
	8 – 12	7	23.3	9	30
	> 12	18	60.0	18	60
Duration of PN period (Hrs)	< 8	25	83.3	29	96.7
	8 – 16	5	16.7	1	3.3
Breast fed the newborn with	Own effort	4	13.3	6	20
	NM's support**	10	33.3	9	30
	Doctors support	0	0	1	3.3
	Relatives Support	16	53.3	14	46.7
Awareness on Foot spa	Yes	14	46.7	15	51.7
	No	16	53.3	14	48.3

* NVD- Normal Vaginal Delivery, ** NM-Nurse Midwives

Table 4.2 shows the obstetrical related information of postnatal mothers those who are participated in this study.

Regarding **parity**, majority of the postnatal mothers were in primipara in control group (56.7%) and majority of the postnatal mothers were in multipara in experimental group (53.3%)

In terms of **consumption of iron tablet** in total during pregnancy, in control group majority of the postnatal mothers (30.0%) were consumed less than 30 iron tablets and in the experimental group, majority of the postnatal mothers (30.0%) were consumed between 30-60 iron tablets.

With regard to **weight gain during pregnancy**, in the control group majority of the postnatal mothers (86.7%) were gained weight from their pre pregnancy level and in the experimental group, majority of the postnatal mothers (63.3%) were gained weight from their pre pregnancy level.

Majority of the postnatal mothers, in the control group (66.7%) and in the experimental group(50%), were not **taking care of children at home.**

With regard to **mode of delivery**, in the control group majority of the postnatal mothers (83.3%) were delivered naturally with episiotomy and in the experimental group, majority of the postnatal mothers (86.7%) were delivered naturally with episiotomy.

In terms of total **duration of labor**, majority of the postnatal mothers, in the control group (60%) and in the experimental group (60%) were taken more than 12 hours for delivery.

Maximum of postnatal mothers, in the control group (83.3%) and in the experimental group (96.7%) were in less than 8 hours of **post natal period.**

With regard to **breast feeding** of the newborn, in the control group majority of the postnatal mothers (53.3%) were with relatives support and in the experimental group, majority of the postnatal mothers (46.7%) were with relatives support.

In view of **awareness on foot spa** on fatigue relief, in the control group majority of the postnatal mothers (53.3%) were not aware that foot spa relieves fatigue and in the experimental group, majority of the postnatal mothers (51.7%) were aware that foot spa relieves fatigue.

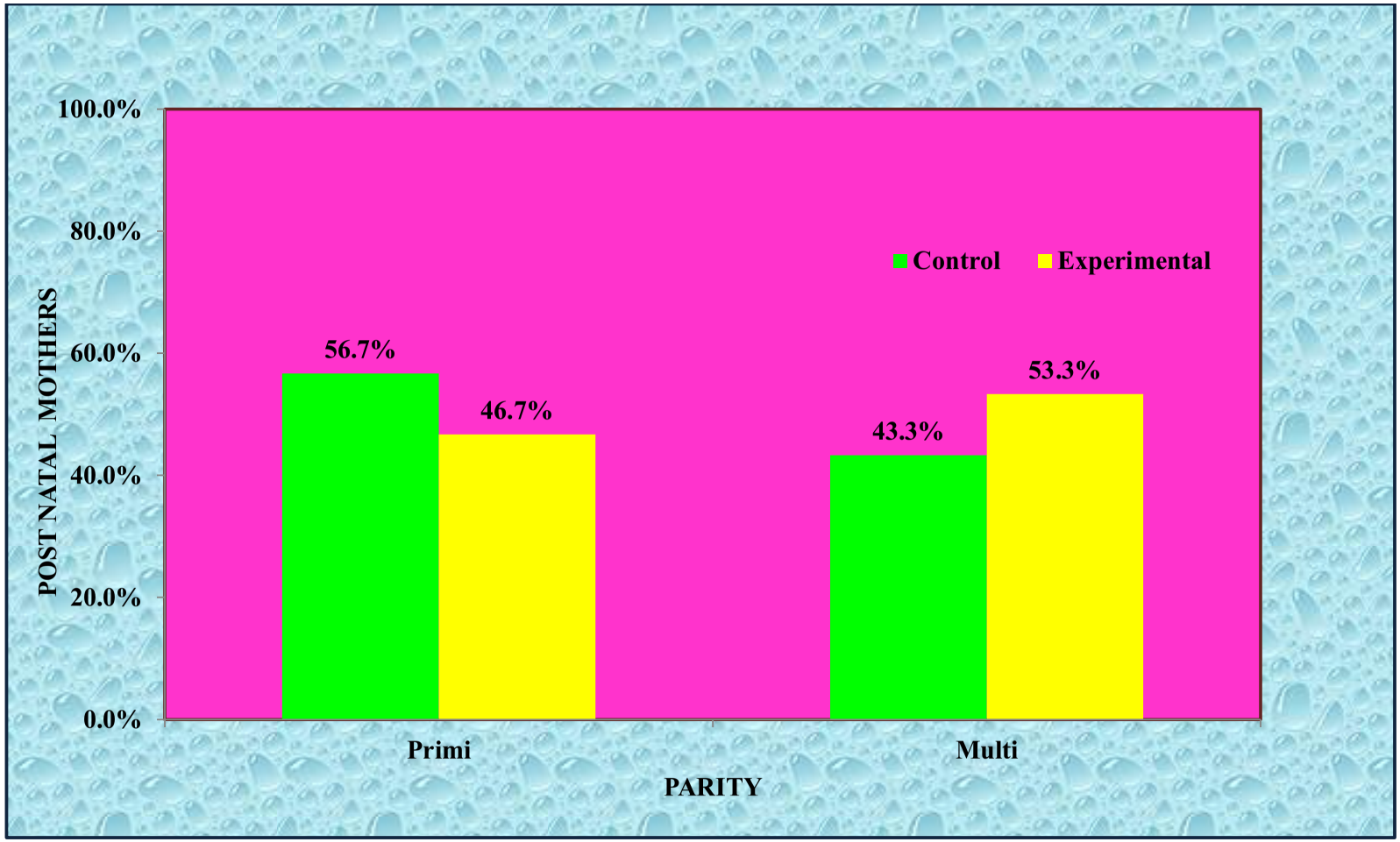


FIGURE 4.7 PARITY WISE DISTRIBUTION

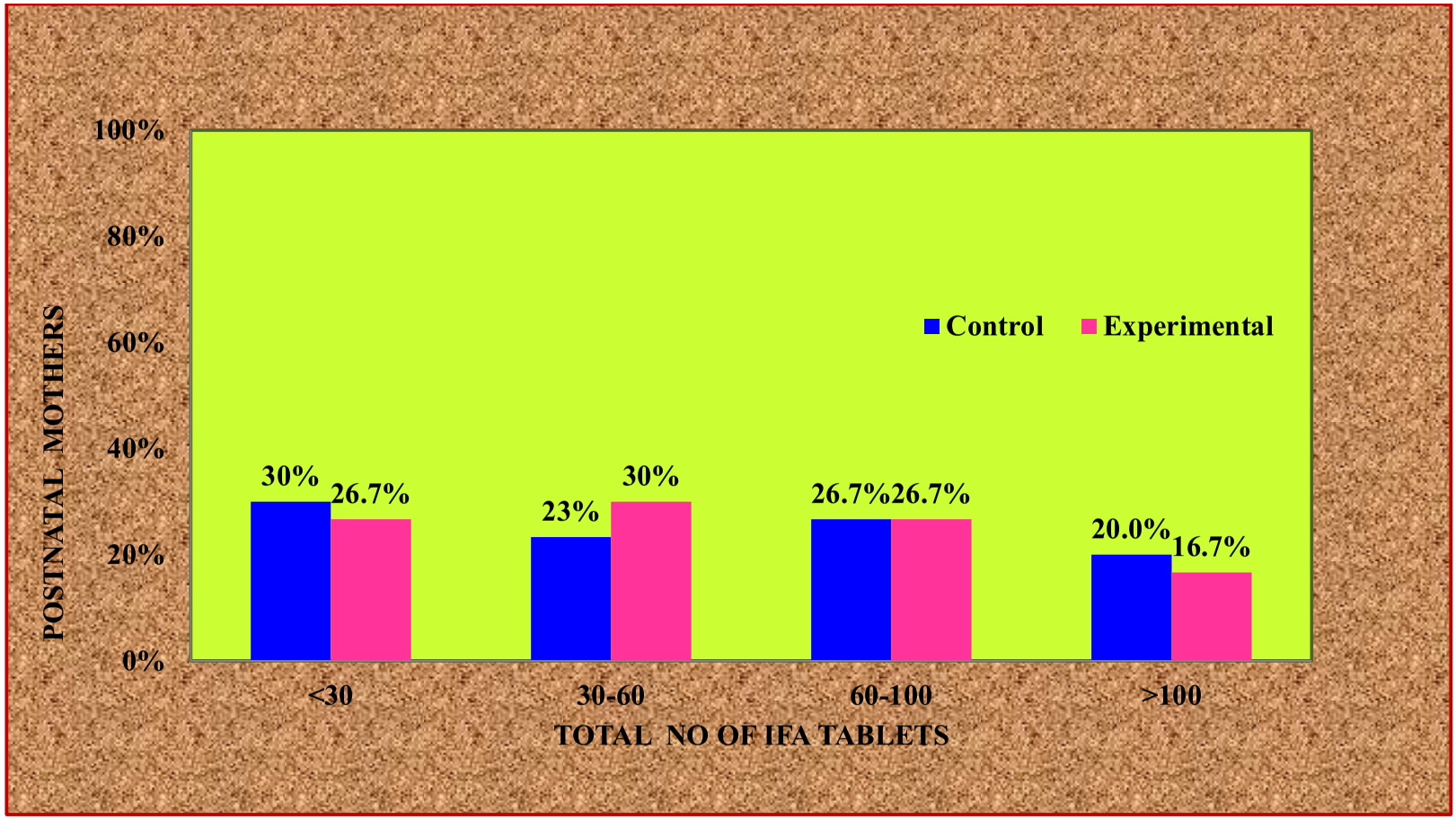


FIGURE 4.8 DISTRIBUTION OF IRON TABLETS CONSUMPTION DURING PREGNANCY

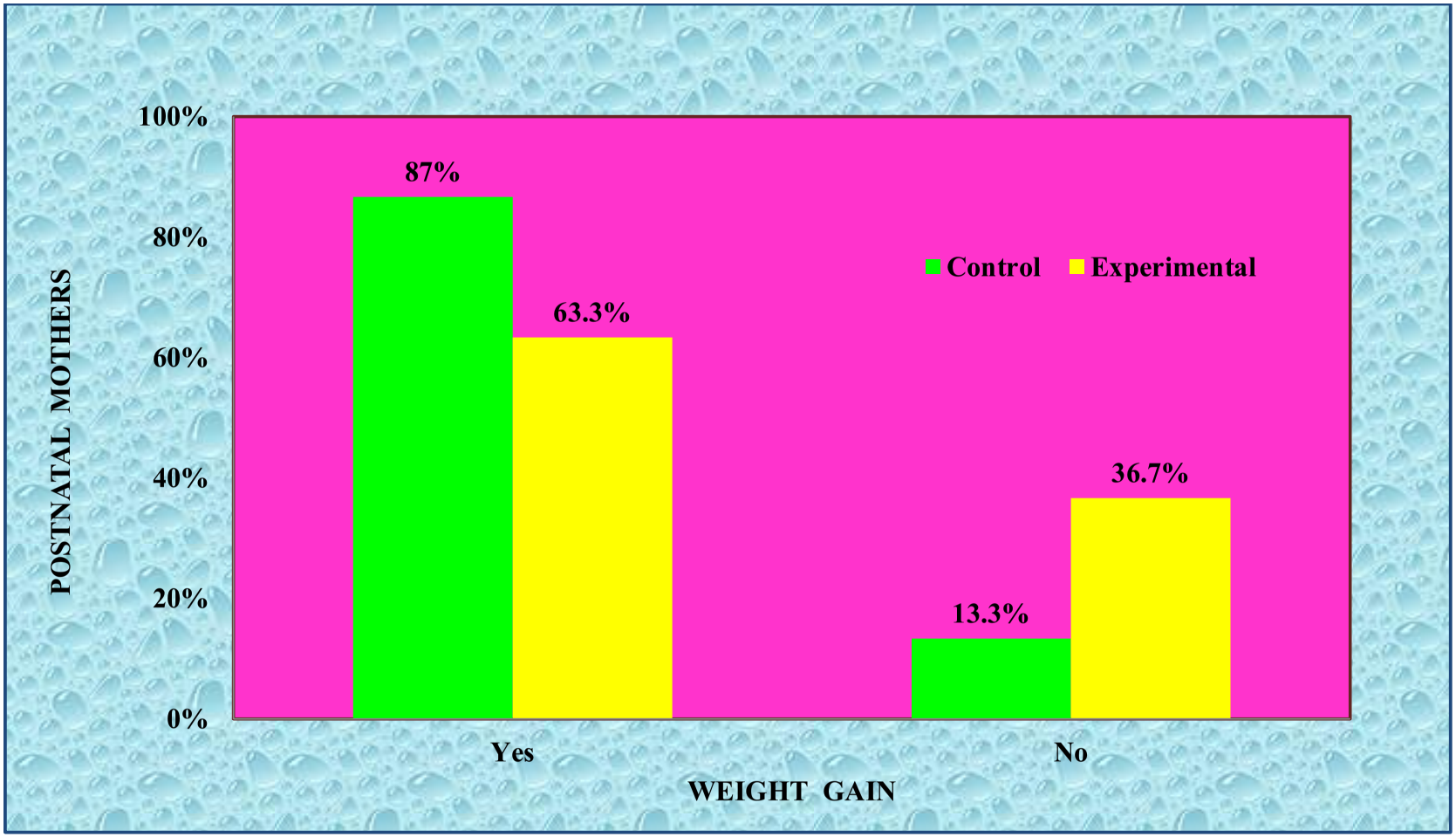


FIGURE 4.9 DISTRIBUTION OF WEIGHT GAIN DURING PREGNANCY

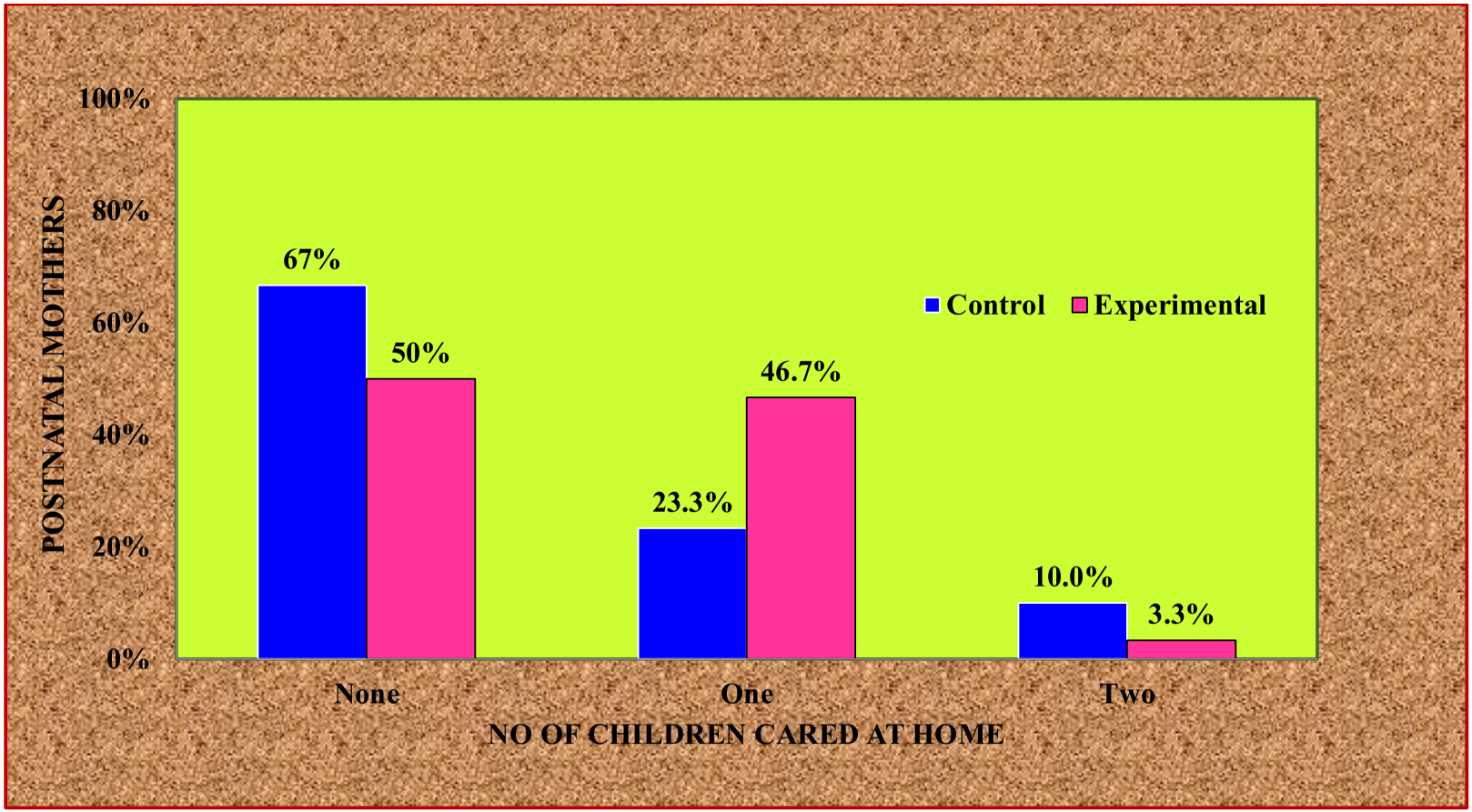


FIGURE 4.10 DISTRIBUTION OF NUMBER OF CHILDREN CARED AT HOME

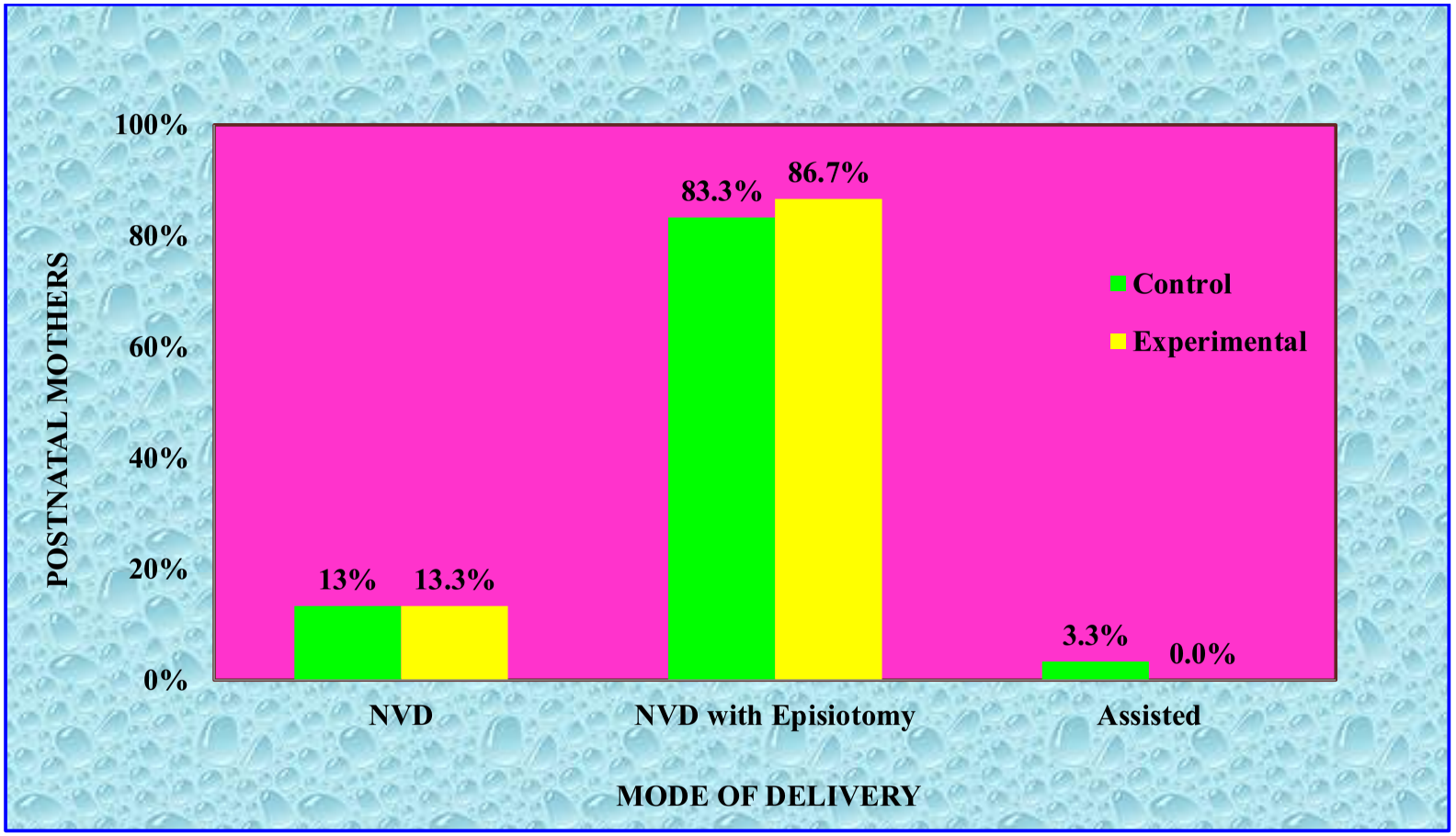


FIGURE 4.11 MODE OF DELIVERY WISE DISTRIBUTION

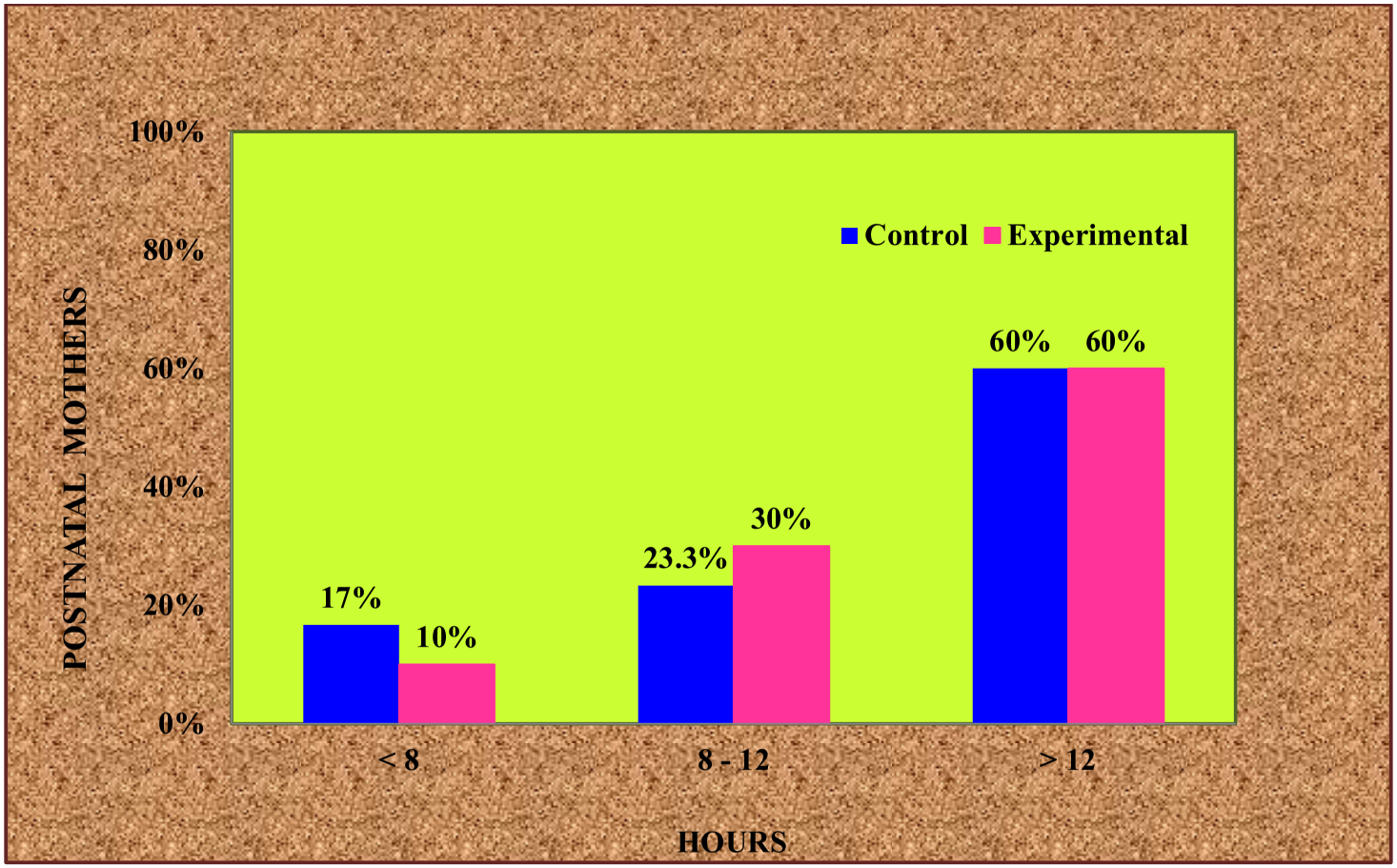


FIGURE 4.12 TOTAL DURATION OF LABOR WISE DISTRIBUTION

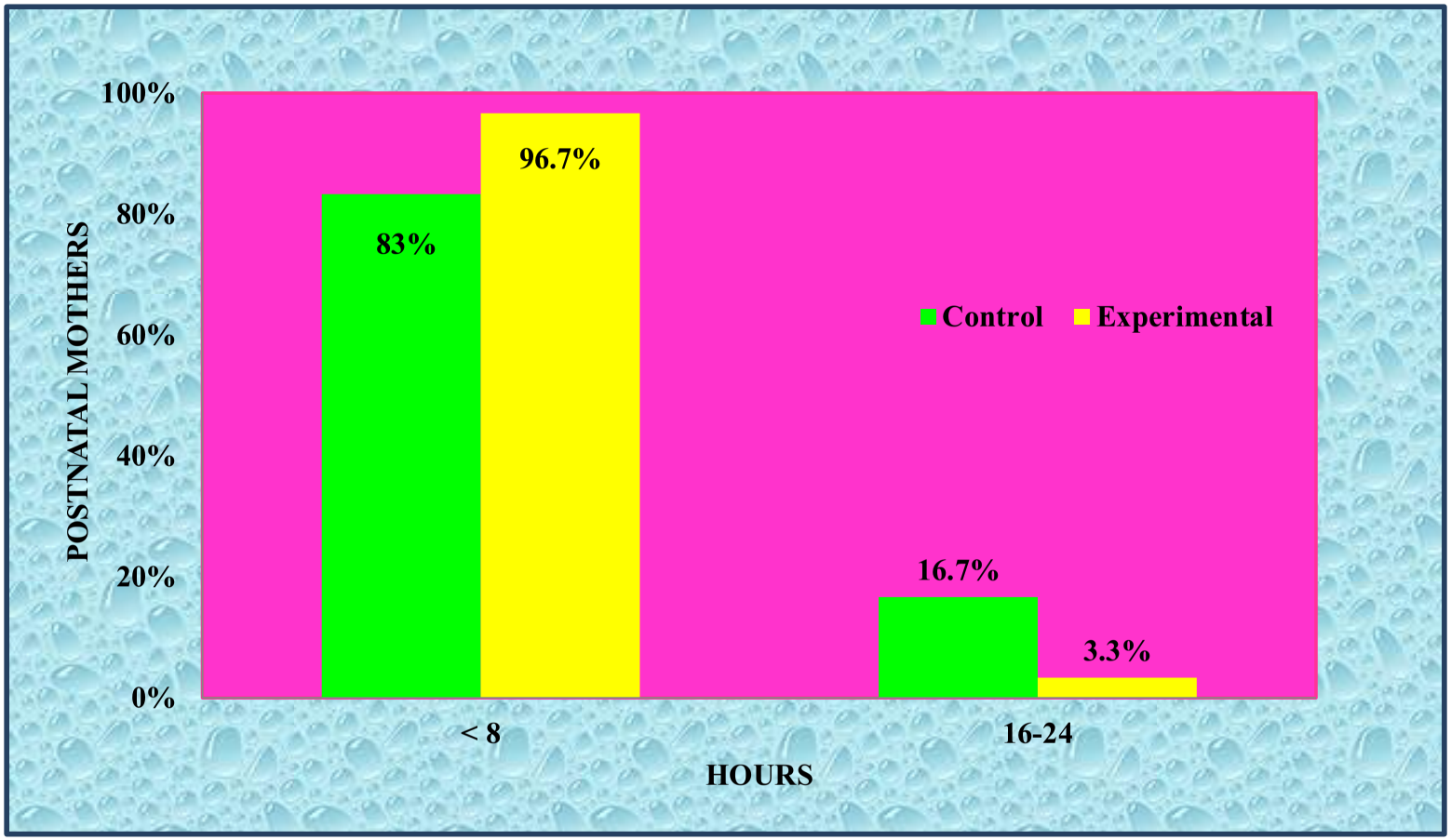


FIGURE 4.13 POST NATAL PERIOD WISE DISTRIBUTION

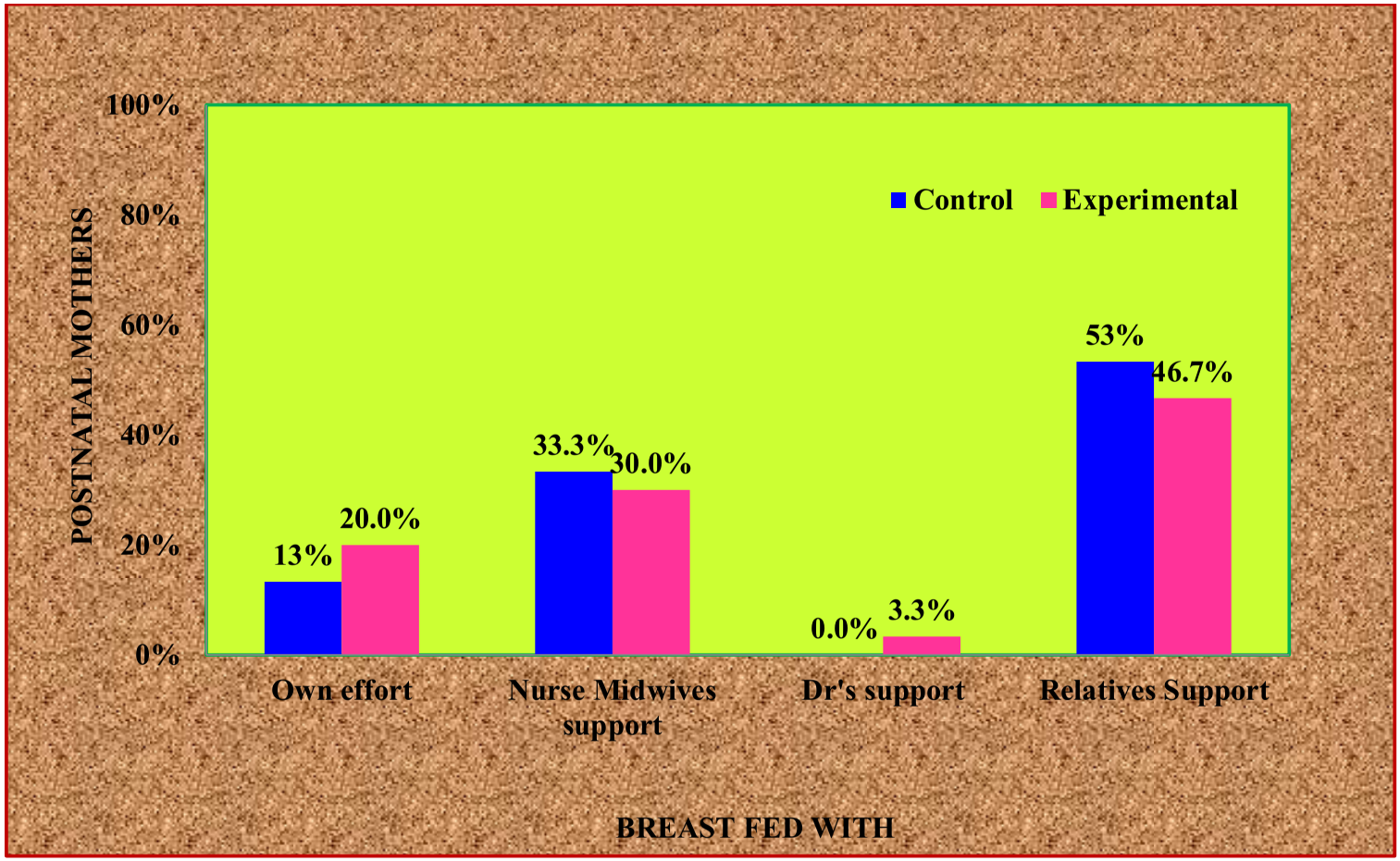


FIGURE 4.14 DISTRIBUTION OF BREAST FEEDING OF NEWBORN

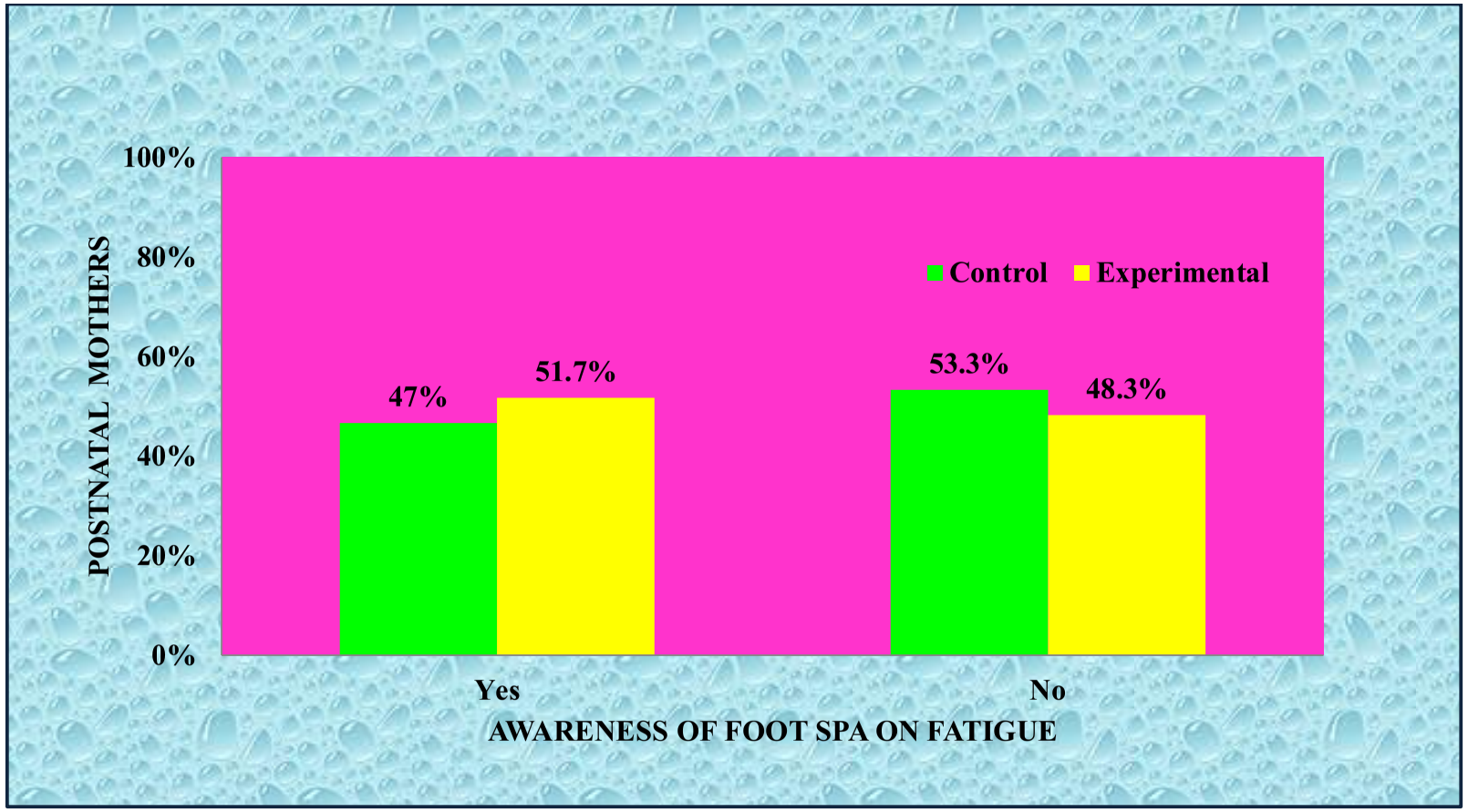


FIGURE 4.15 AWARENESS OF FOOT SPA WISE DISTRIBUTION

SECTION-II: A) Data on pre assessment level of fatigue after child birth among postnatal mothers in control and experimental group

Table 4.3: Pre Assessment Level of fatigue after child birth

Grade scale		Group				Chi square test P Value
		Control		Experiment		
		frequency	in %	frequency	in %	
Pre Assessment (Day-1)	No Fatigue	0	0.0	0	0.0	$\chi 2 = 8.148$ p= .004
	Mild Fatigue	0	0.0	0	0.0	
	Moderate Fatigue	19	63.7	08	26.7	
	Severe Fatigue	11	36.7	22	73.3	
Total		30	100	30	100	

* Significant at p≤ 0.05
** Significant at p≤ 0.01
***Highly significant P≤ 0.001

The above table vividly expresses pre assessment grade of fatigue after child birth among postnatal mothers in both control and experimental group to severe fatigue. Considering control group, none of them had mild fatigue, 19(63.7%) of them had moderate fatigue and 11 (36.73%) of them had severe fatigue. Considering experimental group, none of them had mild fatigue, 08(26.7%) of them had moderate fatigue and 22(73.3%) of them had severe fatigue. Statistically there is a significant difference between experiment and control group. Statistical significance was calculated using chi square test.

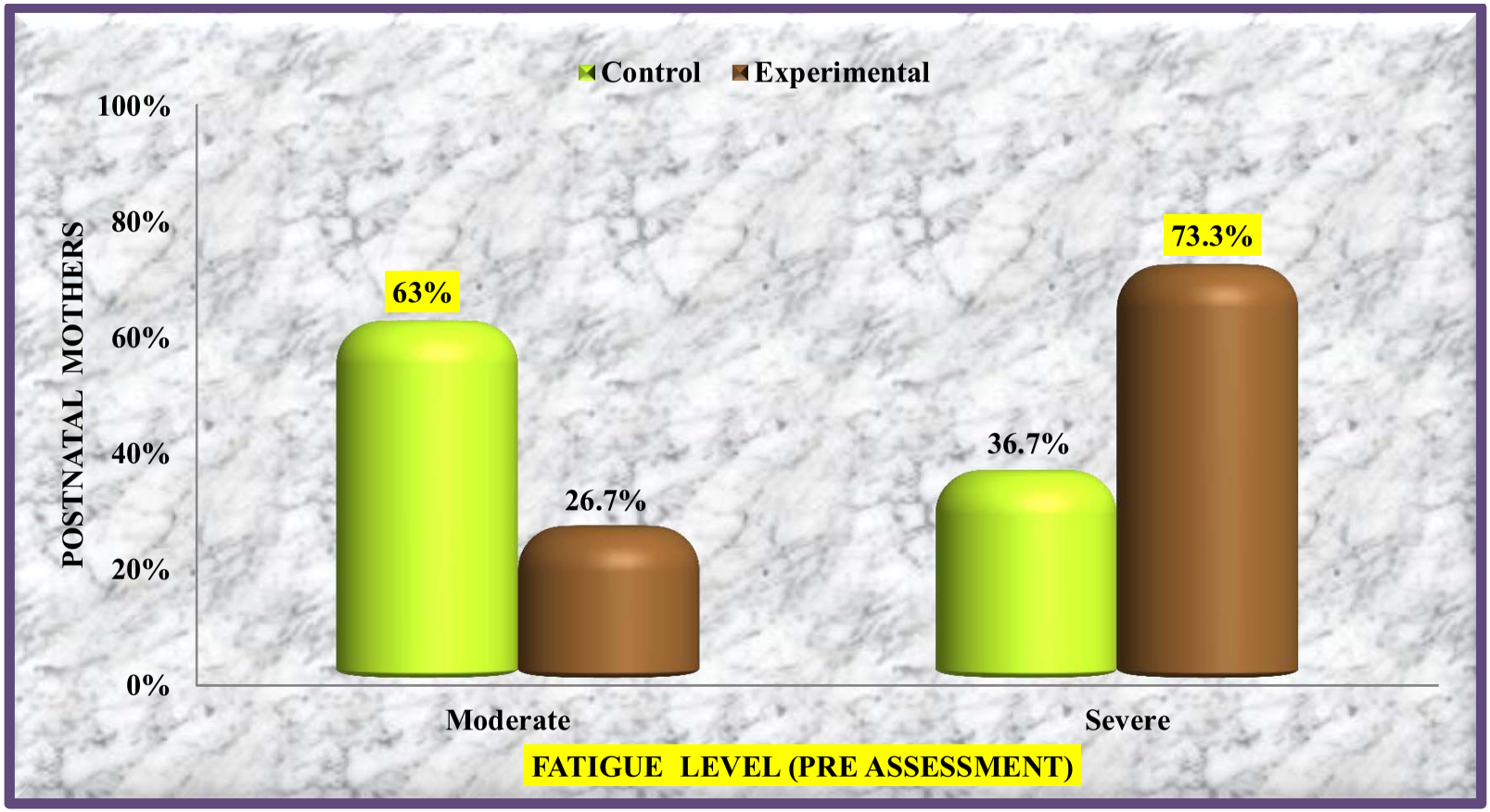


FIGURE 4.16 PRE ASSESSMENT LEVEL OF FATIGUE AFTER CHILD BIRTH

SECTION-II: B) Data on post assessment level of fatigue after child birth among postnatal mothers in control and experimental group

Table 4.4: Post Assessment Level of fatigue

Grade scale		Group				Chi square test
		Control		Experimental		
		frequency	in %	frequency	in %	
Post Assessment (Day-1)	No Fatigue	0	0	0	0.0	$\chi 2$ = 36.041 p= .000***
	Mild Fatigue	2	6.7	25	83.3	
	Moderate Fatigue	24	80	05	16.7	
	Severe Fatigue	4	13.3	0	0.0	
Total		30	100.0	30	100.0	

* Significant at p≤ 0.05
** Significant at p≤ 0.01
***Highly significant P≤ 0.001

Table 4.4 – shows the post test level of fatigue after child birth among postnatal mothers in both control and experimental group. Considering control group, 2(6.7%) of them had mild fatigue, 24(80%) of them had moderate fatigue and 4 (13.3%) of them had severe fatigue. Considering experimental group, 25(83.3%) of them had mild fatigue, 05(16.7%) of them had moderate fatigue and none had severe fatigue. Statistically there is a significant difference between experiment and control group. Statistical significance was calculated using chi square test.

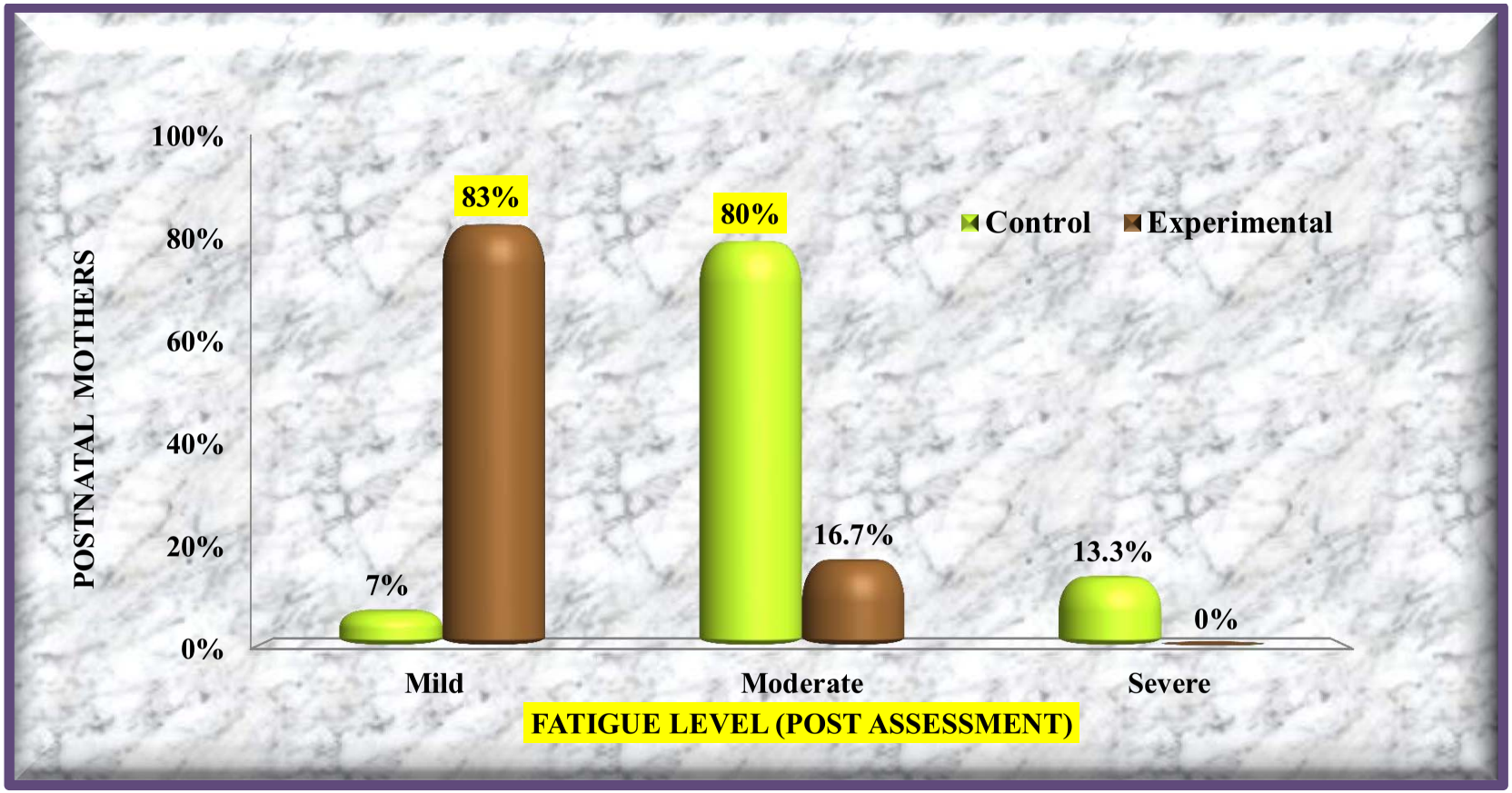


FIGURE 4.17 POST ASSESSMENT LEVEL OF FATIGUE AFTER CHILD BIRTH

SECTION -III- A) Data on comparison of the pre assessment and post assessment level of fatigue among postnatal mothers in control group.

Table 4.5: Comparison of pre and post assessment level of fatigue in control group

Control Group	Level of fatigue						Mean	Standard Deviation	Student Paired T test
	Mild	%	Moderate	%	Severe	%			
Pre test	0	0	19	63	11	36.73	85.97	10.105	t= 7.314 df = 29 p =0.02*
Post test	01	3.3	25	83.3	04	13.3	75.90	11.205	

* Significant at p≤ 0.05
** Significant at p≤ 0.01
***Highly significant P≤ 0.001
df = degree of freedom

Table 4.5 –shows the pre and post test level of fatigue after child birth among postnatal mothers in control group. Considering pre test, 19(63%) of them had moderate fatigue and 11 (36.73%) of them had severe fatigue. Considering post test, 1(3.3%) of them had mild fatigue, 25(83.3%) of them had moderate fatigue and 4 (13.3%) of them had severe fatigue. Statistically there is a significant difference between pretest and posttest group (t= 7.314, df = 29, p =0.02). Statistical significance was calculated using “t” test.

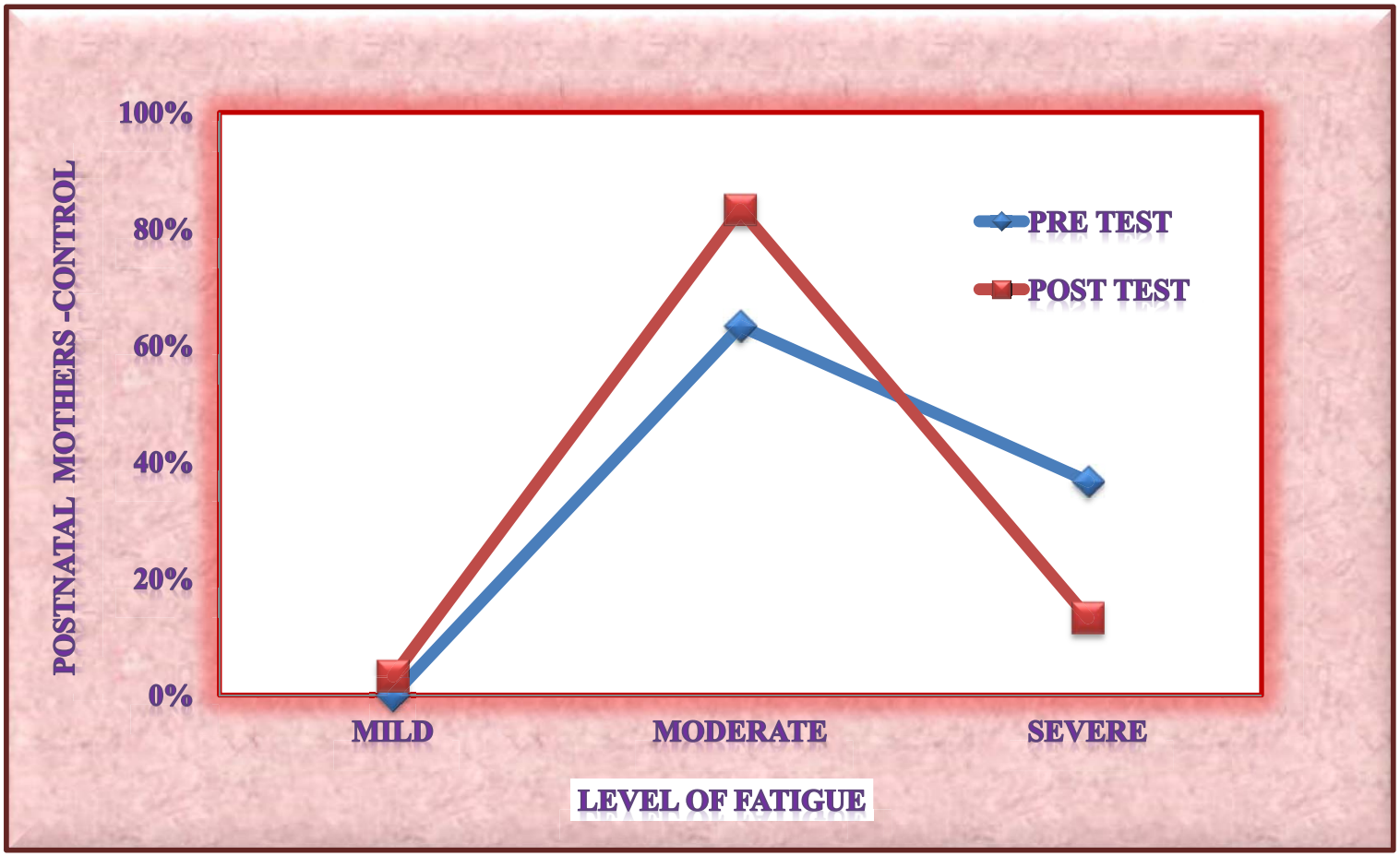


FIGURE 4.18 COMPARISON OF LEVEL FATIGUE IN CONTROL GROUP

SECTION -III- B) Data on comparison of the pre assessment and post assessment level of fatigue among postnatal mothers in experimental group.

Table 4.6: Comparison of pre and post assessment level of fatigue in experimental group

Experimental group	Level of fatigue						Mean	Standard Deviation	Student Paired T test
	Mild	in %	Moderate	in %	Severe	in %			
Pre test	0	0	8	26.7	22	73.3	93.47	8.721	t= 23.974 df = 29 p =.001***
Post Test	25	83.3	5	16.7	0	0.0	53.30	7.693	

* Significant at p≤ 0.05
** Significant at p≤ 0.01
***Highly significant P≤ 0.001
df = degree of freedom

Table 4.5 –shows the pre and post test level of fatigue after child birth among postnatal mothers in experimental group. Considering pre test, 8(26.7%) of them had moderate fatigue and 22 (73.3%) of them had severe fatigue. Considering post test, 25(83.3%) of them had mild fatigue, 05(16.7%) of them had moderate fatigue and none had severe fatigue. Statistically there is a significant difference between pretest and posttest group (t= 23.974, df = 29, p =0.001). Statistical significance was calculated using “t” test.

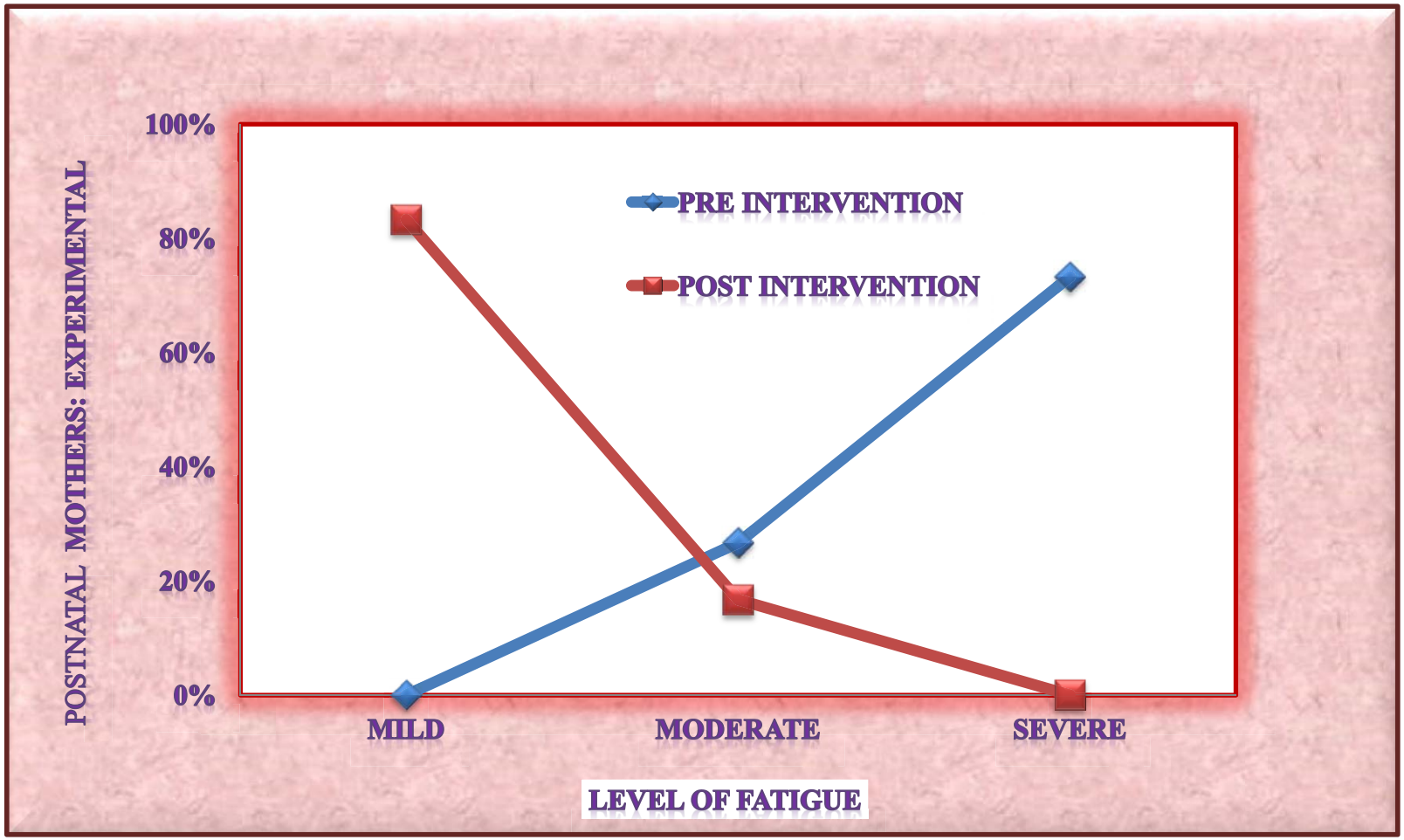


FIGURE 4.19 COMPARISON OF LEVEL FATIGUE IN EXPERIMENTAL GROUP

SECTION-IV Effectiveness of the study of garlic scented mustard oil foot spa on fatigue after child birth among postnatal mothers between the control and experimental group.

Table-4.7: Effectiveness of foot spa

Group		Max Score	Mean Score	Std. Deviation	Std. Error Mean	Mean difference with 95% confidence interval	Percentage difference with 95% confidence interval
Control	**Pre test**	120	85.97	10.105	1.845	10.07 (7.31-12.83)	11.7% (8.50%-14.92%)
	Post test	120	75.90	11.205	2.046		
Experimental	**Pre test**	120	93.47	8.721	1.592	40.17 (36.81-43.53)	42% (39.38%-46.57%)
	Post test	120	53.30	7.693	1.405		

The above table 4.7 depicts that the level of reduction of fatigue after child birth in both control and experimental group. Statistically there is a significant reduction in the level of fatigue. Considering the control group, the percentage difference was 11.7% with 95% confidence interval (8.50%-14.92%) and in the experimental group, the percentage difference was 42% with 95% confidence interval (39.38%-46.57%) Statistical significance was calculated using paired "t" test.

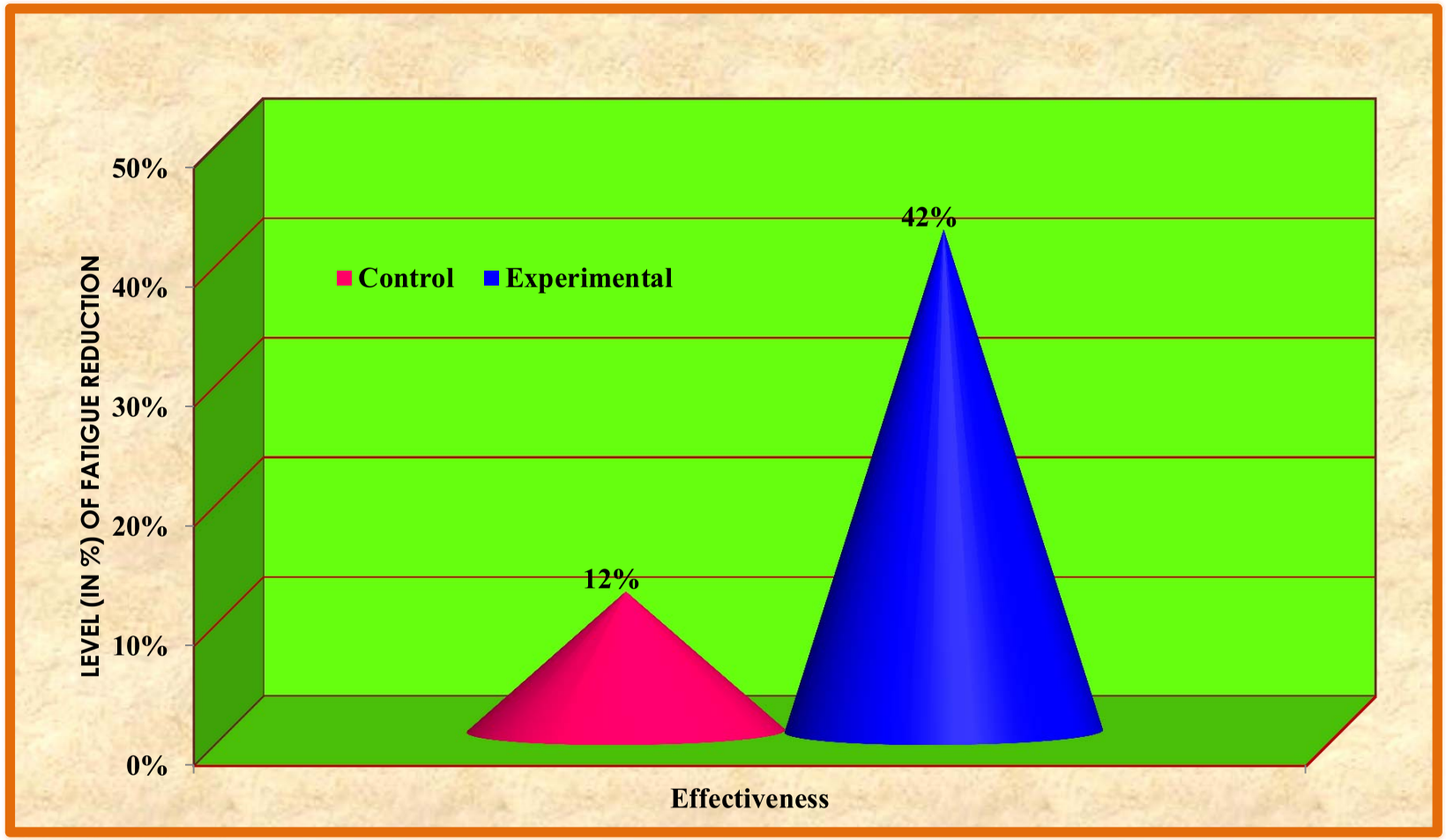


FIGURE 4.20: EFFECTIVENESS OF FOOT SPA

SECTION-V: Association of the effectiveness of garlic scented mustard oil foot spa on fatigue after child birth with the selected variables.

Table 4.8 Association between post assessment level of fatigue with the selected variable (demographic) in the experimental group

Variables		Post assessment level of fatigue in the experimental group							Chi-Square and P value
		Mild		Moderate		Severe		Total	
		frequency	in %	frequency	in %	frequency	in %		
Age	<21	6	24.0	1	20	0	0	7	χ^2 = 3.527 P = 0.196
	21-25	10	40.0	4	80	0	0	14	
	26-30	9	36	0	0	0	0	9	
Religion	Hindu	15	60	3	60	0	0	18	χ^2 = .900 P = 0.825
	Muslim	7	28	1	20	0	0	8	
	Christian	2	8	1	20	0	0	3	
	Other	1	4	0	0	0	0	1	
Education	Primary	2	8	0	0	0	0	2	χ^2 = .480 P = .787
	Secondary	15	60	3	60	0	0	18	
	Graduation	8	32	2	40	0	0	10	
Employ Ment	Home maker	19	76	4	80	0	0	23	χ^2 = .209 P = .901
	Self	1	4	0	0	0	0	1	
	Govt	5	20	1	20	0	0	6	
Monthly Income	< 5,000	14	56	5	100	0	0	19	χ^2 = 3.474 p= .062
	5,000- 10, 000	11	44	0	0	0	0	11	
Family	Joint family	11	44	1	20	0	0	12	χ^2 = 1.376 p= .502
	Nuclear	14	56	4	80	0	0	17	

* Significant at p≤ 0.05
** Significant at p≤ 0.01
***Highly significant P≤ 0.001

Table 4.8 shows the association between post assessments level of fatigue among the postnatal mothers in the experimental group with their demographic variables. There is no significant between the demographic variable and the level of fatigue.

Table 4.9 Association between post assessment level of fatigue with the selected variable (obstetric) in the experimental group

Variables		Post assessment level of fatigue in the experimental group							Chi-Square and P value
		Mild		Moderate		Severe		Total	
		frequency	in %	frequency	in %	frequency	in %		
Parity	**Primi**	10	40	4	80	0	0	14	$\chi2 = 3.669$ p= .160
	Multi	15	60	1	20	0	0	16	
No.of IFA consumed	**<30**	7	28	1	20	0	0	8	$\chi2 = 3.540$ p= .208
	30-60	6	24	3	60	0	0	9	
	60-100	8	32	0	0	0	0	8	
	>100	4	16	1	20	0	0	5	
Increased weight	**Yes**	14	56	5	100	0	0	19	$\chi2 = 3.474$ p= .062
	No	11	44	0	0	0	0	11	
No.of children cared at home	**One**	11	44	4	80	0	0	15	$\chi2 = 2.194$ p= .334
	Two	13	52	1	20	0	0	14	
	Three	1	4	0	0	0	0	1	
Type of delivery	**NVD**	4	16	0	0	0	0	4	$\chi2 = .923$ p= .337
	NVD with epi	21	84	5	100	0	0	26	
	Assisted Delivery	0	0	1	4.2	0	0	1	
Duration of labor (in Hours)	**<8**	3	12	0	0	0	0	3	$\chi2 = 1.200$ p= .549
	8-12	8	32	1	20	0	0	9	
	>12	14	56	4	80	0	0	18	
PN period (in hours)	**<8**	25	100	4	80	0	0	29	$\chi2 =5.172$ p= .023*
	8-16	0	0	1	20	0	0	1	
	16-24	0	0	0	0	0	0	0	
Awareness of foot spa	**Yes**	11	45.8	4	80	0	0	15	$\chi2 = 1.934$ p= .164
	No	13	54.2	1	20	0	0	14	

* Significant at p≤ 0.05

** Significant at p≤ 0.01

***Highly significant P≤ 0.001

Table 4.9 shows the association between post assessments level of fatigue among the postnatal mothers in the experimental group with their obstetrical variables. There is a significant between the duration of PN period with the level of fatigue ($\chi2$ =5.172, p= .023). Statistical significance was calculated using chi square test.

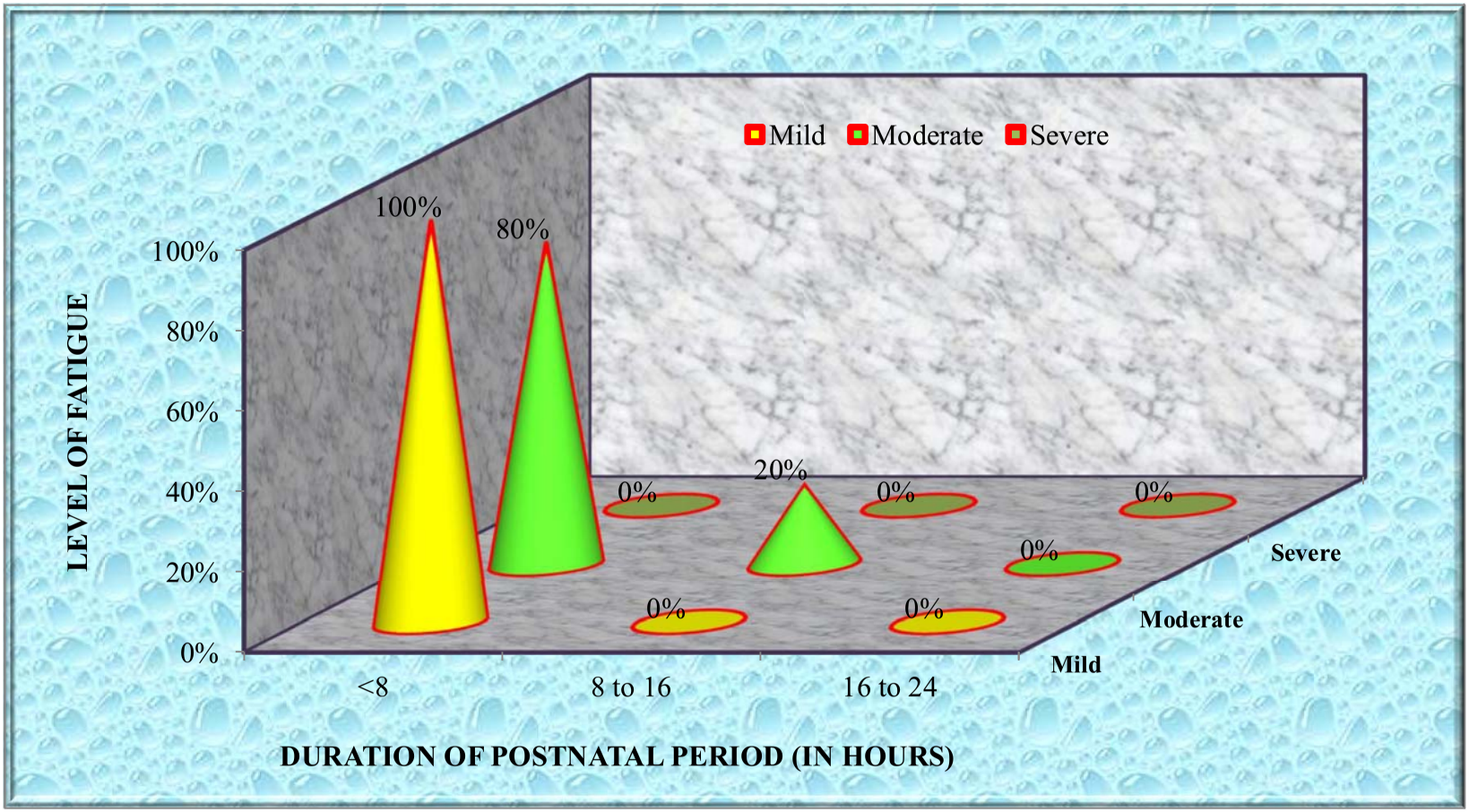


FIGURE 4.21: ASSOCIATION BETWEEN DURATION OF POSTNATAL PERIOD AND LEVEL OF FATIGUE

SUMMARY

OF

THE

RESULTS

CHAPTER-V

SUMMARY OF THE RESULTS

The results of the study to assess the effectiveness of garlic scented mustard oil foot spa on fatigue after child birth among the postnatal mothers were summarized in this chapter based on the demographic and obstetric variables and on fatigue symptoms checklist findings to describe the level of fatigue.

5.1 Related to demographic variables

- In terms of to **age**, in control group majority of the postnatal mothers (50%) were in the age group between 21-25 yrs and in the experimental group, majority of the postnatal mothers (46.7%) were in the age group between 21-25 yrs.
- In relation to **religion**, in control group majority of the postnatal mothers (73.3%) were Hindus and in experimental the group, majority of the postnatal mothers (60.0%) were Hindus.
- Majority of postnatal mothers, in control group (63.3%) and in the experimental group, (60%) were studied up to secondary level **education**.
- In view of **marital status**, in both control and experimental group all the postnatal mothers (100%) were married.
- With regard to occupation status, in both control and experimental group majority of the postnatal mothers (76.7%) were home makers.
- Regarding family monthly income status, in control group majority of the postnatal mothers (66.7%) were more than 5000 and in the experimental group, majority of the postnatal mothers (63.7%) were more than 5000.

- In view of **type of family**, in both experimental and control group majority of the postnatal mothers (56.7%) were living as nuclear family and remaining were (43.3%) were living in joint family.

5.2 Related to obstetrical variables

- Regarding **parity**, majority of the postnatal mothers were primipara in control group (56.7%) and majority of the postnatal mothers were multipara in experimental group (53.3%)
- In terms of **consumption of iron tablet** in total during pregnancy, in control group majority of the postnatal mothers (30.0%) were consumed less than 30 iron tablets and in the experimental group, majority of the postnatal mothers (30.0%) were consumed between 30-60 iron tablets.
- With regard to **weight gain** during pregnancy, in the control group majority of the postnatal mothers (86.7%) were gained weight from their pre pregnancy level and in the experimental group, majority of the postnatal mothers (63.3%) were gained weight from their pre pregnancy level.
- Majority of the postnatal mothers, in the control group (66.7%) and in the experimental group (50%), were not took **care any children at home**.
- With regard to **mode of delivery**, in the control group majority of the postnatal mothers (83.3%) were delivered naturally with episiotomy and in the experimental group, majority of the postnatal mothers (86.7%) were delivered naturally with episiotomy.
- In terms of **total duration of labor**, majority of the postnatal mothers, in the control group (60%) and in the experimental group (60%) were taken more than 12 hours for delivery.
- Maximum of postnatal mothers, in the control group (83.3%) and in the experimental group (96.7%) were in less than 8 hours of **post natal period**.

- With regard to **breast feeding of the newborn**, in the control group majority of the postnatal mothers (53.3%) were done it with relatives support and in the experimental group, majority of the postnatal mothers (46.7%) were done it with relatives support.
- In view of **awareness on foot spa** on fatigue relief, in the control group majority of the postnatal mothers (53.3%) were not aware that foot spa relieves fatigue and in the experimental group, majority of the postnatal mothers (51.7%) were aware that foot spa relieves fatigue.

5.3 Related to pre assessment level of fatigue in control and experimental group

Considering control group, 19 (63.7%) of them had moderate fatigue and 11 (36.73%) of them had severe fatigue. Considering experimental group, 08 (26.7%) of them had moderate fatigue and 22 (73.3%) of them had severe fatigue. Statistically there is a significant difference between experiment and control group ($\chi 2 = 8.148$, $p = .004$). Statistical significance was calculated using chi square test.

5.4 Related to post assessment level of fatigue in control and experimental group

Considering control group, 2(6.7%) of them had mild fatigue, 24(80%) of them had moderate fatigue and 4 (13.3%) of them had severe fatigue. Considering experimental group, 25(83.3%) of them had mild fatigue, 05(16.7%) of them had moderate fatigue and none had severe fatigue. Statistically there is a significant difference between experiment and control group ($\chi 2 = 36.041$, $p = .000$). Statistical significance was calculated using chi square test.

5.5 Related to effectiveness of foot spa

Paired "t" test was used to analyze the effectiveness of foot spa in reduction of fatigue. *Statistically there is a significant reduction in the level of fatigue.* Considering the control group, the percentage difference was 11.7% with 95% confidence interval (8.50%-14.92%) and in the experimental group, the percentage difference was 42% with 95% confidence interval (39.38%-46.57%).

5.6 Related to association between post assessment levels of fatigue with the selected variable (demographic) in the experimental group

The associations between post assessment levels of fatigue among the postnatal mothers with their demographic variables were analyzed using chi square test. There is *no significant* between the demographic variable and the level of fatigue.

5.7 Related to association between post assessment levels of fatigue with the selected variable (obstetric) in the experimental group

The associations between post assessment levels of fatigue among the postnatal mothers with their obstetrical variables were analyzed using chi square test. There is a *significant between the duration of postnatal period with the level of fatigue* ($\chi 2 = 5.172$, $p = .023$).

DISCUSSION

CHAPTER-VI

DISCUSSION

This chapter deals with the discussion of the results of the data collected from 60 postnatal mothers were analyzed based on the objectives of the study and the hypothesis. The purpose of the study is to assess the **"**effectiveness of garlic scented mustard oil foot spa on fatigue after child birth among postnatal mothers in Institute of Obstetrics and Gynecology and Hospital for Women and Children, Chennai."

FINDINGS BASED ON THE OBJECTIVES

The first objective was to assess the level of fatigue after child birth among postnatal mothers.

Postnatal mothers were assessed for the presence of fatigue after child birth using fatigue symptoms checklist, postnatal mothers with moderate and severe fatigue were selected for the study and assigned to experimental and control group by purposive sampling technique before garlic scented mustard oil foot spa. In control group, 63% of them had moderate fatigue and 37% of them had severe fatigue. In experimental group, 27% of them had moderate fatigue and 73% had severe fatigue.

This finding consistent with the findings of the study by ***Rychnovsky & Hunter (2009)*** conducted a prospective, longitudinal descriptive study among 109 postpatum women, were assessed the relationship between sleep characteristics and fatigue in healthy postpartum women using a 16 item subjective sleep characteristics scale and a 30 statement subjective fatigue measurement. The measurements points were 1-2 days after delivery, 2 weeks of postpartum and 6 weeks of postpartum. The study reported *peak level of fatigue immediately after delivery* and fatigue had a positive correlation with sleep disturbance at all three measurement points[11].

The second objective was to assess the level of fatigue after child birth, in the experimental group after garlic scented mustard oil foot spa.

The study findings reveal the reduction in the level of fatigue after child birth among 60 postnatal mothers in the control and experimental group.

Pre assessment level of fatigue in control and experimental group

Considering control group, 19 (63.7%) of them had moderate fatigue and 11 (36.73%) of them had severe fatigue. Considering experimental group, 08 (26.7%) of them had moderate fatigue and 22 (73.3%) of them had severe fatigue. Statistically there is a significant difference between experiment and control group ($\chi 2 = 8.148$, $p = .004$. Statistical significance was calculated using chi square test.

Post assessment level of fatigue in control and experimental group

Considering control group, 2(6.7%) of them had mild fatigue, 24(80%) of them had moderate fatigue and 4 (13.3%) of them had severe fatigue. Considering experimental group, 25(83.3%) of them had mild fatigue, 05(16.7%) of them had moderate fatigue and none had severe fatigue. Statistically there is a significant difference between experiment and control group ($\chi 2 = 36.041$, $p = .000$). Statistical significance was calculated using chi square test.

The findings nearly consistent with the study findings of ***Giallo R, et al., (2006)*** who studied to describe the experience of fatigue in parenthood from the mother's perspective among 30 Thai postpartum women proposed that there are two stages of fatigue. Physical fatigue, with an onset soon after birth, characterizes the first stage of fatigue; attaining sufficient sleep relieves the fatigue experienced during this stage. However, if this first stage of fatigue is not relieved, it progresses into a second phase which later develops to include both physical and psychological fatigue. Overall, the cumulative body of evidence suggests that *mild to moderate levels of fatigue exist throughout the*

first 12-weeks postpartum, though the timing and duration of peak fatigue levels are not yet clear[49].

The third objective was to assess the effectiveness of garlic scented mustard oil foot spa on fatigue after child birth among postnatal mothers by comparing the experimental and control groups.

The level of fatigue after child birth were reduced after foot spa with garlic scented mustard oil in experimental group from severe level to mild level where as the fatigue level remained unchanged mostly in the control group. As shown in the table 4.7, statistically there is a significant reduction in the level of fatigue. Considering the control group, the mean difference was 10.07 with 95% confidence interval (7.31-12.83) and in the experimental group, the mean difference was 40.17 with 95% confidence interval (36.81-43.53). Statistical significance was calculated using paired "t" test.

The findings of my study nearly consistent with ***Joseph J, Devadason JM., 2009*** in an experimental study done in Erode, Tamil Nadu, in the palliative care ward for a period of 5 weeks among 20 palliative care patients selected by convenience sampling technique to determine the effectiveness of mustard oil foot massage on pain proved that there is a significant relationship between foot massage and pain at0.05 level of significance[32].

Thus the hypothesis H_1 which states that there is a significant reduction in fatigue after foot spa with garlic scented mustard oil among postnatal mothers in the experimental group than in the control group is accepted.

The fourth objective was to find out the association between level of fatigue after child birth and selected variable in the experimental and control groups.

The association between post assessments level of fatigue among the postnatal mothers in the experimental group with their demographic and obstetric variables were analyzed. There is a significant association between

the duration of postnatal period with the level of fatigue ($\chi 2 = 5.172$, $p = .023$). Statistical significance was calculated using chi square test.

The researcher as well as the staff nurses in the observation room, Labor ward, enquired about foot spa, the postnatal mothers verbalized that the feeling of *tiredness over whole body, pain in legs and back, drowsiness, eye strain, clumsiness when moving, nervousness, anxiousness, thirsty, tremors in limbs, and ill* after child birth was reduced after foot spa. This paved a new opening for conducting research to reduce the fatigue after child birth through application of complementary therapies in nursing intervention.

CONCLUSION AND RECOMMENDATIONS

CHAPTER-VI

CONCLUSION AND RECOMMENDATIONS

The present study assessed the effectiveness of foot spa with garlic scented mustard oil on fatigue after child birth among postnatal mothers. The results revealed that foot spa with garlic scented mustard oil had a significant effect in reducing fatigue after child birth. Majority of the postnatal mothers in the in the control group experienced moderate fatigue whereas the postnatal mothers in experimental group experienced *mild fatigue* after foot spa with garlic scented mustard oil.

This chapter deals with limitations, implications and recommendations of the study.

7.1 Limitations

- This study can be conducted in multi centered hospital with large samples for better generalization.
- The duration of the study can also be extended for the better result.

7.2 Implications of the study

The investigator had drawn the following implications from the studies, which are of vital concern in the field of nursing practice, administration and research.

Nursing Practice

1) Education of fatigue after child birth among postnatal mothers must have a more effective to provide postnatal care

2) The use of foot spa after child birth can be followed as an independent nursing intervention

3) This intervention is economical, cost-effective, safe and easy to practice

4) Foot spa can be made to practice as a routine nursing / midwifery care after child birth.

5) Encourage their companion to provide physical, emotional support to postnatal mothers after child birth and also to practice foot spa to reduce the level of fatigue along with other measures of comfort after child birth

Nursing Administration

1) The nurse administrator can organize conferences and in-service education programme on various non pharmacological measures and therapies in reduction of fatigue after child birth and promote well being of the mother and her newborn

2) The nurse administrator should supervise the nurses application of non pharmacological therapies to reduce fatigue after child birth and also monitor the standards of practice

Nursing Education

1) The nurse educator should teach the nursing students about the technique and the benefits of alternative therapy like foot spa

2) The nurse educator can motivate the students to do mini-project on non-pharmacological measures to reduce fatigue after child birth among postnatal mothers

3) The nurse educator should conduct workshop, seminars and conferences on non-invasive complimentary therapies that help to update their knowledge to provide effective care

4) The nurse educator should encourage the students to learn about the assessment of fatigue after child birth and its consequences on mothers

and newborns health and also the remedial measures to reduce the fatigue after child birth

Nursing Research

1) The finding can be a baseline for further studies to improve the body of knowledge in nursing.

2) The nurse researcher should motivate the clinical nurse to do further research studies on effectiveness of foot spa on other postnatal discomfort like leg pain, back pain and postnatal blues, etc.,

3) The nurse researcher should encourage clinical nurse to apply the research findings in their daily nursing care activities and can bring out new innovative procedures to prevent fatigue after child birth during immediate postpartum period

4) The nurse researcher should conduct periodic review of research findings and disseminate the finding through conferences, seminars and publications in professional, national and international journals and also in the World Wide Web

7.3 Recommendations for further study

The study recommends the following for further research

1) The similar study can be replicated with larger samples for better generalization

2) An experimental study to assess the effectiveness of foot spa in reducing other discomforts of postpartum period

3) A comparative study can be conducted to assess the effectiveness of foot spa during labor pain versus during immediate postpartum period on fatigue after child birth

4) A study to assess the effectiveness of structured teaching regarding foot spa for birth companion in labor room on fatigue after child birth

5) A study to assess the effectiveness of foot spa followed by counseling on family planning on level of acceptance of any family planning methods

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APPENDICIES

Appendix A: Certificate of approval from institutional ethics committee

INSTITUTIONAL ETHICS COMMITTEE
MADRAS MEDICAL COLLEGE, CHENNAI-3

EC Reg No.ECR/270/Inst./TN/2013
Telephone No. 044 25305301
Fax : 044 25363970

CERTIFICATE OF APPROVAL

To
MRS.P.PRINCY FERNANDO
M.Sc., (Nursing)
College of Nursing
Madras Medical College,
Chennai – 600 003.

Dear MRS.P.PRINCY FERNANDO,

The Institutional Ethics Committee has considered your request and approved your study, **" A STUDY TO ASSESS THE EFFECTIVENESS OF GARLIC SCENTED MUSTARD OIL FOOT SPA ON FATIGUE AFTER CHILDBIRTH AMONG POSTNATAL MOTHERS IN GOVERNMENT INSTITUTE OF OBSTETRICS AND GYNAECOLOGY AND HOSPITAL FOR WOMEN AND CHILDREN,EGMORE". No.08102014.**

The following members of Ethics Committee were present in the meeting held on 21.10.2014 conducted at Madras Medical College, Chennai-3.

1. Dr.C.Rajendran, M.D., : Chairperson
2. Dr.R.Vimala, M.D., Dean, MMC, Ch-3 : Deputy Chairperson
3. Prof.B.Kalaiselvi, M.D., Vice-Principal, MMC, Ch-3 : Member Secretary
4. Prof.R.Nandhini, M.D., Inst.of Pharmacology, MMC : Member
5. Prof.K.Ramadevi, Director i/c, Inst.of Biochemistry, MMC : Member
6. Prof.Saraswathy, M.D., Director, Pathology, MMC, Ch-3 : Member
7. Prof.S.G.Sivachidambaram, M.D., Director i/c, Inst.of Internal Medicine, MMC : Member
8. Dr.Balakrishnan, M.S., Director, Inst.of Surgery, MMC : Member
9. Thiru S.Rameshkumar, Administrative Officer : Lay Person
10. Thiru S.Govindasamy, B.A., B.L., : Lawyer
11. Tmt.Arnold Saulina, M.A., MSW., : Social Scientist

We approve the proposal to be conducted in its presented form.

The Institutional Ethics Committee expects to be informed about the progress of the study and SAE occurring in the course of the study, any changes in the protocol and patients information/informed consent and asks to be provided a copy of the final report.

Member Secretary, Ethics Committee

MEMBER SECRETARY
INSTITUTIONAL ETHICS COM
MADRAS MEDICAL COLLE
CHENNAI-600 00

Appendix B: Certificate of content validity

CERTIFICATE OF CONTENT VALIDITY

This is to certify that the tool constructed by Ms. **P.Princy Fernando**, Msc Nursing II year, College of Nursing, Madras Medical College, which is used in her study title **"A STUDY TO ASSESS THE EFFECTIVENESS OF GARLIC SCENTED MUSTARD OIL FOOT SPA ON FATIGUE AFTER CHILDBIRTH AMONG POSTNATAL MOTHERS AT INSTITUTE OF OBSTETRICS AND GYNECOLOGY AND GOVERNMENT HOSPITAL FOR WOMEN AND CHILDREN, EGMORE, CHENNAI-8"** has been validated by the undersigned. The suggestions and modifications given by me will be incorporated by the investigator in concern with their respective guide. Then she can proceed to do the research.

SIGNATURE WITH SEAL

Name : KANAGAVALLI P

Designation : Reader

College : Madha College of Nursing

Date : 16/7/15

Place : Chennai

MADHA COLLEGE OF NURSING
16 JUL 2015
CHENNAI - 600 069

CERTIFICATE OF CONTENT VALIDITY

This is to certify that the tool constructed by Ms. **P.Princy Fernando**, Msc Nursing II year, College of Nursing, Madras Medical College, which is used in her study title **"A STUDY TO ASSESS THE EFFECTIVENESS OF GARLIC SCENTED MUSTARD OIL FOOT SPA ON FATIGUE AFTER CHILDBIRTH AMONG POSTNATAL MOTHERS AT INSTITUTE OF OBSTETRICS AND GYNECOLOGY AND GOVERNMENT HOSPITAL FOR WOMEN AND CHILDREN, EGMORE, CHENNAI-8"** has been validated by the undersigned. The suggestions and modifications given by me will be incorporated by the investigator in concern with their respective guide. Then she can proceed to do the research.

SIGNATURE WITH SEAL

Assistant Surgeon
I.O.G. & Government Hospital
For Women and Children
Egmore, Chennai-8.

Name : DR. K. ANBURAMMAL

Designation : ASST PROFESSOR

College : MADRAS MEDICAL COLLEGE (I.O.G. EGMORE)

Date : 23/07/15

Place : CHENNAI - 8

Appendix C: Letter seeking permission for conducting study

Ref.No.4673/P&D/2015

IOG and Government Hospital for Women and Children, Egmore, Chennai 8. Dated 1.7.2015

Sub : Training - M.Sc., (N) II year., Obstetrics and Gynaecological Nursing – Clinical Practice, Dissertation, practical examination and Lecture training in the IOG and Government Hospital for Women and Children, Egmore, Chennai 8 for the period from 6.7.2015 to 5.8.2015-Permission - orders issued

Ref : Letter dated 24.6.2015 of the Head of Department, O&G Nursing, College of Nursing, Madras Medical College, Chennai 3.

+++++

As per the letter reference cited, the following M.Sc (N) II years students of Madras Medical College, Chennai 3 are permitted to undergo the clinical experience, lecture classes, University practical examination and also to carryout dissertation work in IOG and Government Hospital for Women and Children, Egmore, Chennai 8 for the period from 6.7.2015 to 5.8.2015 under the guidance of the Assistant Professor of O&G mentioned against their names.

Sl.No	Name of the Students	Name of the Assistant Professor of O&G of this Hospital
1	Mrs. A.Bhuvaneswari	Dr. M.Geetha
2.	Mrs.A.Josephine Carmel Rani	Dr.Nalina
3.	Mrs. Kalavathy Padmanaban	Dr.P.Priyadarshini
4.	Mrs.Kaliyaperumal Ananthi	Dr.K.priyadarshini,
5.	Mrs.Naidu Merita Mohanraj	Dr.M. Thangamani
6..	Mrs. Palaniammal	Dr.Sumathy
7.	Mrs. Princy Fernando	Dr.K. Abiramavalli
8.	Mrs..S.Jayashree	Dr.D. Shanthi Sivakumar

1.7.15

Director and Superintendent

Director and Superintendent
Institute of Obstetrics and Gynaecology and Govt. Hospital for Women and Children
EGMORE, MADRAS-8

To

The Individuals concerned

Copy to

Dr.M Geetha, Assistant Professor of O&G , IOG and Government Hospital for Women and Children, Egmore, Chennai 8

Dr.Nalina, Assistant Professor of O&G o, IOG and Government
Hospital for Women and Children, Egmore, Chennai 8

Dr.P.Priyadarshini ,

Dr.K.priyadarshini, "
Dr.M. Thangamani "
Dr.Sumathy "
Dr.K. Abiramavalli "
Dr.D. Shanthi Sivakumar "

Copy to :

The Principal, College of Nursing, Madras Medical College, Chennai 3.

The Head of Department, O&G Nursing, College of Nursing, Madras Medical College, Chennai 3.

The Resident Medical Officer, IOG and Government
Hospital for Women and Children, Egmore, Chennai 8

The Nursing Superintendent of this Hospital

Appendix D: Steps of foot spa with garlic scented mustard oil

After obtaining permission from concerned authority and informed consent from the samples, the investigator personally assess the effectiveness garlic scented mustard oil foot spa on fatigue after childbirth among postnatal mothers. It consists of following phases:

Phase-I

The investigator assesses the fatigue after childbirth among postnatal mothers using the Fatigue symptoms checklist in both experimental and control group

Phase-II

- ✠ Position the Client, Semi sitting or lying down with legs flexion however it's comfortable to the woman
- ✠ Cover the resting area of the foot with a towel/ mackintosh
- ✠ Foot bath
  - One medium size plastic basin is kept with tap water and hot water was added according to the level of heat bearing as tested by the women with her dorsal region of her hand
  - The foot is immersed above the ankle level for 10 minutes
  - The foot was removed from the basin and wiped clean with the clean towel
- ✠ Lubrication with garlic scented mustard oil
  - Preparation (prior to procedure)
    - 100ml of mustard oil (commercially available) was heated in a clean container for 2minutes in medium flame
    - Five gloves of crushed garlic without the skin were added into oil and the stove was off
    - The oil container was left for cooling. Then, only the oil is transferred to the storage bottle

- Preparation by the time the foot bath was taking place (At hospital)
    - The small steel bowl with 25 ml of garlic scented mustard oil was kept inside the medium size steel bowl with hot water and left for 2-3 minutes for the oil to warm up.

- Foot massage (for 10 to 15 minutes) :
    - The oil was applied all over the foot and applied again as needed in between as and when required in between the following steps
    - Top and bottom of the foot was rubbed with long single stroke
    - Thumb pressure was applied over sole of the foot
    - The heel of the foot was rubbed using the heel of the palm of the researcher
    - Cross fiber friction was applied on the heel of the foot
    - The area around ankle bone was massaged in a circular motion
    - The arch of the foot was massaged in a circular motion
    - The toes were massaged using the thumb and forefinger of the researcher
    - Ankle movements were done passively by the researcher
- Warm moist towel was applied for 5 minutes and the foot were wiped completely
- The articles were replaced
- Hand washing done before and after the procedure
- The mother was asked to position herself comfortably
- Post assessment was done using fatigue symptoms checklist.

Appendix E: Questionnaire and fatigue symptoms checklist (Tamil and English)

பகுதி - அ

1. மாதிரி எண் _____

2. வயது
   (அ) 21 வயதிற்கு கீழ் ( )
   (ஆ) 21 முதல் 25 வரை ( )
   (இ) 26 முதல் 30 வரை ( )
   (ஈ) 31 முதல் 35 வரை ( )
   (உ) 35 வயதிற்கு மேல் ( )

3. மதம்
   (அ) இந்து ( )
   (ஆ) கிறித்தவர் ( )
   (இ) முஸ்லிம் ( )
   (ஈ) மற்றவர், குறிப்பிடுக_____ ( )

4. கல்வி விவரம்
   (அ) படிக்காதவர் ( )
   (ஆ) ஆரம்ப நிலைக்கல்வி ( )
   (இ) மேல்நிலைக் கல்வி ( )
   (ஈ) பட்டப் படிப்பு ( )
   (உ)பட்டப் மேற்படிப்பு ( )

5. திருமண விவரம்
   (அ) திருமணமானவர் ( )
   (ஆ) பிரிந்து வாழ்பவர் ( )
   (இ) மணமுறிந்தவர் ( )
   (ஈ)கணவனை இழந்தவர் ( )
   (உ)திருமணமாகதவர் ( )

6. தொழில் விவரம்
   (அ) இல்லத்தரசி ( )
   (ஆ)சொந்த தொழில் செய்பவர் ( )
   (இ) ஆரசாங்க வேலையில் இருப்பவர் ( )

7. குடும்பத்தின் மாத வருமானம்
   (அ) ரூ 5000/- கீழ் ( )
   (ஆ) ரூ 5001 லிருந்து ரூ10,000 வரை ( )
   (இ) ரூ 10,000க்கு மேல் ( )

8. குடும்ப வகை
   (அ) தனிக் குடும்பம் ( )
   (ஆ) கூட்டுக் குடும்பம் ( )
   (இ) விரிவானக் குடும்பம் ( )

பகுதி - ஆ
(மகப்பேறு சார்ந்த தகவல்)

9. உங்களுடைய கர்ப்பத்தின் எண்ணிக்கை முறை
(அ)முதல் முறை ( )
(ஆ)ஒன்றுக்கும் மேற்ப்பட்ட, எத்தனை_____ ( )

10. உங்களுடைய கர்ப்ப காலத்தில் எடுத்துக் கொண்ட இரும்புச்சத்து மாத்திரைகள்
(அ)முப்பதிற்க்கும் குறைவாக ( )
(ஆ)முப்பதிலிருந்து அறுபதிற்குள் ( )
(இ) அறுபதிலிருந்து நூறுக்குள் ( )
(ஈ) நூறுக்கு மேல் ( )

11. கர்ப்ப காலத்தில் உடல் எடை அதிகமானது
(அ)ஆம் ( )
(ஆ)இல்லை ( )
ஆம் எனில்,அதிகமான எடையின் அளவை குறிப்பிடுக: _____கிலோ கிராம்

12. வீட்டில் நிங்கள் கவனித்துக் கொண்டிருந்த குழ்ந்தைகளின் எண்ணிக்கை
(அ)பூஜ்ஜியம் ( )
(ஆ)ஒன்று ( )
(இ) இரண்டு ( )
(ஈ)இரண்டுக்கு மேல் ( )

13. குழந்தை பிறப்பு
(அ) சுகப் பிரசவம் ( )
(ஆ)சுகப் பிரசவம், சிசுதாரை அறுவை சிகிச்சை முலம் ( )
(இ) ஆயுத முறையின் மூலம் ( )

14. பிரசவ வலி வந்ததிலிருந்து குழந்தை பிரசவிக்க ஆன நேர அளவு
(அ) 8 மணி நேரத்திற்க்குள் ( )
(ஆ) 8-12 மணி நேரத்திற்க்குள் ( )
(இ) 12 மணி நேரத்திற்க்கு மேல் ( )

15. குழந்தைக்கு தாய்ப்பால் ஊட்டிய விதம்
(அ) தானாகவே ( )
(ஆ)செவிலியரின் உதவியுடன் ( )
(இ) மருத்துவரின் உதவியுடன் ( )
(ஈ) உறவினரின் உதவியுடன் ( )

16. பிரசவத்திற்கு பின் கால அளவு
(அ) 8 மணி நேரத்திற்க்குள் ( )
(ஆ) 8-16 மணி நேரத்திற்க்குள் ( )
(இ) 16-24 மணி நேரத்திற்க்குள் ( )

17. நான் பாதத்தில் செய்யப்படும் மசாஜ் மற்றும் வெந்நிர் ஒத்தடம் (ஃபூட் ஸ்பா) முறையினால் உடல் சோர்வு குறையும் என அறிந்து இருக்கிறேன்.
(அ)ஆம் ( )
(ஆ)இல்லை ( )

ஆம் எனில், காரணம்

_____

தகவ ல் அறிந்த விதம் _-

_____

பகுதி - இ

உடல் சோர்வை அறியும் வழிமுறைகள் (ஃபூட் ஸ்பாக்கு முன் /பின்)

எண்	நிங்கள் உடல் சோர்வை உணர்ந்த விதத்தை கீழ்கண்ட வாக்கியங்களுடன் மதிப்பிடுக	எப்போதும் இல்லை	எப்போதாவது	மிதமான	அதிகமாக
நான் கீழ்க்கண்டவாறு உணர்கிறேன்		1	2	3	4
1.	தலைபாரமாக				
2.	உடல் அசதி இருப்பது போல்				
3.	கால்கள் தளர்வடைந்ததாக				
4.	கொட்டாவி வருவது போல்				
5.	எனது மூளை மந்தமாக உள்ளது போல்				
6.	தூக்கம் வருவது போல்				
7.	என் கண்கள் சோர்வடைந்தது போல்				
8.	நடக்க இயலாதது போல்				
9.	நிற்கும் போது தள்ளடுவதைப் போல				
10.	எப்போதும் படுத்துக் கொண்டே இருப்பதைப் போல				
11.	யோசிக்க முடியதாததைப் போல				
12.	பேசினால் கூட சோர்வடைவதைப் போல்				
13.	நடுக்கமாக இருப்பதைப் போல்				
14.	கவனக்குறைவாக இருப்பதைப் போல				
15.	எதிலும் ஆர்வமின்றி இருப்பதைப் போல				
16.	எளிதில் மறதி அடைவதைப் போல				
17.	தன்னம்பிக்கை குறைந்ததைப் போல				
18.	இனம் புரியாத பதற்றம் அடைவதைப் போல				
19.	எனது உடலை நேராக்க இயலாததைப் போல				
20.	பொறுமையில்லாததைப் போல				
21.	தலைவலிப்பதைப் போல				
22.	தோள்கள் இறுக்கமாக இருப்பதைப் போல				
23.	முதுகு வலிப்பதைப் போல				
24.	மூச்சு விட கடினமாக இருப்பதைப் போல				
25.	தாகமாக இருப்பதைப் போல				
26.	குரல் அடைத்ததைப் போல				
27.	இமைகளை அசைக்க இயலாததைப் போல				
28.	தலை சுற்றுவதைப் போல				
29.	கால்கள் நடுங்குவதைப் போல				
30.	உடம்புக்கு முடியாததைப் போல				

-நன்றி-

STRUCTURED KNOWLEDGE QUESTIONNAIRE

SECTION-A
SOCIO-DEMOGRAPHIC DATA

1. Sample No:_____

2. Age (years)

a. <21 ( )
b. 21-25 ( )
c. 26-30 ( )
d. 31-35 ( )
e. >36 ( )

3. Religion

a. Hindu ( )
b. Muslim ( )
c. Christian ( )
d. Other. ( )
Specify_____

4. Educational status

a. No formal education ( )
b. Primary education ( )
c. Secondary education ( )
d. Graduation ( )
e. Post Graduation & others ( )

5. Marital Status:

a. Married ( )
b. Widowed ( )
c. Separated ( )
d. Divorced ( )
e. Single ( )

6. Occupation

a. Home maker ( )
b. Self employee ( )
c. Government employee ( )

7. Monthly income of family is Rs

a. < 5,000 ( )
b. 5,000- 10, 000 ( )
c. > 10, 000 ( )

8. Type of family

a. Joint family ( )
b. Nuclear family ( )
c. Extended family ( )

SECTION-B: OBSTETRICS VARIABLES

9. Parity

a. Primi ( )
b. Multi, Specify___ ( )

10. Number of Iron tablets consumed during current pregnancy

a. <30 ( )
b. 30-60 ( )
c. 60-100 ( )
d. > 100 ( )

11. Weight gained during present pregnancy

a. Yes ( )
b. No ( )
If Yes, specify _____ Kilograms

12. Number of children you takes care at home

a. 0 ( )
b. 1 ( )
c. 2 ( )
d. >2 ( )

13. Mode of delivery

a. Natural Vaginal Delivery ( )
b. Natural Vaginal Delivery with episiotomy ( )
c. Instrumental Delivery like forceps or Vaccum ( )

14. Total duration of labor

a. <8 hours ( )
b. 8-12 hours ( )
c. >12 hours ( )

15. Post natal period (days)

a. 0-1 ( )
b. 1-2 ( )
c. 2-3 ( )

16. The baby was breast fed

a. By your own effort ( )
b. With nurse midwives support ( )
c. With doctors support ( )
d. With relatives support ( )

17. I think, foot spa reduces the fatigue

a. Yes ( )
b. No ( )

17 (a). If yes, Specify why

_____

_____

17 (b). Source of information

_____

SECTION C: FATIGUE SYMPTOMS CHECKLIST

(No Fatigue 1- 30; Mild 31 to 60; Moderate 61-90; Severe 91-120)

Please rank to what degree you are experiencing the following symptoms of fatigue by checking (√) one box in each row.	**Not at all**	**Some what**	**Moder-ately so**	**Very much so**
I FEEL…	1	2	3	4
1. That my head is heavy				
2. Tired over my whole body				
3. Tired in my legs				
4. Like yawning				
5. Like my brain is hot, muddled or foggy				
6. Drowsy				
7. Like my eyes are strained				
8. Clumsy when moving				
9. Unsteady when standing				
10. I want to lie down				
11. I cannot think				
12. I am weary of talking				
13. Nervous				
14. Unable to concentrate				
15. I am unable to take an interest in things				
16. I am apt to forget things				
17. That I lack self-confidence				
18. Anxious				
19. I am unable to straighten my posture				
20. That I have no patience				
21. Like I have a headache				
22. Stiff in the shoulders				
23. A pain in my back				
24. Like I have trouble breathing				
25. Thirsty				
26. Like my voice is husky				
27. Like I have spasms of the eyelids				
28. Dizzy				
29. Like I have tremors in my limbs				
30. Ill				

- *Thank You* -

Appendix F: Informed consent

ஆராய்ச்சி தகவல் தாள்

ஆராய்ச்சித் தலைப்பு : மகப்பேறு காலத்திற்கு பின்,
தாய்மார்களுக்கிடையே பிரசவத்தினால் ஏற்படும் உடல் சோர்வை பூண்டின் நறுமணம் கொண்ட கடுகு எண்ணையின் மூலம் பாதத்தில் செய்யப்படும் மசாஜ் மற்றும் வெந்நிர் ஒத்தடம் (ஃபூட் ஸ்பா) முறையில் குறைத்தல்.

ஆய்வாளர் பெயர் : பி.பிரின்சி பெர்னாண்டொ
பங்கேற்பாளர் பெயர் :
தேதி :
வயது/பால் :
ஆராய்ச்சிச் சேர்க்கை எண் :

நான் அரசு தாய் சேய் நல மருத்துவமனையில் மகப்பேறு பின் கவனிப்பு பிரிவுப் பகுதியில் உள்ள உள் நோயளிகளான மகப்பேறு காலத்திற்கு பின்னுள்ள தாய்மார்களை திறனாய்வு மேற்கொள்கிறேன்.

ஆய்வாளர் மேற்கொள்ளும் ஆராய்ச்சியில் பங்கேற்க யாருடைய கட்டாயமுமின்றி முழுமனதுடனும் சுயநினைவுடனும் சம்மதிக்கிறேன்.

ஆய்வாளர் மேற்கொள்ள போகும் பரிசோதனைகளை மிக தெளிவாக விளக்கிக்கூறினார்.

எனக்கு விருப்பமில்லாத பட்சத்தில் ஆராய்ச்சியிலிருந்து எந்நேரமும்விலகலாம் என்பதையும் ஆய்வாளர் மூலம்அறிந்து கொண்டேன்.

இந்த ஆராய்ச்சி ஒப்புதல் கடிதத்தில் உள்ளவிவரங்களை நன்கு புரிந்துகொண்டேன். எனது உரிமைகள்மற்றும் கடமைகள் ஆராய்ச்சியாளர் மூலம்விளக்கபட்டது.

நான் ஆராய்ச்சியாளருடன் ஒத்துழைக்க சம்மதிக்கிறேன். எனக்கு ஏதேனும் உடல்நலகுறைவு ஏற்பட்டால் ஆராய்ச்சியாளரிடம் தெரிவிப்பேன்.

நான் வேறு எந்த ஆராய்ச்சிலும் தற்சமயம் இடம்பெறவில்லை என்பதை தெரிவித்துகொள்கிறேன்.

இந்த ஆராய்ச்சியின்தகவல்களை வெளியிட சம்மதிக்கிறேன்.அப்படி வெளியிடும்போது என் அடையாளம் வெளிவராது என்பதை அறிவேன். எனக்கு இந்த ஒப்புதல் கடிதத்தின் நகல் கொடுக்கபட்டது.

_____ _____

ஆய்வாளர் கையொப்பம் பங்கேற்பாளர் கையொப்பம்

தேதி:

ஆராய்ச்சி ஒப்புதல் கடிதம்

ஆராய்ச்சி தலைப்பு : மகப்பேறு காலத்திற்கு பின், தாய்மார்களுக்கிடையே பிரசவத்தினால் ஏற்படும் உடல் சோர்வை பூண்டின் நறுமணம் கொண்ட கடுகு எண்ணையின் மூலம் பாதத்தில் செய்யப்படும் மசாஜ் மற்றும் வெந்நிர் ஒத்தடம் (ஃபூட் ஸ்பா) முறையில் குறைத்தல்.

ஆய்வாளர் பெயர் : பி.பிரின்சி பெர்னாண்டொ
பங்கேற்பாளர் பெயர் :
தேதி :
வயது/பால் :

ஆய்வாளர் மேற்கொள்ளும் ஆராய்ச்சியில் பங்கேற்க யாருடைய கட்டாயமுமின்றி முழுமனதுடனும் சம்மதிக்கலாம். இதில் பங்கேற்பதன் நோக்கம், இந்த ஆராய்ச்சியில் தகவல்களை தெரிந்து கொள்வதற்காகவும், அதனை பயன்படுத்துவதற்காக மட்டும் தான்.

இந்த ஆராய்ச்சியின் நோக்கம், மகப்பேறு காலத்திற்கு பின் பிரசவத்தினால் ஏற்படும் உடல் சோர்வை பூண்டின் நறுமணம் கொண்ட கடுகு எண்ணையின் மூலம் பாதத்தில் செய்யப்படும் மசாஜ் மற்றும் வெந்நிர் ஒத்தடம் (ஃபூட் ஸ்பா) முறையில் குறைப்பதை பற்றி ஆறிவது.

ஆராய்ச்சி மேற்க்கொள்ளும் முறை

இந்த ஆராய்ச்சியில், மகப்பேறு காலத்திற்கு பின்னுள்ள தாய்மார்களுக்கிடையே, ஆய்வாளர் தயார் செய்த கேள்வி மற்றும் உடல் சோர்வு மதிப்பிட்டு அளவின் மூலம், பூண்டின் நறுமணம் கொண்ட கடுகு எண்ணையினால் பாதத்தில் செய்யப்படும் மசாஜ் மற்றும் வெந்நிர் ஒத்தடம் தருவதின் முன்பு மற்றும் பின்பு அவருடைய உடல் சோர்வு குறைவதை ஆறிதல்.

இதனால் ஆய்வாளருக்கான பயன்

இந்த ஆய்விற்க்கு பின், மகப்பேறு காலத்திற்கு பின்னுள்ள தாய்மார்களுக்கிடையே பிரசவத்தினால் ஏற்படும் உடல் சோர்வை பூண்டின் நறுமணம் கொண்ட கடுகு எண்ணையின் மூலம் பாதத்தில் செய்யப்படும் மசாஜ் மற்றும் வெந்நிர் ஒத்தடம் (ஃபூட் ஸ்பா) முறையில் குறைத்தலை அறியலாம்.

இதனால்பங்கேற்பாளருக்கான பயன்

இந்த ஆய்வு பிரசவத்தினால் ஏற்படும் உடல் சோர்வை குறைக்கிறது.

ஆராய்ச்சியில் பங்கேற்கவில்லை என்றாலும், உங்களின் சராசரி வாழ்கைமுறை, மருத்துவரின் ஆலோசனை மற்றும் சிகிச்சை முறையில் எந்த வித மாற்றமும் ஏற்படாது என்பதை தெரிவிக்கிறேன்.

இந்த ஆராய்ச்சியில் பங்கேற்க விருப்பம்இல்லை என்றால் உங்களின் முழுமனதுடன் நீங்கள் இந்த ஆராய்ச்சியில் இருந்து விலகி கொள்ளலாம் என்பதை தெரிவிக்கிறேன்.

இந்த ஆராய்ச்சியில் உங்களின் மருத்துவதகவல்களை பாதுகாப்பாக வைத்துகொள்கிறேன் என்பதை தெரிவிக்கிறேன்.

இந்த ஆராய்ச்சியின் தகவல்களை வெளியிடும் போது, உங்களை பற்றிய அடையாளங்கள் வெளிவராது என்பதை உறுதி கூறுகிறேன்.

_____ _____

ஆய்வாளர் கையொப்பம் பங்கேற்பாளர் கையொப்பம்

தேதி:

Appendix G: Coding sheet

Demographic Variables Control Group

SI NO	Age	Religion	Education	Marriage	Employment	Monthly Income	Family
C1	b	a	c	a	a	a	B
C2	b	a	c	a	d	b	B
C3	b	a	c	a	a	b	B
C4	c	b	c	a	d	b	B
C5	c	b	d	a	a	a	B
C6	c	b	d	a	a	a	B
C7	c	a	c	a	a	a	B
C8	b	b	c	a	a	b	A
C9	a	b	c	a	a	a	B
C10	b	a	c	a	a	a	A
C11	a	a	c	a	a	b	A
C12	c	a	d	a	d	b	A
C13	c	b	c	a	a	a	A
C14	b	a	b	a	a	a	A
C15	b	a	c	a	a	b	B
C16	a	a	c	a	a	a	A
C17	d	c	c	a	a	a	B
C18	b	a	c	a	a	a	A
C19	b	a	c	a	d	a	B
C20	b	a	c	a	a	a	A
C21	c	a	d	a	a	a	B
C22	c	a	d	a	d	b	B
C23	b	a	d	a	a	b	A
C24	b	a	d	a	d	a	A
C25	b	a	c	a	a	a	B
C26	a	a	b	a	a	a	A
C27	c	a	d	a	a	b	B
C28	b	a	c	a	a	a	A
C29	b	b	d	a	d	a	B
C30	c	a	c	a	a	a	B

Obstetrical Variable -Control Group

Sl NO	Parity	No of IFA	↑ Wgt	In KG	No of Child	Deli-very	Hrs of Labor	Way of BF	No of PN hrs	Awareness Foot spa	Reason	Source
C1	b	c	a	16	b	b	b	d	b	b		
C2	a	b	a	8	a	b	c	a	b	a	Relaxes muscles	Books
C3	a	a	a	10	a	b	c	d	a	b		
C4	b	d	a	3	c	b	c	d	a	b		
C5	b	d	a	15	a	b	b	d	a	b		
C6	b	d	b		b	b	a	d	a	b		
C7	b	b	a	5	b	b	b	b	a	b		
C8	b	a	a	5	b	c	a	a	a	a	Reduces Pain	Self
C9	a	a	a	18	a	a	b	d	a	b		
C10	b	c	a	5	a	a	b	b	a	b		
C11	a	c	b		a	b	c	d	a	a	Reduces Pain	Mother in law
C12	a	b	a	11	a	b	c	b	b	a	Experience	Mother
C13	b	c	a	8	b	b	a	b	a	b		
C14	b	a	a	13	a	b	b	d	a	a		
C15	a	b	a	12	a	b	c	b	a	b		
C16	a	a	a		a	b	c	d	a	a		
C17	b	c	a		c	a	a	b	a	a		
C18	a	a	b		a	b	c	d	a	b		
C19	a	b	b		a	b	c	b	b	a	uses hot water to ease tiredness	Mother
C20	b	a	a	4	b	b	b	d	a	b		
C21	b	d	a	3	b	b	c	d	a	b		
C22	a	b	a	17	a	b	c	d	a	a	relaxation	Books
C23	a	c	a	15	a	b	c	b	a	a	Relaxes muscles	Books
C24	a	d	a	12	a	b	c	d	a	b		
C25	a	a	a	4	a	b	c	a	b	b		
C26	b	c	a	10	c	a	a	a	a	a	Experience	
C27	a	c	a	12	a	b	c	b	a	a	Experience	Mother
C28	a	a	a	4	a	b	c	d	a	b		
C29	a	d	a	8	a	b	c	b	a	a	uses hot water to ease tiredness	Mother
C30	a	b	a	7	a	b	c	IUD	a	a	Gives Relaxation	Books

Fatigue Symptoms checklist -pre test (Contrl group)																															
ITEMS	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27	C28	C29	C30
1.	4	1	4	1	1	1	4	1	2	3	1	1	4	1	1	4	2	4	4	2	4	1	3	2	3	4	4	4	2	1
2.	4	4	4	4	4	4	4	4	4	3	4	2	4	4	3	4	4	4	4	2	4	4	3	3	3	4	4	4	3	4
3.	4	4	4	4	2	4	4	4	4	3	4	4	4	4	3	4	4	4	4	2	4	4	3	4	4	4	4	4	3	4
4.	1	1	1	1	1	4	1	1	1	1	1	1	1	2	2	1	3	2	4	1	2	4	3	2	2	1	4	3	3	1
5.	4	1	2	1	1	3	3	1	4	1	4	1	4	1	2	2	1	4	4	1	4	1	2	2	2	1	1	1	1	1
6.	4	1	3	4	4	4	1	1	4	3	4	4	1	1	3	3	4	2	4	4	4	2	4	4	4	4	4	4	4	4
7.	4	4	3	4	4	4	2	4	4	2	4	4	4	4	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4
8.	4	3	4	4	3	2	4	4	3	4	3	4	4	4	3	4	2	4	4	4	4	4	4	4	4	4	4	4	4	4
9.	4	4	3	4	4	4	4	1	2	3	4	4	4	4	4	4	2	4	4	4	4	4	4	3	4	4	4	4	4	4
10.	3	4	4	4	2	4	2	1	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4
11.	4	4	2	1	1	1	2	1	1	2	1	2	1	1	2	4	2	2	4	3	4	4	4	4	2	3	1	3	3	3
12.	4	4	2	4	3	3	2	2	1	3	3	2	4	2	2	4	2	4	2	3	4	2	3	4	2	3	3	3	3	3
13.	4	4	4	4	1	4	4	3	1	4	3	4	4	4	4	4	2	4	2	4	4	3	4	4	3	3	4	3	3	4
14.	4	1	2	1	1	1	2	1	1	2	1	1	1	1	2	4	1	3	4	2	4	2	3	4	3	1	2	3	3	1
15.	4	4	2	1	1	1	2	1	4	2	1	1	2	1	1	2	1	4	3	1	4	1	3	4	4	1	2	3	2	2
16.	4	1	2	4	1	1	1	1	1	2	1	1	1	1	1	2	1	1	2	1	4	1	3	4	2	1	1	2	1	1
17.	3	1	2	1	1	4	3	2	2	2	1	1	2	1	3	1	3	1	1	4	3	1	4	4	2	2	4	3	3	3
18.	3	4	3	4	2	4	3	4	1	4	1	4	4	4	4	4	4	3	2	4	3	1	4	3	4	3	4	3	3	4
19.	3	2	4	4	2	4	4	1	2	3	1	3	4	4	3	4	2	4	4	4	3	1	4	4	4	4	4	4	4	4

Fatigue Symptoms checklist -pre test (Contrl group)																															
ITEMS	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27	C28	C29	C30
20.	1	1	2	1	1	2	1	1	1	2	3	1	3	1	2	2	3	1	3	1	1	4	4	2	2	1	4	3	1	1
21.	1	1	4	1	1	1	1	1	1	3	1	1	2	1	2	1	4	4	1	2	1	1	4	2	4	4	3	4	1	1
22.	1	1	4	4	1	1	2	3	4	2	1	1	1	4	2	2	4	3	1	2	1	1	4	3	3	4	4	3	4	4
23.	4	1	4	4	4	3	4	4	4	3	3	4	4	4	3	3	2	3	3	4	4	2	4	4	4	4	3	3	4	4
24.	4	4	2	4	1	2	2	1	1	1	1	1	4	4	1	4	4	2	3	2	4	4	2	1	1	1	1	1	1	1
25.	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	1	4	3	4	4	4	4	4	4
26.	3	4	4	2	4	4	4	4	4	3	1	4	2	4	4	4	4	4	2	4	3	4	2	3	3	3	3	4	4	4
27.	1	1	2	1	2	1	1	2	1	2	1	1	1	1	2	3	4	2	2	4	1	4	1	2	2	3	3	4	3	1
28.	1	1	2	1	1	1	1	1	1	2	3	4	2	1	1	4	3	4	2	3	1	3	1	1	1	2	3	4	4	4
29.	1	4	4	4	2	4	4	3	4	3	3	4	4	3	4	4	4	4	4	4	4	4	4	3	4	3	4	4	4	4
30.	4	4	4	4	3	4	4	3	4	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4
Total	94	78	91	85	63	84	80	65	75	79	70	77	87	79	79	97	88	97	93	88	98	80	100	95	92	87	98	101	91	88
Fatigue	S	Mod	S	Mod	Mod	Mod	Mod	Mod	Mod	Mod	Mod	Mod	Mod	Mod	Mod	S	Mod	S	S	Mod	Mod	Mod	S	S	S	Mod	S	S	S	Mod

Fatigue Symptoms checklist -post test (Control group)																															
ITEMS	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27	C28	C29	C30
1.	3	1	4	1	1	1	3	1	1	3	1	1	1	1	1	3	2	4	2	3	1	1	4	3	3	3	4	3	2	1
2.	3	4	4	4	4	4	4	4	4	4	4	2	4	4	3	4	4	4	4	3	4	3	4	3	4	3	4	3	3	4
3.	4	4	4	4	2	4	4	3	4	4	4	3	3	4	3	4	4	4	4	2	4	2	4	4	4	3	4	3	3	4
4.	1	1	1	1	1	4	1	1	1	2	1	1	2	3	2	1	3	1	2	1	1	1	3	3	2	3	4	1	3	1
5.	1	1	2	1	1	1	2	1	4	1	2	1	2	1	2	4	1	4	2	1	2	1	1	2	2	1	1	2	1	1
6.	4	4	3	4	4	4	2	2	4	4	4	4	4	4	4	4	4	2	4	4	4	4	4	4	4	3	4	4	4	4
7.	4	3	3	4	4	4	2	4	4	4	4	4	1	3	4	4	4	4	2	4	4	3	4	4	4	3	4	4	4	4
8.	1	3	3	4	2	3	4	4	2	3	4	3	4	4	3	4	2	4	4	4	4	3	4	4	4	2	4	3	4	4
9.	1	3	3	4	3	3	3	1	1	3	4	2	4	3	2	4	2	4	4	4	4	3	4	4	4	2	4	3	4	4
10.	3	4	4	4	2	4	3	2	4	4	3	4	4	4	4	4	4	4	4	4	4	3	4	4	4	3	4	3	4	4
11.	3	2	2	1	1	1	1	1	1	1	1	1	1	1	3	4	2	2	1	2	1	2	2	4	2	1	1	2	3	3
12.	1	2	2	3	2	3	2	1	1	1	2	1	1	2	3	3	2	4	1	3	2	1	2	4	2	1	3	2	3	3
13.	1	3	2	4	1	4	3	2	1	1	4	2	3	1	4	1	2	4	4	3	3	2	3	4	2	1	4	4	3	4
14.	3	1	2	1	1	1	2	1	1	1	1	1	1	1	1	3	1	3	1	2	1	1	1	4	1	1	2	2	3	1
15.	3	2	2	1	1	1	2	1	4	2	1	1	1	1	1	2	1	4	1	1	2	1	2	4	2	1	2	1	2	1
16.	1	1	1	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	4	1	1	1	1	1	1
17.	3	1	2	1	1	1	3	1	1	2	1	1	1	1	2	3	3	2	2	4	4	1	3	4	2	1	4	2	2	2
18.	1	2	2	3	2	1	2	2	1	2	1	1	4	1	1	4	4	3	4	4	4	1	3	3	3	2	4	4	2	2
19.	3	2	4	4	2	3	4	4	1	3	1	3	4	4	4	4	2	4	4	4	4	2	3	4	4	3	4	3	3	3

Fatigue Symptoms checklist -post test (Control group)																														
ITEMS	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27	C28	C29	C30
20.	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	3	2	1	1	4	1	4	2	2	1	4	1	1	1
21.	1	1	2	1	1	1	1	1	1	1	1	1	1	2	2	1	4	4	1	3	1	1	4	2	4	3	3	2	1	1
22.	1	1	4	4	1	1	2	2	4	2	1	1	1	3	3	4	4	2	4	3	1	1	4	2	4	3	4	2	2	4
23.	4	1	4	4	3	3	4	4	4	3	4	4	4	4	4	3	2	2	4	3	1	1	4	1	4	3	3	3	4	4
24.	1	2	2	3	1	2	1	1	1	1	1	1	1	1	1	2	4	1	2	1	1	1	2	1	1	1	1	1	1	1
25.	4	2	3	4	3	2	3	3	4	4	2	3	4	3	4	3	4	4	3	3	4	3	4	3	4	3	3	3	4	3
26.	4	4	3	1	4	3	3	3	4	3	1	4	1	3	4	2	2	3	4	4	4	3	2	3	3	3	3	3	3	3
27.	1	1	1	1	2	1	1	2	1	3	1	1	1	1	2	1	4	1	1	4	2	3	2	2	3	3	3	3	2	1
28.	1	1	1	1	1	4	1	1	1	2	2	2	1	1	1	3	3	4	1	3	1	2	1	1	2	1	2	2	3	3
29.	3	3	3	3	2	4	3	3	3	4	3	3	3	4	2	2	4	4	4	4	1	2	4	4	4	3	3	3	2	4
30.	4	4	4	3	3	4	3	3	4	4	3	3	4	4	4	4	4	4	4	4	4	1	4	4	4	3	4	3	3	4
Total	69	65	78	79	58	74	71	61	69	74	65	61	68	71	76	87	86	93	80	87	78	55	92	95	89	65	95	76	80	80
Fatigue	Mod	Mod	Mod	Mod	Mild	Mod	Mod	Mod	Mod	Mod	Mod	Mod	Mod	Mod	Mod	Mod	Mod	S	Mod	Mod	Mod	Mild	S	S	Mod	Mod	S	Mod	Mod	Mod

Demographic Variables **Experimental Group**

SI NO	Age	Religion	Education	Marriage	Employment	Monthly Income	Family
E1	b	d	d	a	a	b	d
E2	b	a	c	a	a	a	a
E3	a	a	b	a	a	a	a
E4	c	a	c	a	a	b	a
E5	b	a	d	a	a	b	b
E6	b	b	d	a	a	b	b
E7	a	c	c	a	a	b	a
E8	c	a	c	a	d	a	b
E9	b	c	c	a	a	a	a
E10	b	a	c	a	a	b	b
E11	a	b	c	a	a	a	a
E12	b	a	d	a	d	a	b
E13	a	a	c	a	a	a	b
E14	b	a	c	a	a	a	a
E15	b	b	c	a	a	a	a
E16	c	a	c	a	a	a	a
E17	a	c	c	a	a	a	b
E18	b	a	d	a	d	b	a
E19	b	a	c	a	a	a	b
E20	c	a	d	a	a	a	b
E21	b	a	c	a	d	b	b
E22	b	a	c	a	a	a	b
E23	b	a	d	a	a	a	b
E24	c	a	c	a	b	b	b
E25	c	b	d	a	d	a	b
E26	a	b	c	a	a	a	b
E27	c	b	d	a	d	b	a
E28	a	a	b	a	a	a	a
E29	c	b	c	a	a	a	b
E30	c	b	d	a	a	b	b

Obstetric Variable- Experimental Group												
Sl NO	Parity	No of IFA	↑ Wgt	In KG	No of Child	Deli-very	Hrs of Labor	Way of BF	No of PN hrs	Foot spa	Reason	Source
E1	a	d	a	5	A	a	b	d	a	a	Reduces pain	Husband
E2	b	d	b		B	b	a	a	a	b		
E3	b	b	b		C	b	c	a	a	a	Reduces fatigue	by self
E4	b	c	a	2	B	b	b	d	a		hot water	by self
E5	a	d	a	15	A	b	b	d	a	b		
E6	b	c	a	10	B	b	a	d	a	b		
E7	a	a	a	12	A	b	c	b	a	b		
E8	b	a	b		B	b	c	d	a	b		
E9	a	a	a	5	A	b	c	d	a	b		
E10	b	b	b		b	a	b	b	a	b		
E11	a	b	a	9	a	b	c	d	a	b		
E12	b	b	a	4	b	b	b	d	a	a	Experience	Husband
E13	a	a	a	3	a	b	c	b	a	b		
E14	a	a	a	20	a	b	c	b	a	a		Books
E15	b	a	b		b	b	b	d	a	b		
E16	b	a	b		b	a	c	b	a	b		
E17	a	b	a	6	a	b	c	b	a	a	Experience	Mother
E18	a	c	a	5	a	b	c	d	a	b		
E19	b	c	a	5	b	b	c	a	a	b		
E20	b	c	b		b	a	c	a	a	b		
E21	b	c	a	7	a	b	c	d	a	a	Reduces pain	Practice
E22	a	d	a	4	a	b	c	b	a	a	Reduces pain	Practice
E23	a	b	a	4	a	b	c	b	a	a		Friends
E24	b	a	b		b	b	a	a	a	a	Relaxation	Mother in law
E25	a	b	a	8	a	b	c	c	a	a		Mother
E26	a	b	a	2	a	b	c	b	b	a	Good	Self
E27	b	c	b		b	b	b	d	a	a	Relaxation	Friends
E28	a	b	a	5	a	b	c	d	a	a		Mother
E29	b	c	b		b	b	b	a	a	a		
E30	b	d	b		b	b	b	d	a	a	Relaxation	Books

Fatigue Symptoms checklist- Pre Test (Experimental Group)																														
ITEMS	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27	C28	C29	C30
	2	4	1	4	1	1	1	4	4	1	2	4	3	2	4	2	4	2	1	2	4	2	4	2	2	3	4	4	4	4
1.	3	4	4	4	3	4	4	1	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4	3	4	4	4	4
2.	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	3	4	4
3.	1	1	1	1	1	1	1	1	1	2	1	1	1	2	1	4	2	1	1	1	1	2	1	2	4	4	1	4	1	3
4.	3	3	1	1	1	1	1	3	3	3	4	4	1	2	3	2	3	2	2	1	1	2	1	2	3	1	1	4	1	4
5.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	2	4	4	3	4	4	4	4	4	4	4	4	4
6.	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
7.	4	4	4	1	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
8.	2	4	4	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
9.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
10.	3	4	4	1	1	1	1	4	2	2	1	2	3	2	1	2	2	2	1	3	2	4	4	1	4	4	3	4	4	4
11.	2	4	2	1	3	3	4	4	3	2	1	2	3	2	4	4	2	4	2	3	3	4	4	1	3	4	3	3	4	4
12.	4	4	4	1	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	4	3	4	4	4
13.	2	4	1	4	1	4	1	2	1	4	1	1	2	2	2	2	1	3	2	2	2	4	4	2	3	4	3	3	1	4
14.	1	3	2	4	4	1	1	2	1	4	1	2	2	1	2	2	2	3	2	2	2	4	4	2	3	4	3	3	2	4

Fatigue Symptoms checklist- Pre Test (Experimental Group)																														
ITEMS	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27	C28	C29	C30
15.	4	1	2	4	1	1	2	1	1	1	1	1	2	1	2	1	1	1	1	1	1	2	1	1	1	4	3	3	2	4
16.	1	4	1	4	1	1	1	4	2	2	1	1	4	4	4	1	2	4	4	4	3	1	1	2	4	4	3	4	3	4
17.	1	4	1	4	1	2	4	4	4	2	4	4	4	4	4	1	3	4	4	4	4	4	4	3	4	4	3	4	3	4
18.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
19.	4	1	1	1	3	1	1	1	2	2	1	4	2	4	1	1	1	1	1	2	3	1	4	1	4	4	3	1	2	4
20.	3	2	1	3	1	1	1	4	4	1	2	1	3	4	4	1	4	1	1	2	3	4	4	3	3	4	4	4	3	4
21.	4	4	1	1	2	1	1	2	1	4	4	1	4	4	4	4	4	2	4	4	4	4	4	3	4	4	4	4	4	4
22.	4	1	3	4	2	4	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
23.	1	1	4	1	2	1	1	1	1	4	1	1	2	1	2	1	4	4	1	1	2	1	4	3	1	3	1	1	1	1
24.	2	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	3	4	4
25.	4	3	4	4	4	4	4	4	4	4	1	4	2	3	2	4	4	4	4	4	4	4	4	4	4	3	4	2	4	3
26.	4	1	1	4	1	1	1	2	3	2	1	4	4	3	2	1	2	1	1	1	4	2	4	1	3	3	4	1	2	1
27.	4	4	1	4	1	1	1	4	4	4	4	4	3	3	4	4	4	4	4	2	3	2	4	2	3	3	4	1	2	1
28.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4
29.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4

Fatigue Symptoms checklist- Pre Test (Experimental Group)																														
ITEMS	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27	C28	C29	C30
Total	90	95	80	90	78	78	78	96	92	96	83	93	97	96	98	89	97	93	88	91	96	98	108	85	102	111	101	101	95	109
Fatigue	S	S	Mod	S	Mod	Mod	Mod	S	S	S	Mod	S	S	S	S	Mod	S	S	Mod	S	S	S	S	Mod	S	S	S	S	S	S

Fatigue Symptoms checklist- Post Test (Experimental Group)																														
Items	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	E13	E14	E15	E16	E17	E18	E19	E20	E21	E22	E23	E24	E25	E26	E27	E28	E29	E30
1.	2	3	1	3	1	1	1	3	2	1	2	2	2	1	2	2	2	1	1	1	2	2	2	2	1	2	3	2	2	3
2.	1	3	2	3	2	2	1	1	4	3	3	2	2	3	2	3	3	3	3	3	2	4	2	2	2	2	3	3	2	3
3.	1	1	3	1	2	2	1	1	2	3	3	1	2	2	3	3	3	1	3	1	2	2	2	2	2	2	1	3	2	1
4.	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.	1	3	1	1	1	1	1	2	2	1	1	3	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.	4	3	4	4	4	3	1	4	4	3	4	4	2	3	4	4	4	4	2	4	4	4	4	3	4	2	3	2	4	4
7.	3	3	3	3	2	3	1	4	4	3	4	3	2	1	2	4	2	4	2	4	3	2	2	3	2	2	2	1	2	2
8.	1	2	2	1	2	2	1	1	2	2	3	2	2	1	3	3	2	2	3	2	3	3	3	2	2	3	2	2	2	2
9.	1	2	2	1	3	2	1	2	3	2	3	2	2	2	3	3	2	2	2	1	3	3	3	2	2	3	2	2	2	2
10.	2	2	3	2	3	2	1	2	4	3	3	3	2	2	4	2	1	2	2	3	3	2	3	3	4	3	2	4	2	2
11.	2	1	3	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	4	1	1	1	4	1	1	1	1
12.	2	1	4	1	1	1	1	2	3	2	1	2	2	1	1	1	1	1	1	1	1	1	2	1	1	4	2	1	1	1
13.	1	1	2	1	2	2	1	2	1	2	1	2	3	2	1	2	2	1	2	1	2	1	2	1	1	4	1	1	1	1
14.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1	2	1	1
15.	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1	2	1	1
16.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1
17.	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
18.	1	1	1	3	1	1	1	1	1	1	2	2	1	1	1	1	1	1	2	2	1	1	1	1	1	2	1	1	1	1
19.	1	3	1	1	3	2	1	2	4	1	3	2	2	2	2	2	2	2	2	2	3	2	2	2	2	3	1	3	2	2
20.	1	1	1	1	2	1	1	1	1	1	1	3	1	1	1	1	1	1	2	1	1	1	1	1	1	3	1	1	1	1

Fatigue Symptoms checklist- Post Test (Experimental Group)																														
Items	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	E13	E14	E15	E16	E17	E18	E19	E20	E21	E22	E23	E24	E25	E26	E27	E28	E29	E30
21.	1	1	1	2	1	1	1	2	1	1	1	1	2	3	2	1	2	2	2	2	2	2	3	2	2	3	2	3	1	3
22.	4	1	1	1	2	1	1	1	1	3	1	1	2	2	3	3	2	2	2	2	2	3	2	3	1	3	1	2	2	2
23.	1	2	2	2	4	1	1	1	1	3	2	3	2	3	3	3	2	2	1	2	2	3	3	2	2	3	1	2	2	2
24.	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1
25.	2	2	4	3	2	3	1	3	4	3	3	3	2	3	3	2	3	2	2	3	3	3	3	3	2	2	2	2	2	2
26.	2	1	1	3	1	3	1	1	4	3	1	3	2	3	3	3	3	2	2	3	3	3	3	3	2	2	2	3	2	2
27.	1	1	1	3	1	1	1	1	2	1	1	3	1	1	2	1	1	2	1	2	1	2	1	1	1	2	2	1	1	1
28.	2	2	1	1	1	1	1	2	2	2	3	3	2	1	1	1	1	2	1	2	2	2	2	1	1	2	2	1	1	1
29.	1	1	2	2	1	1	1	1	1	2	2	2	2	2	2	1	1	2	1	2	2	1	2	2	1	2	1	2	1	1
30.	3	2	3	2	2	2	1	2	3	3	3	2	2	2	2	2	3	3	3	3	3	2	2	2	2	3	1	3	2	2
Total	47	49	57	54	52	46	30	49	63	56	58	61	51	53	58	58	52	52	50	55	58	60	58	52	47	76	46	56	46	49
Faigue	Mild	Mild	Mild	Mild	Mild	Mild	Mild	Mild	Mod	Mild	Mild	Mod	Mild	Mild	Mild	Mild	Mild	Mild	Mild	Mild	Mild	Mod	Mod	Mild	Mild	Mod	Mild	Mild	Mild	Mild

Appendix H: Certificate of English editing

CERTIFICATE

This is to certify that the dissertation work **"A study to assess the effectiveness of garlic scented mustard oil foot spa on fatigue after child birth among postnatal mothers admitted at Institute of Obstetrics and Gynaecology and Government Hospital for Women and Children, Chennai"**, done by **Ms.P.Princy Fernando,** M.Sc (N) II year student, College of Nursing, Madras Medical College, Chennai – 03 is edited for English language appropriateness.

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Date:

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