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Original Article

Journal of Nurse Midwifery and Maternal Health
Volume 1 Number 2, July - December 2015

Yoga as an Alternative Therapy for Women with Menopausal Symptoms

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Abstract

Background: Menopause is a part of every woman's life. It is the stage when the menstrual period permanently stops. This stage usually occurs between 40 and 60 years associated with hormonal, physical and psychological changes. These changes can occur gradually or abruptly and can start as early as 30 years and last until as late as 60 years. It can also occur when the ovaries are removed or stopped functioning. *Aim:* This study aimed to evaluate the effectiveness of yoga as an alternative therapy for women with menopausal symptoms. *Methods:* A prospective randomized interventional study was conducted in selected villages at Kattankulathur Block, Chennai,Tamil Nadu, India. Simple random sampling technique was used to select study participants. Of 260 menopausal women, 130 were randomly allotted to the study group and 130 to the control group. The study group received yoga training program which consists of yogasanas, pranayama (Breathing exercise) and meditation. The study group underwent yoga training for 5 consecutive days and menopausal women practiced yoga daily for 35-40mins /day along with group yoga practice 2 days in a week for 12 weeks under the supervision of Investigator. Assessments were made by five point rating scale (to assess the physical and psychological symptoms) based on Standardized Menopause Rating Scale. *Result:* After 12 weeks of yoga practice, the physical symptoms of menopausal women were reduced to greater extent in study group than in control group at p= 0.001 level of significance. There was significantly better improvement in the psychological symptoms of menopausal women in study group (p=0.001) than in control group. *Conclusion:* The present study concluded that yoga is an effective intervention in reducing the physical and psychological symptoms of menopausal women. Yoga's approach to holistic health is powerful tool for helping the women experience the passage into menopause as a positive event, both physically and spiritually.

Keywords: Menopause; Physical Symptoms; Psychological Symptoms; Yoga.

Introduction

Menopause is a natural life event. Menopause is an important period in the female life cycle. Menarche signals the passage from girl to woman whereas menopause marks a woman's passage to wise woman elder. At about 40 years, a woman's body begins to prepare for the menopausal transition. Several women have discovered this as much more than a physical transition from the childbearing to the non-child bearing years. Menopause is an

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opportunity for the fullest blossoming of a woman's power, wisdom and creativity. It is a bridge to a new phase of life when many women report feeling more confident, empowered and energized [1].

The term "menopause" is derived from the Greek word, means 'cessation of periods'. Menopause occurs due to cessation of ovarian function. Prior to cessation, there is a period of 1 or 2 years of failing or declining ovarian function which is known as climacteric or premenopausal stage. The word menopause and climacteric are used interchangeably. Climacteric also indicates a 'change of life' from reproduction to non-child bearing age. The age of menopause varies from 45 to 55 years. In some woman, it may be 51 or 52 years. Premature menopause is defined as cessation of menstruation at 35 years, which is uncommon and abnormal. Surgical menopause occurs when the uterus or the ovaries are removed or destroyed by radiation or chemotherapy. It has been reported that smokers attain menopause at an earlier age than non smokers and also in those with malnourishment [2].

The onset of menopause has been estimated to commonly occur between 45 and 55 years, with a worldwide average of about 51 years. According to the National Family Health Survey conducted in 1988 and 1999, the mean age of onset of menopause in Indian women is about 44.3 years. With the average lifespan of a woman increasing in the recent years (average life expectancy of woman in 2025 is 72 years), it can be concluded that a considerably large number of women will lead one third of their life in the postmenopausal stage. These facts necessitate a need to understand and address the concerns of the postmenopausal women in a better and sophisticated way to help such women lead a healthy and happy life [3].

As life expectancy increases, a female may expect to spend approximately one third of her life as a postmenopausal person. An estimated 42.9 million women over 50 years attained menopause in the United States (U.S) in 2000. By 2020, this number is estimated to increase to 45.9 million. At present, a 54 year woman may have the life expectancy of 84.3 years. About two third of the U.S population may have the life expectancy of ≥ 85 years. No data exist on the number of women attaining menopause in a given year. Based on the assumptions on spontaneous, premature, surgical and induced menopause, it is estimated that, approximately 4200 attain menopause per day in the United States [3,4].

A wide array of symptoms and signs are observed in women during menopause. The common symptoms associated with menopause and estrogen deficiency include: hot flushes, excessive perspiration, mood swings, depression, anxiety, insomnia, frequency of urination, nocturia, vaginal dryness, leucorrhoea, pruritis, backache, muscle weakness, joint pain, memory loss, dementia, dental problems, skin changes and hirsutism. The above symptoms are age related and aggravated by stressful life. A caring Gynecological nurse must adopt a holistic approach and tender advice regarding diet, lifestyle and relaxation techniques to alleviate menopausal symptoms. Furthermore, she should also provide a health checkup and educate these women on benefits of preventive gynecology and cancer screening and that maintenance of optimum health is very essential to maintain ones physical independence and to avoid becoming a burden to the family [5,6].

Bachmann reported that, vasomotor symptoms are the most common medical complaint of perimenopausal and postmenopausal women. Frequent vasomotor symptoms can be disabling, affecting a woman's social life, psychological health, sense of well-being and working ability. Women with hot flushes are more likely to experience disturbed sleep, depressive symptoms and significant reduction in quality of life as compared to asymptomatic women. Despite the prevalence and impact of these symptoms, the pathophysiology of hot flushes is unclear; however, estrogen withdrawal seems to play an important role. It is postulated that declined estrogen concentration may lead to changes in brain neurotransmitters and instability in the hypothalamic thermoregulatory center. The most effective therapy for relieving vasomotor symptoms and reducing their impact on quality of life is hormone therapy. Alternative therapies for those who decline hormone therapy include selective serotonin reuptake inhibitors and related agents. Most herbal therapies evaluated in placebo-controlled trials have shown no clinically significant benefit [7].

Yoga is an original and ancient holistic art of living that includes physical, mental, moral and spiritual spheres. Yoga is not a religion but rather a philosophy of living. Yogic life style is a way of living, which aims to improve the body, mind and day to day life of individuals. Patanjali muni , the founder of yoga described eight limbs of yoga such as Yama, Niyama, Asana, Pranayama, Pratyahar, Dharana, Dhyana and Samadhi as a practical way to evolve mind, body and spirit to achieve balance and harmony. Over the last few years, yoga has spread all over world and has been studied so as to help people to cope with various health conditions including menopause. The most commonly performed yoga practices are postures, controlled

breathing (pranayama), and meditation(dhyana) [8,9].

Yoga stretches can benefit both the body and mind, bringing energy and balance. This is particularly helpful to women who are currently in menopause or in menopause transition because their hormonal levels and body chemistry may be fluctuating rapidly. Yoga exercises level out this physiological instability by relaxing and gently stretching every muscle in the body, promoting better blood circulation and oxygenation to all cells and tissues. This helps to optimize the function of the endocrine glands and the organs of the female reproductive tract. Yoga exercises also improve the health and overall well being [10,11,12].

Achieving hormonal balance during the menopausal years is essential for good health. Yoga has several benefits when compared to other physical exercises and yoga postures and breathing practices are not only effective on the muscles and bones, but also on the organs and glands. Practicing yoga can help prevent or reduce the common symptoms that affect women particularly during the menopausal years and improve the overall wellbeing. In addition, it is important to consider that all menopausal symptoms are inter related, and practicing yoga reduces the unpleasant effect of one symptom generally leading to better health. Every pose has a multitude of effects on all the systems of the body [1].

The present study aims to evaluate the effectiveness of yoga as an alternative therapy for women with menopausal symptoms in selected villages, Kattankulathur Block, Chennai. Tamil Nadu.

Methodology

A prospective randomized interventional study was conducted in selected villages at Kattankulathur Block, Chennai, Tamilnadu, India covering 39 villages with a population of 2,18,000. Simple random sampling technique [13,14] was used to select the study participants. At first stage , 10 villages were selected using lottery method. During the second stage of sampling, the address list of all the women aged between 45-55 years was obtained from Primary Health Centre (PHC). In the third stage, out of established list, women with stressful physical and psychological symptoms were selected randomly by lottery method. Of 260 menopausal women, 130 of them were allotted to study group and 130 to the control group. Inclusion criteria for sample selection includes women who attained permanent cessation of menstruation, women with age group of 45-55 years and those with physical and psychological symptoms such as hot flushes, sweating, insomnia, anxiety and depression. Exclusion criteria includes women with gynecological problems(fibroid uterus, dysfunctional uterine bleeding, prolapsed uterus), those on hormone replacement therapy and on medical treatment for relieving menopausal symptoms.

Ethical Consideration

Formal approval was obtained from the Institutional review board and Institutional ethical committee of SRM University, Kattankulathur, Chennai, Tamil Nadu, India. Both written and verbal information were provided to the study participants in their local language. Women were requested to participate voluntarily in the study. Thorough explanation was provided on the objectives, practices, goodness, problems and time period involved in practice. In addition, they were informed of their right to withdraw at anytime during the course of the study.

Data Collection Instruments

The questionnaire for present research study comprised of three sections. Section I pertained information regarding demographic data like age, religion, marital status etc. Section II comprised of five point rating scale to assess the physical symptoms of menopausal women based on Standardized Menopause Rating scale(MRS) [15]. Section III included five point rating scale to assess the psychological symptoms of menopausal women based on Standardized Menopause Rating scale(MRS) [15].

Five point rating scale consists of 20 items pertaining to physical as well as psychological symptoms of menopausal women with a severity ranging from 0-4 (0-No symptoms, 1–mild symptoms, 2-moderate symptoms, 3-severe symptoms, 4–very severe symptom). The participants were asked to indicate the level of severity of symptoms in the scale provided. The reliability of the tool was obtained by test-retest method and a reliability coefficient of 0.76 and 0.77 was found to be statistically significant for physical and psychological symptoms respectively.

Yoga Intervention

The study group received yoga training programme under the trained yoga Instructor

(Investigator). The yoga programme comprised the following:

i. Yogasanas (Tadasana, Ardhakati chakrasan, Badrasana, Paschimothasana, Bhujangasana, Ardha Salabhasana, Ardhahalasana and Shavasana) for 5 times for 25- 30 mins.

ii. Pranayama Breathing exercises (Nadhisodhana pranayama and Sitali Pranayama) were repeated 8-10 times for 5- 10 mins.

iii. Om Meditation: Women were asked to chant Om during meditation for 5-10 mins. It is believed to contain cosmic energy that helps to relieve a person's individual suffering. It also helps to enhance memory function, better interpersonal relationships, more restful sleep and significant stress reduction.

Initially, intensive training on steps of yoga was taught to menopausal women in study group for 5 consecutive days for 1½ hours per day by Investigator. After the 5 days intensive yoga training , the menopausal women practiced yoga at home on their own for 35-40 mins a day and they practiced group yoga for 2 days in a week under the supervision of investigator till 12 weeks. The investigator distributed instructional manual on steps of selected yoga practice for their self reference at home after the 5 days continuous yoga practice. Daily yoga practice diary was used to verify the regular performance of yoga by the menopausal women. The menopausal women in the control group did not participate in the yoga programme. But, after the course of the study, they also have been given with intensive yoga training for 5 days by the Investigator.

Statistical Package

Statistical Package for Social Sciences (SPSS) version 16 (IBM, Chicago, USA), and Instat were used for data analysis. Independent 't' test was used for comparison of values of the study and control groups. P value less than 0.05 was considered statistically significant.

Results

Of 260 participants, 2 in the study group and 4 in the control group withdrew from the study due to change of residency, family functions and illness. Data analysis was done for remaining 254 participants (128 in the study group and 126 in control group) .

The baseline values were not significantly different between the study and control groups for all the demographic variables including age (p=0.94), religion (p=0.74), marital status (p=0.91), type of family (p=0.67), availability of support system (p=0.52) , age of menarche (p=0.40) and parity (p=0.47).

Regarding the physical symptoms of menopausal women, most of the participants 88(68.8%) in the study group had severe physical symptoms in the pretest, where as in the post test, maximum of them 75(58.6%) had mild symptoms after 12 weeks of yoga practice. However, in the control group, 75(59.5%) of them had severe symptoms in pre test and 77(61.1%) of menopausal women had severe symptoms in the post test (Table 2).

The baseline physical symptoms were not significantly different between both the groups (p=0.36). After 12 weeks of yoga practice, the 't' value was 18.53 which was extremely significant at p=0.001 level (Table.3).

It is inferred from the table 4 that, 77 women (60.2%) in study group had severe psychological symptoms in the pre test , but in the post test , moderate symptoms were seen in 68(53.1%) in the study group, where as in control group, 72(57.1%) and 74(58.7%) had severe symptoms in pretest and post tests respectively (Table. 4).

As shown in Table 5, there was no statistically significant difference in the baseline values of psychological symptoms of menopausal women in study and control groups (p=0.89). However in the

Table 1: Demographic Variables of Menopausal Women N=254

Demographic Variables	Study group (n=128)		Control group (n=126)		P value
	n	%	n	%	
Age (mean±SD)	49.42±2.71		49.41±2.70		$x2$=0.38
Religion					p=0.94
Hindu	87	68	80	63.5	
Muslim	18	14	21	16.7	$x2$=0.59
Christian	23	18	25	19.8	p=0.74
Marital status					
Married	91	71.1	88	69.8	
Separated	13	10.1	13	10.3	$x2$=0.55
Widow	12	9.4	15	11.9	p=0.91
Single	12	9.4	10	8	

Type of family					
Joint family	43	33.6	36	28.6	$x2$=0.79
Nuclear family	80	62.5	84	66.7	p=0.67
Extended family	5	3.9	6	4.8	
Availability of support system					
Self group	36	28.1	29	23.0	
Friends	29	22.6	24	19.0	$x2$=2.27
Relatives	55	43.0	66	52.4	p=0.52
Others	8	6.3	7	5.6	
Age of menarche (mean±SD)	13.19±1.95		13.37±2.01		$x2$=1.83 p=0.40
Parity					
Nullipara	5	3.9	4	3.2	
Primipara	54	42.2	64	50.8	$x2$=2.71
Multipara	62	48.4	49	38.9	p=0.47
Grand multipara	7	5.5	9	7.1	

Table 2: Frequency and percentage distribution of physical symptoms of menopausal women in the study and control group N=254

Physical symptoms	**Study group(n=128)**		**Control group(n=126)**	
	n	**%**	**n**	**%**
Pre test				
No symptoms	-	-	-	-
Mild	-	-	-	-
Moderate	24	18.7	35	27.8
Severe	88	68.8	75	59.5
Very severe	16	12.5	16	12.7
Post test				
No symptoms	-	-	-	-
Mild	75	58.6	-	-
Moderate	53	41.4	33	26.2
Severe	-	-	77	61.1
Very severe	-	-	16	12.7

Table 3: Comparison of pre test and post test mean and standard deviation of physical symptoms of menopausal women between the study group and control group N=254

Physical symptoms	**Study group (n=128) Mean±SD**	**Control group (n=126) Mean±SD**	**Student's Independent 't' test**
Pre test	47.75±13.13	46.13±12.56	t=1.01 p= 0.36 df=252
Post test	20.89±8.53	47.15±13.53	**t=18.53 p=0.001*** df=252**

*** Extremely high significance at Pd"0.001

Table 4: Frequency and percentage distribution of psychological symptoms of menopausal women in the study and control group N=254

Psychological symptoms	**Study group(n=128)**		**Control group(n=126)**	
	n	**%**	**n**	**%**
Pre test				
No symptoms	-	-	-	-
Mild	-	-	-	-
Moderate	51	39.8	54	42.9
Severe	77	60.2	72	57.1
Very severe	-	-	-	-
Post test				
No symptoms	-	-	-	-
Mild	48	37.5	-	-
Moderate	68	53.1	52	41.3
Severe	12	9.4	74	58.7
Very severe	-	-	-	-

Table 5: Comparison of pre test and post test mean and standard deviation of psychological symptoms of menopausal women between the study group and control group N=254

Psychological symptoms	Study group (n=128) Mean±SD	Control group (n=126) Mean±SD	Student's Independent 't' test
Pre test	42.79±10.04	42.95±9.50	t=0.13 p=0.89 df=252
Post test	26.98±11.35	43.21±9.42	**t=12.38 p=0.001*** df=252**

*** Extremely high significance at Pd"0.001

post test, the 't' value was 12.38 at a extremely significant value of p=0.001.

Discussion

Menopause is an opportunity for the fullest blossoming of a woman's power, wisdom and creativity. It is a bridge to a new phase of life when many women report feeling more confident, empowered and energized. Menopause is a metamorphosis, a complete change at the cellular level. The spiritual science of yoga recognizes that equilibrium in the physical body helps bring emotional balance and mental clarity. Yoga supports a new archetype that depicts older women as wise, strong , healthy and intuitive [1].

In this present study, the comparison of psychological symptoms of menopausal women between the groups showed that physical symptoms and psychological symptoms of menopausal women were assessed. In the study group, most of the participants 88(68.7%) had severe physical symptoms in the pretest, whereas, it was greatly reduced to mild symptoms and no one had severe symptoms in the post test. After 12 weeks of yoga practice, the physical symptoms of menopausal women were reduced to greater extent in study group than in control group at p=0.001 level of significance. The menopausal women in the study group had 33.6% reduction of physical symptoms from the baseline values.

The study findings are consistent with those of *Joshi S and Khandwe R* , on effectiveness of yoga on menopausal women. Menopause Rating Scale was used for assessing the menopausal symptoms. The study group performed yoga (asanas, meditation and pranayam) under supervision for 3 months. They are compared with control group with no yoga practice. The findings showed a reduction in score which was statistically significant. The study concluded that, yoga is effective in reducing menopausal symptoms [16].

Afonso et al, conducted a randomized clinical trial on efficacy of yoga in decreasing insomnia in postmenopausal women. Postmenopausal women not undergoing hormone therapy, who were 50-65 years old, who had an apnea-hypopnea index less than 15, and who had a diagnosis of insomnia were randomly assigned to one of three groups as follows: control, passive stretching and yoga. Questionnaire were administered before and four months after intervention to evaluate quality of life, anxiety, and depression symptoms. Climacteric symptoms, insomnia severity, day time sleepiness and stress. The reduction in insomnia severity in the yoga group was significantly higher than that in the control and passive stretching groups. The study concluded that, yoga might be effective in reducing insomnia and menopausal symptoms as well as improving quality of life in postmenopausal women with insomnia[17].

The comparison of psychological symptoms of menopausal women between the groups showed that, there was significantly better improvement in the psychological symptoms of menopausal women in study group (p=0.001) than in control group. The psychological symptoms were decreased to 19.8% from the pre test in study group after the practice of yoga for 12 weeks.

The study findings were consistent with the study conducted by *Mouloud Agajani Delavar* on probable effect of yoga on menopausal syndromes. A total of 47 post menopausal women aged 45–63 years participated in a 12-week restorative yoga intervention. Assessments were administered before intervention at 4, 8, and 12 weeks of yoga program. Post-treatment measure included 20-item checklist that embedded menopause symptoms within a list of every day complaints experienced at 2 weeks before interview. Questions were scored on a scale of 0–3 depending on the effect of yoga in these women. Breathing exercises, postures, and relaxation poses designed specifically for menopausal women were taught by a certified yoga teacher. Significant pre- to post-treatment improvement was analyzed for total scores on menopause questionnaire. There was

significant effect on mean hot flush score. No adverse events were observed. The results suggested that yoga is powerful technique that can help menopausal women accept and nourish the inevitable change of life [18].

Yoga helps to modulate mood swings and reduce depression and anxiety by helping to balance a woman's changing hormones. Many symptoms commonly associated with menopause such as irritability, depression, and pains are intensified by the inability to cope with stress. Regular yoga practice on relaxing and restorative poses helps to ease these symptoms. Furthermore, yoga practice gives the opportunity to eliminate mental and emotional debris that is considered the root cause of several problems associated with menopause.

These results were consistent with the study findings of *Booth-LaForcea* on assessment of feasibility and efficacy of a yoga treatment for menopausal symptoms. The study included 12 peri- and post-menopausal women experiencing at least 4 menopausal hot flashes per day, for about 4 days per week. Assessments were administered before and after completion of a 10-week yoga program. Pre- and post-treatment measures included: Severity of questionnaire-rated menopausal symptoms (Wiklund Symptom Check List), frequency, duration, and severity of hot flashes (24-h ambulatory skin-conductance monitoring; hot-flash diary), interference of hot flashes with daily life (Hot Flash Related Daily Interference Scale), and subjective sleep quality (Pittsburgh Sleep Quality Index). Yoga classes included breathing techniques, postures, and relaxation poses designed specifically for menopausal symptoms. Participants were asked to practice at home 15 min each day in addition to weekly classes. Significant pre- to post-treatment improvements were found for severity of questionnaire-rated total menopausal symptoms, hot-flash daily interference; and sleep efficiency, disturbances, and quality. The yoga treatment and study procedures were feasible for midlife women [19].

Yoga has been used as a tool for physical, emotional and spiritual health for thousands of years. For women at midlife and beyond, yoga offers a primary form of menopause medicine that can help them cope with a wide range of symptoms without negative side effects. The yogic practices that support good health as a woman's body moves through menopause also help her to make the most of her passage into the wisdom years.

Conclusion

Thus, the present study has shown that, yoga practice for 12 weeks reduced the physical symptoms and psychological symptoms of menopausal women. Moreover, it concluded that, yoga is an enjoyable alternative exercise in reducing the physical and psychological symptoms of menopausal women. Women who regularly practice yoga find that they are able to enjoy menopause and experience the freedom, liberation and energy that it brings. This study suggests that, yoga can be considered as a complimentary therapy or an alternative method for treating menopausal symptoms.

Implications for Practice

- Yoga is a non-pharmacological intervention in treating the physical and psychological symptoms of menopause.
- Menopausal transition will be easier for the women who practice yoga regularly.
- Nurses in the community play a vital role in disseminating evidence based complimentary therapy to help the menopausal women in alleviating their problems. Evidence-based practice can facilitate quality improvement of women's health.
- Yoga can be preliminarily recommended as an additional intervention for women who suffer from psychological complaints associated with menopause.
- Yoga is popular as a complementary and alternative therapy which can be added to the scientific evidence so that gynaecologists can recommend it to their patients instead of prescribing hormone therapy.

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Original Article

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Learning Needs of Antenatal Mothers in a Selected Tertiary Care Hospital, South India

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Abstract

Antenatal period is a time when the women are receptive to teaching and learning related to self care. *Objectives:* The purpose of the study is to assess the learning needs of the antenatal mothers, and are assessed in terms of knowledge, self-care practice and perceived learning needs of the mothers. *Methods:* Cross-sectional exploratory survey was done among 150 antenatal mothers (50 mothers from each trimester) attending department of a selected tertiary care hospital. The data were collected using knowledge questionnaire, practice checklist and a questionnaire to assess the perceived learning needs. Both descriptive and inferential statistical methods were used to analyse the data. *Results:* The findings of the study revealed that 4.7% of mothers had good, 54% had average and 41.3% had poor level of knowledge. The mean score of antenatal care was 16.2$\pm$3.97 (54%). The mean score was lowest in the area of diet (51.27%). The mothers of third trimester had significantly higher knowledge than other two trimesters. The self care practice was good among 136(90.67%) antenatal mothers and was average among 14 (9.33%) antenatal mothers. The mean self care practice score of antenatal mothers were 12.37$\pm$3.09(82.47%). Scores were less in the area of exercise (62.3%). Majority of mothers perceived learning needs on diet and exercise (90%) followed by other areas. *Conclusion:* The result of the study showed that knowledge of antenatal mothers are inadequate. Though majority of mothers scored good in the self care practice, it was inadequate in the area of exercise and diet. This suggests that an education program should be conducted among antenatal mothers on antenatal care based on their learning needs to increase the knowledge and practice on antenatal care. This helps to promote a healthy pregnancy and fetal outcome.

Keywords: Self Care Practice; Learning Needs; Knowledge, Antenatal Mothers.

Introduction

Pregnancy is a normal physiological process. Most of the pregnancies progress normally and follows an uneventful course. Unless and until complicated by any medical or obstetrical condition it does not require much care by health care professionals. Antenatal care involves systematic assessment and monitoring of the pregnant women and appropriate antenatal advices. As the women spend pregnancy at home they need to have adequate knowledge regarding their self-care.

Antenatal education is one of the important role of a nurse in antenatal care and it extends from

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teaching on antenatal care to preparation for parenthood. All expectant mothers should be helped to prepare for birth and parenthood. Information technology and social networking are changing how new mothers learn and prepare for what will be the most significant change in their life. Expectant parents want information about the many topics related to pregnancy, childbirth and early parenting and they want support from other people like themselves and health professionals. The evidence suggests that, if done well, antenatal education and preparation for parenthood can bring increased satisfaction with the experience of giving birth improved maternal health behaviours, such as reduction in smoking and alcohol consumption during pregnancy and increased rate of breastfeeding.

A cross-sectional study was conducted in multiple primary health care centres in Riyadh city, Saudi Arabia to assess the antenatal knowledge, describe the learning needs and preferred information seeking behaviour of expecting and/or new mothers. The study was conducted in a random sample of 468 eligible new and expecting mothers. The result shows that the mean antenatal knowledge score was low (34.8/100). Educational material in written format was preferred by 39.8% of the sample, followed by a preference for one to one education (18.8%). Preferred educational strategies were motivation and support, guidance, problem solving, and dos and don'ts. Selected content ranged from identifying pregnancy symptoms, to post-partum care [1]. Another descriptive study on the awareness regarding antenatal investigations among 180 antenatal mothers found that the awareness was poor in 61% and the mean score was 34.46% [2]. Most of the studies conducted on the knowledge of antenatal mothers reveal inadequate knowledge and need for antenatal education [3,4].

Educational interventions developed for any group would be more effective when it is based on their specific learning needs. The present was a part of an initiative to develop an educational package on antenatal care specific to the learning needs of antenatal mothers in a selected tertiary care hospital in South India. The objectives of the study were to assess the knowledge on antenatal care, determine the self care practices and identify the perceived learning needs among antenatal mothers.

Methods

A cross sectional approach with explorative survey design was used for the study. The sample consists of 150 antenatal mothers attending the outpatient department of a selected tertiary care hospital in Kerala, South India. Quota sampling technique was used to select 150 antenatal mothers (50 each from first, second and third trimester). Ethical clearance was obtained from the thesis review board of the institution. Participation was based on willingness and informed consent was obtained prior to data collection. Background information was collected using semi-structured interview. A semi-structured questionnaire was used to assess the knowledge on antenatal care and a checklist was used to identify the self-care practice**.** In order to assess the perceived learning needs an open ended questionnaire as well as a checklist were used. Data was analysed using appropriate descriptive and inferential statistical methods.

Results

Results of the study are presented as three sections; background data, knowledge, practice, perceived learning needs.

Section 1. Background Data

Section 2. Knowledge on Antenatal Care

The knowledge regarding antenatal care was average among 81(54%) antenatal mothers and poor among 62 (41.3%) antenatal mothers. Only seven (4.7%) antenatal mothers had good level of knowledge (Figure 1).

The mother's knowledge and interest in self-care may be reflected in their knowledge of their own health status. Distribution of antenatal mothers based on awareness regarding own health presented in table 2 shows that majority of the antenatal mothers were aware of their own blood group, body weight and blood pressure. But only 38.7% were aware of their haemoglobin level.

The mean knowledge score of antenatal care 16.2±3.97 (54%). The mean score was less than 60% in all the specific areas except minor ailments (Table 3). The mean score was lowest in the area of diet (51.27%).

Comparison of knowledge score between different trimesters shows that mothers in the third trimester have significant higher score than other trimesters (table 4).

Section 3: Self-care Practice

The self care practice was good among 136 (90.67%) antenatal mothers and was average among 14 (9.33%) antenatal mothers (Figure 2).

The mean self care practice score of antenatal mothers were 12.37±3.09 (82.47%). Exercise (62%) and diet (74.67%) were the areas where the mothers scored less (Table 5). No significant difference was found in the self-care practice score between different trimesters (Table 6).

Section 4: Learning Needs

Exercise and diet were areas of learning needs expressed by more than 90% of the mothers (Figure 3). More than 70% expressed need for learning in labour, fetal wellbeing and newborn care.

Section 4: Correlation between Knowledge and Practice

There was no significant correlation between knowledge and practice (Figure 4) and the Pearson's correlation coefficient calculated was 0.019.

Section 5: Association of knowledge and self care practices with selected demographic variables.

No significant association was found between knowledge and practice with selected demographic variables.

Table 1: Distribution of the antenatal mothers based on demographic characteristics n= 150

Demographic variables	Frequency	Percentage
1 Age		
a. 18-25 years	67	44.7
b. b-33 years	65	13.3
c. 34-41 years	18	12
2. Education		
a. Secondary/higher secondary	52	34.7
b. Graduate/post graduate	98	65.3
3.Employed		
a. Yes	127	84.7
b. No	23	15.3
4.Order of Pregnancy		
a. Primi	84	56
b. Multi	66	44

Fig. 1: Distribution of antenatal mothers based on Knowledge on antenatal care

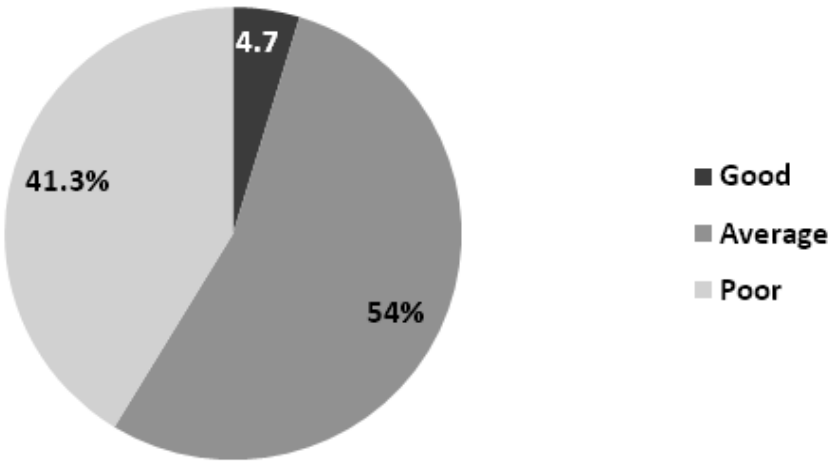


Table 2: Distribution of antenatal mothers based on awareness regarding own health

	Variables	Frequency	Percentage
a.	Blood Group	148	98.7
b.	Height	93	62
c.	Weight in First visit	122	81.3
d.	Present body weight	144	96
e.	Haemoglobin Level	58	38.7
f.	Blood Pressure	136	90.7

Table 3: Range, mean and standard deviation of knowledge score of antenatal mothers n=150

Specific areas of Knowledge	Maximum score	Range	Mean and SD	Mean score (%)
General	4	2 (1 -3)	2.12±0.79	53
Exercise	5	4(1 -5)	2.66±1.13	53.2
Fetal wellbeing	5	4(1 -5)	2.89±1.05	57.8
Diet	11	9(1 -10)	5.64±2.04	51.27
Minor ailments	5	4(1 -5)	3±1	60
Total	30	21(7 -28)	16.2±3.97	54

Table 4: Comparison of knowledge on antenatal care among antenatal mothers in first, second and third trimester calculated using One way ANOVA n=150

Trimester	Range	Mean and SD	Mean score (%)	F value	P value
First trimester	21(7 -26)	15.63 ± 4.13	52.1	9.356	< 0.001
Second trimester	17(7 -24)	14.98 ± 3.68	49.93		
Third trimester	16(12 -28)	18.08 ± 3.46	60.27		

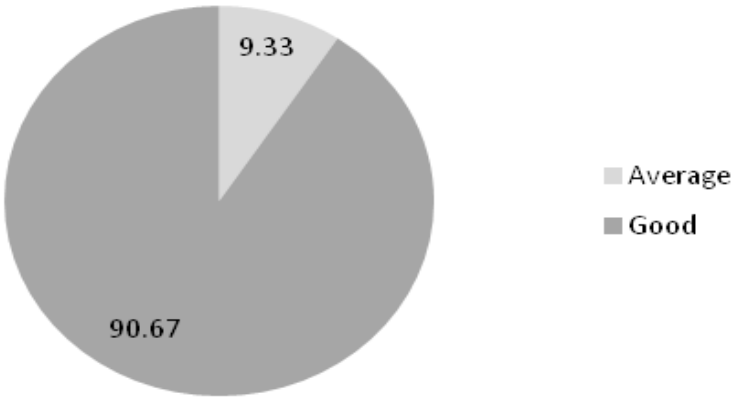


Fig. 2: Distribution of antenatal mothers based on Self care practice

Table 5: Range, mean, standard deviation of self care practice score of antenatal mothers n=150

Specific areas of practice	Maximum score	Range	Mean and Standard deviation	Mean score (%)
Hygiene	2	1(1-2)	1.82±0.39	91
Medication	2	1(1-2)	1.73±0.48	86.5
Clothing	3	1(1-2)	2.86±0.35	95.3
Exercise and Physical activity	3	1(1-3)	1.87±0.75	62.3
Diet	3	2(1-3)	2.24±0.77	74.67
Antenatal check up	2	1(1-2)	1.85±0.35	92.5
Total	15	8(7-15)	12.37 ±3.09	82.47

Table 6: Comparison of self care practice score care among antenatal mothers between first, second and third trimester calculated using One way ANOVA

Trimester	Mean and SD	Mean score (%)	F value	P value
First trimester	12.25 ±1.57	24.5	2.59	.078
Second trimester	12.22 ±1.48	24.44		
Third trimester	12.82 ±1.32	25.64		

Fig. 3: Distribution of antenatal mothers according to the learning needs

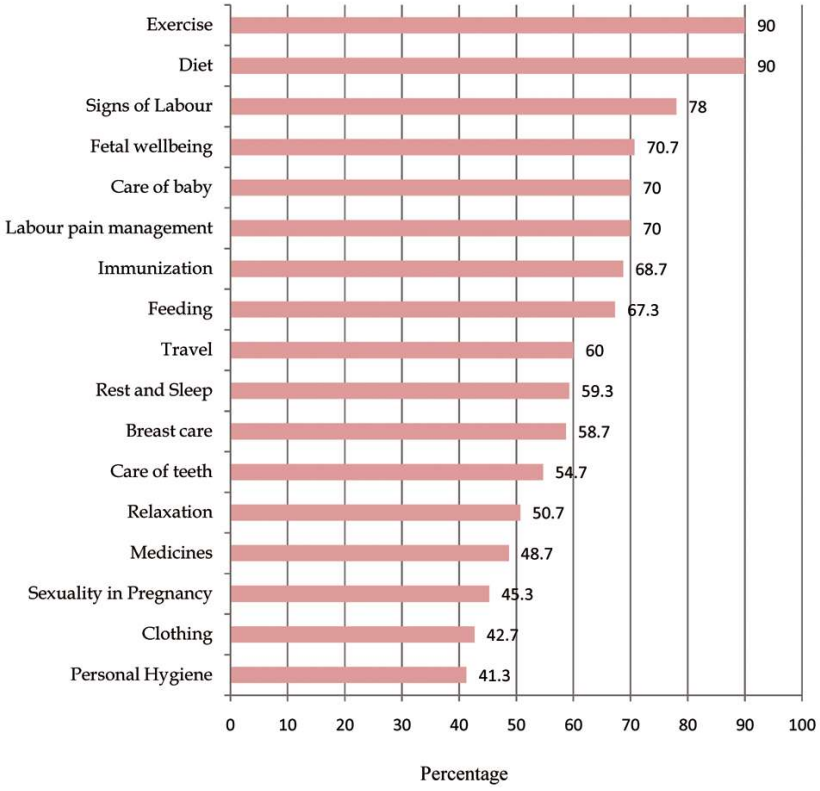
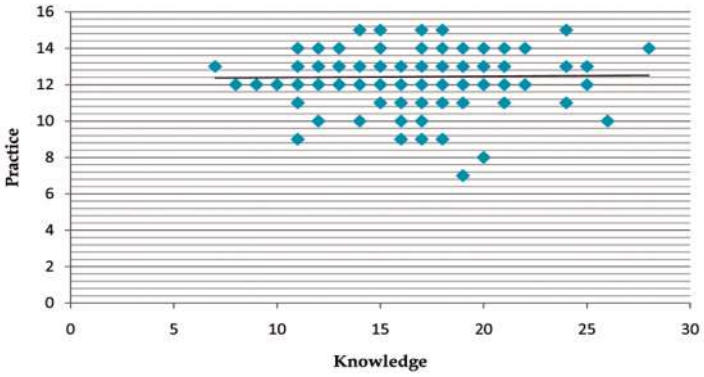


Fig. 4: Scatter diagram between knowledge and practice.



Discussion

Result of the study shows that knowledge regarding antenatal care is inadequate in majority of the antenatal mothers. The mean knowledge score is less than 54% and it is less than 60% in all the specific areas. The knowledge score was least in exercise followed by diet. Mothers in the third trimester have a significantly higher knowledge score than mothers in other trimesters. Self-care practice was good in 90.67% of antenatal mothers and the mean practice score was 82.47%. Exercise and diet were the areas where the mothers scored least in self-care practice

and score was high in areas like antenatal check up, clothing, medication and hygiene. Exercise, diet, labour, fetal wellbeing and newborn care were areas of learning needs expressed by more than 90% of the mothers.

Research studies conducted on the knowledge regarding antenatal care also finds it inadequate in majority of the women[1,2,5]. The practice of antennal care varied among different populations of antenatal mothers[6,7]. Educational interventions are found to be effective in improving the knowledge and practice of antennal care [8,9]. Above findings reveals that need for learning among antenatal mothers. The knowledge and practice related diet and exercise was less compared to other areas. The mothers expressed perceived learning needs also in this area. So these areas need be given more emphasis.

As per the result of the study there is no significant correlation between knowledge and practice. So improving the knowledge alone may not lead to improved outcome. The educational interventions should have motivational components also to improve the practice. The aim of the present study was to develop an educational package based of the specific learning needs of the antenatal mothers. The findings of the study suggest the areas to be emphasized in antenatal education.

The present study was conducted in a tertiary care hospital in Kerala, South India. The study provides data to meet the specific learning needs of the above setting. As setting of the study is limited it cannot be generalized to other settings.

Conflict of Interest

None

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Original Article

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Prophetic Utterance of Risk Factors for Pre-Eclampsia in at risk Primigravid Mothers

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Abstract

Introduction: Pre-eclampsia represents a major cause of maternal morbidity and morbidity in many parts of the world. *Objective:* To assess the prevalence of pre-eclampsia among at risk primi gravid mothers. *Methods:* A prospective longitudinal observational research design was used.120 at risk primigravid mothers for pre-eclampsia, who fulfilled the inclusion criteria, were selected by proportionate stratified random sampling. *Results:* It was observed that 31(30%) out of 103 of the at risk primigravid mothers developed preeclampsia. 11(33%) out of 33 mothers in Group A (age < 18 years), 10(28.5%) out of 35 mothers in Group B (age>30 years) and Group C (mothers with pre-pregnancy BMI>27.5 (obese) developed preeclampsia. Mothers of age > 30 years in group B developed severe pre-eclamptic features as early as 24 weeks of gestation. Educational qualification and socio-economic status was found to have statistical significant association with the level of pre-eclampsia at $p<0.05$ level. *Conclusion:* The underlying evidence base of the at risk factors in the study could be targeted at booking, so that a suitable surveillance and prophylactic strategies for pre-eclampsia could be developed.

Keywords: Clinical Parameters; Pre-Eclampsia; PrimiGravid Mothers; Prevalence; Risk factors.

Introduction

Hypertension is the most common medical problem encountered during pregnancy. Pre eclampsiais a multi system disorder, clinically determined by identification of hypertension and proteinuria,in previously normotensive women after 20 weeks of gestation. Pre-eclampsia may be mild or severe, (Dutta 2004) [1] and associated with edema when left untreated, it could progress to eclampsia, thereby resulting in life threatening convulsions or coma.

Pre-eclampsia, which affects 5%–10% of pregnancies, is a common obstetric complication, leading to maternal and prenatal morbidity and mortality in both developed and developing countries. The prevalence of PE in developing countries has been estimated as 1.8%–16.7%, with at least 16% of maternal deaths [2].

World Health Organization estimates the incidence of new cases of pre-eclampsiato be seven times higher in developing countries (2.8% of live births) than in developed countries (0.4%). (KayodeO.et al, 2011), Understanding the mechanism of pre-eclampsia as

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well as assessing early risks is stilla major challenge. According to KaajaR (2008) risk factors of pre-eclampsia include nulliparity, history of pre-eclampsia, pre-existing diabetes, increased body mass index (BMI), increased maternal age, adolescent pregnancy and low socioeconomic status.

However, the prevalence is commonly cited to be about 7.0 % in nulliparous women, termed as disease of first pregnancy.(Roberts,2008) Funai et al. (2005) found that pre-eclampsiais found to be 2.5% more in first births compared with all later birth order groups.

Study results have been consistent across continents for these particular risk factors:

i. Age is an important factor for developing pre-eclampsia.According to Hansen, Women over 35 years of age have 2 to 4 fold higher risk than the younger women. (Magpie trial collaborative group, 2002).

ii. Researchers have reported in their studies that, pre-eclampsia is one among the major complications presented in adolescent pregnancy. Adolescent pregnancy increases the complication of pregnancy, whose demand for calcium exceeds that of a pregnancy adult because of continued maternal bone mineralization.(WHO, 2000).

iii. By epidemiologic reviews 2004, large prospective study showed that women with pre pregnancy weight in kg/ height(m^2) greater than 25.8 had 2.7 times higher risk of developing pre-eclampsia than, those with an Index of 18.9 – 25.8. As a result it is proved, that obese women may develop pre-eclampsia. (Gadalla F et al, 2002).

Screening for women at risk of pre-eclampsia is an important part of antenatal care.Once women have been identified as high risk, they can be targeted for more intensive antenatal surveillance and prophylactic interventions can be developed.

Hence, the investigator took the study to assess the prevalence of pre-eclampsia among at risk primi gravid mothers (age < 18 years, age > 30 years & mothers pre pregnancy BMI > 27.5 kgm^2- obese) for developing pre-eclampsia. Keeping in mind, identifying pregnant women at risk for pre-eclampsia, at booking, adding a suitable surveillance routine to the known risk factors & defining specific interventions to prevent the condition is always a definite advantage and a welcoming step rather than looking at sobering statistics of the condition.

Objectives

- To assess the prevalence of pre- eclampsia among at risk primigravid mothers.
- To associate the prevalence of pre- eclampsia among at risk primigravid mothers with their selected socio demographic variables.

Materials and Methods

Prospective longitudinal observational research design was used to assess the prevalence of pre-eclampsia among at risk primigravid mothers for pre-eclampsia. Study was conducted at Government hospital, Tambaram. 120 at risk primigravid mothers for pre-eclampsia who fulfilled the inclusion criteria were selected by proportionate stratified random sampling. The specified at risk primigravid mothers were grouped together as homogeneous subsets based on their risk factors for developing pre-eclampsia (mothers with age < 18 years, mothers with age > 30 years & mothers pre pregnancy BMI > 27.5 kgm^2- obese), the attribute used for stratification of the selected samples.The sample size calculation was computed by power analysis based on the pilot study. On the basis of the pilot study results, 94 samples were required for the study. Considering the attrition rates of 20%, it was rounded to 120 samples.

Inclusion criteria includes primigravid mothers with singleton pregnancy, selected at 15–16 weeks of gestation by ultrasonography, with absence of pre-eclamptic features (B.P < 140/90 mm of Hg, Aproteinuria), and were in the lower middle, upper lower, lower socioeconomic status according to Kuppuswamy scale (Kumar et al , 2007) at the time of selection of samples. Exclusion criteria included mothers with medical or obstetric complications, family history of pre-eclampsia, who delivered before 37 completed weeks of gestation, who practiced any specific exercises or regular antenatal exercises and with extra calcium supplementation. The study protocol was approved by the institutional review board and the ethical committee. Informed verbal and written consent were obtained from all participants. These participants were requested to voluntarily participate in this study.

Tool Used for the Study

Section-A: Structured questionnaire to assess the socio demographic variables of the at risk primi gravid mothers for pre-eclampsia

The socio-demographic data includes age, education, occupation, religion, type of work, type of family, socio economic status, pre pregnancy Body

Mass Index (BMI). Variables were assessed by interview schedule in the local language and information retrieval through antenatal records by the investigator.Variables like age, occupation, pre pregnancy BMI, socio economic status, and type of family were matched in both the groups.Validity was obtained from experts in the respective fields.

Section B: Tool for surveillance of pre-eclamptic features among at risk primi gravid mothers for pre-eclampsia

The tool for surveillance of pre- eclamptic features consists of 5 items that assesses the clinical parameters for pre-eclampsia (systolic blood pressure, diastolic blood pressure, proteinuria, oedema, weight gain).

As per a published protocol, (Levine J et al, 2012) blood pressure was measured with a standard mercury sphygmomanometer by placing the mother in a seated position after a rest for 3–5 min. Blood pressure readings that coincided with the timing of the first (systolic) and fifth (diastolic) Korotkoff (K) sounds were recorded.These measurements were recorded one minute apart, and the results were average (E.O Brien et al , 2010). Hypertensive BP readings were repeated after 5–10 min. On elevation of subsequent readings, hypertension was confirmed and classified on a scale.

Clean-catch midstream-voided urine specimen were collected to measure protein using a dipstick assay by TC (Techo diagnostics, US) urine reagent Strips (URS) 2P for protein and glucose which produces a color change in presence of protein.Dipstick measurement indicates proteinuria of 1+ (30mg/dl). Protein is considered significant in diluted urine (specific gravity, 1.005–1.015) and 2+(100 mg/dl). Protein is considered significant in a concentrated sample (Specific Gravity>1.015) in absence of urinary infection (Kaplan, 1997).

Assessment of edemawas done by pressing & holding a finger firmly for 5 – 10 seconds against edematous area over a bony area in the ankle. The extent of induration was noted by a standardized tape, by the investigator which was graded on a four point grading scale (Kozier 2008). Measurement of ≥ 2+ in the edema scale is considered significant for pre-eclampsia.

By using a standardized measurement technique of weighing & with regularly calibrated and certified weighing scale, the weight of the at risk primi gravid mothers were monitored. Weight is measured to the nearest 0.5 kg with the mothers standing motionless on the weighing scale, feet about 15 cm apartand weight equally distributed on each leg. Maternal Weight gain in kilogram was measured while women wearing light garment and without foot wear. The technique of measurement was standardized (Ministry of Health 2009).

Based on the mother's prepregnancy BMI, the following is classifiedas abnormal weight gain in pregnancy among the at risk primi gravid mothers, which is considered significant for pre-eclampsiaas follows.(Wuhl, 2002).

- Under weight (BMI<18.5) - > 0.6 kg / week,
- Normal weight (BMI 18.5 - 22.9) - > 0.5 kg / week,
- Over weight (BMI 23 - 27.5) - >0.3 Kg / week,
- Obese (BMI >27.5) - >0.3 Kg / week.

Standardized references were used to interpret the range of the clinical parameters of pre-eclampsia with pre-determined scores on a scale developed by the investigator.

Validity was obtained from the experts of the field. The reliability of the tool was assessed by inter rater observers technique and the spearman's rank correlation co-efficient ρ value was 0.8. It was statistically significant and hence the tool was considered reliable.

At risk primigravid mothers were followed for the clinical parameters (systolic blood pressure, diastolic blood pressure, proteinuria, abnormal weight gain) at 16, 20, 24, 28, 32, 36 weeks of gestation and at the end of pregnancy. All visits were accomplished during day time and at normal working hours. Data regarding the prevalence of pre-eclampsia could be obtained only for 103 mothers due to various reasons like personal issues in participation, contact lost, poor co-operation etc. Data were fed to SPSS Statistics for Windows, Version 19.0 (IBM, Armonk, NY). Univariate analysis-Frequency and percentage distribution and Multi variate analysis - Multiple regression analysis was used for analysis. It was considered $p<0.05$ as significant.

Results

Frequency and percentage distribution of stratified at risk primigravid mothers shows that:

- 33(32%) of the mothers belongs to (Group A) Mothers < 18 years,
- 35(34%) belongs to (Group – B) Mothers >30 years, and
- 35(34%) belong to (Group – C) Mothers with pre pregnancy BMI > 27.5 – (Obese).

Demographic Variables of the at Risk Primi Gravid Mothers for Pre-Eclampsia (Overall)

Majority (33.9%) mothers were in the age group ≥ 30 years. Regarding educational qualification, majority 39(37.9%) mothers were educated up to middle school, considering occupation, majority 93(90.3%) mothers were unemployed, majority 53(51.5%) mothers were Hindus. Regarding type of work, majority 42(40.8%) mothers were sedentary workers. With respect to type of family, 60(58.3%) mothers were in nuclear family. With respect to socio-economic status, majority, 66(64.1%) mothers were in lower class. Considering the pre pregnancy BMI, majority, 40(38.8%) were in the BMI category 18 – 22. [9].

(Table 1) Distribution of level of pre-eclampsia among the stratified at risk primi gravid mothers shows that majority 6(18.2%) of the at risk primi gravid mothers developed moderate pre-eclamptic features in Group A (age < 18 years). Majority 5 (14.3%) of mothers developed moderate pre-eclamptic features in Group B (age > 30 years). Majority, 5(14.3%) of mothers developed severe pre-eclamptic features in Group-C (pre-pregnancy BMI >27.5). Majority 15 (14.5%) developed moderate pre-eclamptic features in overall.

(Table 2) Distribution of level of clinical parameters of pre-eclampsia among the at risk primi gravid mothers at the end of pregnancy shows that, Majority 25(24.3%) mothers developed severe systolic pressure and(5.8%) mothers developed mild systolic blood pressure. 8(7.8%) mothers developed mild diastolic blood pressure and 23(22.3%) developed severe diastolic blood pressure. Majority 16(15.5%) mothers developed severe proteinuria and 15(14.6%) developed mild proteinuria. Majority 11(10.7%) mothers developed mild proteinuria and 6(5.8%) mothers developed severe edema. 15(14.6%) mothers developed abnormal weight gain.

(Table 3) Incidence of Pre-eclampsia among the stratified at risk primi gravid mothers and over all shows that the incidence of pre-eclampsia was more in group A (Mothers age < 18 years), when compare to the other stratified groups

(Table 4) Weekly incidence of pre-eclampsia among the at risk primigravid mothers reveals that the incidence was intense at 24 weeks of gestation in mother in Group B (mothers age > 30 years and Group C (mothers with pre pregnancy BMI > 27.5 (obese). Multiple regression analysis reveals that the variables educational qualification and the level socio-economic status of the mothers had an statistical significant association with the level of pre-eclampsia at p=0.03 and p=0.02 level respectively.

Table 1: Distribution of level of pre-eclampsia among the stratified at risk primi gravid mothers

Weeks of gestation	Level of Pre - eclamptic Features	Groups							
		Mothers Age < 18 years)		Mothers Age > 30 years)		Mothers with pre pregnancy BMI > 27.5 - obese		Over all	
		n (33)	%	n (35)	%	n (35)	%	n (103)	%
16th week	Absence	33	100.0	35	100.0	35	100.0	103	100.0
	Mild	0	0.0	0	0.0	0	0.0	0	0.0
	Moderate	0	0.0	0	0.0	0	0.0	0	0.0
	Severe	0	0.0	0	0.0	0	0.0	0	0.0
20th week	Absence	33	100.0	35	100.0	35	100.0	103	100.0
	Mild	0	0.0	0	0.0	0	0.0	0	0.0
	Moderate	0	0.0	0	0.0	0	0.0	0	0.0
	Severe	0	0.0	0	0.0	0	0.0	0	0.0
24th week	Absence	31	93.9	31	88.6	31	88.6	93	90.3
	Mild	2	6.1	1	2.9	1	2.9	4	3.9
	Moderate	0	0.0	3	8.6	3	8.6	6	5.8
	Severe	0	0.0	0	0.0	0	0.0	0	0.0
28th week	Absence	26	78.8	29	82.9	28	80.0	83	80.6
	Mild	3	9.1	1	2.9	2	5.7	6	5.8
	Moderate	4	12.1	5	14.3	5	14.3	14	13.6
	Severe	0	0.0	0	0.0	0	0.0	0	0.0
32nd week	Absence	25	75.8	26	74.3	26	74.3	77	74.8
	Mild	2	6.1	2	5.7	1	2.9	5	4.9
	Moderate	6	18.2	5	14.3	4	11.4	15	14.6
	Severe	0	0.0	2	5.7	4	11.4	6	5.8
36th week	Absence	24	72.7	25	71.4	26	74.3	75	72.8
	Mild	3	9.1	3	8.6	1	2.9	7	6.8
	Moderate	4	12.1	4	11.4	3	8.6	11	10.7

	Severe	2	6.1	3	8.6	5	14.3	10	9.7
At the end of	Absence	22	66.7	25	71.4	25	71.4	72	69.9
the	Mild	3	9.1	1	2.9	1	2.9	5	4.9
pregnancy	Moderate	6	18.2	5	14.3	4	11.4	15	14.
	Severe	2	6.1	4	11.4	5	14.3	11	10.7

n- Frequency, %- Percentage

Table 2: Distribution of level of clinical parameters of pre-eclampsia among the at risk primi gravid mothers at the end of pregnancy

Clinical Parameters	Grading of clinical parameters	At risk primi gravid mothers for pre-Eclampsia							
		Mothers Age < 18 years)		Mothers Age > 30 years)		Mothers with pre pregnancy BMI > 27.5 -obese		Over all	
		n (33)	%	n (35)	%	n (35)	%	n (103)	%
Systolic Blood	Normal	22	66.7	25	71.4	25	71.4	72	69.9
Pressure	Mild	3	9.1	1	2.9	2	5.7	6	5.8
	Severe	8	24.2	9	25.7	8	22.9	25	24.3
Diastolic Blood	Normal	22	66.7	25	71.4	25	71.4	72	69.9
Pressure	Mild	3	9.1	1	2.9	4	11.4	8	7.8
	Severe	8	24.2	9	25.7	6	17.1	23	22.3
Proteinuria	Absence	22	66.7	25	71.4	25	71.4	72	69.9
	Mild	8	24.2	1	2.9	6	17.1	15	14.6
	Severe	3	9.1	9	25.7	4	11.4	16	15.5
Oedema	Absence	29	87.9	31	88.6	26	74.3	86	83.5
	Mild	2	6.1	0	0.0	9	25.7	11	10.7
	Severe	2	6.1	4	11.4	0	0.0	6	5.8
Weight Gain	Normal	28	84.8	31	88.6	29	82.9	88	85.4
	Abnormal	5	15.2	4	11.4	6	17.1	15	14.6

n- Frequency, %- Percentage

Table 3: Incidence of Pre-eclampsia among the stratified at risk primigravid mothers and over all

Weeks of gesta tion	Incidence of pre-eclampsia	At risk primi gravid mothers			
		Group - A Age < 18 years n(33)	Group B Age > 30 years n (35)	Group C Pre preg BMI >27.5 (obese) n (35)	Over all at risk primi n(103)
16th week	Present	0	0	0	0
	Absent	33	35	35	103
20th week	Present	0	0	0	0
	Absent	33	35	35	103
24thweek	Present	2	4	4	10
	Absent	31	31	31	93
28th week	Present	7	6	7	20
	Absent	26	29	28	83
32ndweek	Present	8	9	9	26
	Absent	25	26	26	77
36thweek	Present	9	10	9	28
	Absent	24	25	26	75
At the e nd of	Present	11	10	10	31
pregnancy	Absent	29	25	25	72

n- Frequency

Table 4: Weekly incidence of pre-eclampsia among the at risk primigravid mothers N=103

Stratified at risk factorstors	Incidence		Proportion with 95% Confidence Interval
	n	%	
Group A Mothers age < 18yrs	11/33	33.3	**±16.04 (16.96%,49.04%)**
Group B Mothers age >30 yrs	10/35	28.5	±15.03 (13.97%, 44.03%)
Group C Mothers Prepregnancy BMI >27.5 (Obese)	10/35	28.5	±15.03 (13.97%, 44.03%)
Overall	31/103	30.1	±8.85 (21.15%, 38.85%)

n- Frequency, %- Percentage

Discussion

The present study projects the results of baseline characteristics and prevalence of Pre-eclampsia observed in the stratified at risk primi gravid mothers for pre-eclampsia. Demographic variables shows that majority of the at risk primi-gravid were educated up to middle school, unemployed and were sedentary workers in the lower socioeconomic status.

It was observed that 30% of the at risk primi gravid mothers developed pre-eclampsia with severe systolic blood pressure, diastolic blood pressure and proteinuria compared to the other clinical parameters of pre-eclampsia. Mothers age > 30 years developed severe features of clinical parameters of pre-eclampsia as early as 24 weeks of gestation.

Collectively, lower socioeconomic class is reported to have a higher incidence of pre-eclampsia and incidence of severe pre-eclampsia in very young girls may reflect the greater tendency to social neglect among this group. Lower education level attainment reduces access to medical care for screening and is often associated with greater exposure to poor nutrition, physical inactivity, being overweight and other risk factors (Howard J 1992).

Studies were found to be consistent with the finding of J.Wandabwa et al, 2010) where in his case control study of 143 women with severe PE and eclampsia, family history of hypertension, low educational status, low socio-economic status, and nulliparity are considered as risk factors for pre-eclampsia and recommends that those at risk factors should be identified and treated with counseling and expertise facilities. Similar linear trends were reported by Fang et al, 2009), who concluded that advanced maternal age, obesity were identified as risk factor for pre-eclampsia**,** and was also supported by Y.Islam, (1998) who concluded that nulli parours women, young women with low socioeconomic status, and low literacy rate are considered more vulnerable to develop pre-eclampsia.

Early detection and strengthening special antenatal care among the targeted pregnant risk groups of the study, becomes an important aspect in the prevention of complications of pre-eclampsia, which tolls the significant maternal morbidity and mortality.

Strengths & Limitations

Strength of the study was that the population of the study was relatively homogenous leaving less room for confounding variables. Limitations of the study are that the investigator relied on the self-reported pre-pregnancy BMI at the first antenatal visit. The reported weight by the mothers was correlated for the actual weight at the time of registration, and that difference would be very minimal influencing the study outcomes.

Conclusion

The at risk factors identified in the present study and its underlying evidence base can be used to assess risk factors at booking, so that a suitable surveillance routine to detect pre-eclampsia could be planned for the rest of the pregnancy. Pre-eclamptic risk factors can be manipulated, so primary and secondary preventive strategies could be developed. Further, early detection demands careful ante-natal care at appropriate intervals, especially in women predisposed to pre-eclampsia. A program of bio-psycho-social risk assessment of pre-eclampsia could be developed and added to the standard ante-natal care.

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Prevalence of Minor Ailments of Pregnancy and related Knowledge among Antenatal Mothers

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Abstract

Pregnancy is a period where the mother tends to take care of herself so as to prepare herself for safe delivery. Many pregnant women experience discomforts of pregnancy that are not serious but detract from the woman's feeling of comfort and well-being. The purpose of this study was to identify the prevalence of minor ailments of pregnancy and to assess the knowledge regarding selected minor ailments among antenatal mothers. *Methods:* The present study used a descriptive survey design. Sixty antenatal mothers attending Obstetrics and Gynecology OPD, AIMS, Kochi were selected using quota sampling technique including 30 primigravida and 30 multigravida mothers. Demographic variables and knowledge regarding minor ailments of pregnancy were collected using a semi- structured questionnaire. The prevalence of minor ailments of pregnancy was identified by a checklist. Data analysis was done by using descriptive and inferential statistics like frequency, percentage and t- test. *Results:* The most common minor ailments were frequency of micturition(80%), nausea and vomiting (80%), fatigue(80%), back pain(70%) and leg cramps(55%). Knowledge regarding minor ailments of pregnancy was good in 54%, average in 41% and poor in 5%. There was no significant difference between knowledge and prevalence of minor ailments between primi and multi gravida. *Conclusion:* The result of the study suggest that health education should be provided to all the antenatal mothers regarding minor ailments of pregnancy and its management.

Keywords: Prevalence; Knowledge; Minor Ailments of Pregnancy; Antenatal Mothers.

Introduction

Pregnancy should be a joyful, exiting time. But this joy is sometimes reduced by many discomforts that are associated with bringing a new life into the world. These discomforts are the minor discomforts of pregnancy or ailments that are affecting the daily activities of the pregnant women. Becoming a mother is one of the most exciting times in a woman's life. Pregnancy is a crucial period where the mother tends to take care of herself so as to prepare herself for safe delivery [1]. During the course of pregnancy period many changes occur in a woman's body as a result of hormonal influences and adaptation to the gestational process. These adaptations protect the woman's normal physiologic functioning, meet the metabolic demands that pregnancy imposes on her

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body, and provide a nurturing environment for fetal development and growth [1].

Although most women are pleased to be pregnant, the symptoms of early pregnancy tend to cause discomfort to a woman rather than provide evidence that she is carrying a child [3]. Many women experience discomforts of pregnancy that are not serious but reduces the woman's feeling of comfort and wellbeing. They experience a variety of physiological and psychological symptoms such as nausea and vomiting, frequency of micturition, breathing difficulty, ankle edema, hemorrhoids, backache, heartburn, varicose vein, constipation, leg cramps, and ptyalism. These are termed as minor ailments or discomforts of pregnancy. The minor ailments of pregnancy begin soon after fertilization and continue throughout gestation. These changes occur in response to physiological changes during pregnancy. These changes may be unpleasant as well as worrying but they are rarely a cause for alarm as most of these changes are usually normal [4]. As such a woman may become frustrated, expecting pregnancy to be a time of glowing good health. Providing empathetic and sound advice about measure to relieve these discomforts helps promote overall health and wellbeing [3].

Minor ailments are common during pregnancy and is reported by 50% - 80% of pregnant women.[6] Pregnancy is not a disease but it is true to say that a pregnant woman does not feel as normal as when not pregnant: there are some pregnancy related complaints which, when excessive need to be treated most of the common minor ailments can be treated. Nausea occurs in 80-85% of all pregnancies during the first trimester, with vomiting an associated complaint in approximately 50% of women. 20% of pregnant women will have no symptoms at all. The symptoms commonly start five weeks after conception and end by week 15 in 60% of affected women. About 9% of affected women have symptoms persist beyond week 18 of pregnancy. Approximately 80% of pregnant women having back pain. Heartburn is one of the most common gastrointestinal symptoms in pregnant women, with an incidence in pregnancy of 17% to 45% [4].

A study done to assess the knowledge on minor ailments during pregnancy and home remedies among 30 pregnant mothers at Chennai with a self report questionnaire shown that 13 (43%) have inadequate, 13 (43%) have moderate and 4 (14%) have adequate knowledge on minor ailments and home remedies for minor ailments of pregnancy[7],13 (43%) have inadequate, 12 (40%) have moderate and 5 (17%) have adequate knowledge. Another study conducted in 2005, to assess the knowledge and attitude of primigravida mothers regarding minor disorders of pregnancy in Bangalore on seventy five primigravida mothers. The mean knowledge score obtained by the primigravida mothers were 34 and median score was 48 with standard deviation of 16.43 and the knowledge score were in the range of 63 to 30. The overall attitude of primigravida mothers showed that 28% of mothers had favorable attitude towards minor disorders of pregnancy, 47% of mothers had neutral attitude and 25% of mothers had unfavorable attitude towards minor disorders of pregnancy [7]. Most women are healthy during pregnancy and do not have serious health concerns. Mother may have minor physical symptoms throughout pregnancy that are considered normal pregnancy changes. It is important for mother to be aware of symptoms. Many minor problems of pregnancy can be managed at home. Home remedial measures are usually all that is needed to relieve all minor ailments of pregnancy [5].

A study was conducted on the frequency of nausea and vomiting during pregnancy among 160 women's and reported that 74% had nausea lasting for 34.6 days. 80 % reported nausea lasting for all day only 50% of women were relieved by 14 weeks gestation. In 90 % of women nausea and vomiting was relieved by 22 weeks [4]. A study conducted on the prevalence and pattern of back pain among 2187 women at Nigeria and result showed that 52.5% of the 1919 women had backpain in pregnancy. Among the 1008 subjects(66.4%) woman experienced back pain in lower back, (20.0 %) experienced in posterior pelvic region and (9.6 %) had pain in higher back region [6].

Minor ailments of pregnancy is an important area to focus while planning care for antenatal women. Majority of the pregnant women experiences some or the other minor ailments during pregnancy. Assessment of prevalence of minor ailments will provide baseline data for planning nursing interventions. Knowledge of antenatal mothers regarding minor ailments of pregnancy should be assessed in order to plan health education. The purpose of the present study is to identify the prevalence and awareness regarding minor ailments of pregnancy among pregnant women with a view to develop an information leaflet.

Materials and Methods

A quantitative approach with descriptive design was used for the study. Research setting was

Obstetrics and Gynecology OPD of a selected tertiary care hospital, Kochi. Sixty antenatal mothers were selected by quota sampling technique consisting of 30 primi and 30 multigravida. The mothers with medical and gynaecological complications of pregnancy were excluded from the study.

Ethical clearance was obtained from Thesis Review Committee of Amrita Institute of Medical Sciences. Purpose of the study was explained and a written informed consent was obtained from all samples. The data collection period was from March 2013 to April 2013.

A semi-structured questionnaire was used to assess the sociodemographic data and knowledge regarding minor ailments of pregnancy. The knowledge questionnaire contain 19 items. The total score is 19 and interpreted as poor(0-6), average (7-12) and good(13-19). In order to identify the prevalence of minor ailments of pregnancy a checklist was used. Content validity of the tool was supported by six experts. The reliability of the knowledge questionnaire established by test retest method was 0.8.

Results

Results of the present study are organized under three sections; sample characteristics, prevalence of minor ailments and knowledge of antenatal mothers regarding minor ailments of pregnancy.

Sample Characteristics

About 43.3 % of the subjects belong to the age group of 26-30 years and 33.3% belongs to the age group of 18-25 years. Distribution of antenatal mothers based on demographic characteristics is given in Table 1.

Prevalence of Minor Ailments

The most common minor ailments during pregnancy were frequency of micturition (80%), nausea and vomiting (80%), fatigue (80%), back pain (70%) and leg cramps (55%) (Figure 1). Less common minor ailments were hemorrhoid (3.3%) and nose bleed (3.3%). Distribution of primi and multi gravida based on the prevalence of minor ailments are given in Table 2.

Knowledge of Minor Ailments of Pregnancy

Knowledge regarding minor ailments of pregnancy was good in 54%, average in 41% and poor in 5% (Figure 2). The mean knowledge score was 12.5±3.99 in primi gravida and 12.53±3.07 in multi gravida. In order to compare the knowledge of primigravida and multigravida, independent t test was computed with the mean knowledge score of primigravida and multigravida mothers. From the t value obtained, it is evident that there is no statistically significant difference between knowledge level of primigravida and multigravida mothers (Table 3).

Table 1: Distribution of antenatal mothers based on demographic characteristics

Demographic variables	Frequency	Percentage(%)
Age in years		
18-25yrs	20	33.3
26-30 yrs	26	43.3
31-35 yrs	11	18.3
36-45 yrs	3	5
Educational status		
Primary education	5	8.3
Secondary education	24	40
Diploma	3	5
Graduate/PG	25	41.7
Professional	3	5
Occupation		
Working	17	28.3
Non working	43	72
Living status		
Spouse	35	58.3
Family	25	41.7
Place of residence		
Rural	39	65
Urban	21	35
Source of information about health		
Health worker	23	38.3
Relatives/friends	25	42
Mass media	12	20

Table 2: Distribution of antenatal mothers based on the prevalence of minor ailments of pregnancy

Minor ailments	Primigravida (n= 30)		Multigravida (n= 30)	
	Frequency	Percentage	Frequeny	Percentage
Nausea and vomiting	22	73.3	26	86.7
Increased frequency of micturition	25	83.3	23	76.6
Excessive salivation	10	33.3	14	46.6
Heart burn	10	33.3	20	66.6
Back pain	19	63.3	23	76.6
Breathing difficulty	6	20	12	40
Constipation	11	36.7	8	26.6
Varicose vein	1	3.3	5	16.6
Leg cramps	16	53.3	17	56.6
Ankle edema	14	46.7	6	20
Hemorrhoids	1	3.3	1	3.3
Excessive vaginal discharge	7	23.3	7	23.3
Fatigue				
Itching	25	83.3	23	76.6
Nosebleed	17	56.7	12	40
	2	6.7	1	3.3

Table 3: Comparison of knowledge of primigravida and multigravida regarding minor ailments of pregnancy n = 60

Antenatal mothers	Mean	SD	t-value
Primigravida	12.5	3.99	0.0326
Multigravida	12.53	3.07	

($p = 0.03$, $\alpha = .05\%$)

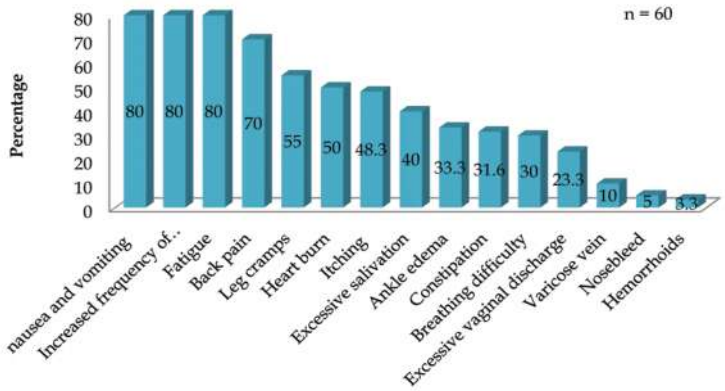

Fig. 1: Prevalence of minor ailments of pregnancy

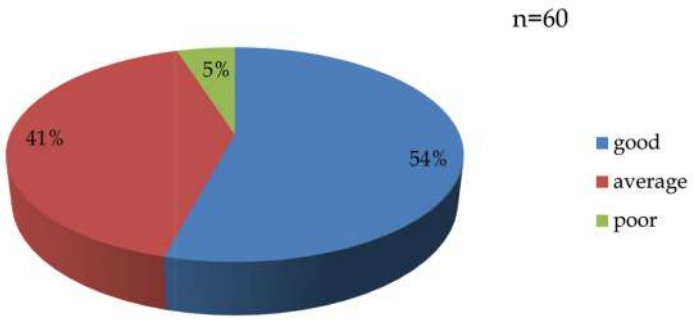

Fig. 2: Knowledge of antenatal mothers regarding minor ailments of pregnancy

Discussion

The study findings revealed that majority of antenatal mothers had nausea and vomiting (80%), increased frequency of micturition (80%), backache (70%) and only 3.3% had hemorrhoids, 5% had nose bleed and varicose vein 10%. A study conducted on frequency, intensity, and patterns of nausea and vomiting during pregnancy in Canada shows that 74% of women reported nausea lasting a mean of 34.6 days. Data based on the McGill Nausea Questionnaire indicate that the nausea experienced by pregnant women is similar in character and intensity to the nausea experienced by patients undergoing cancer chemotherapy [9].

The result also highlighted that, irrespective of the socio demographic characteristics majority of the mothers had good knowledge on minor ailments of pregnancy. Among primigravida mothers, most of the subjects (53.3%) had good knowledge and only 6.6% had poor knowledge. Among multigravida mothers, 56.6% of the subjects had good knowledge and 3.3% of the subjects had poor knowledge. A quasi experimental study conducted to assess the knowledge of antenatal mothers on minor disorders of pregnancy revealed that in pretest 90% of antenatal mothers had low knowledge and 10% had average knowledge. In post test 20% had good knowledge followed by 50% of sample with average knowledge [8]. A good knowledge score in most of the women in the present study may be attributed to the educational background and change in the setting.

Among primigravida, 83.3% had increased frequency of micturition and 73.3% had nausea and vomiting. In multigravida mothers, 86.7% of the subjects had nausea and vomiting and 76.6% had frequency of micturition, back ache and fatigue. A cross-sectional survey conducted in Taiwan revealed that the prevalence of urinary symptoms was significantly higher in nulliparous women than in multiparous women [10]. A study on pregnancy related back pain and its relation to aerobic fitness of pregnant women shows that back pain during the current pregnancy was reported by nearly 80% of the women [11]. On comparing the entire results of the present study with that of the related literature, it was found that the results are more or less consistent with the previous studies.

Conclusion

Majority of antenatal mothers had experienced nausea and vomiting, increased frequency of micturition and fatigue. There is no significant difference in the knowledge level of primigravida and multigravida mothers. From the findings of the study it can be concluded that health education should be provided to all the antenatal mothers regarding minor ailments of pregnancy and its management. Providing empathetic and sound advice about measure to relieve these discomforts helps promote overall health and wellbeing.

Acknowledgement

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Original Article

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Effectiveness of Computer Assisted Teaching Program on Knowledge regarding Menstrual Blood Banking among 3rd Year Basic B.Sc. Nursing Students at Selected Nursing Colleges, Hassan

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Abstract

A study was conducted to evaluate the effectiveness of computer assisted teaching program on knowledge regarding menstrual blood banking among 3rd year basic B.Sc. nursing students at selected nursing colleges, Hassan. 50 students were selected by non probability purposive sampling technique. The knowledge was assessed by using structured knowledge questionnaire. The study results revealed that most of the respondents 48(96%) had inadequate knowledge, 2 (4%) of the respondents had moderate knowledge and none of them had adequate knowledge during pre-test. After computer assisted teaching program 26(52%) of the respondents had moderate knowledge, 24(48%) of them had adequate knowledge and none of them had inadequate knowledge. The calculated paired 't' test value of 22.5* is greater than the table value at 0.05 level of significance, which indicates that there is a significance difference between mean pre-test and post-test knowledge scores of whole tests of respondents. It is concluded that CATP was effective in increasing knowledge of 3rd year B. Sc. students regarding menstrual blood banking.

Keywords: Effectiveness; Knowledge; Computer-Assisted Teaching Program; Menstrual Blood Banking.

Introduction

Menstrual blood banking is a process of banking menstrual blood for the purpose of cell therapy, it enables women to store their menstrual blood under required conditions and preserve it for future. These banks charge minimal annual fee for storage and preservation and allow women to have lifelong benefits from them. It is a revolutionary new service that provides women with the unique opportunity to collect harvest and preserve vital stem cells from their menstrual blood during the menstrual cycle. These cells can be expanded as and when necessary and can be potentially used in the future for various therapeutic and cosmeceutical applications.

Studies demonstrate that these are a unique population of cells that can be safely isolated and can provide us with an expandable source of stem cells from women until they reach menopause. Considering their relevance and importance in treatment of diseases including certain neuro disorders, it becomes crucial for women to preserve their menstrual blood in the Menstrual Blood Bank.

Menstrual Blood Banking has a wide scope as the

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need for regenerative therapies incorporating cells that can engraft and differentiate is vast. But till today most of the women especially the teenagers perceive menstruation as a curse, they are unaware of the fact that menstrual blood could be a reservoir of stem cells which could bring a ray of hope among millions of population, who are suffering from deadly diseases. The investigator felt a need to educate and convey this information about menstrual blood banking to nursing students and believes educating nursing students can unveil the hidden benefits of menstrual blood to the general population.

Objectives of the Study

1. To assess the knowledge regarding menstrual blood banking among 3rd year Basic B.Sc. Nursing students at selected nursing colleges Hassan.
2. To evaluate the effectiveness of computer assisted teaching program on knowledge regarding menstrual blood banking among 3rd year Basic B.Sc. Nursing students at selected nursing colleges, Hassan.
3. To find the association between post test knowledge score and selected demographic variables.

Methodology

Research Approach

Evaluative Approach

Research Design

Pre-experimental; one group pre test post test design

Sampling Technique

Non probability: Purposive sampling technique

Sample Size

50

Population

3rd year Basic B.Sc. Nursing students

Setting

Government College of Nursing Hassan.

Tool Used

Structured knowledge questionnaire to assess the knowledge regarding menstrual blood banking.

Part-I : Consists of 7 items related to demographic data.

Part-II: Structured knowledge questionnaire consisting of 30 items regarding menstrual blood banking.

Procedure of Data Collection

Formal permission was obtained from the Principal of Government College of Nursing, Hassan. The study was conducted for a period of 4 weeks at Government College of Nursing, Hassan. The purposes and objectives of the study were explained to students and confidentiality was assured with consent to participate in the study. Pre test was conducted to assess the knowledge of students. Following this, computer assisted teaching programme CATP) was administered. Post test was conducted on 7th day after pre-test by using the same questionnaire. Data collected was then tabulated analyzed.

Results

Section I: Analysis of Demographic Characteristics of Respondents Under Study

Section I revealed that majority of the respondents 44 (88%) were 20 years old and 6 (12%) were 21 years old. Most of the respondents 44(88%) were females while remaining 6 (12%) of them are males. Majority of the respondents 35 (70%) were Hindus, 12 (24%) were Christians and remaining 3 (6%) were Muslims. 19 (38%) of respondents' father had higher primary education, 13 (26%) had primary education, 8 (16%) had degree & above, 6 (12%) had PUC and 4 (8%) were illiterate. Most of the respondent's (74%) are from rural area and 26% are from urban area and none of the respondents had previous exposure to the information about menstrual blood banking.

Section II: Analysis of Pre-test and Post-test scores and Effectiveness of Computer assisted Teaching Program.

Table 2: The calculated paired't' test value of 22.5* is greater than the table value at 0.05 level of significance, which indicates that there is a significance difference between mean pre-test and post-test knowledge scores of whole tests of respondents it is concluded that CATP was effective

in increasing knowledge of 3rd year B.Sc. students regarding menstrual blood banking. Hence the null hypothesis H_0 was rejected and research hypothesis H_1 is accepted.

Section III: Analysis of Association between Demographic Variables and Post-Test Knowledge Scores

The data revealed that the calculated χ^2 values with regard to Gender (χ^2= 6.28, P<0.05) was more than the table values at 0.05 level of significance, hence the null hypothesis H_{02} is rejected and research hypothesis H2 is accepted with regard to gender but the calculated χ^2 values with regard to age (χ^2= 0.57, P>0.05) , religion (χ^2= 0.83, P>0.05), education of father (χ^2= 5.31, P>0.05) , education of mother (χ^2 =5.52, P>0.05) , monthly family income (χ^2 = 3.07, P>0.05) , place of residence (χ^2 = 0.38, P>0.05) were less than the table values at 0.05 level of significance, hence the null hypothesis H_{02} is accepted and research hypothesis H_2 is rejected with regard to these demographic variables.

Table 1: Aspect wise mean pre-test and post-test knowledge on menstrual blood banking with mean and SD of enhancement and paired 't' test values **N=50**

No.	Knowledge Aspects	Respondents Knowledge (%)						Paired 't'
		Pre test		Post test		Enhancement		
		Mean	SD	Mean	SD	Mean	SD	Test
I	Menstruation	62.5	20.75	96.0	10.25	34.5	26.25	11.16 *
II	Stem cells and stem cell therapy	33.63	12.63	61.63	15.09	28.0	14.45	10.26 *
III	Menstrual blood banking	19.00	27.25	69.5	20.25	50.5	28.75	10.63 *
IV	Collection and storage of menstrual stem cells	31.63	10.72	79.0	11.7	48.18	16.36	21.75 *
	Combined	34.93	8.33	73.93	9.0	38.86	10.76	22.5 *

* Significant at 5% level, t (0.05, 49df) = 1.96

Table 2: Over all pre test and post test Mean, SD, Mean% and SD% of Knowledge scores of respondents regarding menstrual blood banking with paired 't' test value **N=50**

Aspects	Max. Score	Respondents Knowledge				Paired 't' Test
		Mean	SD	Mean (%)	SD (%)	
Pre test	30	10.48	2.5	34.93	8.33	
Post test	30	22.18	2.7	73.93	9.0	22.5 *
Enhancement	30	11.66	3.23	38.86	10.76	

* Significant at 5% level, t (0.05, 49df) = 1.96

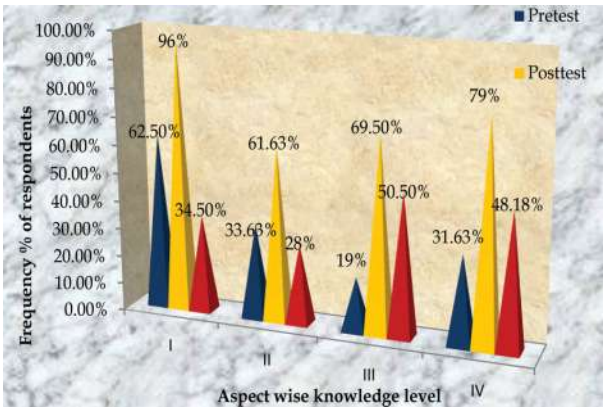

Fig. 1: Pyramid diagram showing aspect wise mean pre-test and post-test knowledge on menstrual blood banking

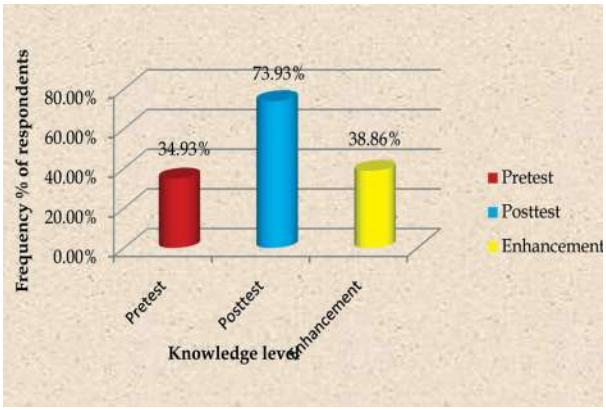

Fig. 2: Cylindrical diagram showing overall mean pre test and post test knowledge level on menstrual blood banking

Conclusion

Based on the findings of the study, the following conclusions are drawn.

1. Pre test knowledge of students regarding menstrual blood banking was inadequate.
2. There was a need for CATP for students regarding menstrual blood banking.
3. The findings of the study have proved that computer-assisted teaching programme was

effective in improving the knowledge of nursing students regarding menstrual blood banking.

4. Post-test knowledge level of respondents are significantly associated with gender but age, religion, educational status of parents, family monthly income, place of residence and previous exposure to information of respondents were not significantly associated with their post-test knowledge levels.

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Review Article

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Garbha Sanskar: An Overveiw

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Abstract

A child for a mother is her prince or princes, she wants to give best of everything to her baby. This feeling starts from the time of conception or even before. One of the most famous and well-known tales is that of Abhimanyu from the Mahabharata. When Arjuna's wife was pregnant with their son Abhimanyu, he told her about how to penetrate the Chakravyuh, a particular war formation. When Abhimanyu became a young man and a warrior in the Kurukshetra war, he remembered his father's story. He was able to employ the strategy that he had heard his father tell his mother while he was in her womb. Another story is of Prahlad from the Puranas. Prahlad was born into a family of demons who were wreaking havoc on the Gods in heaven. His mother listened to devotional prayers and stories about Lord Vishnu while he was in her womb. As a result, he became a devotee of Lord Vishnu. He stood by good and renounced all evil. This led to the downfall of his demon father's evil empire. These stories tells us that the concept of Garbha Sanskar is not new to people. But question is does it really helpful? Does it help the mother and child? If yes how? Considering these questions some information is reviewed and presented further.

Introduction

Garbha Sanskar is an astonishing way of teaching good things to the unborn baby in womb during pregnancy. The literal meaning of word *garbh* is womb and *sanskar* is teaching good or right things. The aim of any parent is to bear and nurture a healthy, capable child who can face the pressures of our increasingly complex lifestyles. Garbha Sanskar is both a medical practice and a 'culture'. Just like a person brought up in a musician's house imbibes a musical culture, the child is conditioned within the womb. The practice has been developed over four decades of research and medical practice. Tambe says, "If women are provided with expert guidance during pregnancy and the early years of their children, it will have an immense impact on society."

An Overview

We start our life out as a zygote, the fertilized egg in our mother's uterus, 46 chromosomes that will determine everything from eye color to height and that help to influence our intelligence and who we are individually. By the fourth week of pregnancy,

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the zygote has turned into an embryo and will begin developing what will become its brain.

The brain begins as the ectoderm, which is the top layer of the now three-layered embryo, and will develop into the neural tube which will close by week six. At ten weeks gestation, the new brain will begin forming neurons at the rate of 250,000 per minute, according to the article "Fetal Development: What Happens during the First Trimester?" At the 16th week, the fetus' eyes are becoming sensitive to light, and at week 18, the fetus can hear. By the 28th week, the fetus' eyes open.

According to the 2005 ABC News story "Parent-Child Connection Shapes Brain" by Amanda Onion, available on http://abcnews.go.com, "Allan Schore, a leading neuroscientist at the University of California-Los Angeles' Center for Culture, Brain, and Development, points out that the parent-child connection during a child's first year can not only affects a child's psychological state, it actually plays a role in physically shaping the brain. The benefits appear to be more internal: It's the child's ability to handle stress and feel emotionally secure that evolves during this early part of life."

At only week ten of gestation, a fetus's neurons are forming at the rate of 250,000 per minute. By birth, a baby comes into his parents' arms with about 100 billion neurons, each with about 10,000 branches! This is according to David Allen Walsh, PhD, in his book, /A Survival Guide to the Adolescent Brain for You and Your Teen/.

These neurons have great significance in that they send and receive all of our body's messages. For example, as you read this article, your eyes see the words and transmit those images to your brain via neurons. Once that message reaches the brain, other neurons move the transmission along to the area of your brain that can translate the word images, so you can see and understand what you are reading.

A 2000 article, "Brain Development Research, What it Means for Young Children and Families," agrees: "The impact of environmental factors on the young child's brain development is dramatic and specific, not merely influencing the general direction of development but actually affecting how the intricate circuitry of the human brain is wired. Because the brain is organizing at such an explosive rate in the first years of life, experiences during this period have more potential to influence the brain — in positive and negative ways."

It has been nearly a century since pre and perinatal psychology was introduced by Otto Rank, a student and colleague of Sigmond Freud. His slim book, The Trauma of Birth, was a gift to his mentor and friend in 1924. This birthday surprise detailed how Rank

thought that difficulty during birth could affect the psyche of the person being born in such a way that it would affect them the rest of their lives. While first warmly received by Freud, it was rejected and the relationship between teacher and student was forever affected.

Since then, this pattern of considering that babies have experiences that have lifelong implications has taken similar course in the world. A small cohort of practitioners took on the belief that yes, these early experiences do influence behavior for a lifetime while the medical, scientific and popular communities ignored, disengaged or even repudiated this idea. Now, in 2015, a confluence of neuroscience, cellular biology, trauma resolution therapies, and human development are indeed supporting the fact that early experiences prenatally, during birth and in the first year of life do indeed have lifelong implications for health and happiness. These experiences can affect the child in both positive and difficult ways, depending on what happens. Healing is possible, no matter what difficulties may occur.

After Otto Rank, several influential practitioners took up the thread that these early life experiences were deeply meaningful, yet it was not until the 1960's after the publication of research articles on how caregivers and babies interact that the vital importance of this early bond received scientific support. This research detailed how the style of attachment between mother and baby could have lifelong and multi-generational implications. Then the 1990's were considered The Decade of the Brain, and many government dollars supported scientific research into embryology, neurology and related fields, especially the human genome project. It was thought that humans had over 100,000 genes that could be mapped and therefore disease and health could be easily tracked and hopefully manipulated for the greater good. However only 25,000 genes were discovered and research turned to looking at how the environment influenced gene expression. This field of study is called "epigentics," or how the environment and genetics interact. The nature/ nurture fight was forever settled and the era of the "epigenome" was born.

Conclusion

Considering all above information about the realities of life before birth, we must appropriately reset the clock on parenthood. The womb is no longer a dark, secret place. We know it is not an isolation tank! What goes on in there for nine months is the ceaseless moulding and shaping of the whole baby—collaboration between baby and parents. All the new facts of life plead for parental involvement, participation, and cooperation in the powerful matrix of intimate interactions that take place in the womb. Pregnancy is parenting de facto. Parental influence on a child is at its peak during construction in utero

These studies even prove that : (1) babies in the womb are alert, aware, and attentive to activities involving voice, touch, and music; (2) that babies benefit from these activities by forming stronger relationships with their parents and their parents with them, resulting in better attachments and better birthing experiences, and (3) that these babies tend to show precocious development of speech, fine and gross motor performance, better emotional self-regulation, and better cognitive processing. These are the gifts and rewards of active parenting.

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Review Article

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Colostrums Feeding Practices and its Impact on Neonatal and Infant Health

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Abstract

Colostrum feeding is an unequalled way of providing ideal food for the healthy growth & development of the newborn baby and has unique biological and emotional influence on the health of both mother & child. Although Breast feeding and colostrum feeding awareness is created everywhere by celebrating world breast feeding week, still in many parts of India, the value of colostrums feeding is neglected by mothers and feeding their newborn with pre-lacteal feeds as per their socio-cultural practices. Also it is observed that the newborns are not fed within 30 minutes after birth, which promotes neonatal mortality and morbidity. This source of information influenced the researcher to bring out some facts regarding colostrum feeding practice in India. This review article focuses on Colostrum feeding practices in various corners of India and socio-cultural determinants of discarding the first feed and not feeding the baby early. This suggests that all health professional can play important role for further improvement & promotion of colostrums feeding initiation practice.

Keywords: Colostrum Feeding; Pre-Lacteal Feeds; Breast Feeding.

Introduction

The wail of a baby taking its first breath
is the most beautiful sound in the world"

- Meenakshi Desai

"Today's child is tomorrow's citizen." "Healthy child can be a wealthy nation." Wisely said, healthy population is the nation's prosperity, the health of the child should be preserved for making the nation wealthy. One of the basic needs of the healthy child is nutrition. By nature, the foetus gets its nutritional requirement from his/her mother in the womb and after delivery it is born with the natural ability to find the warm touch, self-attach and feed from the breast [1].

Breast milk "the Cinderella substance of the decade" is nature's most precious gift to the newborn and equivalent of which is yet to be innovated by our scientific community despite tremendous advances in science and technology. The first milk of breast, *colostrum*, gives the newborn the best start in life. It provides appropriate nutrition, affection, stimulation and protection against infection [2].

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After birth, the first phase of breast milk is thick, straw-coloured and sticky. People call it 'cheek' or first milk. The shaastras call it the liquor of life, equal to amrith (Peeyush) and science uses the word colostrum. Colostrum is the most nutritious milk for the newborn baby. Besides its nutritive value, the colostrum is known to promote the immune system of the child providing adequate general immunity for the whole life. Now the slogan for the advanced world is "Colostrum in the breast is best for the baby". Customs, superstition, traditions and ignorance sometimes deprive the child from getting the benefit of this [3,4].

Definition of Colostrum

Colostrum is thick lemon yellow mammary secretion that is produced immediately after birth. This lasts for 2-4 days after the lactation has started. Colostrum contains 20% protein, predominant among immunoglobulin, less fat, carbohydrate and colostrum capsules which is saturated with lactalbumin [5].

Colostrum is of two types, that is, colostrum gravidarium which is secreted during the first few days following the delivery and colostrum peuperium, which is secreted after labour [6].

The composition of breast milk varies at different stages after birth to suit the needs of the infant. The three different stages are colostrum which is secreted during the first three days, the transitional milk which is secreted during the following two weeks, and the mature milk which is secreted thereafter. It is universally accepted that breast milk is the best for the infant[7].

Functions of Colostrum

Human colostrum contains 20 specific antibodies to fight viruses, bacteria yeast and fungus. It provides passive immunity to prevent infections in the newborn [5].

It is reported that colostrum contains high level of immunoglobulin. Immunoglobulins are superior in defense in both treatment and prevention of viral infections, bacteria infections, allergies, yeast and fungus. Human colostrum contains high level of IgA in comparison to IgG and IgM. The secretory IgA of human milk is stable and resistant to gastrointestinal juices and enzymes, thus giving passive immunological protection to the digestive tract of the newborn [5].

It is found that colostrum contains protein rich poly peptide (PRP). PRP has been shown to stimulate the thymus to regulate the immune system in the body. PRP stimulates the weakened immune system of newborn and also stabilizes hyperactive immune system due to autoimmune disease and allergies in the body [8].

A study in France measured the human milk fat globules (MFG) size distribution in colostrum and transitional human milk in comparison with fat globulin of mature milk and infant formula related to fat digestive function. Colostrum and transitional milk samples from 18 mothers were collected regularly during 4 days postpartum and compared with mature milk samples of 17 different mothers and 4 infants' formulas. The MFG diameter decreased sigmoidally from 8.9±1.0 micron at <12 hour postpartum days versus 2.8±0.3 micron at 90 hour postpartum. In mature milk the MFG diameter was 4 micron on average and increased with advancing lactation, whereas the droplets in infant formula measured 0.4 micron. So it is suggested that human early colostrum contains larger fat fluids than in transitional and mature human milk and in contrast with the small sized fat droplets in infant formula [5].

Human colostrum stimulates cytokine production. These interleukins regulate duration and intensity of immune responses. They boost T cells' activity and have antiviral and anti-tumour activity. Thus the secretion of cytokine may provide an additional mechanism for the regulation of the neonatal immune system and haematopoiesis [6].

Motilin concentration in human colostrum is higher than cow's colostrum and human mature milk. This high concentration of motilin and gastrin concentration in human colostrum may promote the maturation of the developing gut in neonates [9].

It is revealed that establishment of breastfeeding soon after birth serves two functions, that is, close contact with the mother's body makes newborn feel warm and secure. And early seeking provides the baby with colostrum. The colostrum is higher in protein, fat soluble vitamin, minerals and also contains IgA and other proteins that coat lining of body's intestine and protect the infant against infection and allergy. In addition, this aids in passage of meconium. In these days the composition of the colostrum is ideally suited to the needs of the newborn infants. No pre-lacteal feed or artificial milk is required and it is dangerous to give pre-lacteal feeds before mother's milk comes in [10].

Initiation of Colostrum Feeding

The dangers of pre-lacteal feeds are that they replace colostrum; hence, baby is at a greater risk of

infection and risk of intolerance and allergy. And they interfere with suckling because artificial feeds satisfy hunger, baby sucks less and it becomes difficult to establish breastfeeding. Thus pre-lacteal feeds must be discouraged and 'rooming in' must be promoted [11].

Modern medical science says that breastfeeding is best established by suckling the baby within half an hour of birth. The starting of breastfeeding within the first hour or so of birth is good for mothers, babies and ongoing breastfeeding. A successful first breastfeed has a range of positive effects: it builds the mother's confidence in her ability to breastfeed, the baby starts to receive the immunological benefits of colostrum, baby's digestion and bowel function are stimulated, correct suckling at the breast at this early time may avert later suckling difficulties and the bonding and attachment of the mother and baby are enhanced. After birth baby may remain in an active alert state from 40 minutes up to 2 hours and after which they drop into deep sleep. so immediate breastfeeding after birth is essential to enhance the sucking pattern [8].

A study was conducted in Aligarh (Western UP), India among 212 mothers on breast feeding practices and the benefits of colostrum feeding reveals that initiation of colostrum feeding on the second day was observed in 44.3% of mothers, 35.5% of newborn got breast milk after a lapse of three days, 17.5% on the fourth day and only 5% or 2.6% got it a day after birth. None of the infants received breast milk on the day of birth. This is a contrast to the latest joint WHO/ UNICEF statement; mothers should be helped to initiate breast feeding half an hour of child birth [12].

A study was conducted on the assessment of belief and practices about lactation among 100 mothers of newborn babies in Patna, India. The study reveals that a vast majority (98.2%) of the mothers were breastfeeding, 87.9% mothers used pre-lacteal feeds, only 0.5% breastfed their babies within 6 hours and nearly 50% started after 48 hours. Colostrum was discarded by 82.9% of mothers [13].

A study had undertaken on duration and patterns of breastfeeding among 650 mothers in Delhi. The mothers of infant from 0 to 12 months of age attending health centre were interviewed about the current feeding pattern of the infants and other socioeconomic variables. It was observed that breastfeeding was maintained at a high level (90%) throughout infancy while the time interval between birth and first breastfeed was 24-48 hours in most (48.9%) of the infants. Majority (76.9%) of the infants did not receive colostrum within 1 hour but received pre-lacteal feeds. Hospital born infants received their first feed earlier and were less likely to receive pre-lacteal feeds as compared to those born at home (P< 0.001) [14].

A cross-sectional study was carried out to study the awareness and practices regarding breastfeeding in 335 mothers attending GMCH, Nagpur. It was found that 70.7% mothers had given colostrum to their babies but colostrum feeding was started after birth within 30 minutes (0.6%), within the 12 hours (7.5%), within 24 hours (6.9%) and in 42.4% colostrum feeding was not initiated till 24 hours after birth [1].

A cross-sectional study was conducted on early infant feeding practice in Jinan city, China among 247 mother-infant pairs. The study revealed that breastfeeding was practiced universally, but initiation of colostrum was delayed one or more hours per 51% of subjects. Colostrum was given to 94% of the newborns within the first three days but 34% were given water, artificial milk, glucose or other pre-lacteal feeds as the first feed. Although breastfeeding has probably increased, further promotion in colostrum feeding initiation is still needed in this area [15].

Benefits of Colostrum

Early initiation of breastfeeding helps the newborn eager to latch on to the breast and suckle effectively. The early and frequent suckling increases infant weight gain and maternal milk production, increases meconium excretion and decreased hyper-bilirubinemia in the neonates. Early sucking can also lessen the severity of painful breast engorgement that hinders proper latch on and milk removal for the newborn [8].

It is found that human colostrum is an important source of protective, nutritional and developmental factors for the newborn. It is investigated that low abundance proteins in the aqueous phase of human colostrum after depletion of the major proteins secretory IgA, lactoferrin, lactalbrumin, alpha-lactalbrumin and HAS by immune-absorption using 2-D LC and gel-based proteomic methods. One hundred and fifty one proteins are identified, 83 of which have not been previously reported in human colostrum [16].

It is reported that colostrum are rich in proteins and peptides which play a crucial role in innate immunity when transferred to the offspring and may accelerate maturation of the immune system in neonates. Lactoferrin (LF) exhibits antibacterial, antifungal, anti-viral, antiparasitic and antitumoral activities. It is protective with regard to intestinal epithelium, promotes bone growth and accelerates the recovery of immune system function in immune-compromised individuals [17].

Human milk provides species-specific and age-specific nutrients for the infant. Colostrum, the fluid secreted immediately following the birth, conveys a high level of immune protection, particularly secretory immunoglobulin A (IgA). In addition to the right balance of nutrients and immunologic factors that act as biologic signals for promoting cellular growth and differentiation. It also contains multiple substances with antimicrobial properties, which protect against infection [18].

A study had undertaken to investigate the effect of human milk and colostrum on Entamoeba histolytica in Turkey. Samples of human milk were collected from 5 healthy lactating mothers. The medium with human milk at concentrations 2%, 5%, and 10% was obtained. The results found that the lethal effect of E. histolytica on the medium supplemented with different concentrations of both colostrum and mature human milk was significant during the first 30 minutes. So it concluded that colostrum and mature human milk have significant lethal effect on E. histolytic and protect again its infection in breastfed children [19].

It is revealed that human colostrum is rich in lactoferrin which is an iron binding protein that plays important role against cancer cells and also has antiviral and anti-bacterial properties and anti-inflammatory properties. Lactoferrin can prevent reproduction of bacteria and releases iron for the red blood cells. Lactoferrin receptors have been identified on the immune cells and involved in release of cytokines. Lactoferrin has been implicated in treatment of diseases like cancer, HIV, herpes, chronic fatigue, candidiasis and other infections[5].

Vitamins and minerals are most important nutrients essential for the normal metabolism, growth and development. They act as coenzymes throughout the baby. They help in maintenance of health. They are naturally balanced and provided in the colostrum depending upon the needs. There are more than adequate amounts of vitamins like C, E and A in the colostrum. These vitamins make colostrum to serve as antioxidants in the body [20].

A research was conducted on comparison of free amino acids (FAA) in full term and pre-term human milk and infant formula among 67 delivered mothers in Taiwan. Human milk was obtained during three different stages of lactation (colostrum, transitional and mature milk). Sixty seven samples were collected from 44 healthy mothers of term infants and 23 mothers of premature infants 29 to 36 weeks' gestation. Two brands of powdered term formal (TF-A and TF-B) and two brands designed for preterm infants (PTF-A and PTF-B) were also studied. Ion exchange chromatography was used for free amine acid analysis. The findings revealed that the mean concentration total FAA in human milk was significantly higher than any of the infant formulas. FAA concentration in term and pre-tem human colostral human milk was significantly higher than in human transitional and mature milks [21].

Colostrum Feeding Practices

In our country, child deaths account for two-thirds of total mortality and half of the paediatric deaths occurring in infancy. Two-fifth of infant deaths fall in the first month of life and nearly half of them occur in the first week of life. In 2003, the infant mortality rate was 64 per 1000 live births. The poor breastfeeding practices are to a great extent, a man-made problem, which directly or indirectly contribute to infectious illnesses, malnutrition and mortality in newborns [22].

The 2002 UNICEF report says that every day between 3000 to 4000 infants die from diarrhoea and acute respiratory infection because the ability to feed them adequately has been taken away from their mothers. Ignoring the colostrum feeding is a global problem which promotes mortality, morbidity, personal, national and economic stress [23].

A study conducted in rural India among 820 infants on the effect of colostrum on infant mortality revealed that more than half of the mothers did not know about feeding colostrum to their babies and 8.2% of neonates die who did not receive colostrum [24].

A longitudinal analysis was conducted on infant morbidity and the extent of breastfeeding in the US. The analysed data from 803 mothers revealed that 11.4% of the infants had diarrhoea and 13.2% had an ear infection. Among those infants who received pre-lacteal feeds had 80% increase in risk of developing diarrhoea and 70% increase in the risk of developing ear infection compared with infants who are fed with colostrum and exclusively breastfed [25].

Knowledge is the only instrument of production that is not subject to diminishing returns. One of the best and fastest ways of acquiring knowledge is to insist on remaining ignorant about things that aren't worth knowing. The healthy growth and development of infants are associated with the knowledge of meeting the basic needs of growing infants. Colostrum feeding soon after birth lays the foundation of nutritional needs for the newborn baby. But many mothers are far backward in the knowledge which deprives the newborn from enjoying his needs and rights [26]. So the study aimed to assess the

knowledge and practice of mothers regarding colostrum feeding.

A study was conducted on knowledge and practice of breastfeeding among 600 rural mothers in Delhi. The study found that 52 mothers discarded their colostrum, thinking that it is harmful for the newborn and usually causes constipation, vomiting and other digestive problems. Eighty mothers discarded the colostrum at the advice of older women of the society without having any knowledge regarding its harmful or beneficial effects. Four mothers kept squeezing out their breast milk for 3-4 days as some customary ritual [27]. These findings concluded that poor knowledge leads to dong the wrong practices regarding colostrum feeding.

Breastfeeding is a rich traditional practice in the Indian society. Many social, moral and mythological factors are attached to the practice of colostrum feeding. In traditional Indian societies, majority of the mothers reject the colostrum, considering it dirty, indigestible and harmful. However, recent scientific researchers recognised colostrum as the most suited food for the baby world over [28]. In view of these changing concepts and practices, it appears pertinent to estimate the present status of colostrum feeding practices.

Infant mortality is the leading cause in developing countries like India. The country's limited resources and health infrastructure and paucity of trained personnel emphasise to enhance the cost-effective measures through breastfeeding practice to bring down the mortality rate and achievement of the goal 'Health for All 2020 AD'. Recently there has been a surge of interest in the relative value of colostrum feeding compared to artificial feeding. Promotion of breastfeeding practice including colostrum feeding is a high priority concern today throughout the world and more so in the developing countries. Hence a series of steps have been taken across the world to increase the incidence, duration and initiation of breastfeeding [28].

Ever since this new information has emerged the public health agencies throughout the world have initiated awareness generation programmes for promotion of use of colostrum and breastfeeding. In view of this important upsurge it is felt necessary to work out the present status of knowledge and practices about colostrum feeding mothers.

Breastfeeding is a valuable measure of beliefs, practices and traditions. It is also subtle indicator of the changes that occur in the social, economic and cultural values of a society. A large number of traditional practices are positively harmful but are widely practiced in India. In certain communities mothers are advised to discard colostrum and give pre-lacteal feeds like honey, janam ghutti, sugar water or tea [29].

A survey was conducted in different states of India on the perception and practice of colostrum. Seventy percent of women from nine states (Maharashtra, Uttar Pradesh, MP, Bihar, Karnataka, Gujarat, Rajasthan, Tamilnadu and West Bengal) said they discarded colostrum. Women in MP explained that they do not remove any fixed amount. Women in Bihar and West Bengal said they remove one or two to five or six teaspoonfuls because the first milk is stored in the body for a long time and is stale. Seventy three percent of women in five states (MP, UP, Maharashtra, Rajasthan and Gujarat) said they remove only a few drops of colostrum before feeding the baby to ensure a clean and clear passage and to avoid the first secretion causing colic or diarrhoea to the infant [4].

A study was conducted to assess the practice of breast feeding with special reference to lactation failure among 274 lactating mothers in a remote rural area of Karnataka. It was revealed that majority (97.09%) of mothers breastfed, but 58.4% rejected colostrum while a small number of mothers (19.8%) started supplementary feeds. Initiation of colostrum within four to six hours was noted only in 8.03% 0f mothers where as 53.07% and 9.72% of subjects started sugar water and castor oil as pre-lacteal feeding respectively [7].

Colostrum, nature's own vaccine, which provides primary defence against infantile infection, is probably the single most cost-effective child survival measure available. Yet in this fast moving modern world, this fact is being neglected by many mothers, resulting in ill health and increasing morbidity among children. It is preferable to avoid any pre-lacteal feeds to prevent the potential risk of infection and mothers should be encouraged to put the baby straight to the breast as soon as she has recovered from the exhaustion of labour[18]. The physiological inadequacy of lactation during the first two to three days does not impose any risk to a healthy newborn baby as long as he is not denied the virtues of colostrum. So it is of paramount importance that all mothers must be aware of the advantages of natural dynamics of nurturing, and this practice must be preserved, protected and promoted by all means [30].

Recently UNICEF and WHO extended the special role of maternity services to protect, promote and support early initiation of breastfeeding and all newborns should have the right to get first milk from their mothers. For breastfeeding to be successfully initiated and established, mothers need the active

support following birth. Ideally all health personnel with whom new mothers come into contact will be committed to promote colostrum feeding and will be able to provide appropriate knowledge on colostrum feeding [20]. This source of evidence encouraged the investigator to take a supportive role by assessing the status of colostrum feeding practices.

Nothing can be more damaging to a newborn's health than depriving it of the first milk of its mother. Colostrum is an unequalled way of providing ideal food for the healthy growth and development of the newborn (WHO/UNICEF statement). Each individual has self-care potential in assuming their responsibility, but for newborns, the mother is the first caregiver who is responsible for safeguarding her child's health and should volunteer to take turns to feed the baby with her first milk [12]. Thus the investigator felt the need to assess the knowledge and practices associated with colostrum feeding, an essential step to bring about positive behavioural changes in postnatal mothers.

Newborn babies constitute the foundation of a nation and no sensible government can afford to neglect their needs and rights. Healthy and sturdy babies are likely to evolve as physically and mentally strong adults and enhanced quality of human resource development. Every minute 50 babies are born in India accounting for 20 million births every year. Almost three neonates die every minute leading to 1.2 million neonatal deaths every year, thus accounting for 31% of global neonatal deaths. In 2003, the NMR was around 45 per 1000 live births and it accounts for nearly two-thirds of IMR [6].

The colostrum is thick, straw-coloured and sticky. Sometimes it is called 'bad milk' or just ignored as being 'not milk' as opposed to 'real milk.' Many women feel that the first milk has been stored in the body for months and they consider it stale and unhealthy [4].

A cross-sectional study was conducted to assess existing breastfeeding patterns, beliefs and attitudes among 921 Kurdish mothers, Turkey. The analysis revealed that nearly all mothers had breastfeed their infants but about 62.2% of the mothers had waited for at least 24 hours before initiating breastfeeding. Almost half of the infants received sweetened water as a first feeding. Early introduction of sugared water and supplementary feeds was considered desirable [31].

A descriptive study was conducted on assessment of newborn care practices in low socioeconomic settlements of Karachi, Pakistan among 525 recently delivered women. The analysis revealed that 44.8% women reported giving lacteals, only 41.7% gave colostrum, 3.1% fed babies with animal/formula milk as the first feed [32].

A study was conducted to assess knowledge regarding neonatal feeding practices among 387 women in Pakistan. Results found that 98.6% mothers had knowledge that during neonatal period, breast milk is the preferred feed, however, honey (28.7%), ghutti (27.8%), and water (11.8%) were given in order to reduce colic and act as a laxative [33].

A study had undertaken to determine the knowledge and attitude of teenage mothers towards breastfeeding among 80 primigravida mothers attending the antenatal care services at the Liverpool Women's Hospital. The study revealed that out of 40 teenage primigravida, 23 had poorer knowledge about breastfeeding and only one teenager had knowledge about colostrum. The author emphasized more research is needed to understand how to improve the knowledge and motivation of adolescent girls to breastfeed [34].

A study was undertaken to assess the knowledge, beliefs and practices of infant feeding practices during the first six months of life in a rural area in Tanzania and 107 mothers were interviewed. The study results showed that 64% of the sample was put to the breast within two to eleven hours, pre-lacteal feeds were given to about 25% of the infants. The type of pre-lacteal fluid given was mainly glucose water in hospital and plain water with home deliveries. Colostrum was discarded by 46% of the mothers [35].

A descriptive study was conducted on assessment of knowledge, attitude and practical regarding colostrum feeding among 310 mothers in five rural communities in Nassarawa state, Nigeria which revealed that 54% of mothers did not give colostrum to their babies. Only 28.6% of babies were breastfed within 24 hours of birth. The pre-lacteal feeds ranging from water, formula or herbal tea were given by all the mothers. It was observed that 52.3% mothers were illiterate and 47.7% were literate. Giving babies colostrum was seen more amongst mothers with higher level education ($P < 0.001$) [36].

A descriptive study was conducted to assess the knowledge and practices of mothers regarding colostrum feeding among 2105 mothers in rural areas of Bangladesh. The findings showed that only 12% stated that the first food for newborn should be colostrum, 10% gave colostrum only, while the rest gave pre-lacteal feeds to their newborn. A significant relationship was found to exist between knowledge and practice of giving colostrum. Also women between 20 and 24 years of age were more likely to give colostrum feeding [37].

A longitudinal study was conducted to assess the breastfeeding practices and beliefs among 52 mothers of infants aged 0-12 months, in an urban community of Lahore. The findings showed that 65.4% mothers discarded colostrum and pre-lacteal feeds were given to 94% infants. Water was considered essential from the very first day in 55.4% cases and breastfeeding was initiated (47.4 ± 32.58) hours after birth. The practice of discarding colostrum and replacing it with a wide range of prelcteal feeds and late initiation of breastfeeding has implications for further strategies [38].

A longitudinal study was conducted to assess the socio cultural factors influencing nutritional states of infants among 200 infants in a rural area Aligarh, India. The researcher found that 99% of the infants received a pre-lacteal feed, especially ghutti (94%) within 6 hours of delivery, 99% were breastfed between 6-72 hours of birth. Almost all mothers believed ghutti cleanses the intestine and that colostrum is harmful. Colostrum was discarded by 94% mothers, 73.5% of infants received top diluted milk because they believed undiluted milk causes diarrhoea [39].

A pilot study was conducted practice on current breastfeeding and complimentary feeding practice among 35 mothers in a slum area, New Delhi. Data and it was found that 54.3% mothers initiated breastfeeding after 3 days of child birth, colostrum was discarded by 77% considering it dirty and unfit for the baby, 80% gave pre-lacteals like honey, unboiled water, sugar syrup and ghutti; mothers considered them as cleansing agents for discarding colostrum [40].

A descriptive study was conducted on breastfeeding practices in four randomly selected villages in western Uttar Pradesh among 212 pregnant women. The results revealed that only 11.8% of the women gave colostrum to their infants and 88.2% did not give it in spite on constant efforts to motivate them to do so. The reason for not giving colostrum cited by 63.6% of the women was the religious beliefs that dropping milk on mother earth would ensure a continuous flow of milk, otherwise breast milk would dry up. Some believe it was thick (12.8%), unclean (11.8%), and its removal would make suckling easy for the baby (11.8%) [12].

A descriptive survey was conducted on colostrum feeding practice in seven districts of Madhya Pradesh among 212 women reveals that only 51.5% as stating that colostrum was important and other reasons for not feeding the baby with colostrum were dirty (25.9%), harmful (23.0%), baby will become ill (13%), causes pain in the abdomen (3.4%), too thick (2%), and stagnant (1.4%). Almost a third of the respondents did not give any reason for discarding it [41].

A cross-sectional study was carried out on the awareness and practices regarding breastfeeding among 335 mothers, attending GMCH, Nagpur. Although breastfeeding was universal, exclusive breastfeeding was being practised in only 19% of infants. In 42.4% breastfeeding was initiated more than 24 hours after birth, and pre-lacteal feeds were given by 66.3% mothers. The commonest reason for discarding colostrum and early introduction of artificial feeds was insufficient milk as perceived by mothers. Among pre-lacteal feeds honey was the most popular feed given by 54.2% followed by jaggary water by 28.3%, glucose water by 15.7%, and boiled water decoction was routinely given to 46.6% newborns to improve their digestive capabilities [1].

A study had undertaken on knowledge and practice about breastfeeding and food supplementation of the newborn among 100 postnatal mothers at the Patna Medical College and Hospital, India. The findings showed that 18 mothers were not breastfeeding due to poor milk output, breast disease and lactation failure, 87.9% supplemented with pre-lacteal feeds, 47.5% with sugar water, 16.0% with plain water, 13.55% with milk powder. The colostrum was discarded by 82.89%, breastfeeding was initiated within 6 hours of birth by only 0.5% mothers, 50% began suckling on the third day and the rest 48 hours after birth [42].

Socio-Cultural Determinants of Colostrum Feeding Practice

Colostrum feeding is a valuable measure of beliefs, practices and traditions. It is also subtle indicator of the changes that occur in the social, economic and cultural values of a society. The epidemiological factors which are correlated with colostrum feeding practices mainly are parity of mother, educational status, residence, occupation, parental income, sex of the child, order of birth etc [29].

Breastfeeding is a valuable measure of beliefs, practices and traditions. It is also subtle indicator of the changes that occur in the social, economic and cultural values of a society. Many cultures believe that breastfeeding should be started after a feed of honey, ghee and herbal feeds. Some mothers think colostrum as thick, viscous and heavy to digest for the newborn baby. Some practiced squeezing out some milk before feeding the baby. If the child sucks at the breasts that are filled with milk, it may go into the air passage producing cough, difficulty in

breathing, vomiting and fever [4].

A longitudinal study was undertaken to assess the existing colostrum feeding practices in relation to important epidemiological correlates among 101 infants in S K Institute of Medical Sciences, Srinagar (Kashmir), India. It was observed that there was association between colostrum feeding practice and educational status, employment, family income. Infants of literate parents received colostrum feeding in excess (81.25%) than those who had uneducated parents (40.00%). Similarly in employed mothers, the proportion of colostrum fed infants was (20.00%) less than those unemployed mothers (61.45%). First born and female infants had relatively less chance of receiving of colostrum feeding. Families with low socio-economic score (6.12) practised colostrum feeding in excess than families with high socio-economic score [29].

A study was undertaken to investigate the social customs and beliefs surrounding colostrum feeding among 300 women at the Umaid Hospital, (Jodhpur) Rajasthan, India. The women ranging in age from 15-42 years were interviewed to collect information on social and family variables on colostrum feeding. It was found that 34.7% were residents of rural areas and the respondents believed in inaugural feeding with honey, animal milk and janam ghutti; on the other hand 34.7% were rural women preferred jaggary water and tea as the inaugural feeding. Ceremonial rituals prior to beginning colostrum feeding was favoured by 65.8% urban and 46.1% rural women. Nearly 33% urban and 40.6% rural mothers favoured colostrum feeding restriction during maternal illness and during illness of the child, 48.4% urban and 51.9% rural women favoured colostrum feeding restriction. It was observed that 79.7% of the women gave inaugural feed because of advice of an elderly family member or family tradition. The colostrum feeding practices reflect a strong interlocking influence with demographic variables as do the preferences of women for inaugural feeds [43].

A study was conducted on practices related to breastfeeding among 200 rural working and non-working women of Haryana. Analysis revealed that 82% mothers were aware that breastfeeding should be started within 24 hours after birth, 72% mothers had given pre-lacteal feed in the form of ghutti and honey within 24 hours of birth, only 28% of mothers breastfed the infants within 3 hours of birth and colostrum was considered bad for infants health by more than 50% of mothers [44].

A cross-sectional study was conducted on breastfeeding intentions, patterns and its determinants including socio-economic, religious and ethnic background among 518 mothers with infants attending hospitals in La Paz, Bolivia. The results found that the exclusive breastfeeding rate in infants < 4 months was 46%, the use of pre-lacteal feeds (P<0.0001, n=436), not feeding the infant colostrum (P=0.0008, n=436). Rural mothers were four times more likely to discard the colostrum than urban mothers (P=0.0110, n=501). Avoidance of pre-lacteal feeding and use of colostrum were associated with demographic determinants [45].

A study was carried out to find out the popularity of the practices of breast feeding in Delhi among 600 mothers. It was observed that 28.7% were illiterate and 44% were educated up to middle class. Most of the educated mothers opined that colostrum feeding should be given to the newborn. Few primipara (10.6%) could allow colostrum feeding while 22.6% multipara had given colostrum feeding to their baby after birth. It shows that the parity of mothers influenced the colostrum feeding practice [13].

A recent study on Breastfeeding Practices among Rural Mothers-Case Study of Loni Village, Ahmednagar, India revealed that 60% of the mothers had feed colostrums of their babies on the first day. Prelacteal feed were given up to 42% infant. The majority of the mother (43%) started breast feeding their infant within1hour after the child birth [46].

Another cross-sectional study conducted on Infant feeding practices in Bhaktapur, Nepal, health facility based survey which found that three quarters of all mothers reported that they did not receive any information on breastfeeding during the antenatal visit. Two hundred and ninety five (91%) mothers gave colostrum and 185 (57%) initiated breastfeeding within one hour of delivery. The prevalence of exclusively breastfeeding at 1, 3 and 6 months were 240 (74%), 78 (24%) and 29 (9%), and partial feeding was initiated in 49 (15%), 124 (38%) and 257 (79%) babies, respectively. The main reason, according to the mother, for introducing other foods before six months of age was insufficient breast milk. In logistic regression analyses, mother's knowledge on how long child should be given only breast milk and not living in joint families were associated positively with exclusive or predominant breastfeeding for four months or beyond [47].

Conclusion

Colostrum feeding for the newborn is probably the single most cost-effective child survival measure available and the infant's primary defence against

infection. Yet in this fast moving modern world, this fact is being neglected by many mothers, resulting in ill health and increasing morbidity among children. Colostrum feeding is of extreme importance for safeguarding health and welfare of the growing infant and this practice must be preserved, protected and promoted by all means. The time is ripe enough to awaken the healthcare providers who have great influence on the family, especially on the mothers on colostrum feeding practice in the hospital and community level.

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Review Article

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Sex Education and Adoption Education among Adolescent: A Comprehensive Review of the Literature

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Abstract

This review article focuses on perspective of awareness on healthy sex practice among adolescent through proper sex education and adoption of sex education in their practical life. Current information shows that adolescents are inadequately informed about their own sexuality, physical wellbeing and their health, the major source of information being the media and peers. Whatever knowledge they have is incomplete. Low rate of educational attainment, limited sex education activities, and inhibited attitudes towards sex, attenuate this ignorance leading to unwanted pregnancy, illegal abortion, mortality and morbidity among young girls. Knowledge based on gender, education, and place of residence with uneducated rural girls having the least information. Adolescents need the opportunity to express positive relationships, constructive behavior, to learn skills and acquire knowledge. They need access to information counseling and services that will help them to establish healthy relationship and protect themselves from unwanted pregnancy and STDs.

Keywords: Sex Education; Adolescent; STDs; Knowledge; Attitude.

Introduction

Adolescence is the period of transition from childhood to adulthood. It is the period of life between ages of 10-19 years. This period is very crucial, since these are the formative years of life of an individual, when major physical, psychological and behavioral changes take place. This is an impressionable period of life. This is also a period of preparation for undertaking greater responsibilities including healthy responsible parenthood in future. Adolescents form prospective human resource for the society.

In the world, one in every five people is an adolescent. Out of 1.2 billion adolescents' worldwide, about 85% live in developing countries and the remaining live in the industrialized world.

In India there are 15 million adolescents compromising 21% of India's total population. The health related experiences, attitude and behavior of these youth are intimately linked with their social, educational and economic aspirations and options have a strong impact on the future of Indian society. In India 33% of women are married at the age of 15 and almost two- third by the age of 18. Only 7% of married adolescents in India use any one method of

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contraception. Adolescents lack information about sexuality.

Sexuality is a fundamental aspect of human life: it has physical, psychological, spiritual, social, economic, political and cultural dimensions.

Sexuality education is the lifelong process of acquiring information and forming attitudes, beliefs, and values about identity, relationships, and intimacy. It encompasses sexual development, reproductive health, interpersonal relationships, affection, intimacy, body image, and gender roles. Sexuality education addresses the biological, socio-cultural, psychological, and spiritual dimensions of sexuality.

Sexuality education first established on a national scale in Europe in the 1960s, developing countries introduced school-based sexuality education in the 1980s. The emergence of HIV/AIDS gave many governments the impetus to strengthen and expand sexuality education efforts and, currently, more than 100 countries have such programs, including almost every country in sub-Saharan Africa (McCauley and Salter, 1995; Smith, Kippax, and Aggleton, 2000; Rosen and Conly, 1998). U.N. organizations such as UNFPA, UNESCO, and UNICEF have traditionally been the leading international supporters of sexuality education. The World Bank, through its intensified efforts to help countries fight HIV/AIDS, has also become a major funder (World Bank, 2002b). Many other bilateral donors and private foundations and organizations support and promote sexuality education worldwide.

The need for demand is growing in developing countries for sexual and reproductive programmes for young people. Research indicates that current program do not match the needs and health seeking behaviors of young people. Behavioral theories and experts agree that adolescents must be taught generic and health specific skills necessary for adopting healthy behaviors.

Emergence of AIDS has focused everybody's attention towards the role of sex education. AIDS and other sexually transmitted diseases (STDs) are common today, but many parents, teachers and students do not understand these diseases and their prevention. Young people for a variety of reasons such as developmental issues, peer pressure, social influences etc. is becoming sexually active at an early age more than ever before. However, this early sexual activity is often not accompanied by knowledge about its consequences.

The absence or lack of sex education puts the youth at risk for unplanned pregnancy and various STDs. It also results in to a phenomenon of unwed mothers, which is quite common in Europe, Africa and America and also being reported from India. Unplanned pregnancy when subjected to termination may cause maternal morbidity as well as mortality.

A study of nurses who care for adolescents indicated that although nurses recognize the importance of sexuality, they are not addressing sexuality issues in their practice because of lack of knowledge, embarrassment, and their belief that the patient would be embarrassed. This review article focuses on need for sex education, counseling and services among adolescent that will help them to establish healthy relationship and protect themselves from unwanted pregnancy and STDs.

Importance of Sexuality Education Programs

Sexuality education aims to achieve a range of outcomes, these objectives include:

- Reduced sexual activity (including postponing age at first intercourse and promoting abstinence);
- Reduced number of sexual partners;
- Increased contraceptive use, especially use of condoms among youth who are sexually active for both pregnancy prevention and prevention of HIV/AIDS and other sexually transmitted infections (STIs);
- Lower rates of child marriage;
- Lower rates of early, unwanted pregnancy and resulting abortions;
- Lower rates of infection of HIV/AIDS and other STIs;
- Improved nutritional status. Sexuality education programs are part of a suite of proven interventions that include activities such as peer education, mass media, social marketing, youth-friendly services, and policy dialogue and advocacy. School and livelihood opportunities complement and reinforce these approaches.

Strategies to overcome opposition to sexuality education are:

- Inform the debate
- Involve traditional and religious leaders..
- Communicate openly
- Involve caring adults
- Mobilize the community

- Training teachers.
- Selecting and motivating teachers

Literature Studies show that Effective Program can:

- Reduce misinformation;
- Increase correct knowledge;
- Clarify and strengthen positive values and attitudes;
- Increase skills to make informed decisions and act upon them;
- Improve perceptions about peer groups and social norms; and
- Increase com abstains from or delays the debut of sexual relations;
- Reduce the frequency of unprotected sexual activity;
- Reduce the number of sexual partners; and
- Increase the use of protection against unintended pregnancy and STIs during sexual intercourse. communication with parents or other trusted adults.

In order to collect the information, the investigator used online sources like PubMed, Google and also surveyed latest books and journal. Review was done on the research and non-research literature.

The reviewed literature has been focused on following areas.

- Need for sex education.
- Knowledge on sex education.
- Contraception.
- Human sexuality and sexual behavior.
- Sexually transmitted disease.

Need for Sex Education

Major Goals of Sexuality education are:

- Improving knowledge, attitudes, and behaviors
- Increasing utilization of YRH services and products
- Creating a supportive environment
- Explain and clarify feelings, values and attitudes
- Develop or strengthen skills
- Promote and sustain risk-reducing behavior.

A study investigated the needs and preferences regarding sex education among college students. The study was conducted on four campuses of a university with nearly 30,000 undergraduate students located in Eastern China. Results showed that before college, 47% of respondents had received no school –based education on sexual behaviour; however all respondents had taken a class covering reproduction, typically beginning in middle school (78%). Higher proportions of males than females favored including sex therapy and masturbation in a hypothetical course. Males and females differed on how best to convey information on sexuality with females generally favouring private methods, such as reading. The study findings concluded that comprehensive school based sex education is needed for Chinese youth [1].

A study investigated the association between sex education and youth's engagement in sexual intercourse, age at first intercourse, and birth control use at first sex. The sample included 2019 never-married males and females aged 15-19 years. The result of the study showed that receiving sex education was associated with postponing sexual intercourse until age 15 and using birth control methods, the first time they had sexual intercourse [2].

A study investigated the effectiveness of diverse campaigns on sexual education carried out in Spain. The results of this analysis showed a progressive increase in the percentage of abortions among teenagers between 15 and 19 years. The total numbers of pregnancies have grown from 20% in 1990 to 44% in 2000 arriving at 46.6% in 2003. The findings revealed that, the number of abortions in the last 5 years has multiplied by three without achieving stabilization in the number of new abortions per year and the evolution of the declared sexually transmitted diseases shows an increase of 79% in syphilis and a 45.8% in uncomplicated gonorrhoea [3].

A study was conducted on evaluation of drama-in –education programme to increase AIDS awareness in South African high schools. One thousand and eighty students participated in the first survey and 699 in the second. Improvement in knowledge ($P=0.0002$) and attitude ($P < 0.00001$) about HIV/AIDS was demonstrated in pupils at schools receiving the drama programme. The findings indicated that adolescents' risk of becoming infected with HIV is increased by a lifestyle involving a greater degree of exploration, experimentation, and rebellion. The high prevalence of sexually transmitted diseases and the high rate of adolescent pregnancy confirm the existence of a pattern of early onset of sexual intercourse, multiple partners and a low

incidence of condom use [4].

A study was done to test the effects of HIV/AIDS education program. A total of 2026 sixth and seventh grade pupils participated at baseline survey (85%) and 1785 at follow-up. The program was designed to reduce children's risk of HIV infection and to improve their tolerance of and care for people with AIDS. Result showed that intervention pupils reported significantly higher scores for the outcome measures than pupils attending the comparison schools [5].

A study was conducted among the Secondary school teachers with the view point on sex education. This study assessed the knowledge of human sexuality among 351 secondary school teachers in Ibadan, Nigeria, and their attitude towards inclusion of sex education in the schools' curriculum. Results revealed that one of the respondents was able to define sex education adequately and 34.8% could not identify content areas of sex education for inclusion in the school curriculum. Surprisingly, married female teachers and those aged 40 years and above were less favourably disposed to the introduction of sex education in schools [6].

A cross-sectional study was done on teacher's perception on sex education. A total of 249 teachers were studied. Their mean age was 38.7 years +/- 8.08 SD. Two hundred and ten teachers (84%) were females. Two hundred and twenty-four teachers (90%) were married and 168 (67.5%) were of Roman Catholic faith. The awareness of reproductive health activities was high. There was a high proportion of respondents who approved of sex education for adolescents (77.5%) and an equally high proportion who believed that it was important (89%). One hundred and ninety-eight (79%) of the respondents were willing to conduct sex education. It was concluded that secondary school teachers in Enugu urban were willing to offer sex education to adolescents under their care irrespective of their religion, sex or marital status [7].

A study investigated the knowledge about sexuality among middle school students. In exchange for a free physical examination, 116 youths from middle schools in Texas consented to answer open-ended questions about their sexual behaviour, contraceptive knowledge, and type and source of knowledge of sexuality. The students ranged in age from 12-15 years (mean age, 13 years); 27% were Hispanic and 73% were black. Sex education was not a part of the curriculum at the 4 schools from which respondents were drawn. When asked what sex meant to them, 37% of female adolescents and 23% of males indicated they did not know or it did not mean anything. Among female adolescents, 53% listed their mother as their primary source of knowledge about sexual matters and 6% listed a friend. Among males, fathers (17%) and friends (17%) were the most frequent knowledge sources [8].

Knowledge and Attitude towards Sex Education

A cross-sectional study was conducted on knowledge and attitude of adolescent girls towards reproductive health and related problems at Bilaspur. The sample consisted of 500 randomly selected adolescent girls in the age group of 15-19 years. The findings revealed that about two-third (75.6%) of the girls were aware about all the signs of adolescence and 88.8%were aware about the need for healthy life. Majority (80%) had idea about various aspects of sex education.80.4% of girls had sex education. Emergency contraceptives were known only to 19.6 %. 31.6% were aware about STDs could be prevented by the use of condoms. Only 51.2% were aware about right legal age of marriage for girls [9].

A study was conducted to determine knowledge of human sexuality, physiology of reproduction and contraception, among first Year College girls and also assessed parental education and socioeconomic back ground on their level of awareness. A sample of 530 females from three girls colleges were provided questionnaire. Findings showed that 59% possessed adequate knowledge regarding sexual matters and was positively related to educational status of their parents and residence in hostel. None of them had experienced sex and all of them had heterosexual inclination. The investigator emphasized the significance of incorporating sex education in to school curricula so that girls acquire correct knowledge from reliable and socially acceptable sources rather than from pornography [10].

A study was conducted on knowledge and acceptance of sex education at Agbo-Oba, Nigeria. Data on knowledge and attitudes toward sex education was collected from 178 females and 224 males, 15 years of age or older,. 63.4% of the male respondents and 70.2% of the female respondents had some knowledge of sex education. In all age groups, at least 60% of the respondents knew about sex education. Respondents' source of sex education included parents (24.6%), friends (36.8%), school teachers (18.4%), books and magazines (64.7%), health personnel (6%), and churches (1.5%). Respondent knowledge of specific components of sex education was limited [11].

A study was conducted to assess the knowledge

and attitude towards sex education among secondary school teachers in Enugu. A cross-sectional study of 300 teachers drawn from nine randomly selected secondary schools in Enugu metropolis was carried out. Pre-tested self administered structured questionnaire was used as instrument for data collection. Results showed that (23.0%) had adequate knowledge on sex education and 282 (94.0%) approved the inclusion of sex education into the school curriculum. The commonest reason for disapproval of sex education was fear that it would lead to promiscuity amongst the students. Educational status and marital status of the teachers were significant determinants of positive attitude to sex education $p<0.05$. The most appropriate age to introduce sex education according to the teachers was 11-15 years. Two hundred and thirty eight (79.3%) respondents were of the opinion that teachers needed to be trained to provide sex education to students and 244 (81.3%) admitted that sex education was not in the school curriculum. So the secondary school teachers are in support of provision of sex education to students. So that there is need to include sex education in the school curriculum [12].

A study evaluates the effectiveness of a school-based AIDS education program for secondary school students in the local government area of Ibadan, Nigeria. It compared the knowledge, attitude, and sexual risk behaviors of 233 senior students who received comprehensive health education intervention with 217 controls. Baseline data showed that there was no significant difference between the two groups as to their knowledge and attitudes on HIV/AIDS and their sexual behaviour. End line comparisons, however, reveal that the knowledge about HIV transmission and prevention was significantly higher (P 0.05) in the intervention group. Furthermore, 92.8% of the intervention students as compared to only 56.7% of the controls felt AIDS constituted a problem in Nigeria, indicating better attitudes among the intervention group. In conclusion, the education program was successful in improving the student's sexual practices as well as their knowledge and attitudes regarding HIV/AIDS.[13]

An experimental study was conducted on the effectiveness of structured teaching program in improving knowledge and attitude of school going adolescents on reproductive health in in Dharan town of Nepal. Structured teaching program consisting of information on human reproductive system was used as a tool of investigation for the experimental group, whereas Conventional teaching method was used for the control group. A total of 200 Adolescent school students were included in this study. The mean (+/-SD) pre-test score of the experimental group on knowledge of reproductive health was 39.83 (+/- 16.89) and of the control group was 39.47(+/- 0.08). Post-test score after administration of the structured teaching program was (84.60+/-10.60) and of the control was (43.93+/-10.08). Hence the study findings revealed that use of structured teaching program is effective in improving knowledge and attitude of the adolescents on reproductive health [14].

A study was done to assess the knowledge, attitude, and practices of Omani adolescents about reproductive health in a secondary school; a sample of 1670 boys and 1675 girls were studied through a self – administered questionnaire the adolescents were asked about puberty, marriage birth spacing, AIDS and sexually transmitted infections. Only half of the sample knew the changes at puberty of their own sex, while even fewer knew the changes in the opposite sex. Girls were inclined significantly towards later age of marriage than boys. About two – third of the adolescents had a positive attitude toward modern contraceptive methods and intended to use them in the future. Knowledge of fertility period and sexually transmitted infections were poor [15].

A descriptive cross-sectional survey was carried out to assess knowledge, attitude and perceptions of the teacher's role in sex education in public schools in Nigeria. The study collected information from 305 secondary school teachers selected by multi-stage random sampling method from Osun state, Nigeria, using a pre-tested semi-structured questionnaire. The finding revealed that knowledge about key reproductive issues was poor and inadequate. Knowledge of more than one contraceptive method was low (39.0%), Condom was most frequently mentioned (59.3%). The teachers exhibited poor perception of their role in sex education to their students. 52.8% of teachers placed the sole responsibility for sex education on parents and only 20.7% found that it should start before age 10 years of age [16].

Contraception

STDs and HIV infection are other major morbidities of sexual activity. While adolescents and young adults age 15 to 24 accounts for only one-quarter of the sexually active population in the U.S., nearly one-half of all new cases of STDs occur in this age group [17,18] Teens age 10-19 are at higher risk for acquiring STDs for a variety of behavioral, biological and cultural reason [17,18,19] Nearly 4 million new STD cases occur each year among teens [17]. As a result, about one-third of all sexually active young people

become infected with an STD by age 24 [17]. Data from the 2006 STD Surveillance Report demonstrated increases in rates of gonorrhea, syphilis, and chlamydia in the 15-19 year old age group. This data covered Region V which includes Ohio[19].

A study investigated a comparative analysis of parents' and teachers' view points on contraceptive practice among adolescents in Port Harcourt, Nigeria. The study compares the viewpoint of parents and teachers on contraceptive practice by sexually active adolescents in the study environment. Findings showed that there was significant difference in opinion ($P < 0.05$) between parents and teachers on the use of contraceptives by adolescent girls. Most (79.1%) parents did not encourage girls to use contraceptives. However, a substantial number (45.8%) of teachers would similarly not encourage adolescents to use contraceptives. Based on the findings, it was concluded that for family planning program directed towards adolescents to succeed parents' and teachers' view point must be put into consideration. In addition, teachers and parents need training in reproductive health [20].

A study was conducted among in-school adolescents in six secondary schools in the health districts of Ikenne Local Government to assess the sexual behaviour, contraception and fertility experiences of the adolescents. Relevant information was collected from 1140 in-school adolescents with the aid of pre-tested, structured, self-administered questionnaires, selected by using multistage and stratified random sampling techniques. The mean ages at first intercourse were 13.9 +/- 2.8 years and 14.8 +/- 2.4 years for males and females respectively. Boys initiated sex earlier than girls. This difference was found to be statistically significant ($p<0.05$). Sexual intercourse had been experienced by 28.5% of the adolescent students, significantly more (37.6%) males than females (20.4%) the school adolescents that responded as being married were 4.5% (26 males, 23 females) of the respondents. Knowledge on contraception was 36.9% and 22.1% for male and female students respectively. Current use of contraception was equally low, and was found to be 10.9% and 6.0% for males and females respectively [21].

A study was conducted on knowledge, attitude, and practice of family planning among senior high school students in north Gonder, Ethiopia, in May 1993. Sexual experience, knowledge, attitude, and practice of contraception were studied among 991 senior high school students 15-17 years old in 3 secondary schools. 304 (30.7%) students reported that they had experienced sexual intercourse. 14 (4.6%) of these students had started sex life at 14 years of age. 150 of them (49.3%) had sex only with boyfriend or girlfriend, and 59 (19.4%) with a prostitute. 44 (14.5%) had sex with more than one of these. Out of 83 sexually active female students 25 (30.1%) reported having been pregnant. Only 4 students admitted to having had an abortion. 750 (75.7%) students claimed that they knew at least one method of modern contraception 265 (27.5%) cited books; 185 (19.2%) cited friends; 122 (12.7%) cited the mass media; and 27 (2.8%) mentioned sexual partners. 533 (53.8%) students wanted to have sex with only one partner; 48 (3.8%) preferred many partners; and 13 (1.3%) did not want sexual intercourse at all [22].

A cross-sectional descriptive study was conducted on knowledge and perceptions of adolescents in the age group of 10-19 years in two districts of Kenya. 1820 adolescents were subjected to a self-administered questionnaire that collected demographic and health data as well as perceptions of induced abortion. Result showed that more than 90% were aware of induced abortion. Knowledge of Induced abortion correlated positively with level of education ($P < 0.01$). The study concluded that the adolescents are aware of abortion and the related complications, but there is more variability in their knowledge and preventive measures [23].

The Department of Health and Social Security (DHSS) in Great Britain issued "guidelines" to doctors in 1967 stating that it was permissible to give advice and contraceptive agents to underage females without parental consent. The issues can be reduced to this question: is a child of less than 16 years of age legally competent to seek contraceptive advice and treatment without the knowledge and consent of a parent or guardian. The Court of Appeal approached the problem assuming that the solution was to be found in the various Acts of Parliament, and it looked at every statute that dealt with children to learn what Parliament thought of parents. A majority of the House of Lords concluded that the question of birth control for minors was essentially a medico social issue which, in exceptional circumstances, was best left to the clinical judgment of the appropriate health professionals, and that there was nothing in any statutory enactment which vested the exclusive right in a parent or guardian to permit or prohibit a girl below the age of 16 years to obtain professional advice or treatment relating to contraception [24].

Human Sexuality and Sexual Behavior

Some individuals have voiced concern that more comprehensive discussions about sexual behavior may encourage teens to become sexually active. The

2007 With One Voice survey [25] Sexual Health and Adoption Education Project: Final Report 7 found that 53% of teens and 52% of parents of teens reported that the statement, "Don't have sex, but if you do you should use birth control or protection," would not encourage teens to have sex. In the NPR/Kaiser/ Kennedy School study , two-thirds of respondents were more concerned that not providing information about how to obtain and use condoms and contraceptives might result in more teens having unsafe sexual intercourse than whether the information would encourage teens to have sexual intercourse. Similarly, in the 2008 Ohio ODH survey [26], 92% of parents strongly disagreed that talking about sexual issues would encourage their 13-18 year old adolescent to have sex and 82% of 13-18 year olds strongly disagreed that this discussion would encourage them to have sex.

A study investigated the dynamics intergenerational sexual relationships among school girls in Botswana. In- depth interviews were conducted with 15 school girls who were currently in intergenerational sexual relationships. The social, cultural and economic factors that cause young girls to engage in these relationships and how intergenerational sex contributes to unsafe sexual practices were examined. The findings revealed 42% were passive and controlled by their older sexual partners. 34% derived pleasure, enjoyment, love and equal partnership in these sexual relationships. 24% of girls had little or no decision-making power. Their relationships with older boyfriends were characterised by coercion and manipulation. Negotiation for condom use was difficult for this group [27].

A study was conducted on AIDS, sexuality and attitude of adolescents about protection against HIV. A questionnaire was answered by 1,386 middle school students from the state of Santa Catarina, Southern Brazil, in 2000. Data analysis comprised statistical description and relational analysis (Chi-square and mean comparison tests) Result showed that lack of knowledge about HIV transmission was related to peers as main information source ($p<0.05$). Steady romantic relationships are the predominant context for sexual relationships with penetration ($p<0.001$). A positive attitude for condom use is favored by talks about sexuality and the intention of condom use ($p<0.001$). So the practice of safe sex is affected by adolescent's level of information, their attitudes about condom use and fear of the epidemic [28].

A study was conducted to assess the knowledge and attitude of unmarried young adults about desirable sexual behavior. The study was conducted in the rural community of Najafgarh, Delhi. Purposive sampling technique was used. The sample comprised of 30 unmarried young adults and 15 doctors, P.H.N and parents for the study. Structured knowledge questionnaire, Attitude scale and structure opinion ire were utilized for data collection. Major finding of the study revealed, knowledge deficit and negative attitude among unmarried young adults. There was significantly positive correlation between knowledge and attitude scores of unmarried young adult towards desirable sexual behavior [29].

A study was conducted on the perception among upper Middle class Adolescents in Bombay regarding Sexual behavior and sexuality. The study population consisted of 1250 students from three senior higher secondary schools in Mumbai, India. Majority of the study subjects (61%) were 16 years old and 58% of them were females. The results indicated that majority of students follow traditional norms and intend to refrain from premarital sex. However significantly more males (38%) than females (12%) indicated that they felt it was okay to engage in sexual behaviour with a steady partner ($\chi 2=30.3, p<0.001$).Only 4% of these students reported having had a previous sexual experience [30].

Awareness on Sexually Transmitted Disease

Although schools play an important role in sexuality education, the role of parents is vitally important. National data have shown that teens have consistently listed parents as the most influential individuals regarding decisions about engaging in sexual activity. In the 2007 With One Voice survey [25] 47% of 12-19 year olds listed parents first as a source of information with the second choice being18% for friends. Two-thirds of teens reported sharing their parents' values about sex, while 3% reported that they didn't know their parents' values. A total of 71% reported having talked to their parents about delaying sex and avoiding teen pregnancy.

The majority of parents of teens (88%) reported that they did not know when or how to have this discussion. Data from the 2008 Ohio ODH survey found that 57% of parents and 41% of youth agreed that sex education should primarily come from the family and be supplemented by the school [26].

A study was conducted on the effectiveness of HIV/AIDS awareness in a rural community in Imo state, Nigeria. Friends and relatives emerged as the most effective source of AIDS awareness for women followed by community meetings and then television, whereas the most effective sources for the girls were

television followed by friends and relatives, and radio [31].

A study investigated the knowledge and understanding of AIDS in rural women. This study was conducted in 16 villages belonging to Villupuram health Unit District among 1,200 randomly selected women in the age group of 15-45 years, using a two stage sampling design. Qualitative methods were also used for collecting data. The result showed 28% of the women have not heard of AIDS and rural women's knowledge was poor in areas like cause, symptoms and prevention. With regard to the investigations done for confirming HIV infection, 44% of illiterate and 62% of the literate were aware of doing blood test [32].

A study was conducted to assess the knowledge and attitude towards AIDS, sexually transmitted diseases (STDs) and sexuality among college students in Thiruvananthapuram district, Kerala. Community-based, cross-sectional surveys of 625 randomly selected undergraduate college students (164 boys, 461 girls, age 18-22 years) was conducted.

A pre-tested, structured questionnaire was used to assess the knowledge and attitude of the students towards AIDS, STDs and sexuality. Result showed that all the students in this sample had heard about AIDS. However, only 45% knew that AIDS is not curable at present. Only 34% were aware of the symptoms of STDs, and 47% knew that STDs are associated with an increased risk of AIDS. The study identified substantial lacunae in the knowledge and attitude towards AIDS, STDs and sexuality among college students in Kerala [33].

Adoption Sex Education

Evidence suggests that secondary school sex education programs that teach medically accurate, evidence-based comprehensive information about abstinence, pregnancy prevention, and safe sex practices to prevent STDs and HIV infection have a positive impact on healthy sexual behavior. This type of comprehensive programming can delay the onset of first sexual intercourse among teenagers, reduce their frequency of sexual activity, reduce their number of sexual partners, and increase contraceptive and condom use when they become sexually involved.

These programs had clear health goals with specific behavioral objectives and addressed perceived risks, norms, values, attitudes, and self efficacy in addition to knowledge. The programs also went further than just delineating risky behavior by teaching teens how to avoid situations that lead to negative health consequences. Teaching methods actively involved participants enabling them to understand how the information directly applied to their lives. These programs focused on encouraging protective factors while avoiding risky behaviors. In addition, these programs showed sensitivity to the developmental maturity, cultural values, and levels of sexual experience among the participants.

Several authors Kirby (1), Alford (2), and Card (3) have compiled lists of recommended programs that have been reviewed for effectiveness. These publications provide a wide choice of programs for communities to choose from which best fit in with the community's values, and resources including staff time, skills, space, and supplies. Five curriculum-based programs that were effective for both males and females were mentioned by Alford and Kirby and had at least two behavioral outcomes including delayed sex, reduced frequency of sex, reduced number of partners, increased condom use, increased contraceptive use, or decreased unprotected sex. These programs included:

- Reducing the Risk: Building Skills to Prevent Pregnancy, STD & HIV;
- Safer Choices: Preventing HIV, Other STD, and Pregnancy;
- Becoming a Responsible Teen: An HIV Risk Reduction Program for Adolescents;
- Making Proud Choices: A Safer Sex Approach to HIV/STDs and Teen Pregnancy Prevention;
- ¡Cuidate! (Take Care of Yourself) The Latino Youth Health Promotion Program.

Of these five programs, Reducing the Risk and Safer Choices focus on both Pregnancy and STD/HIV prevention and are applicable to youth of all ethnic backgrounds. Reducing the Risk has had outcomes replicated in other evaluation studies.

Two adoption education curricula have been identified: (F.L.A.S.H.) from Seattle[34] and Adoption University from the Nebraska Children's Home Society[35]. At this time, the best approach to teaching adoption would be to ensure that it includes the information found to be absent in surveys of adolescents and that it follow Kirby's guidelines about effective curriculum which include interactive programming that addresses knowledge, attitudes, and self efficacy in decision making. There are no published evidence-based research studies on the impact of secondary school-based classroom curricula about adoption

Key elements of successful sexuality education programs?

According to UNAIDS, an effective school-based sexuality education program
• Recognizes the child/youth as a learner who already knows, feels, and can do in relation to healthy development and HIV/AIDS-related prevention.
• Focuses on risks that are most common to the learning group and with responses that are appropriate and targeted to the age group.
• Includes not only knowledge but also attitudes and skills needed for prevention.
• Understands the impact of relationships on behavior change and reinforces positive social values.
• Is based on analysis of learners' needs and a broader situation assessment.
• Has training and continuous support of teachers and other service providers.
• Uses multiple and participatory learning activities and strategies.
• Involves the wider community.
• Ensures sequence, progression, and continuity of messages.
• Is placed in an appropriate context in the school curriculum.
• Lasts a sufficient time to meet program goals and objectives.
• Is coordinated with a wider school health promotion program.
• Contains factually correct and consistent messages.
• Has established political support through intense advocacy to overcome barriers and go to scale.
• Portrays human sexuality as a healthy and normal part of life and is not derogatory against gender, race, ethnicity, or sexual orientation.
• Includes monitoring and evaluation.

Source: Adapted from World Bank, 2003)

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Short Communication

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Patient Bills of Right

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Abstract

Effective health care requires collaboration between patients and physicians and other health care professionals. Open and honest communication, respect for personal and professional values and sensitivity to differences are integral to optimal patient care. As the setting for the provide of health services, hospitals must provide a foundation for understanding and respecting the rights and responsibilities of patients, their families, physicians, and other caregivers. Hospitals must ensure a health care ethic that respects the role of patients in decision making about treatment choices and other aspects of their care. Hospitals must be sensitive to cultural, racial, linguistic, religious, age, gender, and other differences as well as the needs of persons with disabilities.

Keywords: Health care; Physicians; Communication; Ethic.

Introduction

Patients should also be aware of the hospital's obligation to be reasonably efficient and equitable in providing care to other patients and the community. The hospital's rules and regulations are designed to help the hospital meet this obligation. Patients and their families are responsible for making reasonable accommodations to the needs of the hospital, other patients, medical staff, and hospital employees. Patients are responsible for providing necessary information for insurance claims and for working with the hospital to make payment arrangements, when necessary.

A person's health depends on much more than health care services. Patients are responsible for recognizing the impact of their lifestyle on their personal health.

Bill of Rights

These rights can be exercised on the patient's behalf by a designated surrogate or proxy decision maker if the patient lacks decision making capacity is legally incompetent, or is a minor.

1. The patient has the right to considerate and respectful care.
2. The patient has the right to and is encouraged to obtain from physicians and other direct caregivers relevant, current, and understandable information concerning diagnosis, treatment, and prognosis.

Except in emergencies when the patient lacks decision-making capacity and the need for treatment is urgent, the patient is entitled to the opportunity to discuss and request information related to the specific procedures and/or

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treatments, the risks involved, the possible length of recuperation, and the medically reasonable alternatives and their accompanying risks and benefits.

Patients have the right to know the identity of physicians, nurses, and others involved in their care, as well as when those involved are students, residents, or other trainees. The patient also has the right to know the immediate and long.

3. The patient has the right to make decisions about the plan of care prior to and during the course of treatment and to refuse a recommended treatment or plan of care to the extent permitted by law and hospital policy and to be informed of the medical consequences of this action. In the case of such refusal, the patient is entitled to other appropriate care and services that the hospital provides or transfers to another hospital. The hospital should notify patients of any policy that might affect patient choice within the institution.
4. The patient has the right to have an advance directive (such as a living will, health care proxy, or durable power of attorney for health care) concerning treatment or designating a surrogate decision maker with the expectation that the hospital will honor the intent of that directive to the extent permitted by law and hospital policy.

   Health care institutions must advise patients of their rights under state law and hospital policy to make informed medical choices, ask if the patient has an advance directive, and include that information in patient records. The patient has the right to timely information about hospital policy that may legally valid advance directive.
5. The patient has the right to every consideration of privacy. Case discussion, consultation, examination, and treatment should be conducted so as to protect each patient's privacy.
6. The patient has the right to expect that all communications and records pertaining to his/her care will be treated as confidential by the hospital, except in cases such as suspected abuse and public health hazards when reporting is permitted or required by law. The patient has the right to expect that the hospital will emphasize.
7. The patient has the right to expect that, within its capacity and policies, a hospital will make reasonable response to the request of a patient for appropriate and medically indicated care and services. The hospital must provide evaluation, service, and/or referral as indicated by the urgency of the case. When medically appropriate and legally permissible, or when a patient has so requested, a patient may be transferred to another facility. The institution to which the patient is to be transferred must first have accepted the patient for transfer. The patient must also have the benefit of complete information and an explanation concerning the need for, risks, benefits, and alternatives to such a transfer.
8. The patient has the right to ask and be informed of the existence of business relationships among the hospital, educational institutions, other health care providers, or payers that may influence the patient's treatment and care.
9. The patient has the right to consent to or decline to participate in proposed research studies or human experimentation affecting care and treatment or requiring direct patient who declines to participate in research or experimentation is entitled to the most effective care that the hospital can otherwise provide.
10. The patient has the right to expect reasonable continuity of care when appropriate and to be informed by physicians and other caregivers of available and realistic patient care options when hospital care is no longer appropriate.
11. The patient has the right to be informed of hospital policies and practices that relate to patient care, treatment, and responsibilities. The patient has the right to be informed of available resources for resolving disputes, grievances, and conflicts, such as ethics committees, patient representatives, or other mechanisms course of treatment depend, in part, on the patient fulfilling certain responsibilities. Patients are responsible for providing information about past illnesses, hospitalizations, medications, and other matters related to health status. To participate effectively in decision making, patients must be encouraged to take responsibility for requesting additional information or clarification about their health status or treatment when they do not fully understand information and instructions. Patients are also responsible for ensuring that the health care institution has a copy of their written advance directive if they have one. Patients are responsible for informing their physicians and other caregivers if they anticipate problems in following prescribed treatment.

Conclusion

Hospitals have many functions to perform, including the enhancement of health status, health

promotion, and the prevention and treatment of injury and disease; the immediate and ongoing care and rehabilitation of patients; the education of health professionals, patients, and the community; and research. All these activities must be conducted with an overriding concern for the values and dignity of patients.

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Short Communication

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Maternal Near Miss

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Introduction

A *maternal near miss (MNM)* is an event in which a pregnant woman comes close to maternal death, but does not die – a "near-miss". Traditionally, the analysis of maternal deaths has been the criteria of choice for evaluating women's health and the quality of obstetric care. Due to the success of modern medicine such deaths have become very rare in developed countries, which has led to an increased interest in analyzing so-called "near miss" events.

Definition

The World Health Organization defines a maternal near-miss case as "a woman who nearly died but survived a complication that occurred during pregnancy, childbirth or within 42 days of termination of pregnancy."

Purposes

1. Determine the frequency of severe maternal complications, maternal near-miss cases and evaluate a health-care facilities or the health-system's performance (depending on the health-care level at which the approach is implemented) in reducing severe maternal outcomes.
2. Determine the frequency of use of key interventions for the prevention and management of severe complications related to pregnancy and childbirth.
3. Araise awareness about, and promote reflection of, quality-of-care issues and foster changes towards the improvement of maternal health care.

Uses of Maternal Near Miss

1. Evaluating the quality of obstetric care using near-miss audits.
2. Documenting the long-term consequences of maternal ill health for designing postnatal interventions.
3. Learning from women's personal accounts of near-miss and their experiences of care.
4. Identifying the prevalence of maternal illness and death for prevention.
5. Estimating the met need for surgery to evaluate safe motherhood programmes.

Near-Miss Concept

Women who survive life-threatening conditions

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arising from complications related to pregnancy and childbirth have many common aspects with those who die of such complications. This similarity led to the development of the near-miss concept in maternal health. Exploring the similarities, the differences and the relationship between women who died and those who survived life-threatening conditions provide a more complete assessment of quality in maternal.

Near-Miss Approach

1. Baseline assessment (or reassessment)
2. Situation analysis
3. Interventions for improving health care

Criteria According To System

1. *Cardiovascular Dysfunction*
   - ❖ Shock
   - ❖ Cardiac Arrest
   - ❖ Severe hypoperfusion (lactate >5 mmol/ L or >45 mg/ dL)
   - ❖ Severe acidosis (pH<7.1)
   - ❖ Use of continuous vasoactive drugs
   - ❖ Cardio-pulmonary resuscitation
2. *Respiratory Dysfunction*
   - ❖ Acute cyanosis
   - ❖ Gasping
   - ❖ Severe tachypnea (respiratory rate> 40 breaths per minute)
   - ❖ Severe bradypnea (respiratory rate< 6 breaths per minute)
   - ❖ Severe hypoxemia (O2 saturation < 90% for e"60min or PAO2/FiO2< 200)
   - ❖ Intubation and ventilation not related to anaesthesia
3. *Renal Dysfunction*
   - ❖ Oliguria non responsive to fluids or diuretics
   - ❖ Severe acute azotemia (creatinine > 300 ìmol/ml or >3.5 mg/ dL)
   - ❖ Dialysis for acute renal failure
4. *Coagulation Dysfunction*
   - ❖ Failure to form clots
   - ❖ Severe acute thrombocytopenia (< 50,000 platelets/ml)
   - ❖ Massive transfusion of blood or red cells (≥ 5 units)
5. *Hepatic Dysfunction*
   - ❖ Jaundice in the presence of pre-eclampsia
   - ❖ Severe acute hyperbilirubinemia (bilirubin> 100 ìmol/ L or >6.0 mg/ dL)
6. *Neurologic Dysfunction*
   - ❖ Prolonged unconsciousness or coma (lasting>12 hours)
   - ❖ Stroke
   - ❖ Uncontrollable fit / status epilepticus
   - ❖ Global paralysis
7. *Uterine Dysfunction*
   - ❖ Hysterectomy due to uterine infection or haemorrhage

Classification of Maternal Near Miss

First Classification

It must be practical and understood by its users (clinicians, epidemiologists and program managers)

Second Classification

Underlying causes must be exclusive of all other conditions; as in the Inter national Statistical Classification of Diseases and Related Health Problems (ICD), the underlying cause is the disease or injury which initiated the sequence of events leading directly to death, or the circumstances of the ac cident or violence which produced the fatal injury.

Third Classification

It should be compatible with and contribute to the 11th revision of the ICD. Incorporating this maternal death classification into the ICD will encourage consistent use in both death certificates and confidential enquiries into maternal deaths, and improve the comparability of data.

Maternal Near-Miss Indicators

Maternal Near-Miss (MNM) refers to a woman who nearly died but survived a complication that occurred during pregnancy, childbirth or within 42 days of termination of pregnancy. *Maternal Death (MD)* is the death of a woman while pregnant or within 42 days of termination of pregnancy or its management, but not from accidental or incidental causes. *Live Birth (LB)* refers to the birth of an offspring which breathes or shows evidence of life. *Severe maternal outcome refers to* a life-threatening condition (i.e. organ dysfunction), including all maternal deaths and maternal near-miss cases. *Women With Life-Threatening Conditions (WLTC)* refers to all women who either qualified as maternal near-miss cases or those who died (i.e. women presenting a severe maternal outcome). It is the sum of maternal near-miss and maternal deaths (WLTC = MNM + MD). *Severe Maternal Outcome Ratio (SMOR)* refers to the number of women with life-threatening conditions (MNM + MD) per 1000 live births (LB). This indicator gives an estimate of the amount of care and resources that would be needed in an area or facility [SMOR = (MNM + MD)/LB]. *MNM Ratio (MNMR)* refers to the number of maternal near-miss cases per 1000 live births (MNMR = MNM/LB). Similarly to the SMOR, this indicator gives an estimation of the amount of care and resources that would be needed in an area or facility. *Maternal Near-Miss Mortality Ratio* (MNM : 1 MD) refers to the ratio between maternal nearmiss cases and maternal deaths. Higher ratios indicate better care. *Mortality Index* refers to the number of maternal deaths divided by the number of women with life-threatening conditions expressed as a percentage [MI = MD/(MNM + MD)]. The higher the index the more women with life-threatening conditions die (low quality of care), whereas the lower the index the fewer women with life-threatening conditions die (better quality of care). *Perinatal outcome indicators* (e.g. perinatal mortality, neonatal mortality or stillbirth rates) in the context of maternal near-miss could be useful to complement the quality-of-care evaluation.

Conclusion

Maternal near-miss refers to situations where women experience severe life-threatening obstetric complications during pregnancy, delivery or post pregnancy which they survive either by chance or because they receive good care at a facility. Cases of near-miss occur in larger numbers than maternal deaths - it has been estimated that up to 9 million women survive obstetric complications every year, and the consequences of these may be permanent and wide-reaching.

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State the background of the study and purpose of the study and summarize the rationale for the study or observation.

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Standard journal article

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[9] National Statistics Online—Trends in suicide by method in England and Wales, 1979-2001. www.statistics.gov.uk/downloads/theme_health/HSQ 20.pdf (accessed Jan 24, 2005): 7-18. Only verified references against the original documents should be cited. Authors are responsible for the accuracy and completeness of their references and for correct text citation. The number of reference should be kept limited to 20 in case of major communications and 10 for short communications.

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