RESEARCH
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PREVALENCE OF MENSTRUAL PAIN AND READINESS TO PARTICIPATE IN EXERCISE PROGRAM TO MANAGE MENSTRUAL PAIN AMONG YOUNG WOMEN IN URBAN BANGALORE- A SURVEY

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Abstract
Background: Menstrual cycle is a physiological process in women of reproductive age but when this cyclical shedding of endometrium is painful, it is known as dysmenorrhea. As per previous studies the incidence of menstrual pain among college going girls is 84.2%. The most likely cause for the menstrual pain being the increase in uterine ischemia (uterine angina).
Dysmenorrhoea remarkably affects women's health and performance. There have been incidences of increased absenteeism, decreased involvement in academic activity among college students.
And overall decrease in quality of life. This menstrual pain also affects women in working age group, post education. Moreover, the incidences of menstrual pain among young working women, it's report to health care facilities, treatment for menstrual pain is not well noted. Due to multiple sociocultural factors women do not seek help or proper treatment to manage menstrual pain and suffer.
Methods: A survey was conducted with the help of online / mail format which was distributed randomly to young women in the age group of 18-35 years to assess their awareness levels of menstrual pain, how it affects their functioning and performance. The survey also aimed to assess the awareness levels of women of urban Bangalore to various methods of treatment available for managing menstrual pain.
Results: From the survey conducted it was learnt that Menstrual pain was prevalent among 89% of young women participant, 80% of these women complained of pain, 65% experienced tiredness, 75% had mood swings and irritability and 20% of them felt depressed. Most of these women had pain commonly in abdomen and low back pain. Professional commitments of these 63% of them was affected because of menstrual pain. Around 61% of the women were interested in an exercise protocol which will help in managing Menstrual pain.
Conclusions: Studies need to be conducted to find out the incidences of menstrual pain among young working women in urban Bangalore. Studies also need to be done to understand the awareness of young women regarding various non-pharmacological treatment options to manage menstrual pain.
Keyword: Menstruation, dysmenorrhoea, awareness of menstrual pain, quality of life, women's health, exercises, physiotherapy

INTRODUCTION

Menstrual pain is one of the significant health issues among women in reproductive age group. Menstruation is a physiological process of cyclical shedding of endometrial lining of uterus in response to hormones and pregnancy in the reproductive life of a woman. When the corpus luteum shrinks in the late secretory phase of endometrial cycle when shedding of endometrial lining occurs in absence of pregnancy along with withdrawal of Progesterone and oestrogen. Menstruation is a sign cyclical ovarian function[1]. The average length of a menstrual cycle is 28-30 days, with each cycle bleeding lasting for 3-5 days, in which usually first one to two days the bleeding is heavy. The amount of blood loss in an average per cycle is 25-80 ml.

Menstrual cycle ideally begins with onset of puberty at around 10-16 years and menstruation stops by the age of 51, which is known as menopause. The span from Menarche to menopause is the reproductive age in a woman[3,4,5].

Though menstruation is a physiological process but there are few menstrual abnormalities that occur among women like menorrhagia (excessive blood loss), dysmenorrhea (painful periods), oligomenorrhoea (infrequent or scanty periods); and amenorrhea (absent menstrual periods)[1].

Dysmenorrhoea is painful menstrual flow which affects the lifestyle of woman, causing pelvic and back pain, absenteeism from school or work among young and adult women[6].

Primary dysmenorrhoea is defined as the absence of a clinically detectable pathology and is generally seen <25 years; 6-12

months after menarche, pelvic pain is spasmodic. In the first menstrual period, 60% of cycles are an ovulatory or progesterone secretion is insufficient depending on corpus luteum shortness. Therefore, dysmenorrhoea complaints are seen together with cycles of sufficient ovulation after some cycles of menarche. The progesterone decrease seen at the end of the cycle after ovulation causes an increase in menstrual liquid and prostaglandin synthesis in the endometrium. Increased prostaglandins create an increase in myometrial tone and uterine contractions, making them painful by causing uterine ischemia[7,8].

Primary dysmenorrhoea is one of the most common gynaecological problems in menstruating women and it was reported prevalence rates are as high as 90 percent, and this pain affects quality of life and daily activities[9].

Hence there is a need to study the prevalence of women suffering from menstrual pain in urban Bangalore who are young and form a majority of working professionals in various sectors. It is also equally important to understand if these women who have menstrual pain, how severe is the pain, what resorts they opt to relieve themselves of the symptoms relating to menstrual pain.

METHODOLOGY

Study design: This study was of cross-sectional design.

Sampling Technique: The subjects were selected by cluster sampling.

Sample size:100

Source of data: Young women of urban Bangalore.

Procedure:

The study was conducted using an online survey shared electronically and was shared among women of urban Bangalore in the age group of 18-35 years.

The questionnaire consisted of 17 questions concerning occurrence of menstrual pain, severity of menstrual pain, pharmacological & non pharmacological management of menstrual pain, asking respondents various common menstrual symptoms, age of menarche, regularity of periods, length of menstrual cycle, severity of menstrual flow, effect of menstrual pain on professional front or commitment, information from participants regarding exercise during periods, common forms of exercise that commonly women are engaged in. It was also enquired in the questionnaire about the intent to participate in an exercise protocol for managing menstrual pain. Participation in the survey was voluntary and anonymous. Each participant was sent an online form which contained an invitation to participate in the survey, an informed consent statement and an electronic link to the survey.

After 1 week, a reminder email was sent to those recipients who had yet to complete the survey.Two weeks from the initial email, when no additional responses were forthcoming, the survey was closed.

The study group was selected based on the following criteria:

Inclusion criteria:

- Age between 18-35 years women
- Women who could read and understand English

Exclusion criteria:

- Women with Gastrointestinal, urogynecological, autoimmune, psychiatric diseases, other chronic pain syndromes, childbirth, positive pregnancy test, those who use intrauterine devices, those who have had pelvic surgery.
- Women with hormonal therapy
- Women performing any other exercises & sports.

Materials Used:

- Consent form.
- Self-made Questionnaire pertaining to menstrual pain among women.

The questionnaire was completed by 250 respondents, with 220 women declaring they have painful periods (88% participants had complaints of dysmenorrhoea),12.4% women stated they have irregular periods, 8.4% of the participants complained of menorrhagia. Only 16% of the participants performed some form of regular exercise while the majority of them 84% were not involved in any form of exercise.

STATISTICAL ANALYSIS AND RESULTS

Response Rate:

The survey was successfully delivered to 250 participants of which 100 % responded.

Study group characteristics: Most of the study group were women between 18 and 35 years of age, young women. *Detailed characteristics of the study group are presented in Table 1.*

Table 1: Association between Pain and sanitary napkin useage:

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
NPRS score	250	0	9	6.22	2.564
Sanitary napkin usage days	250	3	7	4.75	1.065
Number of Sanitary napkins used per day	250	1	4	2.28	.707

Descriptive data:

Mean Age:

The mean age of the participants for the survey was 21.6 years.

Presence or absence of pain:

According to the survey over 88% of the participants experienced menstrual pain while 12% of the participants did not experience menstrual pain.

Pain intensity:

Participants who experienced menstrual pain were asked to rate their pain on numeric rating scale (NRS) where 29.6% of participants with menstrual pain had a NPRS score of 7 and 28% of them had a pain score of 8 .

The menstrual cycle length was 25-28 days among 78% of the participants. On being asked the number of days they needed to use the sanitary napkins in each cycle ; about 40 % of the participant need to use sanitary napkin for 4 days per cycle while 28.8% of the participants used it for 5 days per cycle. 76.6% of participants used ideally 2 sanitary napkins in the initial first and second day of periods.

55.6% of the women had menarche between the age of 12-14, while 21.6% had menarche between 14-17 years.

Around 36 % of the participants complained of low back ache, abdominal cramps and leg pain and about 18.8% of participants had complained of abdominal cramps, leg and calf pain. Presence of musculoskeletal complaints was common among women experiencing dysmenorrhoea.

Being asked about missing professional commitments due to menstrual pain it was about 68 % who took leaves for at least 1 day in some months while others bear the pain and still made to the office. Approximately 40.4 % of the participant did feel that their work efficiency was affected with this regular menstrual pain.

When these respondents were asked whether they would be interested in participating in an exercise protocol for managing menstrual pain, a major proportion 61 % was interested in participating in an exercise program.

There is a significant relationship between pain scores (NPRS) and menorrhagia which can be seen in Table 2 below.

Table 2: Association between Pain and Menorrhagia:

NPRS score vs Menorrhagia

	Menorrhagia	N	Mean	Std. Deviation	t
NPRS score	Absent	229	6.11	2.583	2.184
	Present	21	7.38	2.061	p=0.03 sig

There was also a very high significance and there is a strong association between NPRS scores and absenteeism as seen in Table 3 below:

Table 3: Association between Pain scores and absenteeism:

NPRS score vs Absenteeism due to Menstrual Pain

	Absenteeism due to Menstrual Pain	N	Mean	Std. Deviation	t
	Absenteeism	80	7.98	1.147	8.397
	No absenteeism	170	5.39	2.632	p<0.001

There is a significant association between presence of menstrual pain and decreased efficiency at school and at work as seen in Table 4 below:

Table 4: Association between Pain and decreased efficiency:

Decreased efficiency due to Menstrual Pain

		Presence of Menstrual Pain		Total
		Absent	Present	
Decreased efficiency	Count	2	99	101
	%	6.7%	45.0%	40.4%
No decreased efficiency	Count	28	121	149
	%	93.3%	55.0%	59.6%
Total	Count	30	220	250
	%	100.0%	100.0%	100.0%

. X2=16.111 p<0.001

Also there is a significant association between presence of menstrual pain and absenteeism as can be seen from the statistical Table 5 given below:

Table 5: Association between Pain and absenteeism:

Absenteeism due to Menstrual Pain:

		Presence of Menstrual Pain		Total
		Absent[a]	Present	
Absenteesism	Count	1	79	80
	%	3.3%	35.9%	32.0%
No absenteesism	Count	29	141	170
	%	96.7%	64.1%	68.0%
Total	Count	30	220	250
	%	100.0%	100.0%	100.0%

a. p<0.001 (Fishers e xact test)

DISCUSSION

Menstruation is a cyclical ovarian function and sometimes it becomes painful which is known as dysmenorrhoea. Incidence of menstrual pain in India at large is 84.2%[10].

In our study the incidence of women with menstrual pain in urban Bangalore was 88% which is very high and needs to be one of the priorities of health care professionals even in primary care setup.

In a study conducted by Shabnam Omidyar etal in 2016; 70.2% of girls experienced menstrual pain which continued for 1-2 days, they also complained of tiredness and low-back pain. About 25% of the participants opted for pharmacological treatment while 83.2% preferred non-pharmacological methods[11]. In this current survey 88% of young women in urban Bangalore experienced menstrual pain. On quantifying the pain these women experienced during menstrual cycle by the use of NPRS (Numeric Pain Rating Scale), around 29.6% of them had pain of 7 on NPRS , 28.0% expressed pain of 8 on a NPRS scale.

In a study conducted by Chen etal in 2019, about 86% of women in United States complained of menstrual pain but did not seek health care from a health care professional. They stated several reasons for not seeking treatment from health care professionals as they considered it to be normal, choosing to manage themselves, limited resources, they did not understand the suitable treatment options, symptoms could be tolerated, they felt afraid or embarrassed to seek treatment[12].In this current study the participants to help themselves get relieved from menstrual pain around 19.6% took medications/ pharmacological means, while 12 % opted for various non pharmacological means. But a major portion of these women i.e about 80% had not taken any form of treatment and were accepting the menstrual pain as it was and considered it to be a part of womanhood. There also does exist in specific geographical regions where discussion regarding menstruation is considered as a sociocultural taboos due to which no treatment was taken.

The main complaints during menstruation were pain in Low back, over the abdomen, thigh and leg pain.

The most common areas where these participants experienced pain was in abdominal area and low back pain.

In a study conducted by Kanwal etal in 2019, dysmenorrhea decreased physical functioning levels, decreased work-related productivity and efficiency among women participants[13]. Also in the previous study by Mike Armour et al female students suffered academically due to menstrual pain[14].In the study by Shabnam Omidyar etal absenteeism among dysmenorrhea girls from schools & colleges was around 50 %. In which tiredness and back pain were the most common and dominant complain[11]. Primary dysmenorrhea is also linked with absenteeism and decreased quality of life among women in childbearing age[9]. In this current survey 32 % of the respondents informed that they were missing professional commitments due to menstrual pain, while 40.4 % of them found their efficiency at work was getting affected.

Looking into the various means of managing menstrual pain non-pharmacological means was a priority among respondents.In the study conducted by Abaraogu et all[15] which discussed that exercises had very fewer side-effects and were mostly preferred in comparison to pharmacological treatments or herbal treatments for reduction of menstrual pain. The effects of exercises were not just pain reduction, decrease in pain duration in hours, decrease in use of sedative drugs, decrease in total and present pain intensity. The costs and risks of exercise interventions are also low, so exercises could be considered for clinical use for managing menstrual pain. Menstrual pain can be treated with various physiotherapy modalities like TENS, Warm baths, exercise and acupressure[16].A recent study suggested that physical activity could reduce prostaglandin levels and pain. Exercise also improves mental health and quality of life[17]. In this survey conducted only 16% of participants expressed that they were involved in some form of exercise on a regular basis.

Kannan et al in his study in 2019 also expressed that exercises significantly reduced pain, increased daily functional activities and quality of life in women suffering from dysmenorrhoea[18]. In a study by Ortiz et al combination of multiple exercises like stretching with jogging, Kegels and relaxation exercises in sedentary women between the age of 18-22 years effectively reduced dysmenorrhoea symptoms.

Performing exercises causes prostaglandins and waste materials transfer faster by increase of blood flow and metabolism in uterus. There is reduction of dysmenorrhoea and release of antidiuretic hormones during exercise, causing vasoconstriction in pelvic area causing breakdown of prostaglandins. Exercises also increases premenstrual pelvic blood flow, the accumulation of prostaglandins in this area delays the onset of pain. Regular exercise also plays an essential role in controlling stress and helps improve blood circulation and increases endorphins and nerve transducers. The mechanism of inhibition of stress is one of the causes of the relationship between exercise and menstruation[20,21,22]. In a recent narrative review by Dash SS[23,24] where it was also discussed that though menstrual pain is common in India still, women do not seek treatment or take proper treatment for addressing this health issue which affects their efficiency and productivity to a larger extent. In a recent review woman who were aware of non-pharmacological means to manage menstrual pain preferred exercises, but they were not structured properly so specific exercise prescription was essential to decrease symptoms. Majority of the childbearing age or productive age in young women is spent in dealing with menstrual pain[25].

LIMITATION

The survey was limited to participants in urban Bangalore. It can be done in different parts of India to understand awareness and methods that women follow to manage menstrual pain across India both in urban & rural areas. Survey can include more participants in working age group where menstrual pain affects professional sphere of life as well.

Survey can be performed across different age groups understanding the effect of dysmenorrhoea across various age bands.

CONCLUSION

Menstrual pain is common in younger women as found out in the study. Most of the times the menstrual pain and other symptoms related to menstrual pain is either just tolerated or ignored or they feel is it normal with menstruation. Women of urban Bangalore do not seek any help to manage symptoms related to menstruation.

Pharmacotherapy is not preferred by young women on a daily basis due to the side effects these medications have. Early reporting of symptoms related to menstruation to health care professionals is much needed. Also, adoption of non - pharmacological means of managing menstrual pain and other related symptoms needs to encourage and promoted for

improving the efficiency and active participation of women in their personal and professional front.

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