



Menstrual Distress and Its Impact on Quality of Life of Adolescents and Middle-Aged Women

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Abstract

Background: Menstruation is defined as the periodic flow of blood that occurs due to the shedding of endometrium lining. It is a natural phenomenon but it plays a crucial role in the Quality of Life (QOL) of women and comprehends to impact women's health, as it leads to a lot of physical, psychological, and emotional changes during the luteal and follicular phase which affect the daily activities of women of reproductive age. All the physical and emotional stress related to menstruation that befalls just before, during, or just after the bleeding days of the menstrual cycle which is caused by the fluctuations of female reproductive hormones is called menstrual distress.

Objective: The ambition of this research was to evaluate the influence of menstrual distress on the QOL of women and its impact on overall health. The study also includes the evaluation of factors that impact menstrual distress and the levels of menstrual distress and overall QOL in different age groups.

Study Design: The sample study included 210 participants. Two questionnaires were used to collect data: Self-administered Menstrual Health Survey (MHS) questionnaire and WHOQOL-BREF questionnaire. Data is analyzed in SPSS 22 software using statistical methods like Pearson correlation and t-independent sample test. To analyze the levels of menstrual distress and overall QOL in different age groups, sample was divided into two groups; the 15 to 30 age group and the 31 to 50 age group.

Results: Contemplating the menstrual history variables and MDS, the correlation coefficient was found to be positive and the p-value was less than the significance level in case of duration of bleeding days ($p < 0.05$) and the amount of menstrual flow ($p < 0.01$). Interpreting the lifestyle variables and MDS, it was observed that the correlation coefficient was negative and the p-value was less than the significance level in case of given birth to a baby ($p < 0.05$). In case of MDS and quality of life, it was also observed that the correlation coefficient was negative and the p-value was less than the significance level in both instances quality of life during periods ($p < 0.01$) and overall health ($p < 0.05$). The level of menstrual distress and overall QOL in two different groups was evaluated through t-independent sample test, it was noticed that p-value was less than the significance level in case of both menstrual distress score ($p < 0.05$) and WHOQOL-BREF score ($p < 0.01$).

Conclusion: From the correlation analysis, it is concluded that menstrual distress has a negative impact on the QOL of women during periods and on overall health. It was also observed that the longer the duration of bleeding days and heavy the amount of menstrual flow, the more is the menstrual distress. Moreover, it is evident that post-parturition the level of menstrual distress decreases. Also, the levels of menstrual distress and QOL in the two groups are significantly different.

Keywords: Menstrual Distress; Quality of life; Menstrual Health; Duration of bleeding days; Amount of menstrual flow; Post-parturition

Abbreviations

MDS: Menstrual Distress Score; MHS: Menstrual Health Survey; QOL: Quality of Life; WHOQOL: World Health Organization Quality of Life

Introduction

Menstruation is defined as the periodic flow of blood that occurs due to the shedding of endometrium lining. This happens in all non-pregnant females throughout their reproductive life that means between menarche and menopause [1,2]. The menarche is characterized by the commencement of first menstrual bleeding and it signifies the initiation of sexual maturity

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[3] while menopause is characterized by perpetual cessation of menstruation due to dropping of ovarian follicular activity [4] and it signifies the end of reproductive capacity [5]. The average age of menarche is 12 to 15 years and the standard age of menopause is 49 to 54 years. Menarche is preceded by the growth of some secondary sexual characteristics like breast budding called thelarche after that occurrence of pubic hair growth called pubarche [6]. Menopause is accompanied by menopausal transitions which symbolize the changes during the menopause process that usually lasts about 7 years but it can last for about 14 years and during this menopausal transition the production of estrogen and progesterone hormone from the ovaries varies to a large extent [7]. Menstruation is a natural phenomenon but it plays a crucial role in the QOL of women. According to WHO 'Health' is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity [8]. Menstruation is comprehended to impact women's health, as it leads to a lot of physical, psychological, and emotional changes during the luteal and follicular phase which affect the daily activities of women of reproductive age [9]. Menstrual health is the fundamental component for women between the age of 15 to 49 years which is considered as the reproductive age by the WHO. All the physical and emotional stress related to menstruation that befalls just before, during, or just after the bleeding days of the menstrual cycle which is caused by the fluctuations of female reproductive hormones is called menstrual distress. According to Barbara Sommer, the term Menstrual distress refers collectively to all the negative symptoms which are associated with the menstrual cycle - pain and discomfort, irregularity, pathological behaviors, impairments in performance, and amenorrhea [10]. Prevalent symptoms associated with this are irritability, vomiting, tenderness of the breasts, skin disorders, fatigue, low back pain, palpitations, loneliness, nausea, abdominal pain, and many more [11]. Major menstrual problems faced by women during the menstrual cycle include dysmenorrhea, menorrhagia. Dysmenorrhea refers to extreme pain during periods and menorrhagia refers to excessive bleeding during periods.

All these menstrual problems and symptoms of menstrual distress directly diminish the QOL. The QOL decreases even more in adult women aged between 40 to 50 due to premenopausal and menopausal changes. The QOL has decreased in a way that it brings about the inability to perform daily activities and household chores. It has also resulted in absenteeism, poor concentration, uneasiness in doing work, poor sleeping patterns. QOL also reduces in terms of social relationships, emotional wellbeing which further leads to many psychological issues. Many women suffer from gynecological problems like PCOS, endometriosis, and ovarian cysts which makes their life even worse as these problems magnify the magnitude of menstrual distress and its associated impact on QOL. It is very imperative to have good menstrual health for a woman to achieve a healthy and pleasant QOL because menstruation is an immanent phenomenon of life so it should be experienced with grace and delight.

This study addresses the physical, psychological, and emotional changes during the menstrual cycle of women of different age groups and their impact on QOL.

Materials and Methods

Subject

The sample of the study included 210 women as the subject. The total sample was divided into 2 groups: Group 1 consisted of 105

women between the age of 15 to 30 and Group 2 consisted of 105 women between the ages of 31 to 50.

Instruments

The instruments used to collect data were two questionnaires: MHS Questionnaire, WHOQOL- BREF Questionnaire [12], and the instrument used to analyze the data was SPSS Statistics 22.

MHS Questionnaire was a self-administered questionnaire that comprised of the questions related to demographic details, menstrual history, gynecological history, lifestyle variables (like exercise, food habits), QOL during periods, experience during periods and treatment for menstrual distress. The questionnaire questions were divided into two parts, one part through which the MDS was evaluated and the other part which was used as a reference to analyze the MDS. The MDS directly signifies the discomfort and pain during the menstrual cycle. The less the value of the MDS healthier is the woman during her periods.

WHOQOL-BREF questionnaire [12] was a licensed questionnaire from WHO. This questionnaire helps to assess the QOL concerning different domains. There are 4 domains in this questionnaire which include physical health, psychological, social relationships, and environmental factors. The total score of these 4 domains helps to know the QOL.

SPSS Statistics 22 was used to analyze the quantitative data. Its different features were used for inferential and descriptive statistical methods and to plot the graphs and tables.

Scoring system

The MHS questionnaire was scored on a scale of 50. The scale determines the MDS which directly tells about the discomfort and pain level during periods. This score was formulated using one part of the questionnaire which comprised of experience during periods and QOL during periods.

The WHOQOL BREF questionnaire [12] comprised 26 questions that were rated on a scale of 5. The questions were assessed by doing the mean of distinct questions for 4 different domains. The total score of 4 domains helps to know the QOL.

Methods

For the analysis of the data, statistical methods were used. The methods used include Pearson correlation, independent sample t-test, arithmetic mean, and standard deviation.

For correlation, H_0 is a null hypothesis that states Variable V1 is not associated with Variable V2, and H_1 is an alternative hypothesis that states Variable V1 is associated with V2. The significance level is said to be at $\alpha=0.05$. If the p values come out to be less than the significance level ($\alpha=0.05$) then the null hypothesis is rejected and the alternative hypothesis is accepted. In case, the p-value comes out to be more than 0.05 then the null hypothesis is considered and the alternative hypothesis is rejected. This method helps to find the relationship between two continuous variables by considering the correlation coefficient.

For independent t-test, the significance level and p-value are considered and calculated respectively as it was done in case of correlation. This method helps to compare the variables which are categorical and continuous. In the analysis Significance 2 tailed value is called p-value. Arithmetic mean helps to find out the average value of the variable and standard deviation helps to understand the

dispersion from that mean value.

Procedure

The MHS questionnaire was formulated after the analytical study about menstrual distress and its causes and consequences, after that scoring system for the questionnaire was established to get the MDS. The subjects were told about the purpose of the study and asked to fill the questionnaires to the best of their knowledge. The questionnaires were distributed through a google form. The data collected through the google form was in qualitative form, which was then converted to quantitative form using the software Microsoft Excel and SPSS Statistics 22. The quantitative data was then interpreted using SPSS Statistics 22 for the descriptive statistical analysis. The data was first evaluated irrespective of the age group for AIM 1 and AIM 2. After that for AIM 3, it was evaluated for 2 age groups 15 to 30 (group 1) and 31 to 50 (group 2) respectively to compare the level of menstrual distress and overall QOL in both the groups. To analyze the data, statistical methods mentioned above were used.

Results

Impact of different factors (menstrual history and lifestyle variables) on menstrual distress

Pearson correlation between MDS and menstrual history variables was negative for the age of menarche and it was positive for the irregularity of periods, duration of bleeding days, duration of the menstrual cycle, amount of menstrual flow (Table 1). Pearson correlation between MDS and lifestyle variables was negative for exercise, sexual activity, and given birth to a baby and was positive for frequency of having junk food (Table 2).

Impact of menstrual distress on quality of life of women (QOL during periods + overall QOL)

The Pearson correlation between MDS and QOL during periods was negative with a value of 0.219. The Pearson correlation between MDS and overall QOL (eliminating the menstrual days) was negative with a value of 0.143 (Table 3, 4).

Evaluation of MDS and overall QOL in two different age groups

Group 1 - Women of age between 15-30 years.

Group 2 - Women of age between 31-50 years.

Using the statistical method independent sample t-test the means of MDS and WHOQOL-BREF scores for two different age groups were compared, it was observed that p-value was less than the significance level in case of both the menstrual distress score ($p < 0.05$) and WHOQOL-BREF score ($p < 0.01$) (Table 5, 6).

Structured Discussion

1. **Principal Findings** - Menstrual factors (duration of bleeding days and amount of menstrual flow) increase the menstrual distress whereas lifestyle factors (Parturition) decrease the menstrual distress. However, impact of menstrual distress on QOL of women during periods and on overall health varies in different age groups.

2. **Results** - Distress deteriorates the QOL during periods as well overall health.

3. **Clinical Implications** - Absenteeism from school or work, inability to do household chores situations explain the outcomes of this research that it affects QOL. More research is required regarding its physiological aspects.

Table 1: Correlation between MDS and menstrual history variables.

	MDS
Age of menarche	-0.03
Irregularity of periods	0.65
Duration of bleeding days	0.151*
Duration of the Menstrual cycle	0.048
Amount of menstrual flow	0.343*

* $p < 0.05$; ** $p < 0.01$

Table 2: Correlation between MDS and lifestyle variables.

	MDS
Exercise	-0.025
Frequency of having junk food	0.13
Sexually active	-0.118
Given birth to a baby	-0.176*

* $p < 0.05$

Table 3: Correlation between MDS and QOL.

	MDS
QOL during periods	-0.219
Overall QOL	-0.143

Table 4: Mean and standard deviation of MDS and QOL during periods.

	Mean	Std. Deviation
MDS	19.7429	8.78726
QOL during Periods	5.21	2.126

4. **Research Implications** - It is unanswered that why the level of menstrual distress varies drastically in women for instance for some life is very simple during periods and for some it is very difficult but the basic phenomena behind menstruation is same.

5. **Strengths and Limitations** - The strength of this study is that it considers various menstrual and lifestyle factors into account whereas most studies are done mainly on dysmenorrhea. The lacking factor in this study is that it only considers the factors based on experiences of women and does not account for hormone and other physiological factors.

6. **Conclusions** - QOL is decreased due to menstrual distress and it varies in adolescents and middle-aged women.

Conclusion

In the study, 210 participants were involved, out of which 105 participants were from age group 15 to 30 and 105 participants from age group 31 to 50. Out of the total participants, 57.14% were married, 38.57% were unmarried single and 04.29% were unmarried with a partner. 55.23% were students and about 43.33% were employed. Approximately half of the population (50.95%) was sexually active. Out of the total sample, 96 women had given birth at least to one baby which makes 45.71% of the total. The age of menarche varied from 7 years to 19 years but most of the participants got their first periods between the age of 11 to 16 years which constitutes about 94.28%. About 68% of people have their periods regularly on time. A major proportion of the sample had 4 to 5 days of bleeding which makes about 63%. Duration of 25 to 30 days is most common about 62% of participants have this length of the cycle. 77% of the samples have a moderate flow of bleeding but about 15% of the samples face the heavy bleeding problem which is reported as one of the biggest causes of menstrual distress.

Table 5: Mean and standard deviation of MDS and WHOQOL-BREF scores.

	Age	Mean	Std. Deviation	Std. Error Mean
MENSTRUALDISTRESSSCORE	≥ 30.0	18.1091	8.43469	0.80422
	<30.0	21.54	8.85737	0.88574
WHOQOL BREF SCORE	≥ 30.0	25.8727	0.3348	0.03192
	<30.0	25.35	0.47937	0.04794

Table 6: Independent sample t-test of age for MDS and WHOQOL-BREF score.

		t-test for Equality						
		t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Menstrual Distress Core	Equal variances assumed	-2.874	208	0.004	-3.43091	1.19357	-5.78396	-1.0779
	Equal variances not assumed	-2.868	203.746	0.005	-3.43091	1.19637	-5.78976	-1.0721
WHOQOL BREF SCORE	Equal variances assumed	9.227	208	0	0.52273	0.05665	0.41104	0.63441
	Equal variances not assumed	9.076	175.012	0	0.52273	0.05759	0.40906	0.63639

Table 7: QOL during periods.

Variable	N	N%
Frequency of skipping school, college, or work-		
Never	103	49.04
Sometimes	86	40.95
Mostly	17	8.09
Always	4	1.92
Comfortable doing Physical work-		
Never	33	15.73
Sometimes	85	40.47
Mostly	60	28.57
Always	32	15.23
Comfortable doing Personal work and household chores during periods-		
Yes	143	68.09
No	19	9.06
Sometimes	48	22.85
Feel sleepier during periods-		
Yes	125	59.52
No	30	14.28
Sometimes	55	26.2

The major concern of this research thesis was to know the impact of menstrual distress on QOL. Out of the sample population, about 40% of participants have skipped school, college, or work at some point in time. About 65% of participants are either always not comfortable doing physical work or sometimes able to do the physical work. About 10% of the sample is always not able to do even their personal and household work during periods. Approximately 60% of the population feels sleepier during their periods. The following table shows the statistics for the QOL during periods (Table 7). The experience during the menstrual cycle is different for every female. According to the sample study, about 67% of females do not feel comfortable like normal days during periods. About 20% have reported that they always have pelvic pain during periods and only 9% have reported that they do not have pelvic pain during periods. About 25% of females from the sample believe that exercise has helped them to reduce pelvic pain during periods (Table 8). Based

Table 8: Experience during menstruation.

Variable	N	N%
Feel comfortable during Periods-		
Yes	141	67.14
No	69	32.86
Exercise reduces pain and discomfort during Periods-		
Yes	53	25.23
No	29	13.81
Maybe	77	36.66
Frequency of Pelvic Pain-		
Never	19	9.04
Sometimes	90	42.85
Mostly	63	30.02
Always	38	18.09

on previous research it is evident that dysmenorrhea is the most common menstrual problem and adolescents facing this had the poorest score in reference to physical function which ultimately affects the QOL [13]. It is also apparent from multiple researches that menstrual distress reduces QOL as the physical activity is reduced by 3.1 times. It also leads to inability to perform everyday tasks [14]. It is clearly observed in the study that menstrual distress impacts the QOL of women and the level of MDS is directly dependent upon several factors. Also, the level of MDS is less in women who have given birth to a baby. It is necessary to understand that how the symptoms of menstrual distress decrease after the first parturition as it is not clear in this research.

The ultimate goal of this research was to find out the impact of menstrual distress on the QOL of women and to study the factors that influence menstrual distress. The level of menstrual distress and overall QOL of women for 2 different age groups is also analyzed. Through all the statistical analysis of the data, it is observed that menstrual distress has a negative impact on the QOL of women so, it is concluded that more the menstrual distress, less is the QOL of women during their periods as well as the overall QOL is also reduced due to menstrual distress. Menstrual factors like duration of bleeding days and amount of menstrual flow have a significant effect on menstrual distress. So, it is concluded that the more the number of bleeding days

and amount of menstrual flow, the more is the menstrual distress and less is the QOL. Moreover, it is also evident through the analysis that women who have given birth to a baby have comparatively less menstrual distress as compared to those who have not given birth. So, it is concluded that post parturition, the level of menstrual distress is reduced. Through the comparison of MDS and WHOQOL-BREF mean scores for the 2 different age groups, it is concluded that the level of menstrual distress and overall QOL is significantly different in 2 age groups.

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