



Assessment chart for menstrual health monitoring among nursing students: an Intervention study.

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Abstract:

Background: Women's menstrual cycles are important to their overall health and are characterized by predictable and recurring symptoms. Regular monitoring of the menstrual cycle can help to maintain female health. **Aim of the study:** was to evaluate the effect of menstrual health monitoring on menstrual health problems among nursing students. **Subjects and Methods:** **Research design:** quasi experimental study design. **Setting:** The study was conducted in technical institute of nursing at Zagazig University, El-sharkia governorate, Egypt. **Subjects:** 116 female nursing students (Multistage cluster random sample). **Tools of data collection:** Two tools were used for data collection Tool (I): A Structured Interviewing questionnaire Tool (II): Menstrual monitoring assessment chart. **Results:** there was a highly statistically significant difference between pretest and follow-up 2 after use of menstrual monitoring assessment chart. **Conclusion:** There was a marked improvement in menstrual problems after implementing the educational intervention and then in follow up phases. **Recommendation:** Develop educational program about menstrual health and menstrual abnormalities for all students (medical and non-medical faculties and institutes) to maintain healthy life style and learn different methods of monitoring menstruation. **Key words:** Menstrual health, menstrual assessment chart, nursing students.

Introduction:

Women's menstrual cycles are important to their overall health (Critchley, *et al.*, 2020) and are characterized by predictable and recurring symptoms. Regular monitoring of the menstrual cycle can help to maintain female health. Monitoring is needed to maintain menstrual health and provide information to women (Kang, 2021). So female students should

learn to monitor their menstrual cycle using different forms for monitoring (eg: menstrual flow monitoring chart, menstrual calender ,.....etc) (*Theresia ,et al.,2022*)

Irregular menstruation, light bleeding, and uterus problems are common menstrual problems. Backache, abdominal pain, itching in genital area, lower abdominal pain and heavy bleeding are the other problems from which the adolescent girls suffer. (*Bhattarai, et al., 2020*). A range of disorders of the menstrual cycle have significant implications for physical, mental, and social well-being (*Regan, 2021*). In addition, other difficulties associated with the menstrual cycle impact quality of life including pain, physical discomfort, impacts on mental health, (*Eisenlohr-Moul, 2019*) and abnormal uterine bleeding. These may occur in the absence of disorders of the menstrual cycle. Timely diagnosis and support for disorders and discomforts requires those experiencing a menstrual cycle to be able to identify menstrual symptoms that are abnormal for their body, to feel comfortable seeking advice and support, and to have access to health services provided by competent health workers who operate in a system that is responsive to menstrual health needs (*Regan, 2021*).

In grounding menstrual health within the menstrual cycle, we recognize that the treatment of health conditions that may cause abnormal uterine bleeding, such as uterine fibroids or cancer, falls beyond the remit of menstrual health. However, by addressing menstrual health needs there is significant opportunity to improve the health of those experiencing these conditions (*Sommer, et al., 2017*). Treatment and care for discomforts and disorders may range from clinical care to advice for self-care or access to resources such as medication, counselling, exercise, or heat therapy.

Significance of the Study:

Social prohibitions and the negative attitude of parents in discussing the related issues openly, have blocked the access of adolescent girls to the right kind of information, especially in the rural and tribal communities .Many studies have revealed that most of the adolescent girls had incomplete and inaccurate information about the menstrual physiology and hygiene so as to enable her to accept it as a normal developmental process and manage it appropriately. An adolescent girl need more information and reassurance about their changing bodies, sexuality, identity and health status (*Bulto,2021*).

Aim of the study:

The aim of the study was to evaluate the effect of menstrual health monitoring on menstrual health problems among nursing students. **Research hypothesis:**

Use of aassessment chart as a good tool for menstrual health monitoring among nursing students significantly improve menstrual health problems based on frequent follow up of nature and characteristics of menstruation.

Subjects and Methods:

Research design: quasi experimental study design was adopted to carry out this study.

Setting: The study was conducted in technical institute of nursing at zagazig university-El sharkia governorate, Egypt and carried out from 1st of October 2023 to the end of March 2024 over 6 months.

Subjects: Multistage cluster random sample was utilized to collect the sample from 1st& 2nd academic grade of the female nursing institute student who accepts to participate in the program. Total sample of the study was 116.

Tools of data collection: In order to fulfill the objectives of the study three tools were used to collect necessary data:

Tool I: A Structured Interviewing Questionnaire: it was designed by the researcher after reviewing the related literature. It was designed in the necessary data for achieving the study objectives.

Demographic characteristics, anthropometric measurement &source of knowledge regarding menstruation.

Tool (II): Menstrual monitoring assessment chart it was adapted from (*Theresia, et al., 2022*) and modified by the researcher. It was aimed to monitor menstrual cycle regularly and distinguish normal from abnormal menstrual cycles (10 items).

Content validity and reliability:

The tools were tested for content validity by Jury of three experts from Faculty of Nursing Zagazig University. Reliability was assessed using Alpha Cronbach, reliability of menstrual monitoring assessment chart was first 0.716 second 0.816 third 0.855 &fourth 0.911.

Field work:

Data were collected through self-administered questionnaire To fulfil the aim of the study, the following phases were adopted: assessment phase, planning phase, implementation phase and evaluation phase. These phases were carried out from 1st of October 2023 to the end of March 2024 over 6 months

Pilot study:

A pilot study was conducted on a sample of students on 10% of total sample (12 students) that fulfilling the set criteria. Those were not included in the total sample size to insure clarity and comprehensiveness of the tool.

Administration and Ethical consideration:

- An official permission was obtained from the manager of technical institute of nursing at Zagazig University by submission of an official letter to the responsible authorities of the study setting to obtain the permission for data collection after explaining the purpose of the study.
- Ethical approval was obtained from the scientific and ethical committee of the faculty of nursing at Zagazig University.
- Nursing students were enrolled voluntarily after taken their oral consent .Anonymity of the participant was maintained.

-confidentiality of any obtained information was ensured and the study maneuver don't entail any harmful effect on participating nursing students - nursing students were informed that the data collected used for research purpose only and they have right to with draw from the study at any time without giving any reason.

Statistical Analysis:

The statistical analysis of data was done by using the computer software of Microsoft Excel Program and Statistical Package for social science (SPSS) version 25. Data were presented using descriptive statistics in the form of frequencies and percentage for all categorical data, the arithmetic mean (X) and standard deviation (SD) for quantitative data. Qualitative variables were compared using chi square test(X^2).Difference between the group during the two visits were assessed by paired t test.

Results :

Table (1): anthropometric measurements of studied students (n=116). Illustrates that weight of studied students ranged between 43kg to 95kg with mean 62.64 ± 10.74 . Meanwhile their height varied from 144cm to 175cm with mean 162.13 ± 5.59 . Regarding students' BMI mean was 24.01 ± 4.05 .

Figure (1): Percentage distribution of studied students regarding their source of knowledge about menstruation before menarche (n=116). Illustrates that, the mother represents 65.5% as the main source of knowledge about menstruation before menarche followed by media 37.9%, elder sister 25.9%, friend 23.3% and others 9.5%.

Figure (2): Percentage distribution of studied students regarding their information received about menstruation before menarche (n=116). Demonstrates that, 69.0% of the studied students received information about physical changes before menarche followed by 17.2% of them received information about use of material for absorption, while 9.5% & 4.3% of them received information about bathing practices and social & religious restrictions respectively before menarche

Table (2): frequency distribution of studied students regarding their menstrual problems through the intervention phases. shows that there is marked improvement in all items of menstrual monitoring assessment chart throughout intervention phases .As evidence, (84.5% and 88.8% respectively) of the studied students suffered from cramps and mood swing during menstruation at pre intervention, while decreased to (42.2% and 49.1% respectively) at post intervention .Then percentage decreased to (14.7% and 22.4% respectively) in follow up 1 and decreased to (10.3% and 19.8% respectively) in follow up 2 with a statistical significant difference between pre/follow up 2 in three items (cramps, headache & bloating) ($P < 0.001$) .

Figure (3): frequency distribution of studied students regarding their days of menstruation through the intervention phases (n=116) detects that the most number of the studied students had menstruation for 5 days/month through the intervention phases. As evidence, 35.3% of the studied students had menstruation for 5 days/ month at pre and post intervention . The percentage changed to 46.6 % in follow up 1 followed by 43.1% in follow up 2.

Figure (4): percentage distribution of studied students regarding menstrual disorders (n=74). shows that shows that 48.6 % of the studied students suffered from premenstrual syndrome followed by 43.2% of them suffered from dysmenorrhea , Also 16.2 % of them suffered from polymenorrhea, while 13.5% of them suffered from metrorrhagia and 13.5 % of them also suffered from menorrhagia.

Figure (5): Total score distribution of studied students regarding their suffering from menstrual problems through the intervention phases (n=116). Illustrates that, 62.1% of the studied students suffered from menstrual problems at pre intervention. The percentage decreased to (26.7%, 12.1%, &7.8% respectively) at post intervention ,follow up 1 & follow up 2 respectively.

Discussion :

Young women should be educated about menstruation to increase the quality of their menstrual health practices, having comprehensive information can help them prevent physical and psychological problems during their period. The educational activities can help students record their menstrual cycle regularly. This recording is important to help them distinguish normal from abnormal menstrual cycles. Thereby, young women can monitor their menstrual health periodically and seek early intervention if they experience menstrual abnormality *Samaria, Theresia & Doralita, (2022)*.

Regarding to anthropometric measures(weight , height & BMI), the current study revealed that more than one third of the studied students mean weight of them was 62.64 ± 10.74 kg , mean height of them was 162.13 ± 5.59 cm , mean BMI of them was 24.01 ± 4.05 kg/m² .This results agreed with (*Abreu-Sánchez, et al., 2020*) study in Spain about perception of menstrual normality and abnormality in Spanish female nursing students who found that mean age of studied students was 20.63 ± 1.78 years old , mean weight was 60.07 ± 9.29 kg ,mean height was 164.10 ± 6.23 cm, and mean BMI was 22.30 ± 3.15 kg/m² .These results in harmony with(*Mittiku , et al., 2022*) Study in Ethiopia, about Menstrual irregularity and its associated factors among college students in Ethiopia, 2021. Who found that nearly two thirds of students are normal weight?

Regarding source of knowledge before menarche , the current study stated that more than two thirds of students received information about menstruation from their mothers before menarche especially about physical changes which congruent with (*Michael et al., 2020*) study about Knowledge and practice of adolescent females about menstruation and menstruation hygiene visiting a public healthcare institute of Quetta, Pakistan, which found that more than two thirds received information about menstruation from their mothers before menarch .

In relation to menstrual monitoring assessment chart the current study displayed that more than half of students had menstruation lasting for 5 to 6 days, more than one third of students had heavy menstrual flow and nearly two thirds of them had mild to moderate

menstrual flow. Similarly **Omidvar,et al.,(2018)** study about A study on menstruation of Indian adolescent girls in an urban area of South India. who stated that more than half of girls had menstruation lasting for 5 to 6 days , nearly one third of girls had abundant blood loss during menstruation while more than three fifth of them had mild to moderate blood loss during menstruation.

In addition, the current study revealed that more than half of students suffered from headache during menstruation, More than three fifth of them suffered from menstrual irregularities, more than four fifth of them suffered from mood swing, more than one third of them suffered from heavy menstruation, more than two fifth of them suffered from bloating and more than four fifth of them suffered from abdominal cramps during menstruation at pre test.

These findings in congruence with a study done by **Bruinvels,et al .,(2021)** about Prevalence and frequency of menstrual cycle symptoms are associated with availability to train and compete: a study of 6812 exercising women recruited using the Strava exercise app .Who found that the majority of women suffered from mood swing and more than four fifth of them suffered from abdominal cramps . Also agreed with **Erbil & Yücesoy, (2022)** study about Relationship between premenstrual syndrome and sleep quality among nursing and medical students. Who mentioned that nearly three fifth of students suffered from bloating with menstruation.

These results in contrary with **(Dahal & Acharya ,2019)** study in Nepal about effectiveness of information education and communication on menstrual hygiene among adolescent school girls of Jumla District who found that less than half of students suffered from abdominal cramps .Also disagreed with **(Mouna et al., 2019)** study in Bengaluru, India about Assessment of knowledge and health care seeking behaviour for menstrual health among adolescent school girls in urban slums of Bengaluru: a cross sectional study. Who found that less than quarter of students suffered from headache during menstruation .

The present study showed that more than two fifth of them suffered from dysmenorrhea, it agreed with **(Igbokwe & John-Akinola, 2021)** study in Nigeria about Knowledge of menstrual disorders and health seeking behaviour among female undergraduate students of University of Ibadan, Nigeria who found that more than one third of students suffered from dysmenorrhea.

On the other hand it disagreed with **(Siddique, et al., 2021)** study in Pakistan about Prevalence of Menorrhagia in Young Females. Who found that nearly half of the study sample suffered from menorrhagia .

Conclusion:

There was a marked improvement in menstrual problems after implementing the educational intervention and then in follow up phases

Recommendation: Based on findings, the study recommended:

Develop educational program about menstrual health and menstrual abnormalities for all students (medical and non-medical faculties and institutes) to maintain healthy life style and learn different methods of monitoring menstruation .

Replication of the study on larger probability sample from different geographical areas to help for generalization of results.

Studies involving the mothers in maternal and child health centers (MCH) to increase their awareness of the physical and psychological needs of their daughters during menstruation.

Part (I): Characteristics of the studied students (Demographic characteristics and menstrual history).

Table (1): Anthropometric measurements of studied students (n=116).

Anthropometric measurements	Min	Max	Mean $\pm$ SD
Weight	43	95	62.64 $\pm$ 10.74
Height	144	175	162.13 $\pm$ 5.59
BMI	16.70	36.50	24.01 $\pm$ 4.05

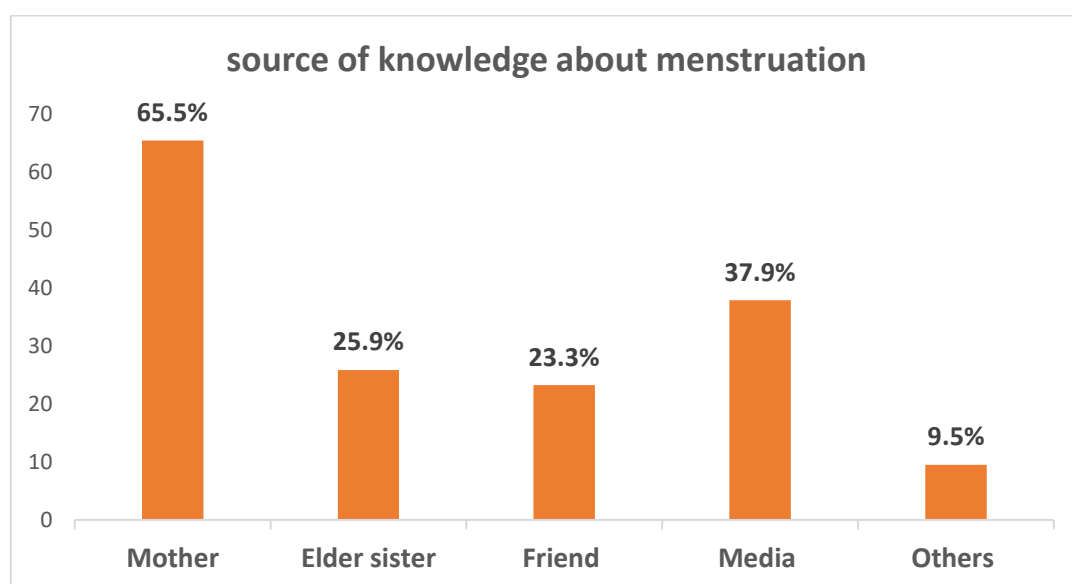


Figure (1): Percentage distribution of studied students regarding their source of knowledge about menstruation before menarche (n=116).

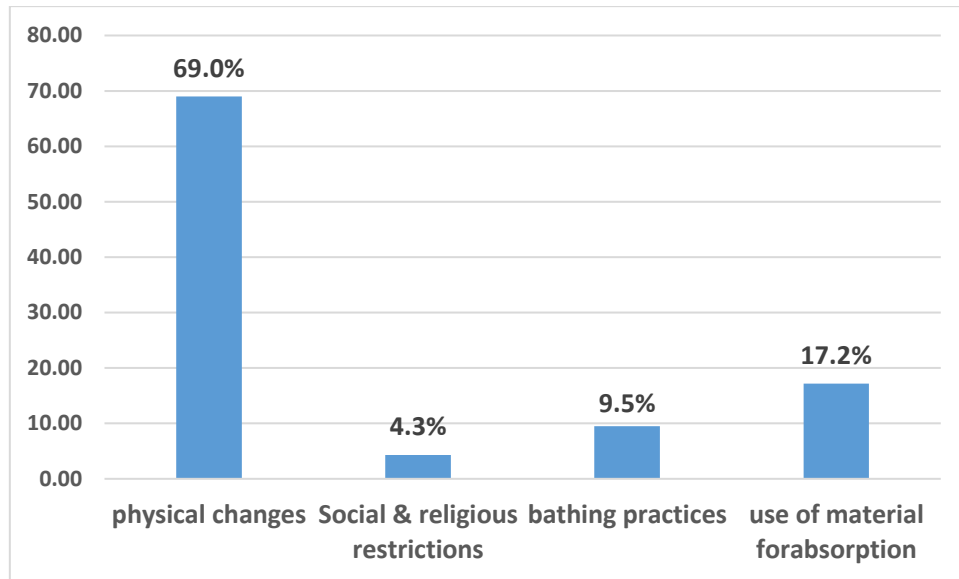


Figure (2): Percentage distribution of studied students regarding their information received about menstruation before menarche (n=116).

Tool (II): Menstrual monitoring assessment chart of the studied students

Table (2): frequency distribution of studied students regarding their menstrual problems through the intervention phases

Items	Problems								X ² 1	P-value	X ² 2	P-value	X ² 3	P-value
	Pre		Post		After 1month		After 2 months							
	No	%	No	%	No	%	No	%						
Flow														
Light	17	14.7	24	20.7	20	17.2	16	13.8	1.84	.397	7.02	.030*	9.70	.008*
Moderate	58	50.0	58	50.0	73	62.9	79	68.1						
Heavy	41	35.3	34	29.3	23	19.8	21	18.1						
Acne														
No	73	62.9	90	77.6	92	79.3	98	84.5	5.96	.015*	7.57	.006*	13.90	.000**
Yes	43	37.1	26	22.4	24	20.7	18	15.5						
Bloating														
No	65	56.0	86	74.1	89	76.7	92	79.3	8.36	.004*	11.12	.001**	14.36	.000**
Yes	51	44.0	30	25.9	27	23.3	24	20.7						
Cramps														
No	18	15.5	67	57.8	99	85.3	104	89.7	44.58	.000**	113.12	.000	127.85	.000**
Yes	98	84.5	49	42.2	17	14.7	12	10.3						
Headache														
No	53	45.7	83	71.6	103	88.8	106	91.4	15.99	.000**	48.92	.000**	56.14	.000**
Yes	63	54.3	33	28.4	13	11.2	10	8.6						
Constipation														

No	98	84.5	106	91.4	111	95.7	112	96.6	2.59	.107	8.15	.004*	9.84	.002*
Yes	18	15.5	10	8.6	5	4.3	4	3.4						
Diarrhea														
No	96	82.8	107	92.2	109	94.0	110	94.8	4.76	.029*	7.08	.008*	8.49	.004*
Yes	20	17.2	9	7.8	7	6.0	6	5.2						
Mood swing														
No	13	11.2	59	50.9	90	77.6	93	80.2	42.61	.000**	103.52	.000**	111.17	.000**
Yes	103	88.8	57	49.1	26	22.4	23	19.8						

X²1 between pre and post intervention X²2 between pre and follow-up 1 intervention X²3 between pre and follow-up 2 intervention

** highly statistically significance p<0.001 *statistically significance p<0.05

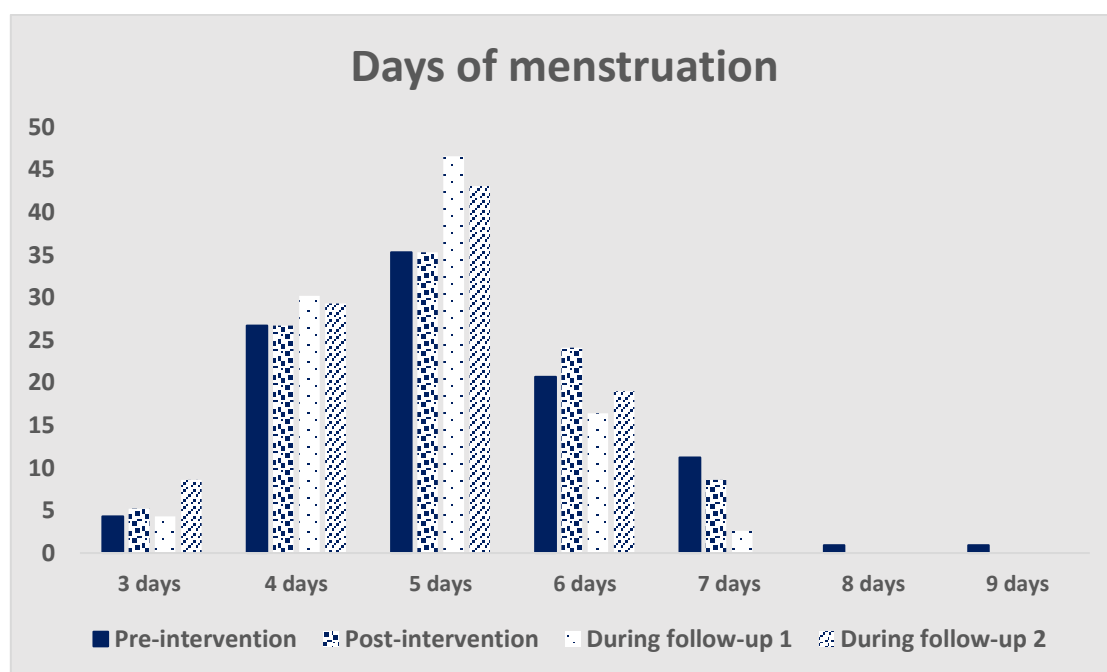


Figure (3): frequency distribution of studied students regarding their days of menstruation through the intervention phases (n=116).

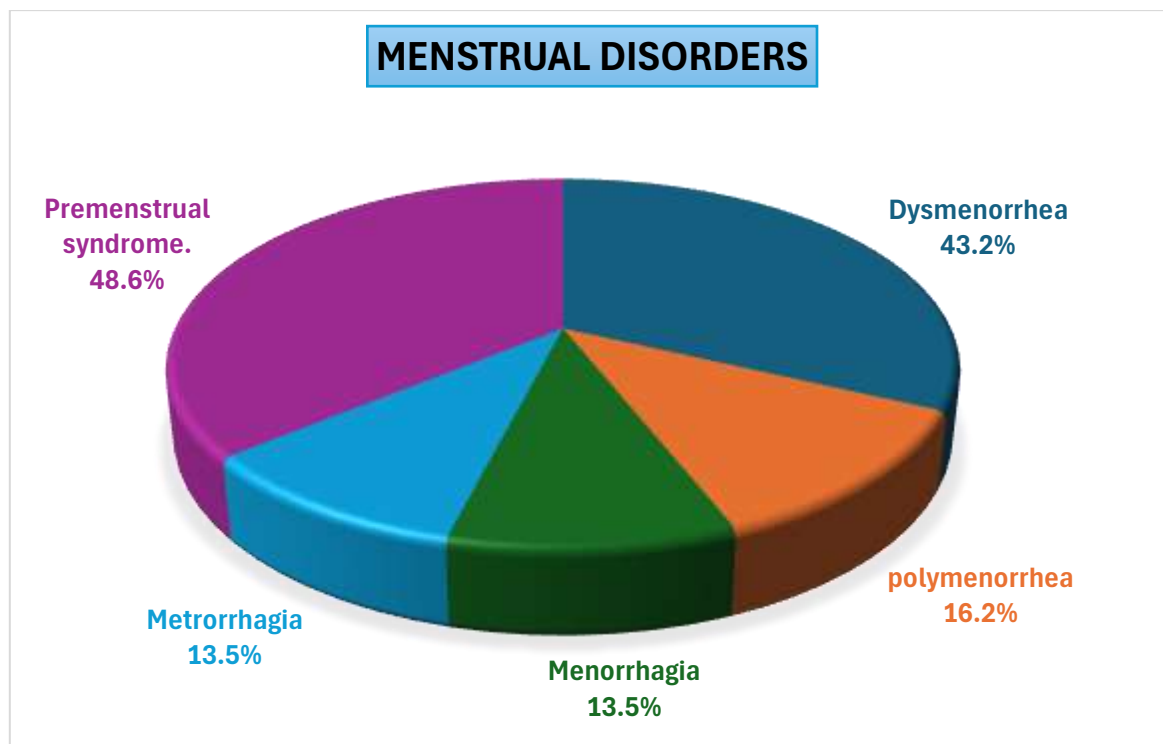


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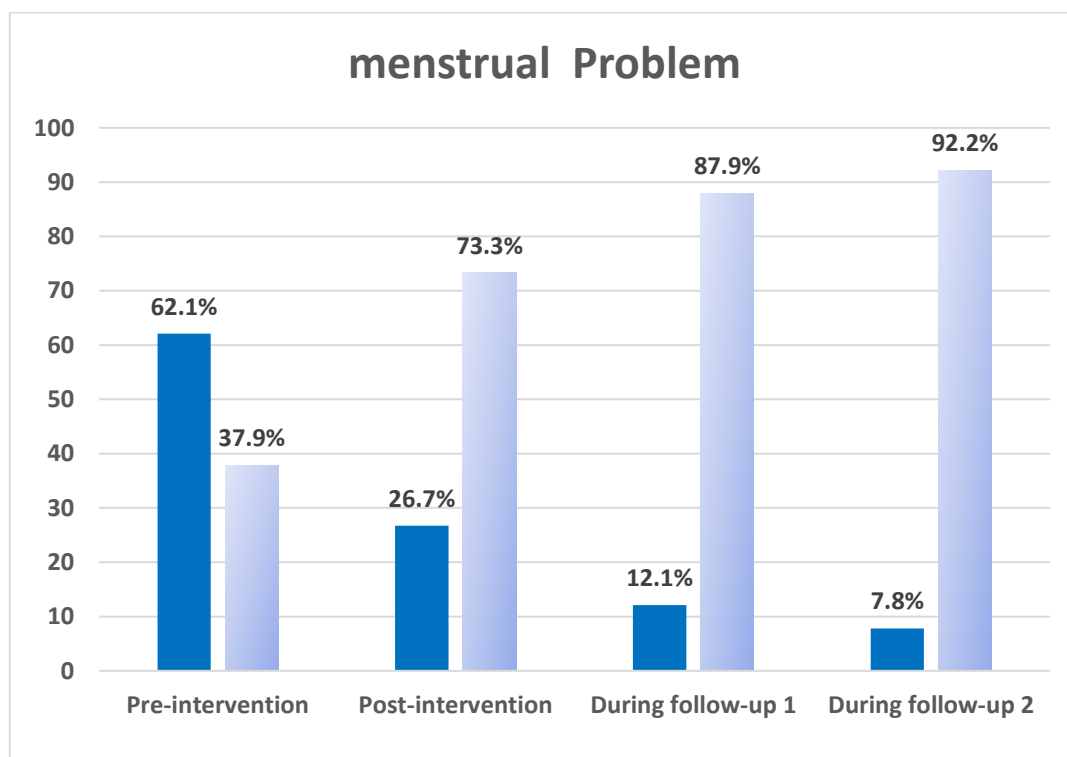


Figure (5): Total score distribution of studied students regarding their suffering from menstrual problems through the intervention phases (n=116).

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