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RATE OF OCCURRENCE AND EFFECTS OF HEAVY MENSTRUAL BLEEDING ON ANEMIA AND QUALITY OF LIFE OF FEMALES IN THEIR REPRODUCTIVE AGE

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Abstract:

Objectives: *To examine the rate of occurrence and effects of Heavy Menstrual Bleeding on fatigue, QoL (Quality of Life) and anemia of the females in their age of reproduction.*

Methodology: *This research work was carried out on three hundred and six females in their reproductive age who appeared at Medical OPD of DHQ Hospital, Faisalabad. The collection of the information related to this research work was carried out on data form, SF-36 QoL Scale and BFI (Brief Fatigue Inventory).*

Results: *The rate of occurrence of heavy menstrual bleeding in the females in their reproductive age was 37.90%. There was a significant decrease in the level of ferritin and physicalfunctions when there was increase in the duration of menstruation (P <0.050). Besides this, a positive but weak association was discovered between duration of menstruation and sub-dimensions of Brief Fatigue Inventory & perception sub-scale of general health of SF-36 QoL scale (P <0.050).*

Conclusion: *The findings showed that heavy menstrual bleeding is much common and it has high negative impacts on fatigue, anemia and some sub-dimensions of the quality of life. It is important to regular screen the issue of heavy menstrual bleeding to prevent the issues of health and their resolution.*

KEYWORDS: *Heavy Menstrual Bleeding, Quality of Life, Menstruation, Bleeding, Reproduction, Sub-Dimensions.*

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INTRODUCTION:

The moss of 80.0 ml or more blood in the duration of every menstrual cycle, it is the description of heavy menstrual bleeding defined in 1960s [1]. NICE in UK changed this definition in 2007 to, "excessive loss of the menstrual blood that socially, emotionally, physically and financially influences the quality of life of the females and it can be present with symptoms or by itself" with the inclusion of first definition [2]. There is variation in the rate of occurrence of reported heavy menstrual bleeding in females from 27.20% to 54% [3-9], making it a very common abnormality. The reasons of heavy menstrual bleeding can be irregular ovulation, fibroids&polyps, disorders of bleeding, cancer, drugs and some other causative factors [10]. There are many negative impacts of heavy menstrual bleeding on the psychological state, productivity of work, energy, social interactions, sexual function in females and family life [4,11,12]. Besides the excessive loss of blood in the period of menstruation, it can cause problems of physical health like IDA (Iron Deficiency Anemia) and fatigue [6,13,14].

Iron Deficiency Anemia and fatigue developed because of the heavy menstrual bleeding influences the quality of life of these females negatively [4]. Heavy Menstrual Bleeding itself has the potential to be a reason of different health problems [4,11, and 12]. It washighlighted in a research work that experience of female with loss of blood and impacts on her life should be detected when managing the treatment of abnormal bleeding from uterine [11]. The rationale of this research work was to determine the rate of occurrence of heavy menstrual bleeding in females of reproductive age and to assess the impacts of heavy menstrual bleeding on quality of life, anemia and fatigue of these females.

MATERIAL AND METHODS:

This research work was carried out on females from 15 to 49 years of age who visited the Medical OPD of DHQ Hospital, Faisalabad from September 2019 to January 2020. We selected the patients through random sampling. The minimum proportion of the samples required in this research work was three hundred and four patients. Females from 15 to 49 years of age who were willing to participate in this research work and able to understand the questions with regular period of menstruation, were the participants of this research work. We completed this research work on three hundred and six females who fulfilled the above-mentioned criteria. We took the permission from Ethical Committee of the institute to conduct this research work. We managed the tools of data collection with interviews by our investigators. The collection of the data was carried out with the use of Data Collection Form organized by our investigators after assessment of the associated literature [15], SF-36 QoL scale & Brief Fatigue Inventory. There were 22 questions in the Data Collection Form about the characteristics of demography of the females, menstrual features and risk factors additionally with the level of serum ferritin and hemoglobin. We considered the heavy menstrual bleeding presence when there was presence of menstruation for greater than seven days [16]. Ware developed the SF-36 QoL scale in 1987, which is used to investigate the QoL related to health. There were thirty-six items in the scale and there were two main titles and 8 sub-dimensions in the scale. In this scale, there was increase in the QoL of the patients when there was increase in the scores in health area [17].

MD Anderson developed the Brief Fatigue Inventory in order to detect the fatigue level. Zero on the Brief Fatigue Inventory shows non-existence of fatigue, scores one to three shows low level and score ten was the highest level [18]. We took the written consent from the females after describing them the purpose of this research work. The evaluation of the collected information was carried out with the utilization of SPSS V.23. We used the descriptivestatistics, T-test &Mann-Whitney test for the analysis of the data. We utilized the Spearman Correlation method for the assessment of the association between the duration of menstruation and levels of hemoglobin & serum ferritin as well as quality of life. P value of less than 0.050 was significant.

RESULTS:

The average age of the females and averagemenarche age was 30.80 ±9.70 and 13.40 ±1.40 years respectively. There was occurrence of menstruation duration for eight or more days in 15.40% females. We discovered that 54.90% females were using more than twelve pads during single period of menstruation and 13.10% females were experiencing extreme menstrualbleeding for four days or longer. There was presence of large clot passage in 66.30% females. Total 27.10% stated that they were using double pads, 53.30% females were often replacing the pads to avoid overflow of blood, and 8.20% females were present with intermittent bleeding. In accordance with our study standard, the rate of occurrence of heavy menstrual bleeding was 37.90% in females. We also discovered that 24.10% females perceived that they were experiencing very heavy or heavy bleeding (Table-1).

Table-I: Menstrual Features of Women

Menstruation Related Features	No / Mean	Percent / SD
Age at Menarche (X±SD=13.4±1.4) (Min-Max=9-18)		
≤11	20	6.5
12-14 years	223	72.9
≥ 15 years	63	20.6
Duration of Menstruation (X±SD=6.15±1.8) (Min-Max=1-12)		
≤ 4 days	45	14.7
5-7 days	214	69.9
≥8 days	47	15.4
Menstrual Cycle Duration (X±SD=26.7±6.3) (Min-Max=10-60)		
<21 days	40	13.1
21-35 days	253	82.7
>35 days	13	4.2
Number of Pads Used in One Cycle (X±SD=13.7±9.6) (Min-Max=1-100)		
≤11 pads	138	45.1
≥12 pads	168	54.9
The Number of Days When Menstruation Is Heavy		
Never	7	2.2
1 day	21	6.9
2 days	119	38.9
3 days	119	38.9
≥ 4 days	40	13.1
Large Clot Passage During Menstruation		
Yes	203	66.3
No	103	33.7
Use of Double Pads During Menstruation		
Yes	83	27.1
No	223	72.9
Frequent Replacement of Pads for Menstrual Bleeding to Prevent Overflow		
Yes	163	53.3
No	143	46.7
Intermittent Bleeding		
Yes	25	8.2
No	281	91.8
Presence of Heavy Menstrual Bleeding Meeting Criteria		
Yes	116	37.9
No	190	62.1
Severity of Menstrual Bleeding as Perceived by Women		
Mild	47	15.4
Moderate	185	60.5
Heavy	50	16.3
Very heavy	24	7.8

We diagnosed 63.40% females suffering from anemia in this research work, 33% females stated that they were using an iron preparation from previous 3 months and 16.70% females were still using these preparations. Average amount of hemoglobin and levels of serum ferritin in these females were 13.41±1.30 g/dL &32.76±8.00 ng/mL, correspondingly. There were 14% females with level of hemoglobin less than 12.0 g/dL and 17.30% females were present with the level of serum ferritin under 7.0 ng/mL. Median levels of ferritin and hemoglobin were significantly lower in the patients of heavy menstrual bleeding as compared to females without heavy menstruation bleeding (P <0.050). We found a statistically significant association between the

presence of heavy menstrual bleeding and fatigue and interference in the scores of daily routine activities (P <0.050). There was higher QoL in physical functions and role limitationsub-dimensions but it was lower in the bodily pain sub-dimension of SF-36 QoL scale in the females without presence of heavy menstrual bleeding as compared to the females present with heavy menstrual bleeding (P <0.050). We found no statistically significant association between the presence of heavy menstrual bleeding and other sub-dimensions of SF-36 QoL scale (P >0.050) (Table-2).

Table-II: Presence of Heavy Menstrual Bleeding According to The Hemoglobin and Ferritin Levels, and the Brief Fatigue Inventory and SF-36 QoLS Subdimension Scores

Hemoglobin and Ferritin Levels	Presence of Heavy Menstrual Bleeding				Test / P-value
	Yes		No		
	X±SD	Median	X±SD	Median	
Hemoglobin*	13.05±1.4	13.25	13.64±1.2	13.85	Z=-3.896 p<0.0001
Ferritin*	23.36±4.0	11.45	38.50±9.7	19.65	Z=-3.999 p<0.0001
Brief Fatigue Level					
General Fatigue Level*	6.19±2.3	6.5	5.07±2.6	5.33	Z=-3.564 p<0.0001
Interference with Daily Activities*	4.20±2.6	4.33	3.55±2.8	3.08	Z=-2.258 p=0.024
SF-36 QoL's Sub-dimensions					
SF-36 Physical Functioning*	73.58±2.5	82.5	80.24±2.1	85	Z=-2.438 p=0.015
SF-36 Role Limitation-Physical*	51.94±4.0	50	64.21±1.2	75	Z=-2.720 p=0.007
SF-36 Bodily Pain*	41.55±2.4	40	35.58±2.5	30	Z=-2.040 p=0.041
SF-36 General Health Perception*	52.76±1.3	50	52.13±1.2	50	Z=-0.567 p=0.571
SF-36 Energy/ Vitality*	49.74±1.2	50	48.71±1.4	50	Z=-1.035 p=0.301
SF-36 Mental Health*	46.86±1.3	48	48.51±1.4	48	Z=-1.149 p=0.251
SF-36 Role Limitation-Emotional*	51.44±4.4	66.67	65.09±4.1	83.33	Z=-2.695 p=0.007
SF-36 Social Functioning*	45.80±1.5	50	47.83±1.5	50	Z=-1.190 p=0.234
SF-36 Physical Component Summary*	36.43±6.8	37.03	37.93±6.8	38.52	Z=-1.767 p=0.077
SF-36 Mental Component Summary**	43.09±6.4	43.39	43.70±5.6	43.51	t=-0.878 p=0.266

* Mann-Whitney U test, ** Independent Samples t test.

In accordance with the analysis of Spearman's correlation test, there was slight decrease in the level of ferritin and there was increased level of fatigue in the females when there was increase in the level of menstruation (P <0.050). We discovered a slight negative association between the duration of menstruation and physical functioningsub-dimension of SF-36 QoL scale and a slight positive association between duration of menstruation and sub-dimension of general health perception (P <0.050). There was no significant association between duration of the menstruation and other sub-dimensions ofSF-36 QoL scale of physical functions and perception of general health (P >0.050) (Table-3).

Table-III: The Relationship between the Hemoglobin and Ferritin Levels, SF-36 QoLS Sub dimensions, Components of the Brief Fatigue Inventory, and Menstruation Duration.

Laboratory Values	Menstruation Duration	
	r	p
Hemoglobin	-0.1	0.08
Ferritin	-0.121	0.035
SF-36 QoLS Sub dimensions		
SF-36 Physical Functioning	-0.144	0.011
SF-36 Role Limitation-Physical	-0.104	0.07
SF-36 Bodily Pain	0.089	0.121
SF-36 General Health Perception	0.156	0.006
SF-36 Energy/ Vitality	0.102	0.074
SF-36 Mental Health	0.042	0.466
SF-36 Role Limitation-Emotional	-0.044	0.444
SF-36 Social Functioning	-0.028	0.63
SF-36 Physical Component Summary	0.042	0.467
SF-36 Mental Component Summary	-0.085	0.139
BFI		
General Fatigue Level	0.157	0.006
Interference with Daily Activities	0.114	0.047

DISCUSSION:

There was presence of heavy menstrual bleeding in about 4 out of 10 (37.90%) females in their reproductive age in this research work (Table-3). This rate of prevalence was also stated as 27.20% females from 16 to 57 years living in 5 different regions [3]. Prevalence rate of heavy menstrual bleeding was 32.0% in one research work conducted by Karlsson on females from 40 to 45 year of age in Sweden. The rate of occurrence of heavy menstrual bleeding was 15.20% in one research work conducted on females from 15 to 45 years of age in Iran. There is no past research work on the occurrence of the heavy menstrual bleeding in females of reproductive age in our country Pakistan on general public, but this rate of occurrence was 21.80% in one research work conducted on the students of university. The prevalence of heavy menstrual bleeding is much higher in this research work as compared to other studies. Regardless of the different heavy menstrual bleeding definitions [16], it is focused to investigate the perception about the condition by females. Total 24.10% females considered the menstrualbleeding as very heavy or heavy in the females of this research work (Table-1). A research work from Australia stated that 27.80% females from 20 to 39 years of age perceived their bleeding as very heavy or heavy [19]. The research results of current study are similar with reported rate by Fraser, Weisberg and McGeehan. Heavy menstrual bleeding can lead to the reductions in the levels of iron and hemoglobin and results in anemia among these females if not treated timely.

Heavy menstrual bleeding can be the reason of fatigue in addition to IDA in females [14]. The main symptom in the females was fatigue (90.40%) as present by Fraser in his research work. In the same manner, Wang discovered the fatigue as the most common symptom in the young females suffering from heavy menstrual bleeding in their research work [18]. In this research work, we found a slight positive association between the total duration of menstruation and general level of fatigue (P=0.0060) and inference level in the daily routine activities (P=0.0470). The results of this current research work are much consistent with the findings of other mentioned research works. Heavy menstrual bleeding itself and the anemia &fatigue developed due to bleeding are the main cause of decrease in the quality of life of the females. This is not clear fact that how the symptoms resulted by HBM can have impact on the quality of life of the females. We found a statistically significant disparity in all the sub-dimensions of SF-36 QoL scale between females present with menorrhagia and females of control group in one other research work conducted in our country [19]. De Souza found no significant association between the

amount of menstruation and physical and mental components of the SF-36 QoL scale in his research work. This research work is single center study; therefore, it is need to conduct more studies with the involvement of the females from various regions to consolidate the findings of this research work.

CONCLUSION:

The rate of occurrence of heavy menstrual bleeding in our females is very high. Heavy Menstrual Bleeding decreases the levels of hemoglobin &serum ferritin utilized in the evaluation of anemia, increase the level of fatigue and have negative impacts on physical and emotional sub-dimensions of the quality of life in this research work. There can be prevention of the negative effects of heavy menstrual bleeding on fatigue quality of life and anemia and there should be identification of the treatment by querying heavy menstrual bleeding in females in their reproductive age who appear for proper examination and by performing routine follow ups. There are recommendations from this study to investigate the impacts of heavy menstrual bleeding on fatigue, quality of life and anemia by examining the usage of iron preparations in future research works.

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