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Research Article

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A Study on Menstrual Pattern and Problems among Adolescent Girls of Udaipur City

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ABSTRACT

Intension: *Health problems of adolescents are very common specially menstrual health plays a very significant role in adolescent girls. Providing correct guidance on menstruation is essential to lessen menstrual morbidity, anxiety and to improve menstrual health of these adolescents. The aim of this study was to determine the menstrual health of adolescent girls (16-18 years).*

Methods: *The study was conducted using self structured questionnaire among 100 adolescent girls in Udaipur, Rajasthan. Data were collected using purposive sampling method.*

Results: *Overall 61 percent girl's cycle was irregular and majority of girls were anaemic, 78% of respondents were skipping meals and 81% were consuming junk food, majority of them were facing PMS. Significant association was found with various menstrual problems.*

Conclusion: *In depth study is needed with more sample size. Study concludes that menstrual problems among girls are highly prevalent which needs proper diet and healthy habits.*

Keywords: *Menstrual problems, Adolescent girls, Irregular cycle*

INTRODUCTION

"Adolescence meaning to grow in maturity" which comes from latin word Adolescere. According to World Health Organization (WHO) it has been defined as the age group of 10-19 years which signifies the transition from girlhood to womanhood. Menarche is the first menstrual cycle or first menstrual bleeding in females, which usually begins between ages 12 and 13, it may happen at a younger or older age. Menstrual cycle can be defined as the periodic discharge of mucus, blood and cellular tissues from the mucosa of uterine. It is repetitive occurrence which is caused by the interchange of the hypothalamic pituitary ovarian system which is divided into three phases i.e. the follicular phase, the ovulatory phase and luteal phase (Ferin, 1996). The length of the menstrual cycle of a sole is determined by a variable follicular phase from one individual to another while the luteal phase is relatively constant in all females and lasts 13-14 days (Sperroff, 1999; Mishell, 2001).

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Menstrual problems like dysmenorrhoea, oligomenorrhoea, amenorrhoea, irregular cycles, heavy flow, premenstrual syndromes (PMS) are attentively common in adolescents girls and this problems are increasing day by day due to improper diet and unhealthy eating habits like junk food consumption, not doing regular exercise etc. These conditions are not life-threatening but they can seriously decrease the quality of life in many females and may affect their mental as well as physical health (O'Brien, 1985). Adolescent girls are also at greater risk of anaemia due to blood loss in periods every month, so greater risk of anaemia and other nutritional deficiencies can have negative effects on the outcome of the pregnancy as well as on the growth and development of adolescents themselves. Keeping in mind the above aspects, the present study was surveyed.

MATERIALS AND METHODS

The study was conducted using self structured questionnaire among 100 adolescent girls in Udaipur, Rajasthan. Data were collected using purposive sampling method from Government girl's school (35), Gayatri nursing institute (20), College of social science and humanities (12), Pacific medical college (11), Pacific business school (14) and Keva centre (08) respectively. The purpose of the study was explained to them and they were asked to be frank with researcher. Questionnaire consists of two sections. First section includes general information of subjects while second section dealt with anaemia and menstrual problems (Appendix-I) which was translated in Hindi as well as in local dialects. Haemoglobin estimation was carried out with digital haemometer (diaSpect Tm analyzer) separately. On the basis of haemoglobin level, the subjects were classified as normal, moderate, mild or severe anaemic (WHO, 2011). They were briefed about questionnaire how to fill it and various statistical measures were used to analyze the data.

RESULTS

This section deals with the results and discussions of the present investigation.

Assessment of menstrual problems in girls

Normal menstrual cycle is defined as a menstrual cycle lasting for 26-29 days while irregular menstruation is defined as any subjects with the length of ≤ 25 or ≥ 30 days (Audhi Lakshmi, 2013).

Table 1: Distribution of respondents on the basis of anaemia and menstrual disorders

S. No.	Physical factors	Percent (%)
1.	**Age of menarche**	
	10	7.00
	11	10.00
	12	33.00
	13	36.00
	14	14.00
2.	**Anaemia**	
	Yes	73.00
	No	27.00
3.	**Regularity of cycle**	
	Irregular	61.00
	Regular	39.00
4.	**Length of cycle**	
	<21 days	24.00
	21-28 days	28.00
	29-35 days	23.00
	>35 days	25.00
5.	**Flow**	
	Low	21
	Heavy	79
6.	**Duration of flow**	
	≤3 days	18.00

	3-5 days	52.00
	≥7 days	30.00
7.	**Size of clots**	
	Little finger nail	39.00
	Thumb nail	20.00
	20 cent coin	22.00
	50 cent coin	8.00
9.	**Material used during menstruation**	
	Sanitary pads	93.00
	Old clothes	6.00
	New cotton clothes	1.00
10.	**Size of pads**	
	Extra large	64
	Small	29

Table 1 indicates about the distribution of menstrual health of adolescent girls which shows that 36 per cent of subjects attained menarche at the age of 13 but about 50 per cent of the girls attained menarche at age of 10-12, Similar results were reported by Washnik et al. (2015) on 435 girls which showed the mean age of menarche was 13.5 (1.0) years with 10 and 17 years being the lowest and highest age for attaining menarche respectively. Mean haemoglobin level of the respondents was 10.802±1.95 g/dl. Distribution of respondents based on the classifications of anaemia which clearly described that 30 per cent of respondents were having mild anaemia, 32 per cent were having moderate anaemia while 11 per cent were having severe anaemia while only 27 per cent of respondents had normal haemoglobin levels. Majority of respondents (61%) were having irregular periods while only 39 per cent were having regular periods. It might be due to the hormonal fluctuation taking place in pre pubertal age of girl. Study reveals that 24 per cent respondents were having cycle length of less than 21 days (<21 days) which is known as Polymenorrhoea, 28 per cent of respondents were having normal cycle length which was between 21-28 days, twenty three per cent respondents were having between 29-35 days and 25 per cent respondents were having length of cycle as more than 35 days (>35 days) which is known as oligomennorhoea.

Seventy nine per cent respondents get flooding/ heavy flow or gushing of blood from vagina when they stood up. Only 17 per cent respondents did not get flooding when they used to stand up, as we know that heavy bleeding can eventually lead to iron deficiency anaemia, the details regarding the blood flow were therefore included (Table 1).

Table 1 describes that the duration of menstrual flow among the respondents was as 18 per cent girls were having duration of <3 days, majority of respondents (52%) were having duration of cycle between 3-5 days and 30 per cent respondents were having ≥ 7 days duration of menstrual flow. Similarly, Washnik et al. (2015) reported the duration of blood flow was within 5 days in 75.8 per cent of adolescent girls with 24.2 per cent having prolonged menses (>5 days). Present study also found that all (100 percent) the respondents were getting clots during menstruation but the clot size varied i.e. majority (39%) of respondents were getting clots having size of little finger nail, twenty per cent respondents were getting clots of thumb nail size, twenty two per cent respondents were having clots size of 20 cent coin and only 8 per cent respondents were having size of 50 cent coins.

Table 1 indicates that majority of the (93%) respondents were using sanitary pads during menstruation, out of them 64 per cent of subjects were using extra large pads. Similarly a study conducted by Kumar et al (2015) found that among 200 adolescents, 79 per cent were suffering from menstrual problems out of which 70 per cent were using only sanitary napkins, while 30 percent were using both sanitary napkins and cloth as absorbents. Thus, the results show majority of the respondents are aware of the use of sanitary napkins.

Table 2: Association between heavy flow and hemoglobin level

Heavy flow	N	Mean (hb)	SD	t	df	Result
No	17	13.32	0.66	7.40	96	***
Yes	81	10.44	1.57			

Abnormal/excessive uterine bleeding is a common and a frustrating problem even in adolescents. Association between haemoglobin levels and flow of blood was also observed. Results showed those adolescents having mean haemoglobin level of 10.44 mg/dl experienced heavy flooding as they stood up whereas those having mean haemoglobin of 13.32 mg/dl did not get heavy flow or received heavy flow of blood during cycle (Table 2).

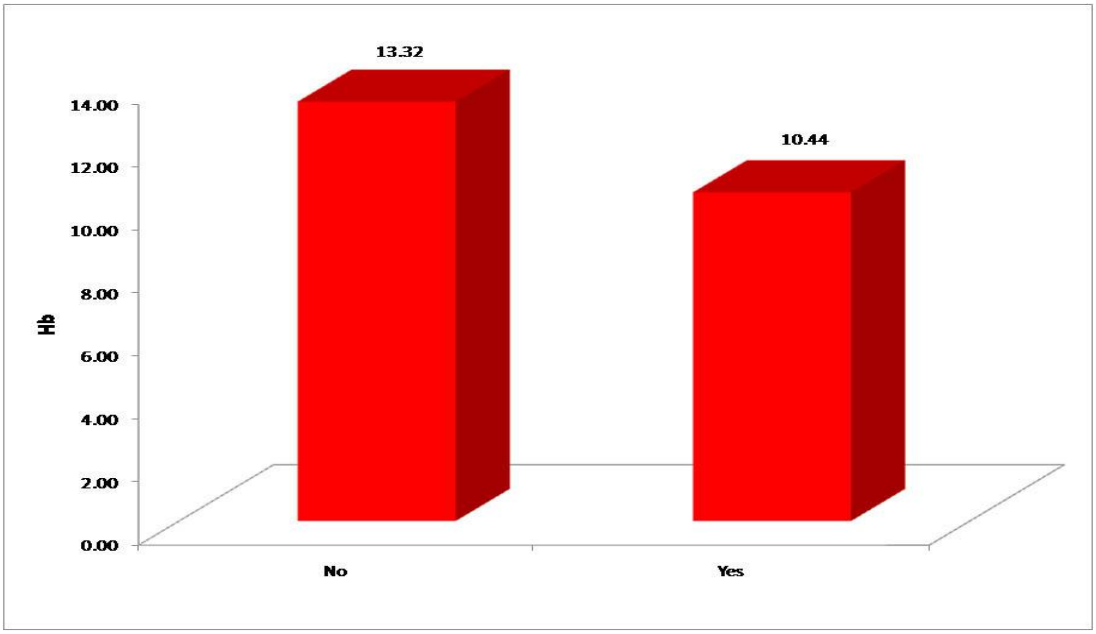

Fig. 1: Association between heavy flow and haemoglobin level

Table 3: Distribution of respondents according to occurrence of premenstrual syndrome

S. No	PMS Symptoms	Yes	No
1.	Dysmenorrhoea (n=100) Severe Moderate Mild	31 22 07 = 60	- - - = 40
2.	Abdominal bloating (n=100)	17	83
3.	Lower abdominal pain (n=100)	53	47
4.	Breast tenderness/ fullness (n=100)	16	84
5.	Discomfort (n=100)	64	36
6.	Irritability (n=100)	52	48
7.	Backache (n=100)	40	60
8.	Abdominal cramps (n=100)	25	75
9.	Body ache (n=100)	37	63
10.	Nausea/vomiting (n=100)	20	80
11.	Lower back pain (n=100)	41	59
12.	Stress/ depression/ mood swing (n=100)	40	60
13.	Fatigue (n=100)	51	49
14.	Skin problems like acne (n=100)	36	64
15.	Muscle/joint pain/ pain in thigh (n=100)	51	49
16.	Insomnia (n=100)	21	79
17.	Changes in appetite (n=100)	31	69
18.	Over eating's/cravings (n=100)	6	94

Table 3 states that the subjects selected were suffering with different types of menstrual disorders with varied degrees of pain and discomfort. Sixty per cent were suffering from abdominal pain i.e. is known as dysmenorrhoea, out of them 31 per cent were having severe pain, 22 were having moderate while 7 girls used to face light pain, Similar findings were reported by Suresh et al. (2011) in which 65.02% of subjects were having dysmenorrhoea.

Table 3 reveals that seventeen per cent subjects were suffering with abdominal bloating, 53 per cent with lower abdominal pain, 16 per cent respondents were facing breast tenderness/ fullness, majority of respondents (64%) having discomfort, 52 per cent respondents faces irritability, backache was faced by 37 per cent respondents, 20 per cent respondents faced nausea/ vomiting, 41 per cent subjects were having lower back pain, 40 per cent of subjects were found to be facing stress/ depression/ mood swing this may be due to the fluctuation of endorphin hormone which is also known as happy hormone. If the emotional disturbance remains limited to the mood fluctuations, it can be controlled with proper diet (e.g. low fats, high protein), taking adequate rest and sleep and activities can be modified to reduce stress (Dangal, 2004).

Fifty one per cent respondents got fatigue, 36 per cent having skin problems like acne, 51 per cent respondents were having muscle/ joint/ thigh pain, 21 per cent were having problem of insomnia, 31 per cent feeling changes in appetite while only 6 per cent were having problem of over eating/ cravings. A growing body of evidence suggests that diets rich in omega-3 fatty acids such as fish, calcium, vitamin D, and low in animal fats, salt and including foods high in complex carbohydrates (fruits, vegetables) are useful. Avoiding caffeine and alcohol is sometimes helpful and can reduce the risk of troublesome PMS symptoms

(https://www.thewomens.org.au/health-information/periods/healthy-periods/exercise-diet-periods). Similarly, Sarkar et al (2015) found prevalence of PMS amongst 61.5 per cent of girls, depression in 62.7 per cent of girls and anger in 70.5 per cent of girls. Irritability was reported to be as high as 84.8 per cent. Anxiety and confusion were reported by 76.0 per cent and 66.8 per cent of adolescent girls, respectively. Around one-third of girls experienced breast pain, and 55.3 per cent of girls also faced social rejection during that period. Headache and abdominal distension were reported by around 55 per cent students.

Table 4: Distribution of respondents on the basis of junk food consumption and skipping of meals

S. No	Variables	Yes/No	Percentage (%)
1.	Junk food consumption	Yes	81.00
		No	19.00
2.	Skipping of meals	Yes	78.00
		No	22.00
		Breakfast	72.00
		Lunch	6.00
		Diner	0.00

Results showed that 81 per cent respondents were in habit of consuming junk food whereas 19 per cent respondents did not consume junk food, also it was reported that mainly breakfast, lunch, and dinner was taken as meal and majority (78%) of respondents skipped one meal a day i.e. 72 per cent respondents skipped breakfast. It was due to the fact that they were not having enough time because of their school/college hours, lunch was skipped by 6 per cent.

Table 5: Association between irregular cycle and junk food consumption

Consume Junk Food	Period Regular?				Chi Sqr	df	Result
	No		Yes				
	No	%	N	%			
No	19	31.15	0	0.00	14.997	1	***
Yes	42	68.85	39	100.00			
Total	**61**	**100.00**	**39**	**100.00**			

Table 4 described earlier that 81 per cent girls consumed junk food and were having irregular periods. Significant correlation ($p<0.001$) between junk food consumption and menstrual problem was observed amongst the subjects (Table 5). Similarly, Nirmala et al. (2014) found a significant association between abnormal flow, dysmenorrhoea, irregular menstrual cycles, and PMS with frequent consumption of junk food.

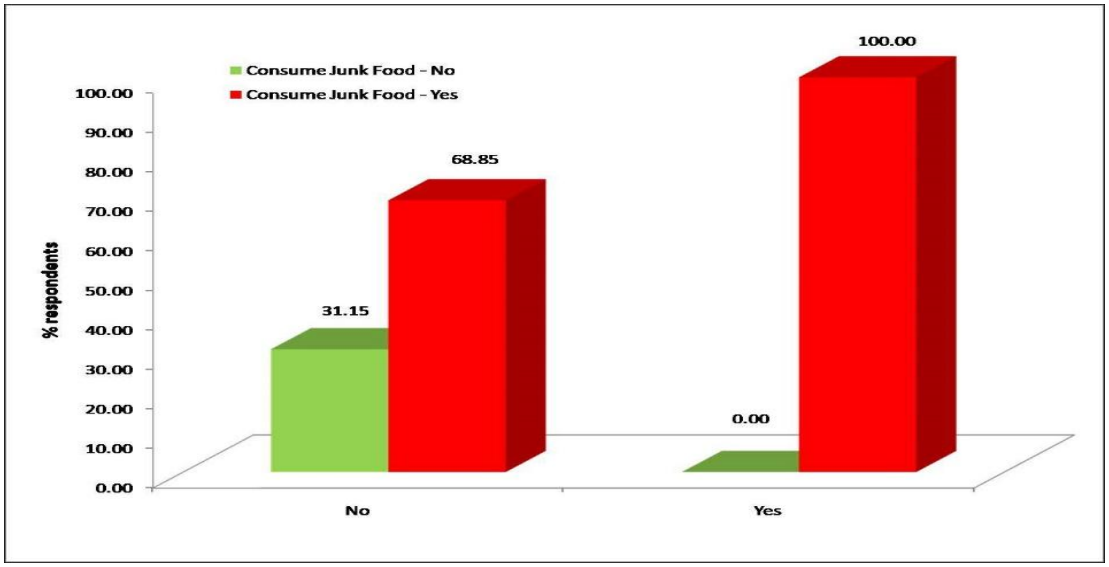

Fig. 2: Association between irregular cycle and consumption of junk food

Table: 6 Association between irregular cycle and irregular meals

Take Regular Meal	Regular in period				Chi Sqr	df	Result
	No		Yes				
	No	%	N	%			
No	61	100.00	17	43.59	44.116	1	***
Yes	0	0.00	22	56.41			
Total	**61**	**100.00**	**39**	**100.00**			

A significant association was found between regular meals as well as occurrence of menstrual irregularity at ($p<0.001$) level of significance (Table 6). Similar study was conducted by Hayam Fathy (2008) in which dysmenorrhoea occurs in female students who skipped the breakfast meal more than those who took breakfast and showed statistically significant difference in girls who have breakfast meal have regular cycle than those who do not have regular breakfast meal. Similarly, Carpenter (1994) examined skipping breakfast adversely affects menstrual disorders in young college students which reveals that dysmenorrhoea scores were high in Groups II who skipped breakfast. Hence, it can be assumed that menstrual problems were high in those girls who were skipping meals or breakfast.

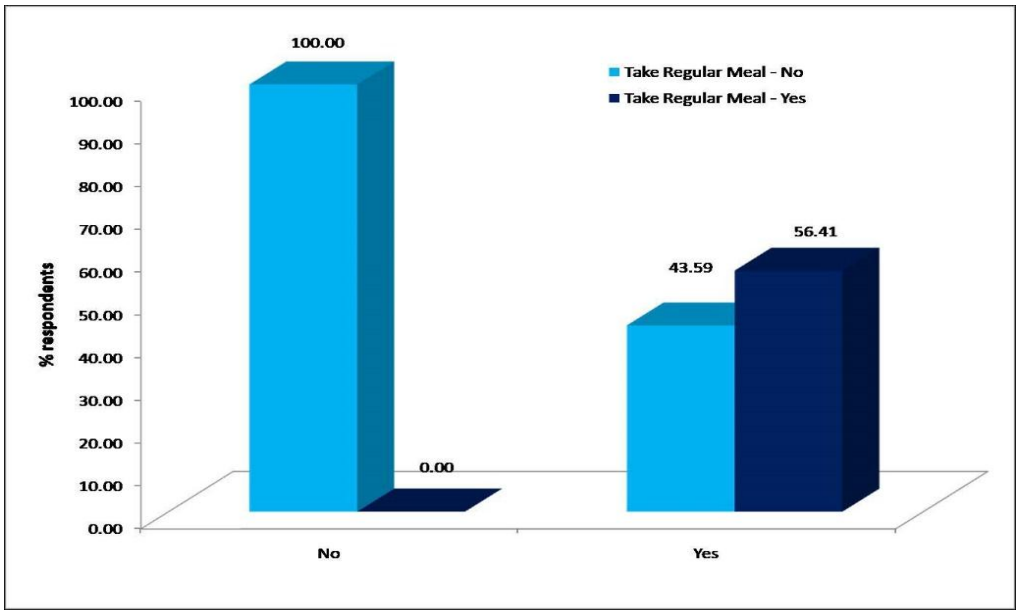

Fig. 3: Association between irregular cycle and irregular meals

DISCUSSION

In the present study, we found that majority (73%) of girls were anaemic and 61per cent girls periods were irregular and significant association between irregular meals and irregular cycle was found which might be due to skipping of meals mostly breakfast was skipped by 72% of respondents. Similarly Fujiwara et al. (2009) studied that skipping of breakfast had adverse effect on menstruation in young girls. Fujiwara and Nakata, 2004 examined that skipping breakfast is cognate with reproductive dysfunction in post-adolescent female and found the prevalence of irregular menses which was much high in the girls that skip breakfast. On the other side gynaecologic disorders such as irregular menstrual cycle and dysmenorrhoea were related with food intake problems (Fujiwara & Nakata, 2004). In the study it was found that 81.0% respondents consumes junk food and significant association ($p<0.001$) was notified between intake of junk food and menstrual problem Similar study was reported by Nirmala et al. (2014) in which significant association between irregular menstrual cycles, abnormal flow, dysmenorrhoea and PMS with frequent consumption of junk food was found which signifies 74 per cent respondents were facing dysmenorrhoeal problems out of them 43 per cent were having severe pain, 23 were having moderate while 8 girls were facing mild pain. Present study signifies that 60 per cent were suffering from abdominal pain i.e. is known as dysmenorrhoea, out of them 31 per cent were having severe pain, 22% were having moderate while 7% girls were facing mild pain. Duration of menstrual flow in respondents was that 18 per cent girls were having ≤ 3 days, majority of respondents (52%) were having flow between 3-5 days and 30 per cent respondents were having flow ≥ 7 days. Eighty one per cent respondents get flooding or heavy flow during menstruation when they stood up hence their mean haemoglobin level is 10.44 mg/dl which is significant at 0.1 per cent level of significance ($p<0.001$). The differences in menstrual cycle like irregularities and duration of flow could be because of hormonal imbalance, dietary habits like junk food consumption and skipping or irregular meals also may be due to some medical reasons which immediately require gynaecologic consultation.

CONCLUSION

Study concludes that majority of the respondents showed positive correlation between low haemoglobin levels and high prevalence of menstrual irregularities and also most of the respondents cycle was irregular

and there was positive association between irregular cycle and dietary habits. Low food intake, along with unhealthy food habits like low iron intakes, junk food consumption, skipping meals were the main cause factor of menstrual irregularities. Hence, healthy lifestyle and eating habits should be emphasised to improve menstrual health of adolescent girls as these are the future mothers and strict action is required regarding their menstrual health also further study is required with large sample size with positive attitudes.

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Dietary food habits (Appendix-I)

Section-I

1) General information of the respondents

Name of Respondent:

- Age:
- Date of Birth:
- Education status :
- Address:
- Contact number :
- Haemoglobin level: _____ g/dl

2) Do you consume junk food/ fast food?

a) Yes b) No

3) How many meals do you take in a day?

Breakfast: - _____

Lunch: - _____

Dinner: - _____

4) Are you regular in taking meals**?** Yes / No

If **No**, then mention which meal you skip? ***Breakfast / Lunch / Dinner***

Reason of skipping meals, please specify _____

Section-II

Information related to Menstrual Cycle

1) Age of menarche (when you experience your first period? _____

2) Are your periods regular? Yes / No

3) What is your length of cycle?

a) < 21 days (Polymenorrhoea) b) 21-28 days

c) 29-35 days d) > 35 days (Oligomennorhea)

i) Duration of menstrual flow? (How many days do you bleed for?)

<3days />3-5days/ ≥7days

ii) Does your bleeding last seven or more days/cycle? Yes / No

4) Do you feel any discomfort during menstruation like? (Premenstrual Syndromes)

a) Abdominal pain (Dysmenorrhoea) b) Abdominal bloating

c) Lower abdominal pain d) Breast tenderness/fullness

e) Uncomfortable f) Irritability

g) Backache h) Abdominal cramps/ pain

i) Body ache j) Nausea/Vomiting

k) Lower back pain l) Stress/depression/mood swing

m) Fatigue n) Skin problems like acne

o) Muscle/joint pain/pain in thigh p) Insomnia

q) Changes in appetite r) Over eating/cravings

5) a) What is the location of your pain? _____

b) What is the severity of your pain? Severe/Moderate/Mild

6) Material used during menstruation?

a) Sanitary pads/b) Sanitary napkins (new cotton cloth)/ c) Old clothes

7) What is the size of pad? Extra long _____Short _____

i) Do you get clots, if yes than how big would the clots be?

a) Size of little finger nail b) Thumb nail

c) 20 cent coin d) 50 cent coin

ii) Do you get "flooding" i.e. gushing of blood or heavy flow from the vagina when you stand up? Yes / No