



A Community Based Study on Menstrual Disorders Among the Rural Women of Reproductive Age

Durai Vanitha^{1*}, Shanthi Edward¹, Suresh Varadharajan¹, Muthuthandavan Anita Rani¹

Abstract

Objectives: Menstrual health is fundamental to women's sexual and reproductive health. Changes in normal menstrual patterns of women in reproductive age group may affect physical and psychological well being.

Materials and Methods: This cross-sectional study was conducted from August 2013 to January 2014 in rural villages of Poonamallee block, Thiruvallur district in Tamil Nadu. Ever married women of reproductive age group (15-49 years) were selected and interviewed on symptoms related to menstrual disorders using standard operational definition. Two stage cluster sampling was adopted.

Results: Mean age of 330 participants was 34.1 years and 61% had completed high school. More women (76%) belonged to upper and middle socio-economic class. It was observed that 44.8% of women had at least one menstrual disorder. Dysmenorrhoea (22.7%) and oligomenorrhoea (12.1%) were more common. Education acted as a protective factor for menstrual disorders ($P=0.0214$). Low socio-economic status women had 1.8 times greater risk of dysmenorrhoea ($P=0.044$). Old age ($P=0.035$), anaemia ($P=0.002$) and educational level ($P=0.032$) were associated with oligomenorrhoea. Among women with menstrual disorders, 25.67% sought health care. Majority did not seek care due to personal reasons, 36% did not know they had disorders and 40% did not worry about it.

Conclusion: Almost half of rural women had menstrual disorders and very few sought health care. Majority of them did not seek care due to personnel reasons, this should be addressed.

Keywords: Dysmenorrhoea, Health, Menstruation disturbances, Oligomenorrhoea

Introduction

Women are not dying because of diseases we cannot treat, they are dying because societies have yet to make the decision that their lives are worth saving (1). Globally, reproductive ill health constitutes 32% of total burden of disease among the reproductive age group women. In India reproductive ill health constitutes 12.5% of the total burden of diseases (2).

Reproductive morbidity comprises of contraceptive morbidity, obstetric morbidity, and gynaecological morbidity. Gynaecological morbidity includes reproductive tract infections (RTIs) and other types of non-infectious morbidities like menstrual disorders, infertility, gynaecological cancer, congenital malformations or birth defects or injuries, sexual dysfunctions and menopausal symptoms (3). Globally among the reproductive age group gynaecological morbidity leads to about 20% loss of healthy life in total years (4). In India among reproductive morbidities, gynaecological morbidity (88.64%) is more common (5).

Menstrual health is essential to women's sexual and reproductive health. Changes in the normal menstrual patterns of women in reproductive age group may affect physical and psychological well being (6). The impact of menstrual disorder on women's reproductive health is particularly serious in developing countries like India where the health care especially in public sector is not well

equipped to make the diagnosis and treatment of these conditions (7).

Prevalence of menstrual disorder is more in both rural and urban areas of India than other gynaecological morbidities. A community based study done by Koenig et al in 1996, showed that prevalence rate of menstrual disorders was high among the women in rural areas of Maharashtra (60%), and rural areas of Gujarat (59%) (8).

Prevalence of dysmenorrhoea and oligomenorrhoea are very common menstrual disorders. A study done by Latha et al in 1997 revealed the prevalence of dysmenorrhoea among the rural women in West Bengal was 11.4% and in Gujarat it was 47.4%. Oligomenorrhoea was found in 18% of rural women in West Bengal and 23.9% of rural women in Gujarat (9).

Menstrual disorders commonly affect the quality of life in women. This has been ignored by the policy makers, health planners and researchers in most of the countries (10). Medical risk factors, which are one among the determinants of the gynaecological morbidity, influence the menstrual cycles (11). This can be prevented and treated by early diagnosis at primary health centers but are presently neglected. More than 90% of menstrual problems are preventable which need early detection and early treatment by appropriate methods (6).

Indian studies on gynaecological morbidity are very scanty. In order to know the level of gynaecological mor-



bidity, its determinants and their consequences in reproductive health, research is essential. In view of this a population-based study was conducted to find the gynaecological morbidity among reproductive age group women in a rural population. This article presents the result of the findings on menstrual disorders and the possible risk factors, among the population of ever married rural women at Poonamallee block area of Thiruvallur district in Tamil Nadu.

Materials and Methods

This cross-sectional study was conducted in rural villages of Poonamallee block, Thiruvallur district in Tamil Nadu. The study population included ever married women of reproductive age group (15-49 years) who were residing in the study area for more than 6 months and who were willing to participate in the study. The sample size was calculated based on the lowest anticipated prevalence of gynaecological morbidity among rural women of reproductive age group (39%) (12) with an alpha error of 0.05%, limit of accuracy at 20% of anticipated prevalence and a design effect of 2, the minimum sample size required for the study was 330. Antenatal women, women who had delivered within 3 months of the date of interview, women with history of abortion within 3 months of interview and women who had undergone hysterectomy due to any cause, known psychiatric patient, transgender and bed ridden participants were excluded from the study. The data was collected for 6 months (August 2013 to January 2014).

Poonamallee block comprises of 106 villages with a population of 165 100. A 2-stage cluster sampling method was adopted. In the first stage 30 clusters were selected using PPS (probability proportionate to size) and in the second stage 11 participants were selected in each cluster. Interview schedule was adopted from Electronic Encyclopedia of Perinatal Data (EPPD) -Volume XV- Questionnaires in Gynaecology. Written permission was obtained on October 2012 from Dr. Rupert Fawdry for adopting the questionnaire.

Clinical examination was done to find out anaemia by

looking for pallor of conjunctiva/tongue/nail buds with or without pedal edema/dyspnoea (13). Cycle length ranging from 21-35 days constitute a normal menstrual cycles with duration of 4 days (± 1 day) flow and a blood loss of 40 mL (± 20 mL), using pads less than or equal to 5 per day (14).

Statistical Analysis

Data was analyzed using SPSS version 16.0. Descriptive statistics was used to determine the mean age of subjects and prevalence of common menstrual disorders. Categorical data was analyzed using chi-square. Association between common menstrual disorders and socio-demographic factors were analysed by odds ratio and P value. Subgroup analysis was done for dysmenorrhoea and oligomenorrhoea. Their association with socio-demographic factors was analysed using odds ratio and P value.

Operational definitions for common menstruation disorders are shown in Table 1.

Results

The number of women approached was 340. Eight participants who had undergone hysterectomy were excluded and 2 women were unwilling to give consent for the study. Results are presented for 330 women. Mean age of the participants was 34.1 years. Nearly 201 (60.9%) had completed high school level education and 35 (10.6%) were illiterates. Majority of the participants 258 (78.2%) were homemakers. Furthermore 249 (75.49%) women belonged to upper and middle socio-economic class (class I, II and III). Nearly 75% had two children and 21 (6.7%) of the participants had no children.

Prevalence of at least one menstrual disorder among study women was 148 (44.8%), (95% CI 35.98-53.29%) and women with a single menstrual disorder was 115 (34.85%). Women with 2 menstrual disorder was 32 (9.7%) and 1 woman had more than 2 menstrual disorder.

Table 2 shows that the common menstrual disorder was dysmenorrhoea (22.7%) followed by oligomenorrhoea (12.1%). Participants with delayed cycles, secondary amenorrhoea, polymenorrhoea and premenstrual

Table 1. Operational Definitions for Common Menstruation

Menstruation disorders	Operational definitions
Dysmenorrhoea (15)	Painful menstruation
Oligomenorrhoea (15)	Cycle length >35 days or duration <3 days or using < 2 pads/day
Polymenorrhoea (15)	Cycle length <21 days
Menorrhagia (15)	Regular cycles; excessive flow (>5 pads/day) and /or duration (>5 days)
Metrorrhagia (15)	Irregular cycles; excessive and/or duration (>5 days)
Secondary amenorrhoea (16)	Absence of menstruation for three cycles
Delayed cycles (17)	Delayed for >45 days
Premenstrual syndrome (18)	Any symptoms- painful/tender breasts, bloating/swelling of abdomen, mood changes, depression or others- occurring 5-10 days before menstruation and disappear after menstruation.
Perimenopausal changes (19)	Any of the changes (nervousness/sudden night sweat/hot flushes etc) occur during perimenopausal period among the women of >40 years old.
Inter menstrual bleeding (18)	Mild to moderate lower abdominal pain during mid-cycle (the 13 th -15 th day of the cycle) and blood spotting too.

Table 2. Prevalence of Menstrual Disorders Among Reproductive Age Group Women (n = 330)

Menstrual disorders	No. ^a	Percent	95% CI
Dysmenorrhoea	75	22.7	18.5–27.5
Oligomenorrhea	40	12.1	8.9–15.9
Menorrhagia	21	6.4	3.6–11.3
Metrorrhagia	15	4.5	2.7–7.2
Perimenopausal changes	11	3.3	1.8–5.7
Delayed cycles	6	1.8	0.7–3.7
Secondary amenorrhoea	6	1.8	0.7–3.7
Polymenorrhea	4	1.2	0.4–2.9
Premenstrual tension	3	0.9	0.2–2.5
Inter menstrual bleeding	1	0.3	1.02–1.5

^a Total will not tally for 100 as women had multiple morbidities.

syndrome were below 2%. Inter-menstrual bleeding was present for one participant and none reported postmenopausal bleeding.

Table 3 shows that women with less than high school level education had 1.7 times elevated risk to have menstrual disorders (52.7%) than higher educated women (39.8%). This difference was statistically significant ($P=0.0214$).

Subgroup analysis was done for dysmenorrhoea and oligomenorrhea which are the most common menstrual disorders. Table 4 shows dysmenorrhoea is more common among women of low socio economic class (class IV and V), 25 (30.9%) than women of high socio-economic class (Class I, II and III), 50 (20.1%) This difference is statistically significant ($P=0.044$). Non-anaemic women were at 2.15 times higher risk of having dysmenorrhoea 66 (25.1%) than anaemic women 9 (13.4%) ($P=0.038$).

Table 5 reveals women from more than 35 years age group were at 2 times more risk of having oligomenorrhea when compared to women from the age group of 35 and lesser years ($P=0.035$). Anaemic women were 3.1 times at higher risk of oligomenorrhea when compared with normal women ($P=0.002$). Women who had studied below high school level had a higher risk (odds ratio = 2.090)

of oligomenorrhea when compared with women who had studied high school and above. This difference is statistically significant ($P=0.032$).

Health Seeking Behaviour

Among 148 women who had menstrual disorders, 38 (25.67 %) women had attended health care facility. Majority of the women sought care at private hospital 20 (52.6%) and at indigenous centers/pharmacy 9 (23.7%). Four (10.5%) women had consulted doctors in PHC, 3 (7.9%) women had sought care at district headquarters hospital and 2 (5.3%) women were taking all investigation for surgery at medical college hospital for menorrhagia. Thirty (78.9%) women had consulted doctors and 5 (13.2%) had purchased drugs directly from pharmacy as advised by the pharmacist. Majority of women who had menorrhagia or metrorrhagia (34 out of 36 women) sought care for it. One woman sought care for delayed cycle on fear of conception.

Figure 1 shows among 110 women who were not seeking care for their menstrual disorders, about 40% mentioned that they did not worry about their problems, 25% had no knowledge about having diseases and 10.9% had no knowledge about their menstrual disorders but had sought care for other health problems like headache, cough, and knee pain. Two women had hesitation in revealing their problem about menstrual disorder to a male doctor.

Discussion

The result of this study on prevalence of menstrual disorders among the rural women during their reproductive age was 44.8%. This is similar to a community based study done among rural women in Bangladesh in 2003 (41.2%) (10).

Prevalence of menstrual disorders in this study was (44.8%). It is similar to a study done in an urban slum at Mumbai (41%) in 2011 (20) and with a study done in 2012 at Maharashtra (46.8%) (21). Latha et al in 1997 revealed that prevalence of oligomenorrhea (18%), dysmen-

Table 3. Association Between Certain Background Characteristics and Menstrual Disorders (n=330)

Characteristic	Total No. of Women	No. of Women With Menstrual Disorders (%)	Odds Ratio	P Value	
Age	>35	130	62(47.7)	1.209	0.4023
	≤ 35	200	86(43)		
SE class	>III	81	41(50.6)	1.36	0.2300
	≤ III	249	107(43)		
Parity (n=309)	<3	228	105(46.3)	1.242	0.4088
	≥3	81	33(40.7)		
Anaemia	Anaemic	67	31(46.3)	1.075	0.964
	Not anaemic	263	117(44.5)		
Education	<High school	129	68(52.7)	1.686	0.0214
	≥High school	201	80(39.8)		

Table 4. Association Between Certain Background Characteristics and Dysmenorrhoea (n = 330)

Characteristic		Total No. of Women	No. of Women With Dysmenorrhoea (%)	Odds Ratio	P Value
Age	>35	200	50 (25.0)	1.400	0.225
	≤ 35	130	25 (19.2)		
SE class	>III	81	25 (30.9)	1.777	0.044
	≤ III	249	50 (20.1)		
Parity (n=309)	<3	228	54 (23.7)	1.485	0.236
	≥3	81	14 (17.3)		
Anaemia	Anaemic	263	66 (25.1)	2.159	0.038
	Not anaemic	67	09 (13.4)		
Education	<High school	129	33 (25.6)	1.301	0.326
	≥High school	201	42 (20.9)		

Table 5. Association Between Certain Background Characteristics and Oligomenorrhea (n = 330)

Characteristic		Total No. of Women	No. of Women With Oligomenorrhea (%)	Odds Ratio	P Value
Age	>35	130	22 (16.9)	2.060	0.035
	≤ 35	200	18 (9.0)		
SE class	>III	81	11 (13.6)	1.192	0.643
	≤ III	249	29 (11.6)		
Parity (n=309)	<3	81	12 (14.8)	1.295	0.490
	≥3	228	27 (11.8)		
Anaemia	Anaemic	67	16 (23.9)	3.124	0.002
	Not anaemic	263	24 (9.1)		
Education	<High school	129	22 (17.1)	2.090	0.032
	≥High school	201	18 (9.0)		

orrhoea (11.4%) and metrorrhagia (8.6%) in west Bengal were more common when compared to other menstrual disorders like polymenorrhea (4.8%) and menorrhagia (3.3%). The same study showed that prevalence of dysmenorrhoea (47.4%), oligomenorrhea (23.9%), menorrhagia (14.7%) and metrorrhagia (8.2%) in Gujarat were more common when compared to polymenorrhea (7.2%) (9). Except dysmenorrhoea and menorrhagia, prevalence of all other menstrual disorders is less in the present study when compared to West Bengal. The prevalence of menstrual disorders was very less in Tamil Nadu when compared with Gujarat (except polymenorrhea), which might be due to better Reproductive and Child Health care services in Tamil Nadu.

In the above study, participants' age group varied from 13 to 50 years. Polymenorrhea was common among teenage women in their study (13 to 19 years old). In this study though the inclusion criteria were 15 years of age and above, only 1 participant reported at the age of 19 years. So, lower percentage of polymenorrhea and premenstrual tension in the present study could be due to the presence of lower percentage of teenager in this study population. A study in 1989 at a Bombay slum revealed that the prevalence of menstrual disorders was 39.3% which is almost similar to this study (44.8%). In the above study the prevalence of dysmenorrhoea, polymenorrhea, menorrhagia,

oligomenorrhea and metrorrhagia were 23.3%, 4.9%, 7%, 13.2% and 7.3%, respectively (15). This study is similar to the above study except for the prevalence of polymenorrhea which is very low in present study (1.2%). This shows that even after 2 decades the burden of menstrual disorder still remains the same.

This current study shows less prevalence of delayed cycles and secondary amenorrhea, 1.8% each. A study in Kerala revealed that none of the participants had delayed menstrual cycles among the reproductive age group women which is similar to the present study (17). In the present study educational status acts as a protective factor for menstrual disorder which is in line with a study from Maharashtra (22).

Dysmenorrhoea is the commonest menstrual problem reported in this study (22.7%). This was similar to a study by Parikh et al (23.3%) done in India (15). During ovulatory cycle there is increased production of prostaglandins in the endometrium which is the cause of pain during dysmenorrhoea (18). In this study non-anaemic women suffered more from dysmenorrhoea (odds ratio 2.2). Normally in anaemic women, prostaglandins synthesis is more due to less oxygen supply to the tissues which in turn causes uterine contraction and pain (dysmenorrhoea) than in non-anaemic women (23). In contrast, this study shows that dysmenorrhoea is more common among

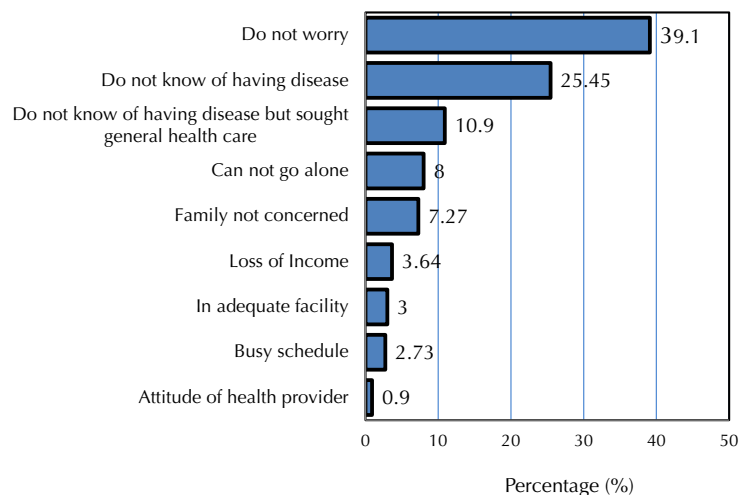


Figure 1. Reasons for not Seeking Health Care (n = 110).

non-anaemic women than in anaemic women. The reason is that anaemia was clinically examined by the investigator and was not done by any invasive method used for testing hemoglobin level in blood which might cover even mild anaemic women. It was not possible to discriminate between primary and secondary dysmenorrhoea by questionnaire, and menstrual pain as a whole was considered in this study. In this study higher socio-economic status women had less pain compared with women from low socio-economic status which is in line with a study done among Iranian women in 2007 (24). All the association does not necessarily imply a causal relationship as per epidemiological study (25).

The common cause of oligomenorrhea is age preceding menopause (26). In this study oligomenorrhea is similarly more among the women of more than 35 years of age group. A study done in 2007 by Goel and Gupta showed anaemia was significantly associated with many menstrual problems like oligomenorrhea, menorrhagia and polymenorrhea (27). In this study there is a significant association between anaemia and oligomenorrhea which is similar with a study done at Maharashtra in 2011 in which anaemia was associated with menstrual irregularity (6). Significant percentage of highly educated women did not suffer from oligomenorrhea when compared to less educated women. Highly educated women might have prevented oligomenorrhea by improving their nutritional intake and by seeking proper health care at early stages.

Almost half of the rural women had menstrual disorder. This might be due to lack of knowledge about menstrual disorder, its prevention, care and accessibility of health service. A study among Iranian women showed that 15.2% of the women with menstrual disorders, sought health care for it. In this study, it is higher (25.67%) (28). This may be because the selected rural area is very near to suburban area of Chennai. A study done by Sharma revealed that, among the women with menstrual disorders, 72.1% of women did not seek care for menstrual disorders of which nearly 30% did not worry about their menstrual

problem (29). In the present study also, 74.3% of women who did not seek care for menstrual disorders of which 39.1% did not worry about their menstrual problem.

Among the women who did not seek care for their menstrual disorders 36% did not know that they were having disorders. The above indicates stronger need for awareness programme, health education, women empowerment and other social mobilization.

Strengths of the study

The unique strength of this study lies in the fact that this is a community based study. Menstrual disorders were comprehensively interviewed including less common menstrual disorders. The study shows analysis for dysmenorrhoea, oligomenorrhea and their risk factors among reproductive age group women. So the result of this study reflects a clear picture of the problems present at rural level.

Conclusion

Almost half of the rural women had menstrual disorders (44.8%) which are very high, especially dysmenorrhoea and oligomenorrhea which were more common than other menstrual problems. Nearly 10% women were suffering from 2 menstrual disorders. The present study revealed that less educated women had higher risk of menstrual problems. Significant proportion of women from low socio-economic status suffered from dysmenorrhoea. Oligomenorrhea was found to be more common in women of more than 35 years age group, anaemic women and women who had less than high school level education.

Among women with menstrual disorders, very few women only (25.67%) sought health care for their problems. Among the women who did not seek care, most of them did so due to personal reasons (96%) only; especially 36% of them did not know that they were having disorders. They thought that their problems were due to aging and it was common to most of the women which should be borne by them. Nearly 40% of women knew that they

had disorders but did not worry about it.

Recommendations

Majority of women with menstrual disorders were in the submerged portion of iceberg phenomena of the disease in the community because these disorders were not perceived as health problem by them. Women should be educated about the indications of disease, signs of disease, cause and impact of the disease and also on when and where to seek healthcare. It emphasizes that the important duty of a healthcare provider is to inform women about menstrual disorders and raise their awareness for better perception and health seeking for menstrual disorders.

Health care providers must be trained to respond to women's concerns and effectively diagnose their condition. Opportunities and the delivery of care should be raised to ensure that the menstrual disorders are more properly addressed. All the findings in the present study indicate the strongest need for awareness programme, health education, women empowerment, social mobilization and intersectoral coordination.

Limitations of the study

The prevalence of menstrual disorders may have been an over or under estimate as the self-reported morbidity of women was measured. Self-reported morbidity was not clinically followed up. The study attempted to compare the history with medical records if available and in many cases it was found that the records were either incomplete or not available. Even the particulars regarding the drug prescription were not available.

Ethical Issues

Written permission was obtained on October 2012 from Dr. Rupert Fawdry for adopting the questionnaire. The study was approved by Institutional Ethics Committee of Sri Ramachandra University. Written informed consent was obtained from each participant.

Conflict of Interests

None.

Financial Support

Self-financed.

Acknowledgments

We would like to thank Dr. B. W. C. Sathiyasekaran, Professor, Department of Community Medicine who has been a great source of inspiration and who helped me by extending his knowledge and experience. We are also thankful to Prof. G. Palani, Former Professor, Department of Community Medicine for his valuable suggestions.

References

1. Fathalla MF. Imagine a world where no woman is denied her right to health- Seven propositions. *Facts Views Vis Obgyn.* 2011;3(4):247-51.
2. Murray CL, Lopez A. The Global Burden of Disease: A Comprehensive Assessment of Mortality and Disability From Diseases, Injuries and Risk Factors in 1990 and Projected to 2020 (Volume 1). Cambridge: Harvard University Press; 1996.
3. Fortney JA. Reproductive morbidity: a conceptual framework. Research Triangle Park: Family Health International; 1995. <http://www.popline.org/node/295082>. Accessed October 13, 2016.
4. World Bank. World Development Report Investing in Health. New York: Oxford University Press; 1993.
5. Rajani S, Gaikwad HS, Tripathi V, Salhan S. A study of reproductive morbidities among women reporting to primary and tertiary care centres in and around Delhi. *Int J Health Res.* 2011;4(1):29-35.
6. Mohite RV, Mohite VR. Correlates of the menstrual problems among rural college students of Satara district. *Al Ameen J Med Sci.* 2013;6(3):213-218.
7. Pachauri S, Gittelsohn J. Summary of Research Studies and Implications for Health Policy and Programmes. In: Gittelsohn J, eds. *Listening to Women Talk About Their Health Issues and Evidence from India.* New Delhi, India: Har-Anand Publications; 1994:185-199.
8. Koenig M, Jejeebhoy Shireen. Undertaking community-based research on the prevalence of gynaecological morbidity: lessons from India. Paper presented at: the IUSSP Seminar on Innovative Approaches to the Assessment of Reproductive Health, Manila, the Philippines, September 24- 27, 1996. <http://archive.iussp.org/Activities/hea-index.php>. Accessed October 13, 2016.
9. Latha K, Kanani SJ, Maitra N, Bhatt RV, Senapati SK. Prevalence of clinically detectable gynaecological morbidity in India: results of four community based studies. *The Journal of Family Welfare.* 1997;43(4):8-16.
10. Rahman MM. Adolescent self reported reproductive morbidity and health care seeking behaviour in Bangladesh. http://demoscope.ru/weekly/knigi/tours_2005/papers/iussp2005s50506.pdf.
11. Khattab H, Younis N, Zurayak H. *Women, Reproduction and Health in Rural Egypt: the Giza Study.* 2nd ed. Cairo, Egypt; American University in Cairo Press; 1999.
12. Bang RA, Bang AT, Baitule M, Choudhary T, Sarmukaddam S, Tale O. High prevalence of gynaecological diseases in rural Indian women. *Lancet.* 1989;1(8629):85-8. doi:10.1016/S0140-6736(89)91438-4.
13. Davidson SS. *The Principles and Practice of Medicine.* 22nd ed. Edinburgh: Harcourt Brace/Churchill Livingstone; 2014.
14. Brenner PF. Differential diagnosis of abnormal uterine bleeding. *Am J Obstet Gynecol.* 1996;175(3 Pt 2):766-769. doi:10.1016/S0002-9378(96)80082-2.
15. Parikh I, Taskar V, Dharap N, Mulgaonkar V. Gynaecological Morbidity among Women in a Bombay Slum. Mumbai, India, *Streehitakarini*; 1996:17.
16. Ricci SS, Kyle T. *Maternity and Pediatric Nursing.* Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins; 2009.
17. Sowmini CV, Sankara SP. Reproductive morbidity among contraceptive users: need for quality services. *The Journal of Family Welfare.* 2004;50(1):31-37.
18. Dangal G. Menstrual disorders in adolescents. *Journal of Nepal Medical Association.* 2004;43(153):152-63.
19. Prior JC. Perimenopause: the complex endocrinology of the menopausal transition. *Endocr Rev.* 1998;19(4):397-428.

20. Pol SS, Shanbhag S. Prevalence of self-reported gynaecological morbidity in the women of reproductive age group in an urban slum. *J Med Sci DY Patil Med Coll.* 2011;3(2).
21. Inamdar IF, Sahu PC, Doibale MK. Gynecological morbidities among ever married women: a community based study in Nanded city, India. *J Dent Med Sci.* 2013;6(7):5-11.
22. Mohite RV, Mohite VR, Kumbhar SM, Ganganahalli P. Common menstrual problems among slum adolescent girls of Western Maharashtra, India. *J Krishna Inst Med Sci Univ.* 2013;2(1):89-97.
23. Rupali AP, Sanjay SK. Anemia: does it have effect on menstruation? *Sch J App Med Sci.* 2015;3(1G):514-7.
24. Tavallaee M, Joffres MR, Corber SJ, Bayanzadeh M, Rad MM. The prevalence of menstrual pain and associated risk factors among Iranian women. *J Obstet Gynaecol Res.* 2011;37(5):442-451. doi:10.1111/j.1447-0756.2010.01362.x.
25. Park K. *Park's Textbook of Preventive and Social Medicine.* 23rd ed. India: Bhanot; 2015.
26. Dutta DC. *DC Dutta's Textbook of Gynaecology.* 7th ed. India: New Central Book Agency (P) Ltd; 2016.
27. Goel S, Gupta BP. Low anemia prevalence among Adolescents of an urban hilly community. *Indian J Community Med.* 2007;32(1):67-68. doi:10.4103/0970-0218.53409.
28. Tehrani FR, Simbar M, Abedini M. Reproductive morbidity among Iranian women; issues often inappropriately addressed in health seeking behaviors. *BMC Public Health.* 2011;11:863. doi:10.1186/1471-2458-11-863.
29. Sharma A. Reproductive Morbidity and Health Seeking behaviour of Adolescent Women in Rural India. *Population Association of America Annual Meeting; 2004; 1-3 April, Boston, Massachusetts, USA.* <http://paa2004.princeton.edu/papers/41172>. Accessed October 13, 2016.

Copyright © 2017 The Author (s); This is an open-access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.