

Sobstyl Anna, Sobstyl Małgorzata, Chilimoniuk Zuzanna, Łakota-Sipa Magdalena, Borkowska Aleksandra, Chalupnik Aleksandra, Wertel Iwona. The effect of hormonal contraception on symptoms associated with the menstrual cycle. *Journal of Education, Health and Sport*. 2019;9(9):477-485. eISSN 2391-8306. DOI <http://dx.doi.org/10.5281/zenodo.3415631>
<http://ojs.ukw.edu.pl/index.php/johs/article/view/7421>

The journal has had 5 points in Ministry of Science and Higher Education parametric evaluation. § 8. 2) and § 12. 1. 2) 22.02.2019.

© The Authors 2019;

This article is published with open access at Licensee Open Journal Systems of Kazimierz Wielki University in Bydgoszcz, Poland
Open Access. This article is distributed under the terms of the Creative Commons Attribution Noncommercial License which permits any noncommercial use, distribution, and reproduction in any medium, provided the original author (s) and source are credited. This is an open access article licensed under the terms of the Creative Commons Attribution Non commercial license Share alike. (<http://creativecommons.org/licenses/by-nc-sa/4.0/>) which permits unrestricted, non commercial use, distribution and reproduction in any medium, provided the work is properly cited.

The authors declare that there is no conflict of interests regarding the publication of this paper.

Received: 25.08.2019. Revised: 30.08.2019. Accepted: 14.09.2019.

The effect of hormonal contraception on symptoms associated with the menstrual cycle

**Anna Sobstyl¹, Małgorzata Sobstyl², Zuzanna Chilimoniuk¹,
Magdalena Łakota-Sipa³, Aleksandra Borkowska⁴, Aleksandra Chalupnik⁴,
Iwona Wertel^{2,5}**

1. Student Research Circle at the first department of Gynaecologic Oncology and Gynaecology, Medical University of Lublin, Poland
2. Chair and Department of Gynaecology and Gynaecological Endocrinology, Medical University of Lublin, Poland
3. Department of Obstetrics and Perinatology, Medical University of Lublin
4. Student Research Circle at the Department of Epidemiology and Clinical Research Methodology, Medical University of Lublin, Poland
5. Tumor Immunology Laboratory, The First Department of Gynecologic Oncology and Gynecology, Medical University of Lublin, Poland

Corresponding author: Anna Sobstyl; sobstyl.anna@onet.pl

ORCID ID:

Anna Sobstyl: <https://orcid.org/0000-0003-0330-5742>

Małgorzata Sobstyl: <https://orcid.org/0000-0001-7981-6659>

Zuzanna Chilimoniuk: <https://orcid.org/0000-0001-8261-0192>

Magdalena Łakota-Sipa: <https://orcid.org/0000-0002-0878-0094>

Aleksandra Borkowska: <https://orcid.org/0000-0002-0950-2176>
Aleksandra Chałupnik: <https://orcid.org/0000-0003-4249-470X>
Iwona Wertel: <https://orcid.org/0000-0003-3396-1679>

ABSTRACT

Nowadays, there exist a large number of methods that allow to prevent unintended pregnancy. One of the most common technique in Poland is hormonal contraception in the form of contraceptive pills. This method is effective, easy to use, and more importantly it does not cause permanent sterility. Moreover, hormonal contraception comes with plenty of additional health benefits that are not related to contraception alone, such as: reduction of menstrual pain, regular cycles and lack of menorrhagia. Due to the beneficial effect on the body, hormonal contraception is used in the treatment of certain diseases, such as acne and endometriosis. Reduction of numerous existing symptoms leads to an improvement in the quality of women's lives.

Key words: hormonal contraception; menstrual cycle; dysmenorrhea

INTRODUCTION

Approximately 25-39% of pregnancies worldwide are unintended, although rates vary across countries and regions[1]. Unintended pregnancy may have an impact on several outcomes such as birth, induced abortion, miscarriage, ectopic pregnancy, and molar pregnancy[2]. Among modern contraceptive methods hormonal contraceptive agents are preferred, due to their reliability. As the scientists report, hormonal contraception comes with plenty of additional health benefits, not only the pregnancy prevention[3]. Advantages, such as reduction of pain, regular cycles and lack of menorrhagia improve women's lives[4].

AIM

The aim of the study is to analyse statistical data and review scientific publications on the prevalence and non-contraceptive benefits of hormonal contraception treatment.

MATERIAL AND METHODS

The paper uses descriptive epidemiological analysis as the research method. Statistical data on non-contraceptive benefits of hormonal contraception treatment comes from author's study. Additionally, during the literature review on PubMed and Google Scholar platforms,

keywords, such as hormonal contraception, benefits of contraception, pregnancy prevention were used.

The data was gathered from 100 women of childbearing age. The survey included 7 questions. All analyses were conducted with the use of “statistica”

RESULTS

Data on 100 women of child-bearing age. 3 participants were under the age of 20 (3%), 42 women between 20-30 years of age (42%), 21 women between 30-40 years of age (21%) and 34 women above the age of 40 (34%).

Age	Under 20	20-30	30-40	Above 40
Number	3	42	21	34
Percentage	3%	42%	21%	34%

Table 1: The age of the participants.

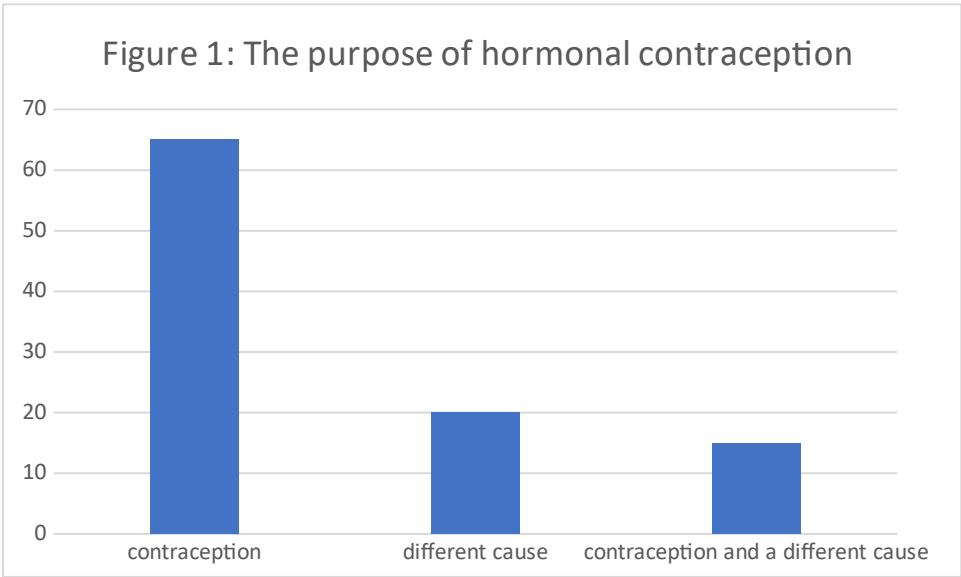


Figure 1: The purpose of hormonal contraception

The main purpose of using hormonal contraception among the respondents is contraception (65%). One in five (20%) respondents indicates a different cause. 15% of respondents indicate contraception and a different cause as the main purpose of hormonal contraception.

Cause	Number
Irregular menstruation	12
Dysmenorrhea	11
Menorrhagia	1
Prolonged bleeding	1
Others	8
Lack of specific reason	2
Total	35

Table 2: List of mentioned non-contraceptual reasons for using hormonal contraception.

Of the 100 participants, 35 indicated a non-contraceptive reason for using hormonal contraception. Two persons, despite indicating a different reason, did not provide a specific one. The majority of women (12) indicated irregular menstruation as the cause, while only 1 woman indicated menorrhagia and the other one indicated prolonged bleeding. 11 participants mentioned dysmenorrhea as a cause. 8 participants declared other reasons for using hormonal contraception.

Form of the contraception	Contraseptive pills	Vaginal ring	Contraceptive patches	Implant	Intrauterine device (IUD)
Number	82	4	4	0	10
Percentage	82%	4%	4%	0	10%

Table 3: The form of used contraception.

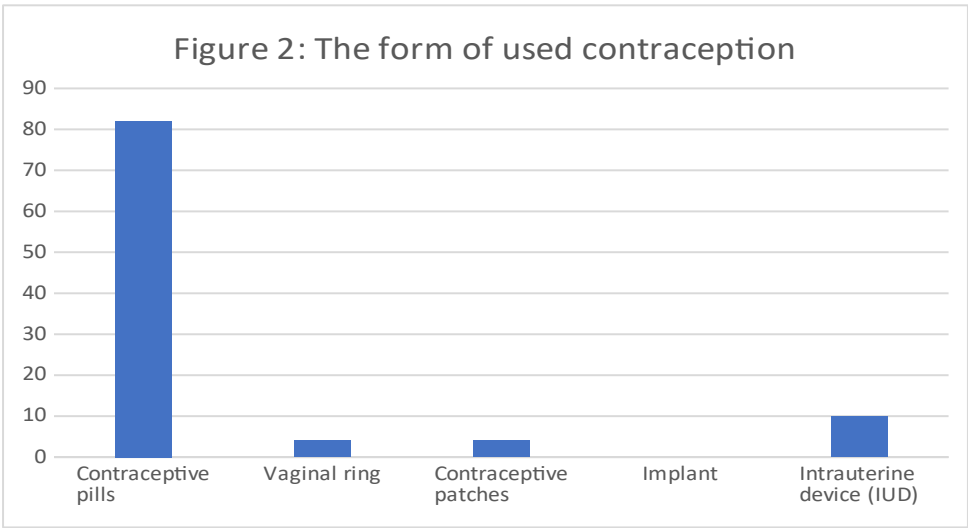


Figure 2: The form of used contraception

The majority of study participants used contraceptive pills (82%). 10% of the respondents declared the use of an intrauterine device (IUD). Only 4% declared the use of the vaginal ring and contraceptive patches. None of the respondents declared the use of implants.

In the questionnaire, answer 1 meant no symptoms and 5 meant very strong symptoms.

Symptom	1	2	3	4	5	Median
Dysmenorrhea	15	13	21	23	28	4
Premenstrual syndrome	14	13	20	36	17	4
Headache and dizziness	44	14	23	10	9	2
Tension and breast tenderness	12	12	23	35	18	4
Binge eating (before menstruation)	27	13	18	29	13	3
Menorrhagia	14	16	22	24	24	3

Table 4: Occurrence of the individual symptoms.

The most common symptoms are breast tenderness and tension, menorrhagia and symptoms of premenstrual syndrome, as well as painful periods. As many as 28% of the respondents described their periods as very painful. Almost a quarter of the respondents (24%) marked heavy bleeding as very strong, and another 24% as strong. 36% of the respondents described their premenstrual syndrome as strong and 17% as very strong. Similar values were found when asked about breast tension and tenderness. More than one third (35%) found ailments as strong symptoms and 18% as very strong.

In the questionnaire, answer 1 meant lack of improvement and 5 meant significant improvement in reduction rate of symptoms. The results exclude answers that would refer to the lack of feeling of the symptom in question.

Symptoms	1 lack of improvement	2	3	4	5 significant improvement	Number of participants	Median
Dysmenorrhea	3	17	11	24	30	85	4
Premenstrual syndrome	3	15	25	32	11	86	3,5
Headache and dizziness	2	18	21	10	5	56	3
Tension and breast tenderness	10	23	22	27	6	88	3
Binge eating (before menstruation)	9	18	28	16	2	73	3
Menorrhagia	9	24	15	15	23	86	3

Table 5: Reduction rate of symptoms.

The use of hormonal contraception has the greatest effect on the reduction of painful periods (dysmenorrhea) and then on the reduction of symptoms of premenstrual syndrome. It has a less significant but similar effect on the reduction of headache and dizziness, tension and breast tenderness, binge eating and menorrhagia.

Symptoms	Form of the used contraception.		Total
	Others	Intrauterine device (IUD)	
Lack of improvement	3	0	3
Moderate improvement	24	4	28
Significant improvement	49	5	54
Total	76	9	85

Table 6: The relation between the improvement rate for painful periods and the form of used contraception

9 out of 10 women using intrauterine device (IUD) experienced menstrual pain. Four of them showed moderate improvement (44.4%), while five of them showed significant improvement

(55.6%). In the remaining 76 subjects with painful menstrual periods, significant improvement is marked twice as often as moderate: 31.5% moderate, 64.5% - significant, while 4% of this group indicated no improvement.

Symptoms	Form of the contraception used.		Total
	Others	Intrauterine device (IUD)	
Lack of improvement	7	2	9
Moderate improvement	36	3	39
Significant improvement	33	5	38
Total	76	10	86

Table 7: The relation between the improvement rate for menorrhagia and the form of used contraception.

2 out of all people using intrauterine device (IUD) did not experience improvement, 3 experienced moderate improvement and 5 significant. In the remaining 76 respondents who experienced menorrhagia, 9.2% did not feel any improvement, 47.7% - moderate, and 43.3% - significant.

DISCUSSION

Nowadays, more and more methods of prevention of unintended pregnancy is available. Although the contraceptive pills can cause some side effects or complications, researches prove that it is the most common method [5]. According to Legan researches, 1.2 million women take contraceptive pills in Poland [6]. The method is effective, easy to use, and moreover it does not cause permanent sterility [7]. Despite high life-time prevalence of infertility of 16-26% [8].

65% of the participants of the study admitted that the main reason for taking the contraception is pregnancy prevention. One in five (20%) respondents indicated a different cause. 15% of the respondents indicated contraception and a different cause as the main purpose of hormonal contraception.

The similar results were obtained by Grzybek and Bargiel-Matusiewicz 83% of the interviewees obtained to use hormonal contraception as pregnancy prevention, 10% due to health issues [9]. In original studies the interviewees declare irregular menstruation and dysmenorrhagia as the major additional cause of taking the pills.

In the presented case the majority of study participants used contraceptive pills (82%). 10% of the respondents declared the use of intrauterine device IUD. Only 4% declared the use of the vaginal ring and contraceptive patches. Słomko et al. basing on WHO report claimed that

contraceptive patches are used by 14% and contraceptive pills by 7% of women [10].

In this particular survey the most common symptoms were breast tenderness and tension (88%), menorrhagia and symptoms of premenstrual syndrome (86%) and painful periods (85%). As many as 28% of the respondents described their periods as very painful. It is far more than the literature proves. Skrzypulec-Plinta and Radowski et al. claimed that 30-70% of women in Poland suffer from painful menstrual period [11].

Heavy menstrual bleeding affected 4%–22% of women, depending on which method was used for evaluation [12]. In the presented research, HMB related to hormonal imbalance was correlated with painful menstruations. After hormonal treatment the symptoms started to disappear. The evidence from two systematic reviews and one subsequent publication shows that levonorgestrel intrauterine system produces a clinically relevant reduction in menstrual blood loss in women complaining of HMB [13].

Moreover, scientists proved that the pain during menstruation period is the prevailing condition. It is claimed that more than a half of young women suffer from menstrual pain [14]. In the presented case, 85% of the participants have that condition. In a case reported by Perriera, hormonal contraception reduces the symptoms up to 70-80% (50). Similar conclusions were drawn by Legan (70-80%) [6]. However, Grzybek and Bardiel-Matusiewicz determined the menstrual pain relief at only 38% [9].

Conclusion:

1. The main reason for using hormonal contraception is pregnancy prevention. The most common form of hormonal contraception are hormone pills.
2. Hormonal contraception reduces painful menstruation. There is a correlation between painful menstruation and heavy menstrual bleeding.
3. Hormonal contraception reduces heavy menstrual bleeding. In the presented research heavy menstrual bleeding was the most common symptom.
4. The hormonal contraception improves the quality of life.

References:

1. Harris ML, Shifti DM, Laar AS, Loxton D. Effects of unintended pregnancy on maternal healthcare services utilization in low- and lower-middle-income countries: systematic review and meta-analysis. *International journal of public health*; 2019 Jun;64(5):743-754. DOI: 10.1007/s00038-019-01238-9.
2. Rocca CH, Wilson MR, Jeon M, Foster DG. Stability of Retrospective Pregnancy Intention Reporting Among Women with Unwanted Pregnancies in the United States. *Maternal and child health journal*; 2019 Jun DOI: 10.1007/s10995-019-02782-9.
3. Kallner HK, Danielsson KG. Prevention of unintended pregnancy and use of contraception —important factors for preconception care. *Upsala journal of medical sciences*; 2016 Nov DOI: 10.1080/03009734.2016.1208310.
4. Dębski R. Antykoncepcja-metody zapobiegania niepożądaney ciąży. *Ginekol. Pol.* 2007; 78(11) s. 834-841.

5. Mbita G¹, Mwanamsangu A², Plotkin M³, Casalini C², Shao A⁴, Lija G⁵, Boyee D², Ramadhan A⁵, Makyayo N⁵, Mlange R⁶, Bandio R², Christofeld M³, Komba A². Consistent Condom Use and Dual Protection Among Female Sex Workers: Surveillance Findings from a Large-Scale, Community-Based Combination HIV Prevention Program in Tanzania. *AIDS and behavior*; 2019 Aug DOI: 10.1007/s10461-019-02642-1.
6. Legan A. Mała tabletki, wielkie kontrowersje. *Med. Estet. Anti-Aging* 2011 (1) s. 69-77.
7. Lethaby A, Wise MR, Weterings MA, Bofill Rodriguez M, Brown J. Combined hormonal contraceptives for heavy menstrual bleeding. *Cochrane Database Syst Rev.* 2019 Feb;2:CD000154. doi: 10.1002/14651858.CD000154.pub3.
8. Landersoe SK, Petersen KB, Vassard D, Larsen EC, Svarre Nielsen H, Pinborg A, Nøhr B, Nyboe Andersen A, Schmidt L. Concerns on future fertility among users and past-users of combined oral contraceptives: a questionnaire survey. *Eur J Contracept Reprod Health Care.*; 2019 Jul 18:1-9. DOI: 10.1080/13625187.2019.1639659.
9. Grzybek A., Bargiel-Matusiewicz K. Wybór antykoncepcji hormonalnej w kontekście psychologicznym i społecznym. *Wiad. Lek.*; 2017: 70 (1) s. 16-20.
10. Słomko Z. (red.): *Ginekologia*. Wydawnictwo Lekarskie PZWL, Warszawa 2008.
11. Skrzypulec-Plinta V., Radowicki S. (red.): *Wybrane zagadnienia z ginekologii dziecięcej i dziewczęcej*. Wydawnictwo Medical Poland, Bielsko-Biała 2011.
12. Hale GE, Manconi F, Luscombe G, Fraser IS. Quantitative Measurements of Menstrual Blood Loss in Ovulatory and Anovulatory Cycles in Middle- and Late-Reproductive Age and the Menopausal Transition. *Obstetrics and gynecology*; 2010 Feb;115(2 Pt 1):249-56. doi: 10.1097/AOG.0b013e3181ca4b3a.
13. Heavy Menstrual Bleeding. NICE Clinical Guidelines, No. 44. National Collaborating Centre for Women's and Children's Health (UK). London: RCOG Press; 2007 Jan ISBN-13: 978-1-904752-35-6.
14. Mrugacz G., Grygoruk C., Sieczyński P., Grusza M., Pietrewicz P., Pietrzycki B. Wpływ doustnej antykoncepcji na profil hormonalny oraz czynność skurczową macicy u pacjentek z pierwotnym zespołem bolesnego miesiączkowania. *Nowa Med.* 2013 (4) s. 147-150.