

DR LISA SÖDERMAN (Orcid ID : 0000-0003-4616-5022)

Article type : Original Research Article

Prevalence and impact of dysmenorrhea in Swedish adolescents

Lisa SÖDERMAN¹, Måns EDLUND², Lena MARIONS¹

¹Division of Obstetrics and Gynecology, Department of Clinical Science and Education, Södersjukhuset University Hospital, Karolinska Institutet, Stockholm, Sweden, ²ViforPharma Nordiska AB, Kista, Sweden

Corresponding author:

Lisa Söderman

Department of Clinical Science and Education, Södersjukhuset, 11883 Stockholm, Sweden

E-mail: Lisa.soderman@ki.se

Conflict of Interest notification

LM is a member of an advisory board for BayerPharma AG Berlin, ME is Medical Director at ViforPharma Nordiska AB. LS has no conflict of interest.

Funding information

The study was financially supported by grants from Stockholm City Council.

This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the Version of Record. Please cite this article as doi: 10.1111/aogs.13480

This article is protected by copyright. All rights reserved.

ABSTRACT

Introduction: The objective of this study was to estimate the prevalence of dysmenorrhea among adolescents and its effect on daily life. **Material and methods:** A web-based questionnaire, with questions regarding menstrual symptoms was distributed to all girls born year 2000 and residing in Stockholm City (n=3998). Questions regarding pain severity, other menstrual related symptoms, medical treatment, health care visits, social and academic absenteeism were included in the questionnaire. **Results:** A total of 1785 (45%) young women responded to the questionnaire. Of these stated 1580 (89%, 95% CI; 87 to 90) that they had dysmenorrhea. Severe dysmenorrhea, score 8-10 on the numeric rating scale for pain, was reported by 574/1580 (36%, 95% CI; 34 to 39). Fatigue was reported by 1314/1580 (83%, 95% CI; 81 to 85), headache by 1296/1580 (82%, 95% CI; 80 to 84), dyschezia by 578/1580 (37%, 95% CI; 34 to 39), dysuria by 560/1580 (35%, 95% CI; 33 to 38). A suboptimal use of analgesics was reported. Hormonal therapy as pain treatment was used by 10% (157/1580, 95% CI; 9 to 12). Health care facilities, including school nurses, had been visited by 525/1580 (33%, 95% CI; 31 to 36). Doctors had been consulted by 7% (116/1580, 95% CI; 6 to 9). Fifty-nine per cent (930/1580, 95% CI; 56 to 61) reported to refrain from social activities due to dysmenorrhea. Absenteeism from school was reported to occur monthly by 228/1580 (14%, 95% CI; 13 to 16), and several times per year by 716/1580 (45%, 95% CI; 43 to 48). **Conclusions:** Our findings demonstrate that menstrual pain is prevalent among teenagers in Stockholm. The results indicate that many women are disabled in their daily life and that only a small number of women seek medical attention, although possible selection bias might have affected the results. Information and education are needed to optimize the use of existing treatment options and more awareness is needed to reduce normalization of disabling dysmenorrhea.

Keywords

Adolescents, dysmenorrhea, endometriosis, menstrual pain, school absenteeism, teenagers

Abbreviations

NRS numeric rating scale

PG prostaglandins

COX cyclooxygenase

Key Message

Dysmenorrhea disables more young women than shown in previous studies and causes high rates of absenteeism. Insufficient knowledge in society and among health care providers may contribute to the low levels of treatment and awareness.

INTRODUCTION

Dysmenorrhea is the most common gynecological disorder amongst women of reproductive age, with a prevalence ranging between 45 and 95 % (1, 2). Primary dysmenorrhea, painful menstruation without pelvic abnormalities, may be associated with vomiting, fatigue, back pain, headache, dizziness, sleeplessness and diarrhea (3). Although there are differences in definition, between 10 and 42% suffer from dysmenorrhea categorized as severe (4-6) which could be a symptom of secondary dysmenorrhea such as endometriosis or other pelvic pathology.

In a normal ovulatory menstrual cycle, fatty acids, particularly arachidonic acids, are released after the withdrawal of progesterone prior to menstruation. This initiates a cascade of leukotrienes and prostaglandins (PG) in the uterus which causes an inflammatory response resulting in cramps and systemic symptoms (3). In particular the PG F₂α, cyclooxygenase (COX) metabolite of arachidonic acid, causes potent vasoconstriction and myometrial contractions, leading to hypercontractility of the uterus, ischemia and pain (7). The severity of symptoms is considered directly proportional to the amount of PG released (7, 8). There are, however, women with dysmenorrhea showing non-elevated levels of PGF₂α (9), suggesting the etiology not being completely understood. Several studies suggest that

dysmenorrhoeic women have a hyper sensitization of pain fibers (10, 11) leading to dysmenorrhoea being classified as a Chronic pain syndrome (12).

Dysmenorrhoea is the leading cause of short-term school absenteeism (13). Previous studies have also shown negative effects on academic and social performances as well as a sub-therapeutic level of self-treatment of these recurring pains amongst adolescents (14, 15). It is also known that there is a low tendency to seek medical advice for this condition (6), maybe due to the perception of dysmenorrhoea being a normal condition rather than a disorder.

Severe dysmenorrhoea can be a sign of endometriosis (16, 17) which is a chronic progressive disease due to ectopic location of endometrium causing cyclic and acyclic pelvic pain as well as symptoms from the intestinal and urinary tract.

COX-inhibitors constitute the most common treatment compound for pain from dysmenorrhoea. By inhibiting endometrial PG production COX-inhibitors can also reduce menstrual blood loss (18). Hormonal contraceptive methods limit endometrial growth and reduce the amount of endometrial tissue available for PG and leukotriene production, and those methods inhibiting ovulation also reduce progesterone secretion.

The aim of this study was to identify the prevalence of dysmenorrhoea amongst adolescents in Stockholm. We also wanted to explore the negative effects on social and academic performance and how the disability due to dysmenorrhoea was managed.

MATERIAL AND METHODS

For this cross-sectional study, we created a web-based questionnaire including pain severity, symptoms, treatment and effect on daily life. Answering one question unlocked the next, some answers lead to follow-up questions. The maximum number of questions was 58.

Prior to distribution the questionnaire was slightly modified after input from a few test subjects outside of the study population.

A letter of invitation to participate in this online survey regarding menstruation was sent on 15 January 2017 in an unmarked envelope, to all females born in the year 2000 registered to be living in the municipality of Stockholm (n = 3998). Information about the study and log in details were included as well as information regarding anonymity. Two reminders were sent by mail. The survey was open for 6 weeks. Social media i.e. Facebook and Instagram, were used to promote participation.

The survey was administered by SIFO-KANTAR (Swedish Institute for Opinion Surveys), an independent, non-biased Swedish company that conducts consumer research and testing (www.kantarsifo.se). SIFO is a subsidiary of Kantar (www.tnsglobal.com) which is part of the WPP Group plc (www.wpp.com).

Pain severity was estimated with numeric rating scale (NRS) referring to the most painful day of their menstruation. NRS pain scores were divided into 3 categories, mild (1-4), moderate (5-7) and severe (8-10). Symptoms such as dysuria, dyschezia, dyspareunia, acyclic pelvic pain, vomiting, headache, syncope and fatigue were defined and categorized as never, a few times per year and every month. Treatment was assessed considering type of analgesic, i.e. paracetamol, ibuprofen, opiates, and dosage. Hormonal treatment was defined through specification of contraceptive method and reason for use as well as free text. We also investigated the extent of health care visits by specifying which level of health care the participants had visited e.g. school nurse, youth clinic (staffed by midwives), primary health care clinic, gynecological specialist. Effect on daily life was assessed with questions regarding social and academic absenteeism and performance. Confidence intervals were calculated with the binomial (Clopper-Pearson) 'exact' method. Potential selection bias was addressed in a sensitivity analysis.

Ethical approval

The Ethical Review Board of Stockholm approved the study protocol (Dnr 2016/2332-31/4).

RESULTS

Mean time to complete the questionnaire was 5 min 20 sec. A majority, 61%, used a computer and 39% used mobile phone or tablet.

Characteristics of the study population

Of the 3998 young women invited to participate, 1785 (45%) answered the survey. The mean age was 16.2 years.

Nine percent of the participants were smokers and 31% reported to have experienced sexual intercourse. Fourteen (0.8%) respondents had not yet had menarche, three (0.2%) did not want to answer if they had. Mean age for menarche was 12.4 years and mean duration of bleeding among the participants was 5.0 days.

Dysmenorrhea

Dysmenorrhea was reported by 1580 of the 1785 women (89 %, 95% CI; 87 to 90) as shown in fig 1. Those that did not have dysmenorrhea, were pre-menarche or were uncertain did not have to answer any further questions. Those who failed to answer were excluded.

The severity of dysmenorrhea is shown in fig 2.

Other menstrual related symptoms

Symptoms such as acyclic abdominal pain, fatigue and headache were more commonly experienced than syncope, vomiting, dysuria and dyschezia, which were reported to a lesser extent (Table 1).

Health care visits and analgesics

Contact with health care was reported by 33% (525/1580, 95% CI; 31 to 36), mostly with school nurses and midwives at youth clinics. Doctor consultation was made by 7% (116/1580, 95% CI; 6 to 9). Among women with acyclic abdominal pain, 78 had a suggested diagnosis by a physician such irritable bowel syndrome, dyspepsia/gastritis, lactose intolerance, stress/anxiety and celiac disease.

Pain killers, mostly COX-inhibitors and or paracetamol/acetaminophens, were used by 80% (1265/1580, 95% CI; 78 to 82). The most popular being ibuprofen, used by 824, followed by acetaminophen, used by 738 (table 2). Both are available in lower concentrations over the counter, without prescription.

However, 63% (997/1580, 95% CI; 61 to 65) reported suffering from pain that could not be relieved with analgesics. Combining acetaminophen and COX-inhibitors was reported by 189, but only 465 responded to that question. The use of opioids, codeine, was stated by 0.2% (2/1265).

Hormonal therapy/ Contraceptives

Twenty per cent (313/1580, 95% CI; 18 to 22) stated hormonal therapy. Oral contraceptive pill was the dominant hormonal therapy, used by 15.8% (251/1580) followed by implant 1.8% (29/1580), hormonal intrauterine system used by 1.4% (22/1580), contraceptive patch 0.1% (1/1580) and vaginal ring 0.6% (10/1580). Cu-intrauterine devices were used by 0.1% (2/1580). Fifty per cent (157/313, 95% CI; 44 to 56) had been prescribed hormonal methods as a treatment option for pain.

Social life

Absenteeism from social activities due to dysmenorrhea was reported by 59% (930/1580, 95% CI; 56 to 61).

Fourteen per cent stated monthly absenteeism from school (228/1580, 95% CI; 13 to 16) and an additional 45% (716/1580, 95% CI; 43 to 48) stayed home a few times per year due to dysmenorrhea.

Forty-five per cent (705/1580) reported feeling sad when thinking about their monthly cramps, 404 of whom were categorized with severe dysmenorrhea.

Academic performance was impaired for 16% (252/1580, 95% CI; 14 to 18) of the respondents who stated that they got lower scores on written exams every month because of dysmenorrhea, 49% (772/1580, 95% CI; 46 to 51) did so a few times per year.

Bias analyses

The high prevalence of dysmenorrhea in our study could present a selection bias if girls with menstrual problems were more prone to respond to the survey. If hypothetically all the non-respondents were pain free, the prevalence of dysmenorrhea would be 40% (1580/3998), 23% (932/3998) would be absent from social activities due to dysmenorrhea and 24% (954/3998) would be absent from school a few times per year or more due to dysmenorrhea.

Furthermore, 33% (1314/3998) would suffer from fatigue, 32% (1294/3998) from headache, 14% (578/3998) from dyschezia and 14% (560/3998) from dysuria.

DISCUSSION

Our findings demonstrate that dysmenorrhea has a large impact on the lives of many adolescents in Stockholm. As many as 89% of our study cohort suffered from monthly pain and 36% of these young women reported severe pain. In addition to menstrual pain extra-genital symptoms were also quite prevalent among our participants such as headache, fatigue, dysuria and dyschezia. Approximately two thirds of the young women reported absenteeism from school as well as from leisure activities and they experienced a negative effect on test results due to dysmenorrhea several times per year.

In comparison with similar studies made in Australia and Finland (table 3) our study shows a surprisingly high rate of monthly absenteeism due to pain and a very low tendency to seek doctor's consultation. Many respondents had consulted school nurse and midwives, but they cannot prescribe analgesics or hormonal treatment for menstrual pain. The Australian study (19) showed that a higher rate of doctors' consultations did not lead to a higher rate of use of oral contraceptives compared to the other two studies.

The group of respondents reporting monthly absenteeism ($n = 228$) in our study had a higher mean NRS (8.75) than the total group (6.34) and had sought medical advice by a doctor to a higher extent (21% compared to 7%) which implies a disabling condition rather than a sign of social acceptance. Only 21% (48/228) in this group used hormones to treat dysmenorrhea.

In addition to physical, psychological and social suffering this condition might entail long term negative economic impact for the individual as well as for society.

Systemic symptoms of dysmenorrhea such as vomiting, syncope, fatigue and headaches can be quite disabling. This is also true for heavy bleeding as 71% bled through their clothes and 38% needed double protection more than a few times per year (data not shown). These experiences and precautions can lead to embarrassment and stigma.

Adolescents fail to self-medicate adequately which reflects the lack of awareness regarding the optimal use of analgesics. The reported intake of pain medication (table 2) suggests suboptimal dosage of acetaminophens, the majority reports an intake of half of the recommended dosage of one gram, and 41% reports repeating the dose. Those taking ibuprofen 400 mg tend to repeat the dose in only 49% of the cases. The majority report taking one tablet regardless of substance or concentration (69% for acetaminophen, 83 % for ibuprofen).

Many of the young women in our study present possible early signs of endometriosis such as acyclic abdominal pain (44%), dyschezia (37%), severe dysmenorrhea (36%) and dysuria (35%). Six per cent reported inadequate effect of analgesics and severe dysmenorrhea despite the use of oral contraceptives possibly indicating endometriosis, same prevalence as in Australia and Finland. But very few seek medical advice. Early diagnosis treatment may improve acute pain and may reduce long-term effects of the disease such as chronic pain, intrabdominal adhesions and infertility.

Two girls had been diagnosed with endometriosis (NRS 10 and 9 respectively), both were taking OC and stated that they were absent from school every month and experienced insufficient effect from analgesics. A third respondent with NRS10 stated she probably had endometriosis, but her doctor did not want to perform surgery for confirmation of diagnosis.

In a study from Gothenburg, Sweden, published in 1982 (4), it was demonstrated that absenteeism from work or school occurred with a prevalence of 51% occasionally and 8% monthly which unfortunately indicates no improvement in Sweden during these last 35 years. The tendency to get medical attention from a doctor has dropped from 22 % to 7% which could be a sign of normalization of disabling dysmenorrhea.

In our study the response rate was high, 45%, as well as the number of participants (n = 1785). The survey was performed in an urban setting and thus the results may not be applicable for other areas which is a limitation. Another factor that could influence our

Accepted Article
findings is that the survey was conducted in Swedish which may have excluded some respondents. Selection may bias effect estimates in cohort studies (20), however, sensitivity analyses suggested that even if selection bias were at play, and even if we have overestimated the problem based on the actual data, the proportion of suffering teenagers would still be high and a matter of public health.

Despite possible limitations in our methods, the present findings call for raised awareness and education amongst teenagers, their guardians, school employees as well as health care providers to encourage adequate hormonal and symptomatic treatment. Absenteeism due to dysmenorrhea should be investigated and treated.

Surprisingly few in our study population used hormonal treatment as a tool for pain management. Only 10% (157/1580, 95% CI 9-12) of the respondents with dysmenorrhea were using hormonal therapy for pain relief. The use of analgesics can also be optimized. A study (21) has shown that a 10-minute lecture on the appropriate use of COX-inhibitors significantly lowered visual analogue scale-score (by 17.1 units) amongst women with moderate and severe dysmenorrhea.

CONCLUSION

There is a need for more research to increase the options how to treat primary and secondary dysmenorrhea. The options within analgesics are too few for the girls who for some reason cannot take COX-inhibitors, and to prescribe opiates to young people cannot be recommended. The suggestion of hormonal therapy can be met with resistance from the young women, their parents and sometimes also by health care workers. Our findings indicate that many young women are disabled in their daily life because of dysmenorrhea.

References

1. Jamieson DJ, Steege JF. The prevalence of dysmenorrhea, dyspareunia, pelvic pain, and irritable bowel syndrome in primary care practices. *Obstet Gynecol.* 1996;87(1):55-8.
2. Proctor M, Farquhar C. Diagnosis and management of dysmenorrhoea. *BMJ.* 2006;332(7550):1134-8.
3. Harel Z. Dysmenorrhea in adolescents and young adults: etiology and management. *J Pediatr Adolesc Gynecol.* 2006;19(6):363-71.
4. Andersch B, Milsom I. An epidemiologic study of young women with dysmenorrhea. *Am J Obstet Gynecol.* 1982;144(6):655-60.
5. Suvitie PA, Hallamaa MK, Matomaki JM, Makinen JI, Perheentupa AH. Prevalence of Pain Symptoms Suggestive of Endometriosis Among Finnish Adolescent Girls (TEENMAPS Study). *J Pediatr Adolesc Gynecol.* 2016;29(2):97-103.
6. Banikarim C, Chacko MR, Kelder SH. Prevalence and impact of dysmenorrhea on Hispanic female adolescents. *Arch Pediatr Adolesc Med.* 2000;154(12):1226-9.
7. Dawood MY. Primary dysmenorrhea: advances in pathogenesis and management. *Obstet Gynecol.* 2006;108(2):428-41.
8. Chan WY, Dawood MY, Fuchs F. Prostaglandins in primary dysmenorrhea. Comparison of prophylactic and nonprophylactic treatment with ibuprofen and use of oral contraceptives. *Am J Med.* 1981;70(3):535-41.
9. Chan WY, Dawood MY, Fuchs F. Relief of dysmenorrhea with the prostaglandin synthetase inhibitor ibuprofen: effect on prostaglandin levels in menstrual fluid. *Am J Obstet Gynecol.* 1979;135(1):102-8.
10. Vincent K, Warnaby C, Stagg CJ, Moore J, Kennedy S, Tracey I. Dysmenorrhoea is associated with central changes in otherwise healthy women. *Pain.* 2011;152(9):1966-75.
11. Iacovides S, Baker FC, Avidon I, Bentley A. Women with dysmenorrhea are hypersensitive to experimental deep muscle pain across the menstrual cycle. *J Pain.* 2013;14(10):1066-76.
12. Classification of Chronic Pain, International Association for the Study of Pain, available online at: <http://www.iasp-pain.org/PublicationsNews/Content.aspx?ItemNumber=1673> (Accessed October 4th, 2018).
13. Klein JR, Litt IF. Epidemiology of adolescent dysmenorrhea. *Pediatrics.* 1981;68(5):661-4.
14. Johnson J. Level of knowledge among adolescent girls regarding effective treatment for dysmenorrhea. *J Adolesc Health Care.* 1988;9(5):398-402.
15. Campbell MA, McGrath PJ. Use of medication by adolescents for the management of menstrual discomfort. *Arch Pediatr Adolesc Med.* 1997;151(9):905-13.
16. Youngster M, Laufer MR, Divasta AD. Endometriosis for the primary care physician. *Curr Opin Pediatr.* 2013;25(4):454-62.
17. Laufer MR, Goitein L, Bush M, Cramer DW, Emans SJ. Prevalence of endometriosis in adolescent girls with chronic pelvic pain not responding to conventional therapy. *J Pediatr Adolesc Gynecol.* 1997;10(4):199-202.
18. Lethaby A, Duckitt K, Farquhar C. Non-steroidal anti-inflammatory drugs for heavy menstrual bleeding. *Cochrane Database Syst Rev.* 2013;1:CD000400.

19. Parker MA, Sneddon AE, Arbon P. The menstrual disorder of teenagers (MDOT) study: determining typical menstrual patterns and menstrual disturbance in a large population-based study of Australian teenagers. *BJOG*. 2010;117(2):185-92.
20. Nohr EA, Liew Z. How to investigate and adjust for selection bias in cohort studies. *Acta Obstet Gynecol Scand*. 2018;97(4):407-16.
21. Jung HS, Lee J. The effectiveness of an educational intervention on proper analgesic use for dysmenorrhea. *Eur J Obstet Gynecol Reprod Biol*. 2013;170(2):480-6.

Figure and table legends

Fig 1. Prevalence of dysmenorrhea (n =1785).

Fig 2. Severity of dysmenorrhea (n = 1580), 387 stated mild dysmenorrhea numeric rating scale (NRS) 1-4 (95% confidence interval (CI); 22 to 27), 619 moderate NRS 5-7 (95% CI; 37 to 42) and 574 severe NRS 8-10 (95% CI; 34 to 39).

Table 1. Other specific symptoms related to menstruation.

Table 2. The most commonly used analgesics presented by dose and number of tablets per intake.

^aRequires prescription.

Table 3. Comparison to similar studies.

		Dysmenorrhea							
		Mild 1-4 (387)		Moderate 5-7 (619)		Severe 8-10 (574)		Total (1580)	
		n	% (95% CI)	n	% (95% CI)	n	% (95% CI)	n	% (95% CI)
Fatigue	Every month	81	20.9% (17-25)	216	34.9% (31-39)	369	64.3% (60-68)	666	42.2% (40-45)
	Few times per year	176	45.5% (40-50)	304	49.1% (45-53)	168	29.3% (26-33)	648	41.0% (39-43)
	Never	130	33.6% (29-39)	99	16.0% (13-19)	37	6.4% (5-9)	266	16.8% (15-19)
Headache	Every month	57	14.7% (11-19)	228	36.8% (33-41)	330	57.5% (53-62)	615	38.9% (37-41)
	Few times per year	209	54.0% (49-59)	282	45.6% (42-50)	190	33.1% (29-37)	681	43.1% (41-46)
	Never	121	31.3% (27-36)	109	17.6% (15-21)	54	9.4% (7-12)	284	18.0% (16-20)
Dyschezia	Every month	14	3.6% (2-6)	65	10.5% (8-13)	133	23.2% (20-27)	212	13.4% (12-15)
	Few times per year	69	17.8% (14-22)	143	23.1% (20-27)	154	26.8% (23-31)	366	23.2% (21-25)
	Never	304	78.6% (74-83)	411	66.4% (63-70)	287	50.0% (46-54)	1002	63.4% (61-66)
Dysuria	Every month	5	1.3% (0-3)	30	4.8% (3-7)	79	13.8% (11-17)	114	7.2% (6-9)
	Few times per year	83	21.4% (17-26)	180	29.1% (26-33)	183	31.9% (28-36)	446	28.2% (26-31)
	Never	299	77.3% (73-81)	409	66.1% (62-70)	312	54.4% (50-58)	1020	64.6% (62-67)

Vomiting	Every month	1	0.3% (0-1)	0	0.0% (0-1)	38	6.6% (5-9)	39	2.5% (2-3)
	Few times per year	18	4.7% (3-7)	88	14.2% (12-17)	190	33.1% (29-37)	296	18.7% (17-21)
	Never	368	95.1% (92-97)	531	85.8% (83-88)	346	60.3% (56-64)	1245	78.8% (77-81)
Syncope	Every month	0	0.0% (0-1)	1	0.2% (0-1)	9	1.6% (1-3)	10	0.6% (0-1)
	Few times per year	7	1.8% (1-4)	39	6.3% (5-9)	114	19.9% (17-23)	160	10.1% (9-12)
	Never	380	98.2% (96-99)	579	93.5% (91-95)	451	78.6% (75-82)	1410	89.2% (88-91)
Acyclic Abdominal Pain	Yes	147	38.0% (33-43)	272	43.9% (40-48)	282	49.1% (45-53)	701	44.4% (42-47)
	No	240	62.0% (57-67)	347	56.1% (52-60)	292	50.9% (47-55)	879	55.6% (53-58)

Table 1. Other specific symptoms related to menstruation

	n	%	Repeated intake during the day	CI 95%	Tablet n=1	Tablets n=2	Tablets n=3	Tablets n=4	Tablets n=5	Uncertain
Acetaminophen 500 mg	649	88%	41% (265/649)	37-45	459	173	10	3	2	2
Acetaminophen 1 g a	36	5%	67% (24/36)	49-81	12	21	1	0	0	1
Acetaminophen Uncertain dose	53	7%	28% (15/53)	17-42	36	15	0	0	0	2
Total	738	100%	41% (304/738)	38-45	508	209	11	3	2	5
Ibuprofen 200 mg	130	16%	29% (38/130)	22-38	111	16	2	0	0	1
Ibuprofen 400 mg	504	61%	49% (258/504)	47-56	419	75	7	0	0	3
Ibuprofen 600 mg a	18	2%	61% (11/18)	36-83	12	4	2	0	0	0
Ibuprofen Uncertain dose	172	21%	33% (57/172)	26-41	139	24	1	0	0	8
Total	824	100%	44% (364/824)	41-48	681	119	12	0	0	14

a Requires prescription.

Table 2. The most commonly used analgesics presented by dose and number of tablets per intake. *Requires prescription.

	Present study	MDOT - 2010, Parker (19)	TEENMAP - 2016, Suvitie (5)
n	1785	1051	1117
Mean age	16,2 y (16-20)	16,8 y (14-19)	16,8 y (15-19)
Dysmenorrhea	89%	93%	68%
Severe Dysmenorrhea NRS 8-10	36%	21%	33%
Oral contraceptive	20%	22%	31%
Absenteeism from school/work	59%	28%	50%
Monthly absenteeism from school/work	14%	2%	1%
Use of analgesics	80%	66%	80%
Signs of endometriosis (NRS 8-10, oral contraceptive, inadequate effect of analgesics)	6%	5%	5%
Consultation with doctor	7%	33%	16%

Table 3. Comparison to similar studies.

