Role of gynaecologists in reproductive education of teenage girls in Hungary

Andrea Varga-Tóth[1], Edit Paulik*[2]

[1]Department of Obstetrics and Gynaecology, University of Szeged, Szeged, Hungary

[2]Department of Public Health, University of Szeged, Szeged, Hungary

*Corresponding author at:

Department of Public Health University of Szeged

Szeged, Dóm tér 10 H-6720

Hungary

Tel.: +36 62 545119; fax: +36 62 545120

E-mail address: paulik.edit@med.u-szeged.hu

Running title: Reproductive education of teenage girls

Abstract

Aim: To assess whether personal characteristics of teenage girls and their knowledge about cervical cancer screening are associated with the fact that they have already visited a gynaecologist or not.

Methods: A self-administered questionnaire-based study was performed among secondary school girls (n=589) who participated in a professional education provided by a child and teenager gynaecologist.

Results: 50.3% of teenage girls have already had sexual contact. Half of the sexually active participants have already visited a gynaecologist, most of them did so because of some kind of complaint. The overall knowledge about cervical screening was quite low; higher knowledge was found among those having visited a gynaecologist.

Conclusions: Teenage girls' knowledge on cervical screening has been improved by the previous gynaecologist-patient contacts. The participation of an expert – a gynaecologist – in a comprehensive sexual education program of teenage girls is of high importance in Hungary.

Key words: education; cervical screening; gynaecologist; teenage girls

Introduction

Sexual life started at an ever-increasingly younger age among teenagers is a striking tendency in the majority of the developed countries of the world. Experience of sexual intercourse among 15-year-olds varies across countries, the highest rates for girls were found in northern Europe (66% in Greenland), and relatively low in southern and western Europe.[1,2]

According to Hungarian data of HBSC 2010 (Health Behavior of School-aged Children) an average of 40.6% (42.2% of boys, 39.9% of girls) of 9th and 11th grade (15 and 17 years old) youth admitted to having experienced sexual contact. 57.1% of the sexually active 9th grade youth were 14 years old or younger at the start of sexual life, while in the case of the 11th grade it was 20.8%, i.e. a growing proportion of youth starts their sexual life quite early, at the age of 14 or earlier.[3]

In connection with early sexual life, the proportion of unwanted pregnancy is predominantly high in Eastern Europe, including Hungary, too.[4] The number of pregnancies and abortions among 19 years old or younger is still high, in 2011 more than five thousand live births and almost the same number of abortions were registered in this age group in Hungary.[5]

Likewise, Hungary's situation is also unfavorable as compared to that of the developed countries of the world in relation to mortality caused by cervical cancer.[6] In 2011 according to the National Cancer Registry 1159 new cervical cancer cases were registered in Hungary, while the number of deaths was 414 (7.9/100 thousand women).[7] However, participation in screening aimed at an early recognition of cervical cancer is among the lowest in OECD (Organization for Economic Co-operation and Development) countries, a tendency shared by the other eastern European countries.[6,8] Among contributing factors of the low level of participation, the lack of national screening program, opportunistic characteristics of the screening and shortcomings of

health conscious attitude can be enumerated. Though the national screening program for cervical cancer was launched in Hungary in 2003, it did not alter the situation significantly. Boncz et al. have established that though after launching the organized screening, values of the yearly and three year participation in the 25-64 year group improved as compared to that of former years, but the measure of screening is still low (between 2003-2005 the yearly participation was 23.4-24.3%, the three year was 52.6%), while the mortality rate is invariably high.[9]

Both the high number of abortions and the low proportion of participation in cancer screening refer to the lack of knowledge on sexual life and preventive attitude among reproductive age women. The aim of our research was to assess whether personal characteristics of teenage girls and their knowledge about cervical cancer screening are associated with the fact that they have already visited a gynaecologist or not.

Materials and Methods

We performed a self-administered questionnaire-based study among participants of sexual education organized for 14-18 years old girls attending secondary grammar school. The professional education was provided by a child and teenager gynaecologist. The survey was carried out in the Pediatric Gynaecology Centre of the Department of Obstetrics and Gynaecology from spring, 2009 till the spring of 2010. Within the study period, all eligible young girls were offered the questionnaire before the education; altogether 589 girls were involved.

The questionnaire comprised demographic characteristics, sexual behavior, knowledge about contraceptive methods, screening etc. We evaluated the survey items in a pilot study with

the participation of 20 people from the targeted age group, and performed the necessary adjustments on the questionnaire.

Self-estimate of financial background was done on a five-degree scale (1=very poor, 5=very good).

Regarding sexual activity questions were based on the actual and previous sex life, and its frequency.

The frequency of visiting a doctor was established by the question ’Have you consulted a gynaecologist yet?’, and if yes, what was the cause of visiting a doctor (contraception, disorder of menstruation, etc.).

Six questions were included to measure the knowledge about cervical screening process and its evaluation. There were two open-ended questions about the way of the screening test and the target population; the answers were evaluated by a gynaecologist. Four closed questions were related to the painful nature of screening, to its recommended frequency, to pathological findings (results of Pap-test) and to the screening as a preventive measure of cervical cancer. The answers were classified as “correct” and “incorrect” answers. The assessment of answers was done on the basis of current textbooks’ definition.[10] Taking the correct answers into consideration a 6-item score was developed where the higher the scores were, the better the level of knowledge turned out to be.

The potential sources of the girls’ sexual knowledge (parents, friends, teachers, nurses, physicians, books and internet) were asked. More than one source was possible to sign.

We used simple descriptive statistics to describe the overall characteristics of the sample, chi-square and one-way-ANOVA tests were applied to perform bivariate comparisons. Pearson correlation was calculated to analyze the association between the knowledge and the source of it.

Multivariate comparisons were done by logistic regression analysis. The visit at the gynaecologist was the dependent variable; age, financial background and sexual activity were independent variables. The determinations of the logistic regression model were based on the Hosmer-Lemeshow goodness of fit tests for each dependent variable. Odds ratios (ORs) and 95% confidence intervals (CIs) were also calculated for all variables. Statistical significance was defined at $p< 0.05$ level in all analysis. All statistical analyses were carried out using SPSS 17.0 for Windows.

The study protocol was approved by the Regional and Institutional Human Medical Biological Research Ethics Committee of the University of Szeged (No. 110/2008). Informed written consent, including a parental permission, was obtained from the study population.

Results

Characteristics of the sample are shown in Table 1. 14-18 year old girls attending secondary grammar school or vocational school participated in the survey (n=589). Most participants of the survey estimated their financial background to be average or good. Prevalence of smoking was 29.9%. Half of them have already had sexual contact: most part (77.7%) of sexually active girls (39.0% of the total sample) had the first contact at age 15 or over; none of them did it before age 13 years; the average age of first intercourse was 15.37 years (SD: ±1.12). 38.7% of them have already visited a gynaecologist, more than half of them did so because of some kind of complaint (menstruation disorder, discharge, etc.), and 18.1% of them sought medical attention in connection with contraception or screening.

A comparison of characteristic features of girls visiting and non-visiting a gynaecologist are shown in Table 2. From the viewpoint of age, type of school and sexual life there was a

significant difference between the two groups. Higher proportion of girls aged 16 or above has already visited a gynaecologist, as well as girls attending vocational schools, smokers and those who had regular sexual contact, although 41.2% of sexually active girls have never consulted a gynaecologist (Table 2). A significant difference ($p<0.001$) can be seen regarding the evaluation of financial background, those who have already visited a gynaecologist estimated worse financial background (average 3.24±0.65), than those who have not visited one yet (average 3.47±0.68).

The multivariate logistic regression analysis showed that the chance of having visited a gynaecologist was three times (OR: 3.21; CI: 2.05-5.02; $p<0.001$) higher in girls having sexual contact than in case of the ones having no sexual contact. The chance of visiting a gynaecologist was growing (OR: 1.70; CI: 1.38-2.09; $p<0.001$) by each year of age. Financial background showed a lower chance of having visited a gynaecologist among girls with a good financial background (OR: 0.72; CI: 0.54-0.97; $p=0.033$). The type of school did not show significant correlation with the chance of visiting a gynaecologist (OR: 0.72; CI: 0.49-1.06; $p=0.097$).

In connection with cervical cancer screening the widest known factor was its role in prevention and the suggested rate of screening (Table 1). A low proportion of participants (7.3%) could give a correct account of what the screening really meant and only 4.2% knew how to assess the obtained result, i.e. what counts as pathological.

There was also a significant difference between girls visiting and non-visiting a gynaecologist in connection with the pieces of information on screening with the exception of the importance of screening in prevention: those who have visited a gynaecologist possessed more information (Table 2).

The average of score values on information about cervical cancer screening was 2.45 (SD: 1.15, min: 0, max: 6), with those having visited a gynaecologist 2.78±1.16, with those

who have not visited a gynaecologist 2.24±1.10, the difference was significant ($p<0.001$). The distribution of individual score values is shown in Figure 1, the proportion of girls with comprehensive knowledge was quite low (0.7%), and 4.4% of them had no knowledge about the screening at all. Those who have already visited a gynaecologist knew significantly more about the screening, however only 18.1% of them visited a gynaecologist for specifically this purpose.

Parents (63.3%), especially mothers were the main source of information related to sexual life; it was followed by district nurse (49.2%), friends (32.3%), teachers (27.7%), books, media (27.5%), physicians (21.6%) and internet (16.5%). There was a significant difference between those visiting and non-visiting the gynaecologist: those who visited the gynaecologist identified the parent, the district nurse and the physician in a higher proportion as the source of information. According to the correlation analyses the closest relation concerning screening was found when the physician was the source of information. (Pearson correlation coefficient: 0.128; $p=0.002$), while in case of parents the correlation was lower (Pearson correlation coefficient: 0.099; $p=0.016$), and in case of the other sources no correlation could be detected.

Discussion

This study was delivered among 14-18 years old females attending secondary school in Hungary. According to our findings half of girls (50.3%) have already had sexual contact. This proportion is a slightly higher than the prevalence in case of an examination performed in the USA, where students in grades 9-12 who attend public and private schools (14-17 years old) were asked, and 45.6% of female students had ever had sexual intercourse[11]. Concerning the time of first sexual intercourse the situation was more favorable among those examined in our

study, because none of them had sexual intercourse under the age of 13, while according to American sources 3.4% of female students had sexual intercourse before age 13 years.[11] The Health Behavior in School-aged Children Study of 2009/2010 (HBSC study) also reported some data on the sexual behavior of 15-year-olds. The average percentage of 15-year-old girls who have had sexual intercourse was 23% including all countries.[12] The mean age at first sexual intercourse amongst 15-year-olds was 13.5-14.6 years and in general lower for boys than for girls in the 2001/2002 HBSC study.[13] Marked country and gender variability was found, in Hungary 25.5% of males, and 16.4% of females were sexually active by age 15, while e.g. this rate was 35.7% and 40.4% in England.[14]

In our study only half of the sexually active girls have already visited a gynaecologist; most of them did so because of some kind of complaint. The multivariate analyses showed correlations between age, financial background, sexual life, and the chance of visiting a gynaecologist. Older girls with unfavorable financial background had a higher chance of having visited a gynaecologist, although the most important factor for teenage girls in visiting a gynaecologist is if they are sexually active or not, which can be assessed as favorable, however the bivariate analysis proves that a significant proportion of girls having sexual contact have never consulted a gynaecologist. It is doubtful whether to what extent these youth are prepared for responsible sexual life. The consequences of too early sexual contact, especially unwanted pregnancy can ruin the lives of youth either they decide to keep, or interrupt pregnancy.

The knowledge about cervical screening and the factors influencing it were analyzed in several studies. Nwankwo et al. found very poor knowledge and practice of cervical cancer screening among Nigerian women, and they concluded that effective female education and free mass screening were necessary for any successful cervical screening program in Nigeria.[15] A study in Malaysia found that age, marital status, ethnicity, monthly family income and faculty

were significantly associated with knowledge of cervical cancer screening among young women.[16] Maxwell et al. described the relationship between age and knowledge about cervical cancer screening among Canadian women.[17] Among Australian women the knowledge of cervical cancer and screening was good, better knowledge was found among sexually active women.[18] Our study showed that the overall knowledge about cervical cancer screening was quite low, but higher knowledge was found among those having visited a gynaecologist. Among those girls who have already visited a gynaecologist, there was a strong correlation between knowledge and the physician as the source of information.

In our study more than 40% of females reported that cervical screening had been painful. The misconception about the test being painful was reported as a barrier of participation by several other studies.[16,19] Among young Hispanic women 27% of those having ever Pap smear, and 48% of those never having Pap smears believed that the test is painful.[20] Focus group discussions in Peru revealed that most women did not know the purpose of Pap smears; fear, embarrassment, and lack of knowledge were the main barriers identified for not getting Pap smears.[21] The most common barriers to obtaining a Pap test reported by sexually active adolescent girls in West Virgina were embarrassment (64%), pain/discomfort (57%), fear of cancer (27%), and fear of parents discovering sexual activity (25%). Based on the information obtained in this study the authors recommended changes in school health programs that target adolescent girls.[22]

By now it has been proved that the base of healthy adult life can be traced back to early childhood.[23] From the viewpoint of the evolution of health conscious attitude – the avoidance of smoking, alcohol, drug, while leading secure sexual life – teenage is an especially critical period. Early sexual life without appropriate information, or the high prevalence of smoking

among youth proves that there are grave shortcomings in the field of health awareness among nowadays' youth.

Traditions concerning visiting a doctor – a gynaecologist – can also be characterized as unfavorable. Hungarian women usually consult a gynaecologist when they experience a complaint, pain, and not with an eye on screening, the occurrence of three year cervical screening hardly reaches 50% among adult female population.[9] If participation is low among adults, it can be predicted that their female offspring will not consult experts more frequently, either. Most youth surveyed in our study consulted a doctor because of some kind of complaint. However, it would be highly recommendable if youth visited a gynaecologist specializing in child and teenage gynaecology before starting their sexual life, who would instruct them on information concerning contraception, prevention of sexually transmitted diseases and screening.

Our study revealed a correlation between knowledge about cervical screening and visiting gynaecologist in teenage girls. In the literature we have not found further studies about the direct relationship between cervical screening knowledge and seeking gynaecologist, but several studies have described the limits of teachers[24] or school nurses[25] delivered sex education, and have emphasized the importance of physicians, especially gynaecologists from the point of the comprehensive sex education of young people.[2,26-29]

Regarding the various forms of education, the RIPPLE study found no significant difference between the effects of peer-led or teacher-led sex education programs among teenagers.[30] Italian researchers stated a need for collaboration between schools and local health services to promote knowledge and prevention in reproductive health among teenagers.[31] The implementation of a sex education curriculum within Department of Obstetrics and

Gynaecology of an academic medical center showed an increase in knowledge, and a shift in attitude toward delaying adolescent sexual debut.[32]

Although the importance of first teenage consultation with gynaecologist and its essential elements are described by several guidelines,[2,27-29] in Hungary there is no uniform education concerning preparation for sexual life. Apart from information obtained from medical experts it is important that all young girls/women should master certain basic knowledge on sexual maturation, contraception, the essence of gynaecological examination and its necessity, etc. Most of the cases it is the teacher's decision whether he dedicates a lesson to this topic or he seeks the help of an expert. Our model test aimed at completing this type of school education with an additional lecture held by a gynaecologist. In order to make our lecture really necessity oriented, before the education we surveyed the students' knowledge concerning contraception, sexually transmitted diseases, screening, etc., and the final content of the lecture was adjusted to the shortcomings that had come to light. The target group of the program had originally been secondary school students, but taking into consideration that a great number of youth start their sexual life at the age of 14, we realized that education should be started already at the age of 13-14. Our experiences may contribute to the compilation of an educational content concerning sexual education, which all 13-14 year old youth should get acquainted with, and not only girls.

In conclusion, to start sexual life at the suitable time and with appropriate contraception it is of utmost importance to provide teenagers with necessary information in time. The participation of an expert in transmitting information is of high importance, because in our fast-changing world advice provided by parents and friends cannot always be regarded as reliable. In Hungary child and teenager gynaecology outpatient departments exist in several cities, where it is possible to obtain gynaecological instruction before the sexual act. With repeated age-related and continuous education it is possible in the long run to achieve our aim, so that youth

should begin their sexual life being aware of its dangers and prepared for contraception, thus reducing the number of unwanted pregnancy cases among 14-18 year old girls. Teenage experiences, the evolution of gynaecologist-patient relation in this period exert a huge influence on adulthood habits including participation in cancer screening.

In interpreting the results of the present study, it is important to keep in mind its limitations. First, a cross-sectional survey is inappropriate to reveal cause and effect relations, so we cannot exactly define to what extent the presence of information or the lack of it correlates to visiting a gynaecologist, in other words: are those who consulted a doctor more informed at the outset, or their information was provided by the doctor, this can only be revealed by a follow-up survey. Second, because of the way the questions were asked it did not turn out whether visiting a gynaecologist took place before or after the start of sex life, however as the majority specified a certain complaint for the reason of consulting a doctor, we can conclude that in most of the cases the aim of visiting a doctor was not prevention. Third, completing the survey took place before the education and there was no follow-up, because the survey aimed at revealing the already existing knowledge; as a result we possess no objective data about the increase of knowledge on the matters concerned, however, the fact that after the education more girls visited the outpatient department, i.e. they dared to consult a gynaecologist, proves the efficiency of the education.

Acknowledgment

The authors would like to thank Prof. Dr. László Kovács for his valuable help in preparation of the manuscript.

Disclosure

The authors report no conflict of interest related to this paper.

References

1. Currie C, Gabhainn SN, Godeau E et al. Inequalities in young people's health. HBSC International Report from the 2005/2006 survey. World Health Organization, 2008; 143-144.
2. Sieving RE, Oliphant JA, Blum R. Adolescent sexual behavior and sexual health. Pediatr Rev 2002; 23: 407-416. DOI: 10.1542/pir.23-12-407
3. Költő A. [Sexual behavior] In: Németh Á, Költő A. (Eds.) [Health Behavior in School-aged Children (HBSC): A WHO-collaborative Cross-National Study National Report 2010] (in Hungarian.) Országos Gyermekegészségügyi Intézet, Budapest, 2011; 55-58.
4. Sedgh G, Henshaw SK, Singh S, Bankole A, Drescher J. Legal abortion worldwide: incidence and recent trends. Int Fam Plan Perspect 2007; 33: 106-116.
5. [Central Statistical Office. Demographic Year Book 2011] (in Hungarian), Budapest, 2012.
6. OECD. Health at a Glance 2009: OECD Indicators, OECD Publishing, 2009. Doi:10.1787/health_glance-2009-en
7. [Central Statistical Office. Yearbook of Health Statistics], 2011 (in Hungarian), Budapest, 2012.
8. Todorova I, Baban A, Alexandrova-Karamanova A, Bradley J. Inequalities in cervical cancer screening in Eastern Europe: perspectives from Bulgaria and Romania. Int J Public Health 2009; 54: 222-232.
9. Boncz I, Sebestyén A, Döbrössy L, Kovács A, Budai A, Székely T. [The Participation Index of Cervical Cancer Screening in Hungary] (in Hungarian.) Orvosi Hetilap 2007; 148: 2177-2182.

10. Papp Z, Csapó Zs. [Benign and malignant neoplasm of female genital organs.] In: Papp Z. (Ed.). [Obstetrics and Gynaecology Textbook] (in Hungarian.) (p. 486) Semmelweis Kiadó, Budapest, 2009.
11. Centers for Disease Control and Prevention. Youth Risk Behavior Surveillance – United States, 2011. MMWR 2012; 61(No. SS-4): 24-25.
12. Currie C, Zanotti C, Morgan A et al. (eds) Social determinants of health and well-being among young people. Health Behaviour in School-aged Children (HBSC) study: international report from the 2009/2010 survey. Copenhagen, WHO Regional Office for Europe, 2012.
13. Ross J, Godeau E, Dias S. Sexual health. In: Currie C, Roberts C, Morgan A. et al. (eds).Young people's health in context. Health Behaviour in School-aged Children (HBSC) study: International report from the 2001/2002 survey, Copenhagen: WHO, 2004.
14. Avery L, Lazdane G. What do we know about the sexual and reproductive health of adolescents in Europe? Eur J Contracept Reprod Health Care 2007; 13: 58-70.
15. Nwankwo KC, Aniebue UU, Aguwa EN, Anarado AN, Agunwah E. Knowledge, attitudes and practices of cervical cancer screening among urban and rural Nigerian women: a call for education and mass screening. Eur J Cancer Care 2011; 20: 362-367. doi: 10.1111/j.1365-2354.2009.01175.x.
16. Al-Naggar RA, Low WY, Isa Z. Knowledge and barriers towards cervical cancer screening among young women in Malaysia. Asian Pac J Cancer Prev 2010; 11: 867-873.
17. Maxwell CJ, Bancej CM, Snider J. Factors important in promoting cervical cancer screening among Canadian women: findings from the 1996-97 National Population Health Survey (NPHS). Can J Public Health 2001; 92: 127-133.

18. Shand L, Burney S, Fletcher J. Knowledge of cervical cancer, pap testing and the human papillomavirus among young Australian women. Health Promot J Austr 2010; 21: 202-207.
19. Maaita M, Brakat M. Jordanian women's attitudes towards cervical cancer screening and cervical cancer. J Obstetr Gynecol 2002; 22: 421-422.
20. Byrd TL, Peterson SK, Chavez R, Heckert A. Cervical cancer screening beliefs among young Hispanic women. Preventive Med 2004; 38: 192-197.
21. Paz-Soldán VA, Nussbaum L, Bayer AM, Cabrera L. Low knowledge of cervical cancer and cervical pap smears among women in Peru, and their ideas of how this could be improved. Int Q Community Health Educ 2010-2011; 31: 245-263.
22. Jubelirer SJ, Blanton MF, Balnton PD, Zhang J, Foster D, Monk J, Kuhn G, Hanshew D. Assessment of knowledge, attitudes, and behaviors relative ot cervical cancer and the pap smear among adolescent girls in West Virginia. J Cancer Educ 1996; 11: 230-232.
23. Ben-Shlomo Y, Kuh D. A life course approach to chronic disease epidemiology: conceptual models, empirical challenges and interdisciplinary perspectives. Int J Epidem 2002; 31: 285-293.
24. Wight D, Raab GM, Henderson M, Abraham C, Buston K, Hart G. Limits of teacher delivered sex education: interim behavioural outcomes from randomized trial. Brit Med J 2002; 324: 1430.
25. McFadyen J. Teaching sex education: are Scottish school nurses prepared for the challenge? Nurse Educ Today 2004; 24: 113-120.
26. Nelms BC. Adolescent sex education: making it a priority. J Pediatr Health Care 2003; 17: 221-222.
27. Delisi K, Gold MA. The initial adolescent preventive care visit. Clin Obstetr Gynecol 2008; 51: 190-204.

28. Huff MB, McClanahan KK, Brown HA, Omar HA. It is more than just a reproductive healthcare visit: experiences from an adolescent medicine clinic. Int J Adolesc Med Health 2009; 21: 243-248.
29. Shafii T, Burstein GR. The adolescent sexual health visit. Obstet Gynecol Clin North Am 2009; 36: 99-117.
30. Stephenson JM, Strange VF, Forrest S, Oakley A, Copas A, Allen E, Babiker A, Black S, Ali M, Monteiro H, Johnson AM, RIPPLE study team. Pupil-led sex education in England (RIPPLE study): cluster-randomized intervention trial. Lancet 2004; 364: 338-346.
31. Donati S, Medda E, Spinelli A, Grandolfo ME. Sex education in secondary schools: an Italian experience. J Adolesc Health 2000; 26: 303-308.
32. Sulak PJ, Herbelin SJ, Fix DDA, Kuehl TJ. Impact of an adolescent sex education program that was implemented by an academic medical center. Am J Obstet Gynecol 2006; 195: 78-84.

Figure legend

Figure 1 Distribution of sample visiting or non-visiting a gynaecologist according to the scores for knowledge of cervical screening (result of chi-square test: $p<0.001$)

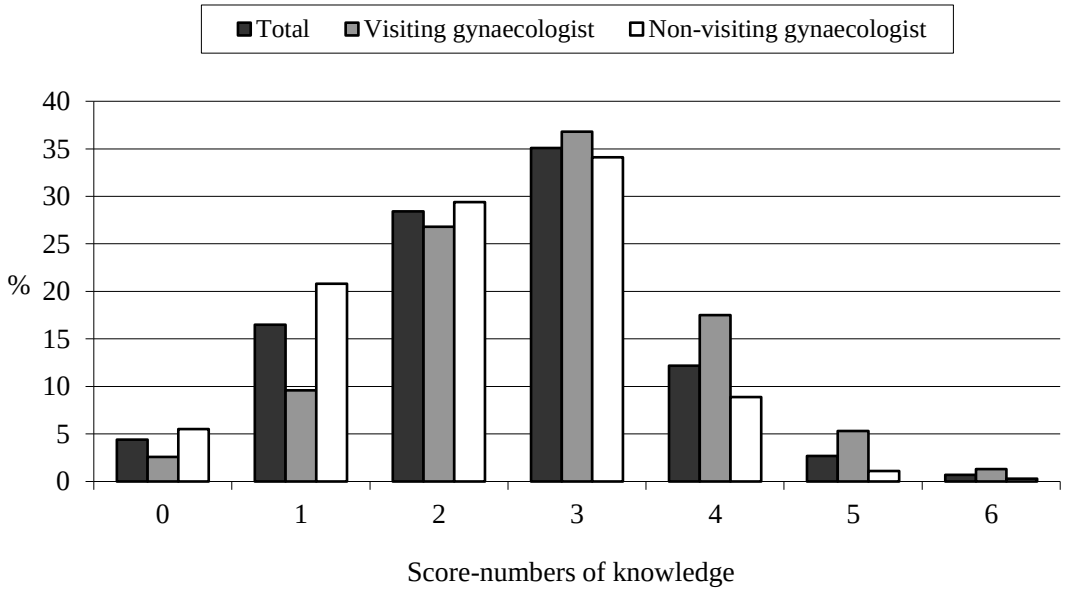

Table 1 Characteristics of the study population (n=589)

Characteristics	n	%
Age (year)		
14	51	8.7
15	202	34.3
16	168	28.5
17	108	18.3
18	60	10.2
Type of school attended		
Grammar school	333	56.5
Specialized secondary school	256	43.5
Financial situation		
Very poor (grade 1)	2	0.3
Poor (grade 2)	35	5.9
Average (grade 3)	311	52.8
Good (grade 4)	216	36.7
Very good (grade 5)	25	4.2
Ever had sexual intercourse		
Yes	296	50.3
No	293	49.7
Ever visited a gynaecologist		
Yes	228	38.7
No	361	61.3

Reasons for visiting gynaecologist		
Contraception	50	18.1
Menstruation disorder	65	23.4
Vaginal discharge	80	28.8
Cancer screening	50	18.1
Else, consultation	32	11.6
Knowledge about cervical screening (percentage of good answers)		
Screening is good for the prevention of cervical cancer	433	73.5
The way of the test	43	7.3
The test is painless	338	57.4
Target population	140	23.8
Frequency of screening	465	78.9
The pathological result	25	4.2

Table 2 Bivariate analysis of characteristics related to whether an adolescent girl received a gynaecologic care

Characteristics	n	Ever visited a gynaecologist n (%)	Never have visited a gynaecologist n (%)	p-value*
Age (year)				<0.001
14	51	8 (15.7)	43 (84.3)	
15	202	38 (18.8)	164 (81.2)	
16	168	73 (43.5)	95 (56.5)	
17	108	60 (55.6)	48 (44.4)	
18	60	49 (81.7)	11 (18.3)	
Type of school attended				<0.001
Grammar school	333	104 (31.2)	229 (68.8)	
Specialized secondary school	256	124 (48.4)	132 (51.6)	
Ever had sexual intercourse				<0.001
Yes	296	174 (58.8)	122 (41.2)	
No	293	54 (18.4)	239 (81.6)	
Knowledge about cervical screening				
Screening is good for the prevention of cervical cancer				0.906
Good answer	433	167 (38.6)	266 (61.4)	
Wrong answer/don’t know	156	61 (39.1)	95 (60.9)	
The way of the test				<0.001

Good answer	43	28 (65.1)	15 (34.9)	
Wrong answer/don’t know	546	200 (36.6)	346 (63.4)	
The test is painless				0.001
Good answer	338	150 (44.4)	188 (55.6)	
Wrong answer/don’t know	251	78 (31.1)	173 (68.9)	
Target population				<0.001
Good answer	140	75 (53.6)	65 (46.8)	
Wrong answer/don’t know	449	153 (34.1)	296 (65.9)	
Frequency of screening				<0.001
Good answer	465	199 (42.8)	266 (57.2)	
Wrong answer/don’t know	124	29 (23.4)	95 (76.6)	
The pathological result				0.026
Good answer	25	15 (60.0)	10 (40.0)	
Wrong answer/don’t know	564	213 (37.8)	351 (62.2)	

* Results of chi-square test