

Health behaviors and knowledge of birth control methods among students

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ABSTRACT

Introduction: Thanks to preventive medicine and shaping health behaviors such as habits, customs and attitudes towards health, it is possible to control everyday life civilization threats and new outbreaks of diseases.

Purpose: To assess health behaviors and level of knowledge of birth control methods among university students in Białystok.

Materials and methods: A total of 222 students of the Białystok Polytechnic University and Medical University of Białystok were recruited. The study used a health behavior catalogue by Juczynski and our own questionnaire.

Results: The study showed a high percentage of students with poor knowledge of health behaviors. Students of both universities positively assessed their eating habits, mental attitudes, and preventive behaviors. Students of the Białystok Polytechnic University showed significantly higher scores

concerning proper health behaviors. The most common method of contraception were: condoms and contraceptive pills. Students of Medical University were characterized by significantly higher level of knowledge of birth control methods. The vast majority of respondents derived their knowledge of birth control methods from the internet.

Conclusions: The results indicate that it is advisable to introduce preventive actions to the study curriculum in order to facilitate formation of proper habits and health behaviors. The level of knowledge among students of the methods of natural birth control is insufficient. It is important to search for various forms and methods to provide young people with objective information according to the latest research.

Key words: Health behavior, birth control methods, knowledge among students

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Received: 27.05.2014

Accepted: 1.06.2014

Progress in Health Sciences

Vol. 4(1) 2014 pp 136-143

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INTRODUCTION

Gaining knowledge about health is one of the cognitive goals of the contemporary man. Health literacy, which is the understanding of health-related information, has been recognized to be one of the main public health challenges of the twenty-first century. High level of health literacy implies the knowledge of how and where to obtain information on the impact of various factors on health, and the ability to critically assess them. Favorable environment allows their modification, which is important from the perspective of health promotion, prevention and treatment of diseases [1-4].

According to the definition introduced by the WHO, the term "reproductive health" means a state of well-being in terms of physical, mental and social aspect, not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes. This definition implies that people can lead a satisfying and safe sexual life and have the capability to reproduce and the freedom to decide if, when and how many children they would like to have [5,6].

Modern and increasingly sufficient ways of birth control have been introduced as the result of a search for the methods that meet the criteria of safety, effectiveness, reversibility and convenience in accordance with the WHO recommendations [7].

The variety of the available birth control methods and devices allows identification of methods of varying degrees of effectiveness (criterion measured with Pearl Index), mechanism (preventing fertilization-fusion of egg cell and sperm or preventing implantation of a fertilized egg cell), and interference with physiological changes that occur in the female body (natural birth control methods and artificial methods of contraception).

In Poland, the available methods of birth control include periodic sexual abstinence, condoms, spermicides, intrauterine devices, combined or single hormone contraceptives (oral, transdermal or injected). The problem of fertility regulation is complex and results from the interaction of many factors, among which the level of knowledge as well as economic, ethical, moral, cultural and religious matters play an important role [8,9]. Significant factors contributing to this condition is poor public health education concerning reproductive health and lack of professional research in the area of reproductive epidemiology.

The aim of the study was to assess health behaviors and the level of knowledge of birth control methods among university students in Bialystok.

MATERIALS AND METHODS

The study involved 222 students: 106 from the Bialystok Polytechnic University (PB; 48%) and 116 from Medical University (UMB; 52%).

In the PB group of students there were 63 male and 43 female students, while in the UMB-45 and 71, respectively. The research tool used was a standardized questionnaire, the Catalogue of Healthy Behavior (CHB) by Juczynski, and our own questionnaire.

The Catalogue of Healthy Behavior designed by Juczynski consists of 24 statements, which describe different health-related behaviors. The task of the respondent is to identify the frequency of preferential behaviors on a 5-point scale. All statements in the questionnaire are divided into 4 categories that apply to the use of proper eating habits (PEH), prevention behaviors (PB), as well as health practices (HP) and a positive mental attitude (PMA) [10].

The respondents were asked to specify on a 5-point scale in the CHB sheet how often certain action was performed over the last year (1-almost never, 2-rarely, 3-sometimes, 4-often, 5-almost always). Total score is an overall rate of health behaviors. The rate is converted into standardized units on a sten scale. The sten scale is a sectional scale, with an average of 5.5 and a standard deviation of 2, ranging from 1 to 10. Juczynski [10] proposed to adopt the following sten ranges: results from 1-4 (low score), 4-5 (average score), 7-10 (high score).

Our own questionnaire consisted of closed-ended, open and semi-open questions of single or multiple choices. The first part of the questionnaire was related to age and gender of the respondents whilst the second to the knowledge, acceptance and evaluation of the effectiveness of each method.

The third part assessed knowledge about birth control methods and sources of this knowledge. The results were analyzed as total and also by university and gender. To assess the level of knowledge of birth control methods, the respondents were divided into 4 groups: with high, moderate, sufficient and poor knowledge. The maximum score was 28 points.

Due to the lack of normal distribution, in order to compare two groups of students and two gender groups, the Shapiro-Wilk test and U Mann-Whitney test were used.

Statistical analyses were performed using Statistica 10.0PL, assuming the level of significance at $p < 0.05$.

RESULTS

Assessment of health behaviors of university students in Bialystok

In the current study, up to 46.4% of the respondents received low scores (1-4 sten) for the rate of health behaviors (56.9% students of UMB and 34.9% students of PB), among whom 50% were female and 42.6% male. Moderate scores were obtained by 45.5% of the study group (5-6 sten) (33.6% students of UMB and 58.5% of PB), including 56.5% of male and 35.1% of female participants. Only 8.1% of all the study participants achieved high scores (7-10 sten) (9.5% UMB students and 6.6% PB students), with the highest proportion of women (14.9%) (Figure 1).

Students of both universities similarly rated their healthy eating habits, mental attitudes and prevention behaviors. The score concerning health behaviors was significantly higher among PB students ($p=0.011$). Female respondents showed significantly higher level of the PMA, PB, PEH and

the overall level of health behaviors on a sten scale in comparison with men ($p<0.05$) (Table 1).

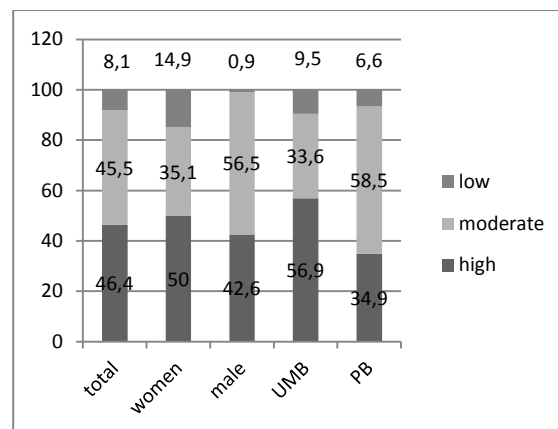


Figure 1. The rate of health behaviors among the respondents analyzed by university and gender.

Table 1. Results of the analysis of the Juczynski health behavior catalogue by universities and gender.

	UMB		PB		P value	K		M		P value
	M	SD	M	SD		M	SD	M	SD	
CHB stens	4.2	1.67	4.8	1.17	0.004	4.6	1.53	71.6	11.32	0.627
CHB	73.4	13.97	76.2	8.77	0.209	77.6	11.64	4.3	1.42	<0.001
PMA	3.0	0.77	3.1	0.60	0.099	3.2	0.67	2.9	0.68	0.001
PB	3.0	0.69	3.1	0.60	0.252	3.2	0.65	2.9	0.62	0.002
PEH	3.2	0.76	3.2	0.67	0.177	3.3	0.65	3.1	0.77	0.034
HP	3.0	0.76	3.2	0.58	0.011	3.2	0.72	3	0.64	0.090

CHB-Catalogue of Healthy Behavior, PEH-proper eating habits, PB-prevention behaviors, HP-health practices, PMA-positive mental attitude, M-mean, SD-standard deviation

Most of the respondents were after sexual initiation (respectively 81% and 89%), at the median age of 19 years (18 years for PB and 19 for UMB students). The UMB students began their sexual life between the age of 11 and 24 (mean: 18.95 ± 2.29 years of age). The age of sexual initiation among the PB students ranged from 16 to 19 years of age (average: 18 ± 1.48 years) (Figure 2).

Women began sexual life later than men (mean age 18.84 ± 1.99 and 18.26 ± 1.92 years of age respectively) (Figure 3).

Birth control methods used

The most commonly used methods of contraception included condoms (31.9% vs. 48.1%, $p=0.014$) and contraceptive pills (16.2% vs.

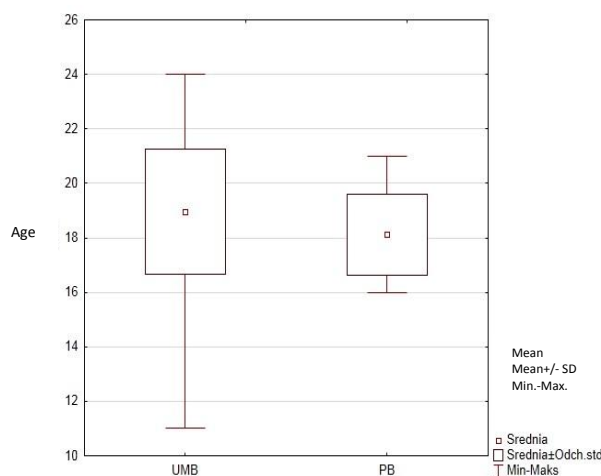


Figure 2. Age of sexual initiation of the respondents.

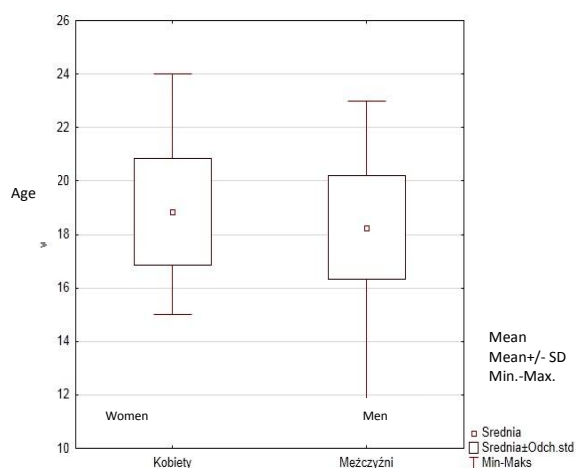


Figure 3. Age of sexual initiation depending on gender.

14.2%). No contraception was used by 29.3% vs. 16.0% ($p=0.019$), respectively. The most common method of contraception among sexual partners of UMB and PB students was condom (30.2% vs. 28.3%) and the pill (7.8% vs. 21.7%, $p=0.003$). A significant proportion of the respondents did not use any birth control methods: UMB-32, 7% and PB-24, 5% (Table 2).

Contraceptive pills (75.9% vs. 66.0%) and contraceptive injection (69.8% vs. 42.5%) were rated by UMB and PB students, respectively, as the most effective methods of birth control. Coitus interruptus (67.2% vs. 43.4%, $p < 0.001$), calendar (50.9% vs. 32.1%, $p < 0.001$) and natural methods (50% vs. 43.4%, $p < 0.001$) were rated as ineffective (Table 3).

Table 2. Birth control methods used by students.

	You				P value	Your Partner				P value
	UMB		PB			UMB		PB		
	n	%	n	%		n	%	n	%	
Contraceptive pills	19	16.4	15	14.2	0.647	9	7.8	23	21.7	0.003
Contraceptive patches	1	0.9	-	-	0.344	2	1.7	4	3.8	0.350
Contraceptive injection	-	-	-	-	-	2	1.7	4	3.8	0.350
Condoms	37	31.9	51	48.1	0.014	35	30.2	30	28.3	0.761
Cervical cap	-	-	-	-	-	2	1.7	4	3.8	0.350
Intrauterine devices	4	3.4	-	-	0.055	2	1.7	4	3.8	0.350
Postcoital contraception	-	-	-	-	-	2	1.7	-	-	0.177
Calendar	8	6.9	15	14.2	0.077	5	4.3	13	12.3	0.031
Coitus interruptus	13	11.2	22	20.8	0.052	5	4.3	20	18.9	0.001
Natural methods	17	14.7	9	8.5	0.155	-	-	8	7.5	0.003
No contraception	34	29.3	17	16.0	0.019	38	32.7	26	24.5	0.130

Table 3. Assessment of the efficacy of birth control methods.

	High efficacy				Rather effective				Ineffective				P value
	UMB		PB		UMB		PB		UMB		PB		
	n	%	n	%	n	%	n	%	n	%	n	%	
Contraceptive pills	88	75.9	70	66.0	28	24.1	31	29.2	-	-	5	4.7	0.074
Contraceptive patches	75	64.7	45	42.5	41	35.3	51	48.1	-	-	11	10.4	<0.001
Contraceptive injection	81	69.8	45	42.5	35	30.2	56	52.8	-	-	5	4.7	<0.001
Condoms	46	39.7	30	28.3	67	57.8	76	71.7	2	1.7	-	-	0.090
Cervical cap	29	25.0	37	34.9	77	66.4	63	59.4	10	8.6	6	5.7	0.088
Intrauterine devices	71	61.2	45	42.5	42	36.2	51	48.1	3	2.6	11	10.4	0.001
Postcoital contraception	68	58.6	29	27.4	39	33.6	69	65.1	8	6.9	8	7.5	<0.001
Calendar	6	5.2	24	22.6	51	44.0	48	45.3	59	50.9	34	32.1	<0.001
Coitus interruptus	3	2.6	13	12.3	35	30.2	47	44.3	78	67.2	46	43.4	<0.001
Natural methods	13	11.2	13	12.3	45	38.8	47	44.3	58	50.0	46	43.4	0.366
Chemical contraceptives	3	2.6	15	14.2	66	56.9	60	56.6	35	30.2	31	29.2	0.811

Assessment of the knowledge of birth control methods among the respondents

The UMB students showed significantly higher level of knowledge about birth control methods in comparison with PB students ($p < 0.001$), of whom only 3.4% had a high level of knowledge. The majority of UMB students assessed their knowledge as sufficient (34.5%) and moderate (45.7%), whereas most PB students considered their knowledge to be low (47.6%) and sufficient (46.7%) (Table 4).

Sources of knowledge about birth control methods

The vast majority of the respondents from both universities derived knowledge of birth control methods from the internet (73%), from university classes (63.8% vs. 17.0%) as well as textbooks (55.2% vs. 26.0%). More than half of the UMB and PB students (53% vs. 55%) gained their knowledge from friends (Figure 4).

Table 4. Assessment of the level of knowledge of birth control methods by UMB and PB students.

	UMB		PB		P value
	n	%	n	%	
High	4	3.4	-	-	<0.001
Moderate	53	45.7	6	5.7	
Sufficient	40	34.5	49	46.7	
Poor	19	16.4	50	47.6	

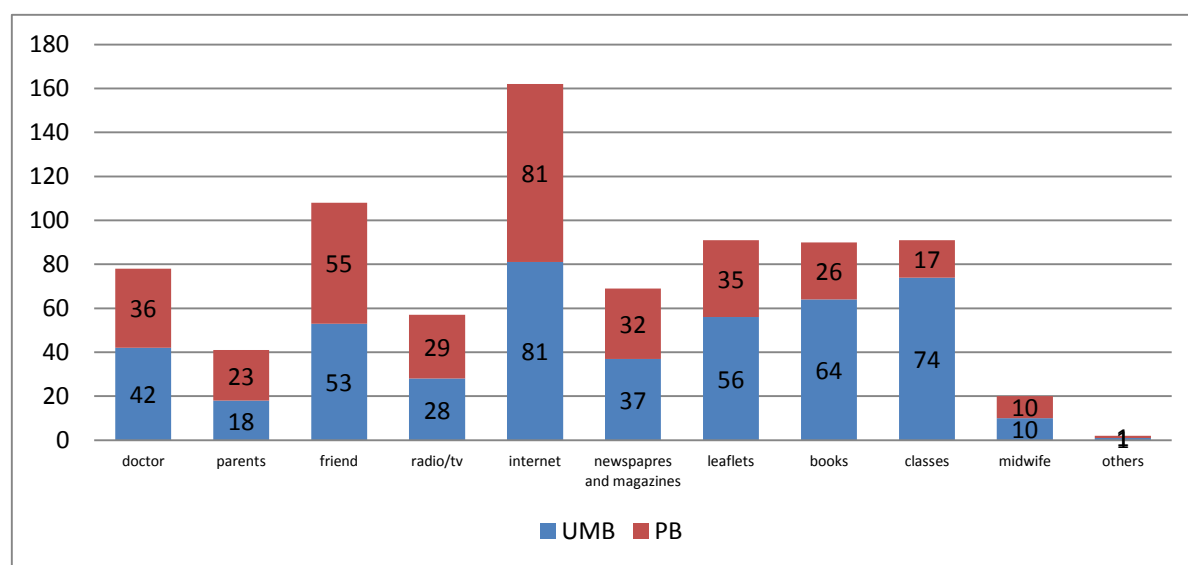


Figure 4. Sources of knowledge of birth control methods.

DISCUSSION

One of the most striking changes that have taken place in the people's awareness in recent years is the recognition of the leading role of health behaviors in maintaining and improving health. According to research conducted by Public Opinion Research Center (CBOS) more than 50% of adult Poles describe their state of health as at least good, every sixth as very satisfactory. For several years, satisfaction with health condition has predominated

among Polish citizens. Many respondents consider proper nutrition to be the most important contributor to health improvement. Moreover, health-related behaviors include regular doctor appointments, avoidance of stressful situations, various forms of physical activity, abstinence from nicotine and alcohol.

The smallest number of people considers regular use of vitamin supplements as necessary to maintain good health. Declarations concerning the actual healthy and unhealthy behaviors also involve

negative aspects and therefore high subjective value attributed to health is still not clearly reflected in everyday life. Despite the increasingly powerful social beliefs that caring of health is important for Poles, statements concerning self-health care have remained at a similar and stable level for the last five years. Four-fifths of respondents consider themselves to be health caring.

It is difficult to determine whether caring for health in the Polish population is of a prevention or intervention nature, since among those who describe their health as good, as well as those dissatisfied with it, the proportions of people claiming to care of their health are comparable. Only a small percent of Poles claim to do sports occasionally [11]. Koziel et al. [12] demonstrate the overall rate of health behavior of the first year medical students at the Swietokrzyska Academy in Kielce to be 78.94 ± 11.48 ; healthy eating habits 3.3 ± 0.67 ; prevention behaviors 3.37 ± 0.73 ; positive mental attitude 3.4 ± 0.72 and health practices 3.07 ± 0.65 .

As many as 43% of students present low level of health behaviors, also 43% of respondents demonstrate moderate level and 14% high level. In a study performed by Urbanska et al. [13], the average score for health behaviors in a group of nurses from the University Hospital in Bydgoszcz was 83.56 points. The respondents presented low level of health behaviors in 33% of cases, 44% had moderate and 25% high level of HB. Rasinska et al. [14] showed that midwives presented low level of health behaviors, and only a small group of them had moderate or high levels. Baran et al. [15] reported on the relationship between certain assessment scales of health behaviors and the university course. The authors confirmed that public health students exhibited health behaviors more frequently than students of computer sciences, although the difference was not statistically significant. The current study demonstrated that 56.9% of UMB students and only 34.9% of PB students exhibited low levels of health behaviors. Among them, 50% were female respondents and 42.6% male. The moderate level was shown by 33.6% of UMB and 58.5% of PB students where 56.5% were male and 35.1% female. High level of health behaviors was presented by only 9.5% of UMB students and 6.6% of PB students. Baran et al. [15] reported that public health students exhibited more positive eating habits, health practices and prevention behaviors than computer science students. They stressed that students of both courses displayed the same positive mental attitude. The current study revealed no significant differences between students of UMB and PB in terms of proper eating habits, positive mental attitude and prevention behaviors. PB students presented higher level of health practices. Women

showed a significantly higher level of assessment in terms of healthy eating habits, prevention behaviors, positive mental attitude and the overall level of health behaviors as compared to men.

The fact that women tend to lead more healthy lifestyle than men has been confirmed by other studies. Kalupa et al. [16] reported that irregular nutrition was mainly concerning men. A study of Ostrowska et al. [17] confirmed that men frequently avoided contact with medical care and were less likely to undergo preventive examinations in comparison with women. Similar conclusions were presented by Juczynski [10].

Studies conducted in Europe show that in recent years young people change their opinions and attitudes towards sexual initiation. The age of sexual initiation has significantly decreased, oscillating between 17-18 years of age in western and central Europe, and around 20 in Eastern Europe [18]. In a study by Wilczak et al. [19], 57.8% of students were sexually active, and the average age of sexual initiation was 19 years.

When assessing sexual activity of Lublin universities students, Aftyka et al. [20] found that 63.2% of respondents were sexually active; of them 28.8% had sexual initiation between 16 and 19, and 24% between 19 and 21 years of age. In a study by Folwarczny et al. [21], the average age of sexual initiation among women was 19.1 ± 1.59 years of age. At medical universities it was 18.5 ± 2.4 , while at non-medical schools 19.2 ± 1.8 years of age. Our current study revealed that the average age of sexual initiation was 18.54 ± 1.97 years of age (UMB- 18.95 ± 2.29 , PB- 18 ± 1.48).

According to research conducted by the Public Opinion Research Center, oral contraceptives as a method of preventing unwanted pregnancy gain increasing acceptance in the Polish society. Currently, as many as 71% of Poles are in favor of this method of contraception [22]. As reported by Filipp et al. [23], among methods of contraception used by teenagers, condom is the most common (45-52%) and oral contraceptive pills are less frequently used (11-29%). Natural family planning methods are used by 1% of teenagers, and 20% do not use any birth control methods.

Aftyka et al. [20] demonstrated that the most commonly used method of birth control among students of Lublin universities was condom (57%) and contraceptive pills (30%). Among sexually active female students from Upper Silesia, condom was the most common method of contraception (96.9%), 3.3% used IUDs and 3.3% did not use any method of contraception [21]. A study by Reina et al. [24] showed that the most common method of contraception among students was condom (99%) and contraceptive pills (95%).

Dinas et al. [25, 26] revealed that 16.7% of medical students in Greece did not use any method

of contraception, 45.5% used condoms and only 4.9% took contraceptive pills. Pekhliyanov et al. [27] in a study conducted among students of medical universities of Bulgaria showed that 72.6% of students used condoms, and only 5.97 oral contraceptive pills. In the current study, the most commonly used contraceptive method among students of UMB and PB was condom and contraceptive pills. A high percent of respondents were found not to apply any birth control method (about 20%).

In a study by Bienkowska et al. [28], a high percentage of women used calendar and natural family planning methods. Szyper et al. [29] reported that 50% of medical students surveyed did not take oral contraceptive pills, although they considered this method to be the most effective. Research by Folwarczny et al. [21] conducted among young women revealed that the primary source of knowledge about contraception included magazines, doctors and the internet. When assessing the source of information on birth control methods in medical university students, Wilczak et al. [19] found out that it was mainly derived from doctors (34.8%), mass media, and to a smaller extent from leaflets and friends.

Szyper et al. [29] observed that medical and non-medical university students used the internet to gain knowledge about contraception. Midwifery students more frequently than their colleagues from other university courses obtained the knowledge of birth control methods from doctors and at university. Similar results were obtained in our research.

CONCLUSIONS

Our results indicate that it is advisable to introduce preventive actions to the study curriculum in order to facilitate formation of proper habits and health behaviors. The level of knowledge among students of the methods of natural birth control is insufficient. It is important to search for various forms and methods to provide young people with objective information according to the latest research.

Conflicts of interest

The authors declared no potential conflicts of interest.

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