

## PONAŠANJE I STAVOVI STUDENTKINJA MEDICINE PO PITANJU MENSTRUALNIH PROIZVODA

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### SAŽETAK

**Uvod/Cilj:** Prema podacima Svetske banke, menstrualno siromaštvo pogađa oko 500 miliona žena širom sveta. Neadekvatni sanitarni uslovi i nedostupnost menstrualnih proizvoda, kao i njihovo neadekvatno korišćenje, mogu dovesti do brojnih posledica ozbiljnih poremećaja zdravlja žene. Cilj ovog istraživanja je bio da se ispituju ponašanje i stavovi studentkinja medicine po pitanju menstrualnih proizvoda.

**Metode:** Studija preseka je sprovedena na Medicinskom fakultetu Univerziteta u Beogradu, u periodu 16-29.05.2024. godine. Uzorak je činilo 277 studentkinja medicine. Podaci su prikupljeni upitnikom. U statističkoj analizi podataka korišćen je  $\chi^2$  test.

**Rezultati:** Probleme sa nabavkom menstrualnih proizvoda tokom poslednjih 12 meseci je imalo 5,1% studentkinja. Statistički značajno češće ovaj problem su imale starije nego na mlađe studentkinje, dok statistički značajna razlika nije uočena između studentkinja sa stalnim mestom boravka u gradu i studentkinja sa stalnim mestom boravka na selu, kao ni između studentkinja I-III i IV-V godine studija. U takvim situacijama, 1,4% studentkinja je koristilo zamenu za dati menstrualni proizvod (npr. tkaninu, toaletni papir i dr.), 1,8% je pozajmljivalo menstrualne proizvode od prijatelja, rođaka, itd., 1,1% je koristilo menstrualne proizvode duže vreme nego što to uobičajeno rade i 4,7% je kupovalo jeftinije menstrualne proizvode. Većina studentkinja (97,8%) je iskazala želju da proizvodi neophodni za održavanje higijene tokom menstruacije budu besplatni za sve učenice i studentkinje u Srbiji.

**Zaključak:** Neophodno je uložiti napore na prevazilaženju problema nabavke menstrualnih proizvoda među studentkinjama starijih godina MFUB uvođenjem besplatnih menstrualnih proizvoda. Ovi rezultati pružaju polaznu osnovu za dalja istraživanja u ovoj oblasti sa ciljem sagledavanja faktora koji doprinose nedostupnosti menstrualnih proizvoda.

**Ključne reči:** Menstruacija, menstrualno zdravlje, menstrualni zdravstveni menadžment, menstrualno siromaštvo

### Uvod

Prema definiciji Svetske zdravstvene organizacije menstruacija predstavlja fiziološki proces mesečnog izlučivanja krvi i tkiva sluzokože materice, kada trudnoća nije moguća (1). Menarha predstavlja početak reproduktivnog života devojčica, najčešće se dešava u periodu 10-13 godine života (1). S obzirom da žene u periodu od menarhe do menopauze menstruiraju, jako je važno vršiti promociju poboljšanja menstrualnog zdravlja žena i devojčica, sa ciljem da se omogući dostojanstvo,

rodna ravnopravnost i reproduktivno zdravlje žena (2). Menstrualni zdravstveni menadžment (engl. *Menstrual health management* - MHM) podrazumeva poboljšanje pristupa menstrualnim proizvodima neophodnim za održavanje higijene tokom menstruacije (higijenski ulošci, tamponi, menstrualne čašice) od adekvatnog materijala, zadovoljavajućeg kvaliteta i količine (2). Takođe, podrazumeva i prisustvo adekvatnih sanitarnih uslova (čista voda i sapun) za održavanje lične higijene i mesta koja

## BEHAVIOR AND ATTITUDES OF FEMALE MEDICAL STUDENTS REGARDING MENSTRUAL PRODUCTS

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### SUMMARY

**Introduction/Aim:** According to the data of the World Bank, period poverty affects about 500 million women worldwide. Inadequate sanitary conditions and the unavailability of menstrual products, as well as their inadequate use, can lead to serious disorders of women's health. The aim of this study was to analyze the behavior and attitudes of female medical students regarding menstrual products.

**Methods:** The cross-sectional study was conducted at the Faculty of Medicine of the University of Belgrade, in the period 16-29 May 2024. year. The sample consisted of 277 medical students. Data were collected using a questionnaire. The  $\chi^2$  test was used for the statistical analysis of data.

**Results:** 5.1% of female students had problems with obtaining menstrual products during the last 12 months. Statistically significantly more often this problem was experienced by older than younger female students, while a statistically significant difference was not observed between female students with a permanent place of residence in the city and female students with a permanent place of residence in the countryside, as well as between female students of I-III and IV-V years of study. In such situations, 1.4% of female students used a substitute for a given menstrual product (eg cloth, toilet paper, etc.), 1.8% borrowed menstrual products from friends, relatives, etc., 1.1% used menstrual products for longer than they usually do and 4.7% bought cheaper menstrual products. The majority of female students (97.8%) expressed their wish for all school girls and female students in Serbia to have free products necessary for maintaining hygiene during menstruation.

**Conclusion:** It is necessary to continuously examine the behavior and attitudes of female students regarding menstrual products and the factors associated with them, both at the Faculty of Medicine of the University of Belgrade and at all other faculties, and use the results obtained as a basis for the creation and implementation of activities aimed at preserving and improving the health and quality of life of female students.

**Key words:** Period, Menstruation, Menstrual health, Menstrual Health Management, Period poverty

### Introduction

According to the definition of the World Health Organization, menstruation is a physiological process of monthly discharge of blood and tissue from the mucous membrane of the uterus, when pregnancy is not possible (1). Menarche represents the beginning of girls' reproductive life, and it most often occurs between the ages 10 and 13 (1). Considering the fact that women menstruate from menarche to menopause, it is very important to promote the improvement of menstrual health of

women and girls, which is aimed at enabling dignity, gender equality and women's reproductive health (2). Menstrual health management (MHM) implies providing access to menstrual products necessary for maintaining hygiene during menstruation (sanitary pads, tampons, menstrual cups), made of adequate materials, with satisfactory quality and quantity (2). It also implies the presence of adequate sanitary conditions (clean water and soap) for maintaining personal hygiene and places

omogućavaju korišćenje i menjanje menstrualnih proizvoda, kao i njihovo adekvatno odlaganje (3).

Menstrualno siromaštvo (engl. *Period poverty*) predstavlja nedostupnost finansijskih resursa za poboljšanje upravljanja MHM, što uključuje i nedostatak edukacije o pomenutom procesu (4). Prema podacima Svetske banke, menstrualno siromaštvo pogađa oko 500 miliona žena širom sveta. Neadekvatni sanitarni uslovi i nedostupnost menstrualnih proizvoda, kao i njihovo neadekvatno korišćenje mogu dovesti do ozbiljnih poremećaja zdravlja žene, kao što su infekcije, toksični šok sindrom i druge bolesti reproduktivnih organa (1).

Studije su pokazale da strah i osećaj poniženja koje devojčice osećaju zbog krvarenja i neprijatnog mirisa dovode do apsentizma i imaju negativan uticaj na edukaciju (1). Primećeno je da mnoge devojčice nemaju adekvatne zalihe menstrualnih proizvoda neophodnih za održavanje higijene, čak ni donjeg veša, što ih prisiljava na korišćenje zamena za uobičajene menstrualne proizvode, kao što su krpe, maramice ili toalet papir, tokom menstruacije (3). U cilju borbe protiv menstrualnog siromaštva pokrenute su mnoge globalne inicijative da menstrualni proizvodi budu besplatni na javnim mestima, kao što su škole. Takođe, inicijativa je da se pomenuti proizvodi oslobode poreza u prodavnicama (4). Smatra se da MHM zavisi od socio-ekonomskog statusa, edukacije, pa čak i od verskih ubeđenja i tradicije. Zato je sve veći fokus nevladinih organizacija, kao što je Dečji fond Ujedinjenih nacija (engl. *United Nations Children's Fund* - UNICEF) i drugih međunarodnih organizacija, na upravljanje MHM, sa ciljem da istaknu važnost ovog problema za devojčice školskog uzrasta, što zahteva dalja istraživanja u ovoj oblasti (3).

Cilj ovog istraživanja je bio da se ispituju ponašanje i stavovi studentkinja medicine po pitanju menstrualnih proizvoda.

## Metode

Istraživanje je sprovedeno u vidu studije preseka među studentkinjama Medicinskog fakulteta Univerziteta u Beogradu u periodu 16-29.05.2024. godine. Podaci su od ispitanica prikupljeni anonimnim upitnicima. Popunjavanje upitnika je organizovano na početku ili na kraju vežbi na kojima su prisustvovali u okviru redovne nastave. Svi student izabrane grupe uključeni su u istraživanje. Grupe studenata birane su metodom slučajnog izbora. Popunjavanje upitnika trajalo je 30-35 minuta.

Studijom je obuhvaćeno 426 studenata (muškaraca i žena), a isključeno 13, jer nisu dali podatke o uzrastu. Neophodna veličina uzorka za sprovođenje ovog istraživanja je 333 studenta Medicinskog fakulteta u Beogradu. Izračunata je korišćenjem Epi Info 7 (verzija 7.2.4.0). Podaci koji su korišćeni za određivanje neophodne veličine uzorka su: veličina populacije 2471 student medicine koji je prvi put upisan 2023/2024. godine, očekivana učestalost korišćenja kondoma pri svakom vaginalnom seksualnom odnosu studenata medicine 25,4% (5), verovatnoća greške tip I 5% i veličina efekta 1. Zbog mogućnosti odbijanja ispitanika da učestvuju u istraživanju ili da predaju prazne ili nekompletno popunjene upitnike, neophodnu veličinu uzorka smo povećali za 20% i iznosila je 400. U ovom radu, analizirano je korišćenje menstrualnih proizvoda zbog čega su uključene samo studentkinje, kojih je bilo 277.

Podaci su prikupljeni upitnikom, koji je pripremljen u skladu sa upitnikom Evropskog istraživanja zdravlja - drugi talas (engl. *European Health Interview Survey* - EHIS wave 2), prema definisanim međunarodno prihvaćenim indikatorima. Upitnik se sastojao iz sedam delova. Prvi deo upitnika odnosio se na demografske karakteristike ispitanika (pol, uzrast, godinu studija, prosek u prethodnom periodu studiranja, stalno mesto stanovanja, tj. mesto stanovanja van školske godine, s kim osoba živi, obrazovanje oca i majke, zaposlenost oca i majke), drugi na životne navike (fizička aktivnost, dužina spavanja, vrsta ishrane, učestalost izlaženja u provod, pušenje, konzumiranje alkohola i drugih psihoaktivnih supstanci), treći na emotivne veze (broj emotivnih veza, dužina trajanja emotivne veze, koje karakteristike treba da ima idealni partner, stavovi o partneru sa kojim bi bili u emotivnoj vezi – vera, rasa, etnička pripadnost, iz druge zemlje, zadovoljstvo sobom, itd. ), četvrti na seksualno ponašanje (uzrast pri prvom seksualnom odnosu, upotreba kondoma, broj seksualnih partnera, polno prenosiva bolest, izabrani lekar, edukacija, gde bi želeli da postoji savetovalište za reproduktivno i seksualno zdravlje), peti na korišćenje kontracepcije (metode kontracepcije i učestalost korišćenja), šesti na menstrualne proizvode (da li je postojao problem sa nabavkom menstrualnih proizvoda (higijenski ulošci, tamponi, menstrualne čašice) tokom poslednjih 12 meseci, šta urade u slučaju da nemaju dovoljno novca da kupe menstrualni proizvod neophodan

that allow for the menstrual products to be used and replaced, as well as their adequate disposal (3).

Period poverty means the unavailability of financial resources for the adequate management of menstrual health, which includes the lack of education about the mentioned process (4). According to the data of the World Bank, period poverty affects about 500 million women worldwide. Inadequate sanitary conditions and the unavailability of menstrual products, as well as their inadequate use can lead to serious health disorders in women, such as infections, toxic shock syndrome and other diseases of reproductive organs (1).

Studies have shown that girls' fear and humiliating feeling caused by bleeding and unpleasant odor lead to absenteeism and have a negative impact on education (1). It has been observed that many girls do not have adequate supplies of menstrual products necessary for maintaining hygiene, even underwear, which forces them to use substitutes for menstrual products, such as cloths, tissues or toilet paper, during menstruation (3). In order to struggle against period poverty, many global initiatives have been launched to make menstrual products free in public places, such as schools. Also, the initiative is taken to make the above mentioned products tax-exempt in stores (4). It is believed that MHM depends on socio-economic status, education and even religious beliefs and traditions. Therefore, non-governmental organizations, such as the United Nations children's fund (UNICEF) and other international organizations are increasingly focusing on the MHM management, with the aim of emphasizing the importance of this problem for school-age girls, which requires further research in this field (3).

The aim of this study was to analyze the behavior and attitudes of female medical students regarding menstrual products.

## Methods

The study was conducted as a cross-sectional study and it included female students of the Faculty of Medicine in Belgrade in the period 16th to 29th May, 2024. The data were collected from respondents with the help of questionnaires. The questionnaires were filled out by female students at the beginning or at the end of exercises, which they attended within regular classes. All students

of the selected group are included in the research. Groups of students were chosen by the method of random selection. Filling out the questionnaire lasted 30-35 minutes.

The study included 426 students, while 13 were excluded because they did not fill out the information about their age. The necessary sample size for conducting this study included 333 students of the Faculty of Medicine in Belgrade. It was calculated using Epi Info 7 (version 7.2.4.0). The following data were used to determine the necessary sample size: population size of 2471 medical students who were enrolled for the first time in 2023/2024, the expected frequency of condom use during each vaginal sexual intercourse of medical students 25.4% (5), the probability of making a type I error is 5% and the effect size is 1. We increased the necessary sample size by 20%, and it amounted to 400 due to the possibility that respondents could refuse to take part in the study or submit blank or incomplete surveys. In this study, the use of menstrual products was analyzed, and therefore only female students were included, that is, 277 of them.

The data were collected using the questionnaire, which was prepared in accordance with the European Health Interview Survey – wave 2 (EHIS), based on defined, internationally accepted indicators. The questionnaire consisted of seven parts. The first part of the questionnaire related to the demographic characteristics of respondents (gender, age, place of residence, year of study, average in the previous period of studies, with whom the person lives, education of father and mother, employment of father and mother), the second part related to habits (physical activity, length of sleep, type of diet, frequency of going out, smoking, alcohol consumption and use of other psychoactive substances – PAS), the third related to emotional relationships (number of emotional relationships, duration of emotional relationship, what characteristics should an ideal partner have, attitudes about a partner with whom they would be in an emotional relationship – religion, race, ethnicity, from another country, self-satisfaction, etc.), the fourth related to sexual behavior (age at first sexual intercourse, use of condoms, number of sexual partners, sexually transmitted disease, chosen doctor, education, where they would like to have a counseling center for reproductive and sexual health), the fifth to the

za održavanje higijene tokom menstruacije, da li bi želele da proizvodi neophodni za održavanje higijene tokom menstruacije budu besplatni za sve učenice i studentkinje u Srbiji), a sedmi na seksualno uznemiravanje (koliko često dobijaju seksualne poruke, da li ih one uznemiravaju, da li znaju ko im je slao seksualne poruke, da li ih je neko naterao na seksualni odnos bez njihove saglasnosti itd.). U ovom istraživanju analizirani su samo podaci koji se odnose na demografske karakteristike ispitanika i menstrualne proizvode.

U statističkoj analizi podataka korišćene su metode deskriptivne statistike (srednja vrednost, standardna devijacija, medijana, minimum i maksimum). Za poređenje dve grupe ispitanika korišćen je  $\chi^2$  test. Razlika je označena kao signifikantna ukoliko je  $p < 0,05$ . Program SPSS 23.0 (SPSS Inc., Chicago, IL, USA) je korišćen za statističku obradu podataka.

## Rezultati

Istraživanje je obuhvatilo 277 studentkinja Medicinskog fakulteta Univerziteta u Beogradu (I-V godine studija). Opseg starosti se kretao 19-29 godina, a prosečna starost iznosila je  $21,77 \pm 1,93$  godina. Nešto više od dve trećine studentkinja je bilo uzrasta 19-22 godine, kao i od prve do treće godine studija, a 91,3% je živelo u Beogradu ili je došlo u Beograd iz nekog grada u unutrašnjosti Srbije (tabela 1). Probleme po pitanju nabavke menstrualnih proizvoda (higijenski ulošci, tamponi, menstrualne čašice) tokom poslednjih 12 meseci je imalo 5,1% studentkinja. U slučaju da studentkinje nisu imale dovoljno novca da kupe menstrualni proizvod neophodan za održavanje higijene tokom menstruacije, 1,4% studentkinja je koristilo zamenu za dati menstrualni proizvod (npr. tkaninu, toaletni papir, i dr.), 1,8% je pozajmljivalo menstrualne proizvode od prijatelja, rođakata, idr, 1,1% je koristilo menstrualne proizvode duže vreme nego

**Tabela 1.** Demografske karakteristike studentkinja medicine (N=277) i njihovo ponašanje i stav po pitanju menstrualnih proizvoda

Karakteristike	Broj	%
<b>Uzrast (godine)</b>		
19-22	192	69,3
23-29	85	30,7
Ukupno	277	100,0
<b>Godina studija</b>		
I, II i III	178	64,3
IV i V	99	35,7
Ukupno	277	100,0
<b>Stalno mesto stanovanja van školske godine</b>		
Grad	253	91,3
Selo	24	8,7
Ukupno	277	100,0
<b>Da li ste imali probleme sa nabavkom menstrualnih proizvoda (higijenski ulošci, tamponi, menstrualne čašice) tokom poslednjih 12 meseci?*</b>		
Da	14	5,1
Ne/Ne znam	259	94,9
Ukupno	273	100,0
<b>Da li ste uradili nešto od sledećeg, jer niste imali dovoljno novca da kupite menstrualni proizvod neophodan za održavanje higijene tokom menstruacije?</b>		
Koristim zamenu za dati menstrualni proizvod (npr. tkaninu, toaletni papir, idr.)*	4	1,4
Pozajmljujem menstrualni proizvod od prijatelja, rođaka, itd.*	5	1,8
Koristim menstrualni proizvod duže vreme nego što to uobičajeno radim*	3	1,1
Kupujem jeftiniji menstrualni proizvod*	13	4,7
<b>Da li biste želele da proizvodi neophodni za održavanje higijene tokom menstruacije budu besplatni za sve učenice i studentkinje u Srbiji?</b>		
Da	271	97,8
Ne/ Ne interesuje me	6	2,2
Ukupno	277	100,0

\*Ukupno 277

use of contraception (methods of contraception and frequency of use), the sixth to menstrual products (difficulty obtaining a menstrual product, what do they do if they do not have money to buy menstrual products, whether they think that menstrual products should be free), and the seventh related to sexual harassment (how often they receive sexual messages, whether they are harassing, whether they know who sent them the messages, whether someone forced them to have sexual intercourse without their consent, etc.). In this study, we analyzed only the data related to demographic characteristics of respondents and menstrual products.

In the statistical analysis of data, the following methods of descriptive statistics were used (mean value, standard deviation, median, minimum and maximum). The appropriate  $\chi^2$  test was used for the comparison of two groups of respondents. The difference was marked as significant when  $p < 0.05$ .

The SPSS 23.0 program (SPSS Inc., Chicago, IL, USA) was used for the statistical analysis of data.

## Results

The research included 277 female students of the Faculty of Medicine of the University of Belgrade (I-V years of study). The age range was 19-29 years, and the average age was  $21.77 \pm 1.93$  years. Slightly more than two thirds of female students were 19-29, from the first to the third year of studies, while 91.3% lived in Belgrade or came to Belgrade from some other city in Serbia (Table 1). 5.1% of female students had difficulty obtaining menstrual products (sanitary pads, tampons, menstrual cups) in the last 12 months. When students did not have enough money to buy a menstrual product necessary for maintaining hygiene during menstruation, 1.4% of female students used a substitute for the given menstrual product (e.g. cloth, toilet paper, etc.), 1.8% borrowed menstrual

**Table 1.** Demographic characteristics of female medical students (N=277) and their behavior and attitudes regarding menstrual products

Characteristics	Number	%
<b>Age (years)</b>		
19-22	192	69.3
23-9	85	30.7
Total	277	100.0
<b>Year of study</b>		
I, II and III	178	64.3
IV and V	99	35.7
Total	277	100.0
<b>Permanent place of residence outside the course of the school year</b>		
City	253	91.3
Village	24	8.7
Total	277	100.0
<b>Did you have any difficulties obtaining menstrual products (sanitary pads, tampons, menstrual cups) in the last 12 months?</b>		
Yes	14	5.1
No/I do not know	259	94.9
Total	273	100.0
<b>Did you do any of the following because you did not have enough money to buy a menstrual product necessary for maintaining hygiene during your period? *</b>		
I use substitutes for the given menstrual product (e.g. cloth, toilet paper, etc.)	4	1.4
I borrow menstrual products from friends, relatives, etc.	5	1.8
I use menstrual products longer than I usually do	3	1.1
I buy cheaper menstrual products	13	4.7
<b>Would you like the products necessary for maintaining hygiene during menstruation to be free for all pupils and students in Serbia?</b>		
Yes	271	97.8
No/ Not interested	6	2.2
Total	277	100,0

\*Total is 277

**Tabela 2.** Distribucija studentkinja medicine prema njihovom ponašanju i stavu po pitanju menstrualnih proizvoda u odnosu na uzrast

Ponašanje i stav po pitanju menstrualnih proizvoda	Uzrast (godine)		p*
	19-22 N=192 Broj (%)	23-29 N=85 Broj (%)	
<b>Da li ste imali probleme sa nabavkom menstrualnih proizvoda (higijenski ulošci, tamponi, menstrualne čašice) tokom poslednjih 12 meseci?</b>			
Da	6 (3,2)	8 (9,5)	0,028
Ne/ Ne znam	183 (96,8)	76 (90,5)	
<b>Da li ste uradili nešto od sledećeg, jer niste imali dovoljno novca da kupite menstrualni proizvod neophodan za održavanje higijene tokom menstruacije?</b>			
Koristim zamenu za dati menstrualni proizvod (npr. tkaninu, toaletni papir, i dr.)	2 (1,0)	2 (2,4)	0,766**
Pozajmljujem menstrualni proizvod od prijatelja, rođaka, itd.	4 (2,1)	1 (1,2)	0,973**
Koristim menstrualni proizvod duže vreme nego što to uobičajeno radim	1 (0,5)	2 (2,4)	0,466**
Kupujem jeftiniji menstrualni proizvod	7 (3,6)	6 (7,1)	0,215**
<b>Da li biste želeli da proizvodi neophodni za održavanje higijene tokom menstruacije budu besplatni za sve učenice i studentkinje u Srbiji?</b>			
Da	186 (96,8)	85 (100,0)	0,453**
Ne/ Ne interesuje me	6 (3,2)	0 (0,0)	

\*p vrednost prema  $\chi^2$  testu, \*\* Jejtsova korekcija  $\chi^2$  test

što to rade uobičajeno i 4,7% je kupovalo jeftinije menstrualne proizvode. Većina studentkinja (97,8%) je želela da proizvodi neophodni za održavanje higijene tokom menstruacije budu besplatni za sve učenice i studentkinje u Srbiji.

Probleme sa nabavkom menstrualnih proizvoda (higijenski ulošci, tamponi, menstrualne čašice) tokom poslednjih 12 meseci su značajno češće

imale starije studentkinje, tj. studentkinje uzrasta 23-29 godina, nego mlađe studentkinje, tj. studentkinje uzrasta 19-22 godine (tabela 2). Starije studentkinje su češće, usled nedostatka novca, koristile zamenu za uobičajeni korišćeni menstrualni proizvod (npr. tkanina itd.), duže su ga koristile nego uobičajeno i češće su kupovale jeftini menstrualni proizvod, u odnosu na mlađe. Među-

**Tabela 3.** Distribucija studentkinja MFUB u odnosu na njihovo ponašanje i stav po pitanju menstrualnih proizvoda i mesto stanovanja van školske godine

Ponašanje i stav po pitanju menstrualnih proizvoda	Stalno mesto stanovanja		p*
	Grad Broj (%)	Selo Broj (%)	
<b>Da li ste imali probleme sa nabavkom menstrualnih proizvoda (higijenski ulošci, tamponi, menstrualne čašice) tokom poslednjih 12 meseci</b>			
Da	12 (4,8)	2 (8,3)	0,456
Ne/ Ne znam	237 (95,2)	22 (91,7)	
Ukupno	249 (100,0)	24 (100,0)	
<b>Da li ste uradili nešto od sledećeg, jer niste imali dovoljno novca da kupite menstrualni proizvod neophodan za održavanje higijene tokom menstruacije?***</b>			
Koristim zamenu za dati menstrualni proizvod (npr. tkaninu, toaletni papir, i dr.)	3 (1,2)	1 (4,2)	0,792**
Pozajmljujem menstrualni proizvod od prijatelja, rođaka, itd.	5 (2,0)	0 (0)	0,946**
Koristim menstrualni proizvod duže vreme nego što to uobičajeno radim	3 (1,2)	0 (0)	0,813**
Kupujem jeftiniji menstrualni proizvod	13 (5,1)	0 (0)	0,832**
<b>Da li biste želeli da proizvodi neophodni za održavanje higijene tokom menstruacije budu besplatni za sve učenice i studentkinje u Srbiji?</b>			
Da	247 (93,0)	24 (93,8)	0,785**
Ne/ Ne interesuje me	6 (7,0)	0 (6,3)	
Ukupno	253 (100,0)	24 (100,0)	

\*p vrednost prema  $\chi^2$  testu, \*\* Jejtsova korekcija  $\chi^2$  test, \*\*\* Računato u odnosu na 253 studentkinje iz grada i 24 studentkinje iz sela

**Table 2.** Distribution of female medical students in relation to their behavior and attitudes regarding menstrual products and age

Behavior and attitudes regarding menstrual products	Age (years)		p*
	19-22 N=192 Number (%)	23-29 N=85 Number (%)	
<b>Did you have any difficulties obtaining menstrual products (sanitary pads, tampons, menstrual cups) in the last 12 months?</b>			
Yes	6 (3.2)	8 (9,5)	0.028
No/ I do not know	183 (96.8)	76 (90,5)	
<b>Did you do any of the following because you did not have enough money to buy a menstrual product necessary for maintaining hygiene during your period?</b>			
I use substitutes for the given menstrual product (e.g. cloth, toilet paper, etc.)	2 (1.0)	2 (2.4)	0.766**
I borrow menstrual products from friends, relatives, etc.	4 (2.1)	1 (1.2)	0.973**
I use menstrual products longer than I usually do	1 (0.5)	2 (2.4)	0.466**
I buy cheaper menstrual products	7 (3.6)	6 (7.1)	0.215**
<b>Would you like the products necessary for maintaining hygiene during menstruation to be free for all pupils and students in Serbia?</b>			
Yes	186 (96.8)	85 (100.0)	0.453**
No/ Not interested	6 (3.2)	0 (0.0)	

\*p value according to the chi-square test, \*\* the chi-square statistic with Yates correction

products from friends, relatives, 1.1% used menstrual products longer than they usually did, and 4.7% bought cheaper menstrual products. The majority of female students (97.8%) would like that products necessary for maintaining hygiene during menstruation were free for all school girls and students in Serbia.

Difficulties obtaining menstrual products (sanitary pads, tampons, menstrual cups) in the last 12 months were significantly more common among older female students, that is, female students aged 23-29 years, than among younger female students, i.e. female students aged 19-22 (Table 2). Older female students more often, due to the lack of money, used a substitute for the usual menstrual

**Table 3.** Distribution of female medical students of the Faculty of Medicine, University of Belgrade in relation to their behavior and attitudes regarding menstrual products and year of study

Behavior and attitudes regarding menstrual products	Permanent place of residence		p*
	City Number (%)	City Number (%)	
<b>Did you have any difficulties obtaining menstrual products (sanitary pads, tampons, menstrual cups) in the last 12 months</b>			
Yes	12 (4.8)	2 (8.3)	0.456
No/ I do not know	237 (95.2)	22 (91.7)	
Total	249 (100,0)	24 (100,0)	
<b>Did you do any of the following because you did not have enough money to buy a menstrual product necessary for maintaining hygiene during your period?***</b>			
I use substitutes for the given menstrual product (e.g. cloth, toilet paper, etc.)	3 (1.2)	1 (4.2)	0.792**
I borrow menstrual products from friends, relatives, etc.	5 (2.0)	0 (0)	0.946**
I use menstrual products longer than I usually do	3 (1.2)	0 (0)	0.813**
I buy cheaper menstrual products	13 (5.1)	0 (0)	0.832**
<b>Would you like the products necessary for maintaining hygiene during menstruation to be free for all pupils and students in Serbia?</b>			
Yes	247 (93.0)	24 (93.8)	0.785**
No/ Not interested	6 (7.0)	0 (6.3)	
Total	253 (100,0)	24 (100,0)	

\*p value according to the chi-square test, \*\* the chi-square statistic with Yates correction\*\*\* calculated in relation to 253 students from the city and 24 students from the village



**Tabela 4.** Distribucija studentkinja medicine prema njihovom ponašanju i stavu po pitanju menstrualnih proizvoda u odnosu na godinu studija

Ponašanje i stav po pitanju menstrualnih proizvoda	Godina studija		p*
	I-III Broj (%)	IV i V Broj (%)	
<b>Da li ste imali probleme sa nabavkom menstrualnih proizvoda (higijenski ulošci, tamponi, menstrualne čašice) tokom poslednjih 12 meseci</b>			
Da	7 (4,0)	7 (7,1)	0,259
Ne/ Ne znam	168 (96)	91 (92,9)	
Ukupno	175 (100,0)	98 (100,0)	
<b>Da li ste uradili nešto od sledećeg, jer niste imali dovoljno novca da kupite menstrualni proizvod neophodan za održavanje higijene tokom menstruacije?***</b>			
Koristim zamenu za dati menstrualni proizvod (npr. tkaninu, toaletni papir, dr.)	2 (1,2)	2 (2,0)	0,954**
Pozajmljujem menstrualni proizvod od prijatelja, rođaka, itd.	4 (2,3)	1 (1,0)	0,773**
Koristim menstrualni proizvod duže vreme nego što to uobičajeno radim	1 (0,6)	2 (2,0)	0,615**
Kupujem jeftiniji menstrualni proizvod	6 (3,4)	7 (7,1)	0,286
<b>Da li biste želeli da proizvodi neophodni za održavanje higijene tokom menstruacije budu besplatni za sve učenice i studentkinje u Srbiji?</b>			
Da	172 (96,6)	99 (100,0)	0,417**
Ne/ Ne interesuje me	6 (3,4)	0 (0,0)	
Ukupno	178 (100,0)	99 (100,0)	

\*p vrednost prema  $\chi^2$  testu, \*\* Jejtsova korekcija  $\chi^2$  test, \*\*\*Računato u odnosu na 175 studenkinja I-III godine i 99 studentkinja IV-V

tim, razlike nisu bile statistički značajne. Mlađe, studentkinje su, u poređenju sa starijim, češće pozajmljivale menstrualna sredstva, ali statistički značajna razlika nije uočena. Većina mlađih studentkinja i sve starije studentkinje su smatrale da menstrualna sredstva za učenice i studentkinje u Srbiji treba da budu besplatna.

U odnosu na stalno mesto stanovanja, tj. mesto stanovanja van školske godine, nije postojala značajna razlika između studentkinja koje žive u gradu i na selu u odnosu na postojanje problema sa nabavkom menstrualnih proizvoda (higijenski ulošci, tamponi, menstrualne čašice) tokom poslednjih 12 meseci (tabela 3). Studentkinje sa stalnim mestom stanovanja u gradu i studentkinje sa stalnim mestom stanovanja na selu nisu se značajno razlikovale u odnosu na svoje ponašanje po pitanju nabavke menstrualnih sredstava usled nedostatka novca da kupe menstrualni proizvod neophodan za održavanje higijene tokom menstruacije kao i odnosu na stav da je neophodno da menstrualna sredstva za učenice i studentkinje u Srbiji treba da budu besplatna.

Kada se radi o problemima sa nabavkom menstrualnih proizvoda (higijenski ulošci, tamponi, menstrualne čašice) tokom poslednjih 12 meseci u odnosu na godinu studija, utvrđeno je da su studentkinje IV i V godine imale više problema sa

nabavkom menstrualnih proizvoda tokom poslednjih 12 meseci nego studenkinje I-III godine studija, ali razlika nije bila statistički značajna (tabela 4). Između prethodno navedenih ispitivanih grupa nije bilo statistički značajne razlike u odnosu na ponašanje po pitanju dolaženja do menstrualnih proizvoda u slučajevima nedostatka novca za njihovu kupovinu, kao i u odnosu na stav da menstrualni proizvodi treba da budu besplatni za sve učenice i studentkinje u Srbiji.

## Diskusija

U našoj studiji problem sa nabavkom menstrualnih proizvoda, kao što su higijenski ulošci, tamponi i menstrualne čašice, tokom poslednjih 12 meseci, je imalo 5,1% studentkinja Medicinskog fakulteta Univerziteta u Beogradu (uzrasta 19-29 godina) (skoro svaka dvadeseta studentkinja), što je za oko tri puta manje nego kod studentkinja Univerziteta Illinois u Čikagu (17,1%, svaka šesta studentkinja) (4). Od 106 studentkinja Univerziteta Illinois u Čikagu, uzrasta 18-42 godine (prosek 24 godine), njih 55,8% je navelo da je odsustvovalo sa nastave zbog razloga vezanih za menstruaciju, a 47,5% je izbegavalo da menja menstrualne proizvode dok su boravile na kampusu (4). Izveštaj Ujedinjenih nacija iz 2014. godine je pokazao da 1 od 10 adolescentkinja koje imaju menstruaciju

**Table 3.** Distribution of female medical students of the Faculty of Medicine, University of Belgrade in relation to their behavior and attitudes regarding menstrual products and year of study

Behavior and attitudes regarding menstrual products	Permanent place of residence		p*
	I-III Number (%)	IV and V Number (%)	
<b>Did you have any difficulties obtaining menstrual products (sanitary pads, tampons, menstrual cups) in the last 12 months</b>			
Yes	7 (4.0)	7 (7.1)	0.259
No/ I do not know	168 (96)	91 (92.9)	
Total	175 (100,0)	98 (100,0)	
<b>Did you do any of the following because you did not have enough money to buy a menstrual product necessary for maintaining hygiene during your period?***</b>			
I use substitutes for the given menstrual product (e.g. cloth, toilet paper, etc.)	2 (1.2)	2 (2.0)	0.954**
I borrow menstrual products from friends, relatives, etc.	4 (2.3)	1 (1.0)	0.773**
I use menstrual products longer than I usually do	1 (0.6)	2 (2.0)	0.615**
I buy cheaper menstrual products	6 (3.4)	7 (7.1)	0.286
<b>Would you like the products necessary for maintaining hygiene during menstruation to be free for all pupils and students in Serbia?</b>			
Yes	172 (96.6)	99 (100.0)	0.417**
No/ Not interested	6 (3.4)	0 (0.0)	
Total	178 (100.0)	99 (100,0)	

\*p value according to the chi-square test, \*\* the chi-square statistic with Yates correction, \*\*\*calculated in relation to 175 students of I-III years and 99 students of IV-V year

product (e.g. cloth), they used it longer than usual, and they more often bought cheaper menstrual products in comparison to younger female students. However, the differences were not significant. Younger female students compared to older ones borrowed menstrual products more often, but no significant difference was observed. The majority of younger female students and all older students believed that menstrual products should be free for school girls and female students in Serbia.

In regard to the permanent place of residence, that is, the place of residence outside the course of the school year, there was no significant difference between female students who lived in the city and in the village in relation to the existence of problems with obtaining menstrual products (sanitary pads, tampons, menstrual cups) in the last 3 months (Table 3). There was no significant difference between female students with a permanent place of residence in the city and those with a permanent place of residence in the village regarding their behavior when accessing menstrual products due to a lack of money to purchase the necessary items for maintaining hygiene during menstruation. Additionally, there was no significant difference in their attitude that menstrual products should be made free for school girls and female students in Serbia.

Considering problems with menstrual products in relation to the year of study, it was shown that the 4<sup>th</sup> and 5<sup>th</sup> year female students had more problems with obtaining menstrual products (than the 1<sup>st</sup>- 3<sup>rd</sup> year female students in the last 12 months, but the difference was not statistically significant (Table 4). There was no statistically significant difference between the previously mentioned groups in terms of behavior regarding access to menstrual products in cases of a lack of money for their purchase, nor in terms of the opinion that menstrual products should be free for all schoolgirls and female students in Serbia.

## Discussion

In our study, 5.1% of female students of the Faculty of Medicine, University of Belgrade (aged 19-29 years) had difficulty obtaining menstrual products such as sanitary pads, tampons and menstrual cups (almost one in twenty female students), which is about three times less than among female students of the University of Illinois in Chicago (17.1%, every sixth female student) (4). Of 106 female students at the University of Illinois at Chicago, aged 18-42 years (average 24 years), 55.8% of them stated that they missed classes for reasons related to menstruation, while 47.5% avoided changing menstrual products during

izostane iz škole zbog nedostupnosti menstrualnih proizvoda (6). Efekti lošeg menstrualnog zdravlja na obrazovanje pored apsentizma, uključuju i povećani nivo celodnevnog stresa, smanjenje koncentracije u školi i pogoršanje mentalnog zdravlja (7). Još jedna studija sprovedena na kampusu univerziteta u Americi (8) pokazala je da je od 471 studentkinje, uzrasta 18–24 godine, 14% njih iskusi- lo menstrualno siromaštvo najmanje jednom u proteklih godinu dana. U takvim situacijama, stu- dentkinje su najčešće pozajmljivale menstrualne proizvode (72,8%), koristile druge materijale kao zamenu za menstrualne proizvode (52,6%), duže koristile menstrualni proizvod (48,3%), a neke stu- dentkinje su bile bez bilo kakvih proizvoda tokom menstruacije (26,3%).

Naša studija pokazuje da su studentkinje koje nisu imale dovoljno novca da kupe menstrualni proizvod neophodan za održavanje higijene tokom menstruacije rešavale ovaj problem korišćenjem drugih materijala (npr. tkanine, toaletnog papira i slično) (1,4%), pozajmljivanjem menstrualnog proizvoda (1,8%), korišćenjem menstrualnih proizvoda duže vreme nego što to rade uobiča- jeno (1,1%) i korišćenjem jeftinijih menstrualnih proizvoda (1,4%). U drugim studijama takođe se navodi da usled siromaštva, posebno žene u zem- ljama sa niskim i srednjim prihodima, imaju po- teškoća sa nabavkom menstrualnih proizvoda, te su prinuđene da menstrualne proizvode koriste duže od preporučenog perioda i da ih menjaju za menstrualne proizvode kao što su tkanine, papir itd. (6,9). U studiji sprovedenoj među 3418 žena (uzrasta 13–29 godina) u ruralnoj zapadnoj Keniji (9) uočeno je da 25% žena koristi tradicionalne materijale, kao što su tkanina, papir ili maramice, a 75% komercijalne proizvode. Tradicionalne materijale koristi dve trećine žena bez obrazovanja, a čak 10% devojčica mlađih od 15 godina koristi improvi- zovane predmete (9). Korišćenje komercijalnih uložaka je češće među ženama (kako udatim tako i neudatim) koje pohađaju škole, a čak 1,3% žena se bavi seksom za novac da bi kupile uložak. Spro- vedena je studija u Sjedinjenim Američkim Država- ma (10) u vreme COVID-19 pandemije, sa ciljem da se prikaže pogoršanje menstrualnog siromaštva u pomenutom periodu, kroz nedostupnost men- strualnih proizvoda. Rezultati studije su pokazali da među 1037 ispitanica (uzrasta 18–49 godina) 29% njih je imalo problema sa nabavkom menstrualnih proizvoda u toku prethodnih 12 meseci, a 18% ispi-

tanica je odsustvovalo sa posla zbog nedostatka menstrualnih proizvoda. Dokaz da se menstrualno siromaštvo ne javlja samo u zemljama sa niskim i srednjim prihodima, jeste studija sprovedena u Velikoj Britaniji (11). Rezultati pomenute studije pokazuju da 10% devojaka nije bilo u mogućnosti da kupi menstrualne proizvode, a 19% je prešlo na manje odgovarajuće alternativne proizvode zbog visokih troškova nabavke primarnih (11). Na pitan- je istraživača Univerziteta u Maleziji (6) vezano za upravljanje novcem u nabavci osnovnih potreba, ženama se menstrualni proizvodi nisu našli na listi osnovnih potrepština, što je za posledicu imalo korišćenje alternativnih menstrualnih proizvoda i njihovo produženo korišćenje.

U našoj studiji 1,4% studentkinja je imalo potre- bu da koristi alternativne proizvode za održavanje higijene tokom menstruacije, kao što su tkanine i toalet papir, dok je u južnoj Nigeriji (12) 15% ispi- tanica koristilo odeću, tampone ili druge materijale kao apsorberent u toku menstruacije. Brojne studije su, takođe, pokazale da adolescentkinje, u ne- dostatku odgovarajućih menstrualnih proizvoda, kao zamenu koriste nehigijenska sredstva (staru tkaninu, maramice, lišće i komade vune ili pamuka) (6,13,14), što može da dovede do iritacije, oseća- ja diskomforta i infekcije reproduktivnog trakta (13,14). Iako su menstrualni proizvodi za višekrat- nu upotrebu (npr. menstrualna čašica) finansijs- ki dugoročno isplativiji, većina žena radije bira da koristi jednokratne higijenske uloške (4), što stvara zabrinutost oko neadekvatnog sanitarnog odlag- anja pomenutih proizvoda i problem sa mogućim zagađenjem životne sredine (7). Istraživači su pre- poznali i druge prepreke u korišćenju višekratnih menstrualnih proizvoda, kao što su nedostatak obrazovanja o načinu njihovog korišćenja, nes- vesnost o njihovom postojanju i stigma vezana za pomenute proizvode (15).

Pored pristupa adekvatnim menstrualnim proizvodima, važne komponente menstrualnog zdravlja su i dobri sanitarni uslovi (sapun i čista voda) i bezbedna mesta za promenu pomenutih menstrualnih proizvoda i odlaganje upotrebljenih. U literaturi je pokazano da u zemljama sa niskim i srednjim prihodima, adolescentkinje i mlade žene nemaju pristup jednom i/ili više pomenutih resursa za održavanje menstrualnog zdravlja i higijene (16). Zbog nedostatka adekvatnih privatnih prostorija i sanitarnih uslova (čista voda i sapun), devojčice su izbegavale promenu upijajućih sredstava dok

their stay at the campus (4). The 2014 United Nations report showed that 1 in 10 adolescent girls who had menstruation did not go to school due to the unavailability of menstrual products (6). In addition to absenteeism, the impact of poor menstrual health on education includes increased levels of stress throughout the day, decreased concentration in school and worsening of mental health (7). Another study conducted on a university campus in America, showed that of 471 female students aged 18-24 years, 14% of them experienced period poverty at least once in the last year (8). In such situations, students most often borrowed menstrual products (72.8%), used other materials as a substitute for menstrual products (52.6%), used the product longer than usually (48.3%), and some of them were without any products during menstruation (26.3%).

In our study, female students who did not have enough money to buy a menstrual product necessary for maintaining hygiene during menstruation solved this problem by using other materials (e.g. cloth, toilet paper, etc.) (1.4%), by borrowing a menstrual product (1.8%), by using menstrual products longer than usually (1.1%) and by using cheaper menstrual products (1.4%). It was also observed in other studies that due to poverty, especially women in low- and middle-income countries had difficulties with the access to menstrual products, and therefore, they had to use menstrual products longer than it was recommended and to use other products such as cloths, paper, etc. (6,9). In a study, which included 3418 women (aged 13-29 years) in rural western Kenya (9), it was observed that 25% of women used traditional materials such as cloths, paper or handkerchiefs, while 75% of them used commercial products. Traditional materials were used by two thirds of women without education, and even 10% of girls younger than 15 used improvised things (9). The use of commercial pads was more common in women (both single and married) who attended school, while 1.3% of women engaged in sex for money to buy sanitary pads. A study was conducted in the United States of America (10) during the COVID-19 pandemic in order to show worsening of period poverty in the mentioned period, in relation to the unavailability of menstrual products. The results of the study showed that among 1037 respondents (aged 18-49 years), 29% of them had difficulty accessing menstrual products in the past

12 months, and 18% of respondents were absent from work due to the lack of menstrual products. A study, which was conducted in Great Britain (11), proved that period poverty did not only occur in low- and middle-income countries. The results of the mentioned study showed that 10% of girls could not buy menstrual products, while 19% of them switched to less appropriate alternative products due to the high cost of primary products (11). When women were asked by researchers from the University of Malaysia (6) about money management related to the procurement of basic needs, they did not put menstrual products on the list of basic needs, which results in the use of alternative menstrual products and their prolonged use.

In our study, 1.4% of female students needed to use alternative products for maintaining hygiene during menstruation, such as cloths and toilet paper, while in Southern Nigeria (12), 15% of female respondents used clothes, tampons or other materials, as absorbents during menstruation. Numerous studies have also shown that adolescent girls, in the absence of appropriate menstrual products, use unhygienic products (old cloth, handkerchiefs, leaves, and pieces of wool and cotton) as substitutes (6,13,14), which could lead to irritation, discomfort and infections of the reproductive tract (13,14). Although reusable menstrual products (e.g. menstrual cup) are financially more profitable in the long run, the majority of women prefer single-use sanitary pads (4), which raises concerns about inadequate sanitary disposal of mentioned products and possible environmental pollution (7). Researchers have recognized other barriers related to the use of reusable menstrual products, such as the lack of education on how to use them, unawareness of their existence, and stigma related to the mentioned products (15).

In addition to access to adequate menstrual products, important components of menstrual health are good sanitary conditions (soap and clean water) and safe places to change the mentioned products and dispose of them. It has been shown in the literature that in low- and middle-income countries, adolescent girls and young women do not have access to one and/or several mentioned products for maintaining menstrual health and hygiene (16). Due to the lack of adequate private rooms and sanitary conditions (clean water and

su boravile u školama (16). Korišćenje menstrualnih proizvoda duže nego uobičajeno, povećava rizik od nastanka infekcija i ozbiljnih oboljenja genitalnog trakta žena (6). Pored infekcija kao što su bakterijska vaginoza i infekcija urinarnog trakta i prevremenog porođaja, u literaturi je prikazan i fenomen psihosocijalnog stresa povezanog sa lošim sanitarnim uslovima (engl. *Sanitation-related psychosocial stress*) (17). U našoj studiji 1,1% ispitanica je koristilo menstrualni proizvod duže nego uobičajeno, što zahteva edukaciju mladih i obezbeđivanje sredstava za menstrualne proizvode. Jasno je da nakon duge primene menstrualnih proizvoda može da dođe do brojnih komplikacija (npr. toksični šok sindrom). Istraživači navode da duže korišćenje menstrualnih proizvoda, može biti posledica postojanja neadekvatnih sanitarnih uslova i neadekvatnih mesta za menjanje pomenutih proizvoda (7,13,14). Takva mesta mogu da budu slabo osvetljena, izolovana i ne mogu se zaključati (7), što može dovesti i do povećanja rizika od seksualnog nasilja (13,14). Prirodne katastrofe, kao što je zemljotres, koji je 2021. godine pogodio Haiti, mogu pogoršati već loše sanitarne uslove i dodatno otežati održavanje menstrualnog zdravlja ženama (7). U pomenutom periodu prijavljeno je da mnoge porodice nemaju pristup privatnim, pokrivenim toaletima i da su se mnoge žene žalile na neadekvatne sanitarne uslove i pojavu vaginalnih infekcija (7). Takođe, jedna petina devojčica sa Haitija kao glavni razlog odsustvovanja iz škole navela je nedostatak menstrualnih proizvoda, a njih 97% je smatralo da je program vezan za MHM neophodno uvesti u zemlju (7). Međutim, problemima je doprinelo i raseljavanje stanovništva po kampovima sa ograničenim pristupom sanitarnim prostorijama ili bez pomenutih prostorija, kao i postojanje neadekvatnog sistema za upravljanje i odlaganje otpada (18).

Ciljevi održivog razvoja Ujedinjenih nacija za 2023. godinu ističu poboljšanje pristupa resursima, kao što su čista voda, dobra sanitacija i odgovarajući proizvodi za održavanje higijene, radi poboljšanja menstrualnog zdravlja žena (19). Sveobuhvatna definicija menstrualnog zdravlja je predstavljena kao „stanje potpunog fizičkog, mentalnog i socijalnog blagostanja, a ne samo odsustvo bolesti ili slabosti, u vezi sa menstrualnim ciklusom” (20). Loše upravljanje menstrualnim zdravljem i neadekvatni uslovi za održavanje higijene, prvenstveno utiču na fizičko zdravlje devojčica u zemljama u razvo-

ju, a zatim i na njihovo dostojanstvo, uklapanje u društvenu zajednicu i edukaciju (12). Jedna trećina adolescentkinja uključenih u studiju u Indiji smatra menstruaciju prljavom i shvata je kao problem (21). *Abraham* i saradnici (22) su, takođe, pokazali da kod 80% devojaka u Australiji menstruacija izaziva osećaj srama i nelagode.

Iako se trudimo da živimo u svetu oslobođenom od tabua, MHM i sama menstruacija su teme koje često izazivaju negativne emocije u društvu i stoga su nepravedno zapostavljene u određenim delovima sveta i kulturama. Zato se pitanja, odgovori i akcije vezani za ovu osetljivu temu moraju pažljivo kulturološki prilagoditi. Zbog prethodnih podataka smatrali smo važnim da ispitamo i analiziramo ponašanje i stavove studentkinja Medicinskog fakulteta u Beogradu po pitanju menstrualnih proizvoda, kao na koje rešavaju probleme vezane za nabavku menstrualnih proizvoda u slučaju da nemaju finansijskih sredstava. Iako je procenat studentkinja koje su imale problem sa nabavkom menstrualnih proizvoda u našoj studiji mali (5,1%), jasno je da je neophodno poboljšati MHM u školama i fakultetima u Srbiji i preduzeti mere protiv nastajanja menstrualnog siromaštva. Većina studentkinja (97,8%) naše studije, iskazala je želju da proizvodi neophodni za održavanje higijene tokom menstruacije budu besplatni za sve učenice i studentkinje u Srbiji. Odličan primer borbe protiv menstrualnog siromaštva predstavljaju zakoni Velike Britanije, koja je uklonila porez na tampone, i Škotske, koja je usvojila zakon u kome menstrualni proizvodi moraju biti obezbeđeni svakome kome budu potrebni (23). Takođe, države kao što su Kenija, Kanada, Indija, Kolumbija, Jamajka, Nigerija, Uganda, Trinidad i Tobago su zemlje koje se zalažu za smanjivanje poreza na sredstva za održavanje higijene tokom menstruacije (24). Nevladina organizacija „*MyCorps*” u Maleziji je 2019. godine organizovala inicijativu kojom se obezbeđuju sanitarni ulošci svim studentkinjama univerziteta nižeg socio-ekonomskog statusa. Iste godine, u svim državnim školama u Viktoriji (Australija) su obezbeđeni besplatni higijenski ulošci (6). U nadi da će i druge zemlje smanjiti ili ukinuti porez na menstrualne proizvode sa ciljem povećanja njihove dostupnosti, a samim tim doprineti poboljšanju kvaliteta života žena, Američka medicinska asocijacija je intervenisala da Poreska uprava imenuje menstrualne proizvode kao „nužnu zdravstvenu zaštitu” i ukine porez na njih (6). U Libanu je formi-

soap), girls avoided changing absorbents while they stayed in schools (16). The use of menstrual products longer than usual increases the risk of infections and serious diseases of the female genital tract (6). In addition to infections such as bacterial vaginosis, urinary tract infections and premature birth, the phenomenon of sanitation-related psychosocial stress has also been shown in the literature (17). In our study, 1.1% of respondents used menstrual products longer than usual, which requires education of young people and provision of resources for menstrual products. It is clear that after long-term use of menstrual products, numerous complications can occur (e.g. toxic shock syndrome). Some researchers state that the prolonged use of menstrual products may be a consequence of inadequate sanitary conditions and inadequate places where these products are changed (7,13,14). Such places can be poorly lit, isolated and they cannot be locked (7), which may lead to the increase in the risk of sexual violence (13,14). Natural disasters, such as the earthquake that struck Haiti in 2021, can worsen already poor sanitary conditions and make it even more difficult for women to maintain menstrual health (7). In the mentioned period, it was reported that many families did not have access to private, covered toilets and that many women complained about inadequate sanitary conditions and the occurrence of vaginal infections (7). Also, 1/5 of girls from Haiti stated that the lack of menstrual products was the main reason for being absent from school, and 97% of them believed that the program related to the MHM should necessarily be introduced in the country (7). However, problems occurred when the population was evacuated to camps with a limited access to sanitary facilities or camps without such facilities, as well as due to inadequate waste management and disposal systems (18).

The United Nations Sustainable Development Goals for 2023 emphasized the improvement of access to resources, including clean water, good sanitation and appropriate hygiene products aimed at improving the women's menstrual health (19). A comprehensive definition of menstrual health is "a state of complete physical, mental, social well-being, and not only the absence of disease or weakness related to the menstrual cycle" (20). Poor management of menstrual health and inadequate conditions for maintaining

hygiene primarily affect the physical health of girls in developing countries, and then also their dignity, integration into the social community and education (12). According to the literature, one third of adolescent girls included in a study in India considered menstruation dirty and perceived it as problem (21). Abraham et al. (22) also showed that in 80% of girls in Australia, menstruation caused feelings of shame and discomfort (22).

Although we try to live in a taboo-free world, MHM and menstruation itself are topics that often evoke negative emotions in society and are, therefore, unfairly neglected in certain parts of the world and cultures. Therefore, questions, answers and actions related to this sensitive topic must be carefully culturally adjusted. Due to the mentioned data, we considered it important to examine and analyze the behavior and attitudes of female medical students in Belgrade regarding menstrual products, as well as the ways in which they solve problems related to obtaining menstrual products when they lacked financial resources. Although the percentage of respondents who had difficulty obtaining menstrual products was low in our study (5.1%), it is clear that it is necessary to improve MHM in schools and faculties in Serbia and to take measures to prevent period poverty. The majority of female students (97.8%) in our study pointed to the necessity that products for maintaining hygiene during menstruation should be free for all schoolgirls and female students in Serbia. An excellent example of the struggle against period poverty are the laws of Great Britain, which removed the tax on tampons and Scotland, which adopted a law, in which menstrual products must be provided to anyone who needs them (23). Also, countries such as Kenya, Canada, India, Columbia, Jamaica, Nigeria, Uganda, Trinidad and Tobago are countries that speak in favor of reducing taxes on menstrual hygiene products (24). In 2019, the non-governmental organization "My Corps" in Malaysia organized an initiative to provide sanitary pads to all female students of lower socio-economic status. In Victoria, Australia, in the same year, all public schools were provided with free sanitary pads (6). Hoping that other countries would reduce or eliminate the tax on menstrual products in order to increase the availability of menstrual products, and therefore, improve the quality of life of women, the American Medical Association intervened to make Tax Administration designate

ran nacionalni fond, sa ciljem da svakog meseca ženama obezbedi besplatan pristup sredstvima za održavanje menstrualnog zdravlja (25).

U našoj studiji su starije studentkinje tj. studentkinje sa 23 i više godina, usled nedostatka novca, imale značajno više problema sa nabavkom menstrualnih proizvoda (higijenski ulošci, tamponi, menstrualne čašice) tokom proteklih 12 meseci, nego mlađe studentkinje. Možemo pretpostaviti da je pomenuti problem posledica preumeravanja finansijskih resursa na druge potrebe i aktivnosti kao što su noćni izlasci, kafici, putovanja i školarina. Sve starije studentkinje, u našem istraživanju su iskazale želju da menstrualni proizvodi budu besplatni za sve učenice i studentkinje u Srbiji.

Naša studija ukazuje da nije postojala značajna razlika u postojanju problema sa nabavkom menstrualnih proizvoda tokom poslednjih 12 meseci između studentkinja iz gradskih i seoskih sredina. To govori o dobroj dostupnosti menstrualnih proizvoda u svim delovima zemlje, kao i dobroj finansijskoj situaciji onih porodica iz ruralnih područja koje mogu da školuju svoju decu u glavnom gradu Srbije. Pomenuta razlika nije uočena ni u studiji Kukreja i saradnika (26), koji su poredili korišćenje higijenskih uložaka između ispitanica ruralnih i urbanih područja u Indiji. Međutim, u studiji sprovedenoj u ruralnim delovima Haitija (7), dostupnost menstrualnih proizvoda je bila bolja u urbanim nego ruralnim sredinama, kao i za osobe sa višem socio-ekonomskim statusom. Takođe, u studiji El-Gilany i saradnika (16), upotreba menstrualnih uložaka je bila značajno veća kod mlađih devojčica iz urbanih krajeva Egipta, koje pripadaju srednjem i višem društvenom sloju nego kod mlađih devojčica iz ruralnih područja Egipta, koje pripadaju nižem društvenom sloju. Zaključeno je da su glavni prediktori korišćenja higijenskih uložaka pristup masovnim medijima, pripadanje višoj društvenoj klasi i život u gradu. U našoj studiji, studentkinje ruralnih i urbanih naselja nisu se značajno razlikovale u odnosu na to šta su uradile u situacijama kada nisu imale dovoljno novca da kupe menstrualni proizvod neophodan za održavanje higijene tokom menstruacije, kao i u odnosu na želju da menstrualni proizvodi budu besplatni za sve učenice i studentkinje u Srbiji. Rezultat naše studije ukazuje da, takođe, nije postojala značajna razlika ni po pitanju postojanja problema sa nabavkom menstrualnih proizvoda (higijenski ulošci,

tamponi, menstrualne čašice) u poslednjih 12 meseci u odnosu na godine studija koje pohađaju studentkinje.. Dobijeni podaci su slični rezultatima koji se odnose na njihov uzrast, jer studentkinje IV i V godine studija u stvari predstavljaju studentkinje starijeg uzrasta (23 i više godina).

Glavni nedostaci ove studije preseka odnose se na neuključivanje pitanja koja se odnose na menstruaciju, higijenske uslove prostorija na fakultetu gde je moguće zameniti menstrualna sredstva, blizinu objekata od fakulteta gde se menstrualna sredstva mogu nabaviti, kao i o učestalosti izostajanja sa nastave tokom menstruacije i razlozima izostajanja. S druge strane, ova studija preseka predstavlja osnov za druga istraživanja u ovoj oblasti u cilju unapređenja kvaliteta života mladih.

## Zaključak

Sve studentkinje medicine smatraju da menstrualna sredstva treba da budu besplatna, a 5,1% njih je tokom poslednjih 12 meseci imalo problem sa nabavkom menstrualnog proizvoda. Neophodno je kontinuirano ispitivati ponašanje i stavove studentkinja po pitanju menstrualnih proizvoda i faktore koji su sa njima povezani, kako na Medicinskom fakultetu Univerziteta u Beogradu, tako i na svim ostalim fakultetima, te dobijene rezultate koristiti kao osnovu za kreiranje i implementaciju aktivnosti u cilju unapređenja zdravlja i kvaliteta života studentkinja.

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## Konflikt interesa

Autori su izjavili da nema konflikta interesa.

## Reference

1. Raj A. A descriptive study to assess the knowledge, attitude and practice on menstruation and menstrual hygiene among adolescent school girls in selected rural of new delhi. In: *Futuristic Trends in Pharmacy & Nursing*. 2024. p. 23-30.
2. Rossouw L, Ross H. Understanding period poverty: socio-economic inequalities in menstrual hygiene management in eight low- and middle-income countries. *Int J Environ Res Public Health*. 2021;18(5):2571. doi: 10.3390/ijerph18052571.

menstrual products as “necessary health care” and eliminate the tax on menstrual products (6). In Lebanon, a national fund was created with the aim of providing women with free access to means for maintaining menstrual health every month (25).

In our study, older female students, that is, students aged 23 and older, had difficulty obtaining menstrual products (sanitary pads, tampons, menstrual cups) significantly more often due to the lack of money in the past 12 months in comparison to younger students. It can be assumed that the mentioned problem is the consequence of redirecting financial resources to other needs and activities, such as night outs, cafes, travels and school fees. All older female students believed that menstrual products should be free and accessible to all students in Serbia.

Also, in our study, no significant difference was observed between female students from urban and rural areas regarding difficulties they had obtaining menstrual products. This speaks of the good availability of menstrual products in all parts of the country, as well as the good financial situation of those families from rural areas that can educate their children in the capital city of Serbia. The above mentioned difference was not observed in the study by Kukreja et al. (26) who compared the use of sanitary pads between respondents from rural and urban areas in India. However, in a study, which was conducted in rural parts of Haiti, the availability of menstrual products was better in urban than in rural areas, as well as among persons of higher socio-economic status (7). Also, in a study by El-Gilany et al. (16), the use of menstrual pads was significantly higher among younger girls from urban areas of Egypt, who belong to middle and upper social classes. It was concluded that the main predictors of using sanitary pads are access to mass media, higher social class and living in the city. In our study, there was no significant difference between female students from urban and rural areas regarding their behavior towards obtaining alternative menstrual products due to the lack of money and attitudes about free menstrual products. The result of our study indicates that there was also no significant difference in the issue of having problems with the procurement of menstrual products (sanitary pads, tampons, menstrual cups) in the last 12 months compared to the years of study attended by female students. The obtained data are similar

to the results relating to their age, because female students in the 4<sup>th</sup> and 5<sup>th</sup> year of study are older students (aged 23 and more).

The main limitations of this study refer to the non-inclusion of questions relating to menstruation, hygienic conditions of premises at the faculty, where one can replace menstrual products, the proximity of facilities from the faculty where menstrual products can be obtained, as well as the frequency of absence from classes during menstruation and the reasons for absence. On the other hand, this cross-sectional study is the basis for further research in this field aimed at improving the quality of life of young people.

## Conclusion

All female medical students believe that menstrual products should be free, while 5.1% of them had difficulty obtaining menstrual products in the last 12 months. It is necessary to continuously examine the behavior and attitudes of female students regarding menstrual products and the factors associated with them, both at the Faculty of Medicine of the University of Belgrade and at all other faculties, and use the results obtained as a basis for creating and implementing activities aimed at improving health. and the quality of life of female students.

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## Competing interests

The author declared no competing interests.

## References

1. Raj A. A descriptive study to assess the knowledge, attitude and practice on menstruation and menstrual hygiene among adolescent school girls in selected rural of new delhi. In: *Futuristic Trends in Pharmacy & Nursing*. 2024. p. 23-30.
2. Rossouw L, Ross H. Understanding period poverty: socio-economic inequalities in menstrual hygiene management in eight low- and middle-income countries. *Int J Environ Res Public Health*. 2021;18(5):2571. doi: 10.3390/ijerph18052571.
3. Sommer M, Sahin M. Overcoming the taboo: advancing the global agenda for menstrual hygiene management



3. Sommer M, Sahin M. Overcoming the taboo: advancing the global agenda for menstrual hygiene management for schoolgirls. *Am J Public Health*. 2013;103(9):1556-9. doi: 10.2105/AJPH.2013.301374.
4. Suleman A, Krishna S, Krishnakumar D, Nemoto K, Nguyễn MLT, Mehta SD. A pilot survey of students' menstrual attitudes, experiences, and needs on an urban university campus. *Womens health (Lond)*. 2024;20:17455057241254713. doi: 10.1177/17455057241254713.
5. Stankovic M, Miljkovic S, Krasic D, Stankovic S, Milojkovic O, Mitkovic M. Sexual activities of adolescents from Serbian language speaking area. *European Psychiatry*. 2007;22(S1):S332-S332. doi:10.1016/j.eurpsy.2007.01.1107.
6. Jaafar H, Ismail SY, Azzeri A. Period poverty: a neglected public health issue. *Korean J Fam Med*. 2023;44(4):183-8. doi: 10.4082/kjfm.22.0206.
7. Rupe ER, Rodean J, Hurley EA, Miller MK, Boncoeur MD, Masonbrink AR. Menstrual health among adolescents and young adults in rural Haiti. *Reprod Health*. 2022;19(1):227. doi: 10.1186/s12978-022-01533-4.
8. Cardoso LF, Scolese AM, Hamidaddin A, Gupta J. Period poverty and mental health implications among college-aged women in the United States. *BMC Womens Health*. 2021;21(1):14. doi: 10.1186/s12905-020-01149-5.
9. Phillips-Howard PA, Otieno G, Burmen B, Otieno F, Odongo F, Odour C, et al. Menstrual needs and associations with sexual and reproductive risks in rural Kenyan females: a cross-sectional behavioral survey linked with HIV prevalence. *J Womens Health (Larchmt)*. 2015;24(10):801-11. doi: 10.1089/jwh.2014.5031.
10. Hunter E, Palovick K, Teni MT, Sebert Kuhlmann A. COVID-19 made it harder to access period products: the effects of a pandemic on period poverty. *Front Reprod Health*. 2022;4:1003040. doi: 10.3389/frph.2022.1003040.
11. Plan International UK. Menstrual health day: global period poverty and stigma getting worse under lockdown: girls are struggling with product shortages and price hikes [Internet]. London: Plan International UK; 2020 [cited 2022 Jun 17].
12. Adika VO, Yabga, Apiyanteide FA, Ologidi PW, Ekpo KE. Perception and behaviour on use of sanitary pads during menstruation among adolescent school girls in Bayelsa State, Nigeria. *Advances in Applied Science Research*. 2011;2(6):9-15.
13. Soeiro RE, Rocha L, Surita FG, Bahamondes L, Costa ML. Period poverty: menstrual health hygiene issues among adolescent and young Venezuelan migrant women at the northwestern border of Brazil. *Reprod Health*. 2021;18(1):238. doi: 10.1186/s12978-021-01285-7.
14. Sommer M, Schmitt M, Clatworthy D. A toolkit for integrating Menstrual Hygiene Management (MHM) into humanitarian response. (First edit). New York: Columbia University, Mailman School of Public Health and International Rescue Committee; 2017.
15. Babbar K, Garikipati S. What socio-demographic factors support disposable vs. sustainable menstrual choices? Evidence from India's National Family Health Survey-5. *PLoS One*. 2023;18(8):e0290350. doi: 10.1371/journal.pone.0290350.
16. El-Gilany AH, Badawi K, El-Fedawy S. Menstrual hygiene among adolescent schoolgirls in Mansoura, Egypt. *Reprod Health Matters*. 2005;13(26):147-52. doi: 10.1016/S0968-8080(05)26191-8.
17. Mishra VK. Social and psychological impact of limited access to sanitation: MHM and reproductive tract infections. In: Shaw RJ, editor. *Water, sanitation and hygiene services beyond*. Loughborough, UK: Loughborough University; 2015.
18. Columbia Mailman School of Public Health. *Water & Sanitation*. [Internet]. Available at: <https://www.publichealth.columbia.edu/research/program-forced-migration-and-health/watersanitation-0>. Accessed 24 Oct 2022.
19. Martin. *Water and Sanitation*. United Nations Sustainable Development. [Internet]. Available at: <https://www.un.org/sustainabledevelopment/water-and-sanitation/>. Accessed April 8, 2022.
20. Holst AS, Jacques-Aviñó C, Berenguera A, Pinzón-Sanabria D, Valls-Llobet C, Munrós-Feliu J, et al. Experiences of menstrual inequity and menstrual health among women and people who menstruate in the Barcelona area (Spain): a qualitative study. *Reprod Health*. 2022;19(1):45. doi: 10.1186/s12978-022-01354-5.
21. Boratne AV, Datta SS, Karthiga V, Singh Z, Dongre A. Perception and practices regarding menstruation among adolescent school girls in Pondicherry. *The Health Agenda*. 2014;2(4):114-9.
22. Abraham S, Fraser I, Gebksi V, Knight C, Llewellyn-Jones D, Mira M, et al. Menstruation, menstrual protection and menstrual cycle problems. The knowledge, attitudes and practices of young Australian women. *Med J Aust*. 1985;142(4):247-51.
23. Casola AR, Luber K, Riley AH, Medley L. Menstrual health: taking action against period poverty. *Am J Public Health*. 2022;112(3):374-7. doi: 10.2105/AJPH.2021.306622.
24. Diamond C. Period poverty: Scotland first in the world to make period products free. *BBC News*. 2022 Aug 15.
25. Basharoush M. Tackling period poverty in Lebanon. *SSRN [Preprint]* 2022 Dec 14.
26. Kukreja S, Subhashree D, Verma A, Jain M. A comparative study to evaluate menstrual hygiene among rural and urban adolescent girls - a mixed methodology study. *Asian Journal of Pharmaceutical and Clinical Research*. 2022;15(12):150-2. doi: 10.22159/ajpcr.2022.v15i12.46093.

- for schoolgirls. *Am J Public Health*. 2013;103(9):1556-9. doi: 10.2105/AJPH.2013.301374.
4. Suleman A, Krishna S, Krishnakumar D, Nemoto K, Nguyễn MLT, Mehta SD. A pilot survey of students' menstrual attitudes, experiences, and needs on an urban university campus. *Womens health (Lond)*.2024;20:17455057241254713. doi: 10.1177/17455057241254713.
  5. Stankovic M, Miljkovic S, Krasic D, Stankovic S, Milojkovic O, Mitkovic M. Sexual activities of adolescents from Serbian language speaking area. *European Psychiatry*. 2007;22(S1):S332-S332. doi:10.1016/j.eurpsy.2007.01.1107.
  6. Jaafar H, Ismail SY, Azzeri A. Period poverty: a neglected public health issue. *Korean J Fam Med*. 2023;44(4):183-8. doi: 10.4082/kjfm.22.0206.
  7. Rupe ER, Rodean J, Hurley EA, Miller MK, Boncoeur MD, Masonbrink AR. Menstrual health among adolescents and young adults in rural Haiti. *Reprod Health*. 2022;19(1):227. doi: 10.1186/s12978-022-01533-4.
  8. Cardoso LF, Scolese AM, Hamidaddin A, Gupta J. Period poverty and mental health implications among college-aged women in the United States. *BMC Womens Health*. 2021;21(1):14. doi: 10.1186/s12905-020-01149-5.
  9. Phillips-Howard PA, Otieno G, Burmen B, Otieno F, Odongo F, Odour C, et al. Menstrual needs and associations with sexual and reproductive risks in rural Kenyan females: a cross-sectional behavioral survey linked with HIV prevalence. *J Womens Health (Larchmt)*. 2015;24(10):801-11. doi: 10.1089/jwh.2014.5031.
  10. Hunter E, Palovick K, Teni MT, Sebert Kuhlmann A. COVID-19 made it harder to access period products: the effects of a pandemic on period poverty. *Front Reprod Health*. 2022;4:1003040. doi: 10.3389/frph.2022.1003040.
  11. Plan International UK. Menstrual health day: global period poverty and stigma getting worse under lockdown: girls are struggling with product shortages and price hikes [Internet]. London: Plan International UK; 2020 [cited 2022 Jun 17].
  12. Adika VO, Yabga, Apiyanteide FA, Ologidi PW, Ekpo KE. Perception and behaviour on use of sanitary pads during menstruation among adolescent school girls in Bayelsa State, Nigeria. *Advances in Applied Science Research*. 2011;2(6):9-15.
  13. Soeiro RE, Rocha L, Surita FG, Bahamondes L, Costa ML. Period poverty: menstrual health hygiene issues among adolescent and young Venezuelan migrant women at the northwestern border of Brazil. *Reprod Health*. 2021;18(1):238. doi: 10.1186/s12978-021-01285-7.
  14. Sommer M, Schmitt M, Clatworthy D. A toolkit for integrating Menstrual Hygiene Management (MHM) into humanitarian response. (First edit). New York: Columbia University, Mailman School of Public Health and International Rescue Committee; 2017.
  15. Babbar K, Garikipati S. What socio-demographic factors support disposable vs. sustainable menstrual choices? Evidence from India's National Family Health Survey-5. *PLoS One*. 2023;18(8):e0290350. doi: 10.1371/journal.pone.0290350.
  16. El-Gilany AH, Badawi K, El-Fedawy S. Menstrual hygiene among adolescent schoolgirls in Mansoura, Egypt. *Reprod Health Matters*. 2005;13(26):147-52. doi: 10.1016/S0968-8080(05)26191-8.
  17. Mishra VK. Social and psychological impact of limited access to sanitation: MHM and reproductive tract infections. In: Shaw RJ, editor. *Water, sanitation and hygiene services beyond*. Loughborough, UK: Loughborough University; 2015.
  18. Columbia Mailman School of Public Health. *Water & Sanitation*. [Internet]. Available at: <https://www.publichealth.columbia.edu/research/program-forced-migration-and-health/watersanitation-0>. Accessed 24 Oct 2022.
  19. Martin. *Water and Sanitation*. United Nations Sustainable Development. [Internet]. Available at: <https://www.un.org/sustainabledevelopment/water-and-sanitation/>. Accessed April 8, 2022.
  20. Holst AS, Jacques-Aviñó C, Berenguera A, Pinzón-Sanabria D, Valls-Llobet C, Munrós-Feliu J, et al. Experiences of menstrual inequity and menstrual health among women and people who menstruate in the Barcelona area (Spain): a qualitative study. *Reprod Health*. 2022;19(1):45. doi: 10.1186/s12978-022-01354-5.
  21. Boratne AV, Datta SS, Karthiga V, Singh Z, Dongre A. Perception and practices regarding menstruation among adolescent school girls in Pondicherry. *The Health Agenda*. 2014;2(4):114-9.
  22. Abraham S, Fraser I, Gebksi V, Knight C, Llewellyn-Jones D, Mira M, et al. Menstruation, menstrual protection and menstrual cycle problems. The knowledge, attitudes and practices of young Australian women. *Med J Aust*. 1985;142(4):247-51.
  23. Casola AR, Luber K, Riley AH, Medley L. Menstrual health: taking action against period poverty. *Am J Public Health*. 2022;112(3):374-7. doi: 10.2105/AJPH.2021.306622.
  24. Diamond C. Period poverty: Scotland first in the world to make period products free. *BBC News*. 2022 Aug 15.
  25. Basharoush M. Tackling period poverty in Lebanon. *SSRN [Preprint]* 2022 Dec 14.
  26. Kukreja S, Subhashree D, Verma A, Jain M. A comparative study to evaluate menstrual hygiene among rural and urban adolescent girls - a mixed methodology study. *Asian Journal of Pharmaceutical and Clinical Research*. 2022;15(12):150-2. doi: 10.22159/ajpcr.2022.v15i12.46093.



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