15. Writing group for the European Working Group on Sarcopenia in Older People (EWGSOP2), and the extended group for EWGSOP2. (2019). Sarcopenia: revised European consensus on definition and diagnosis / J. A. Cruz-Jentoft et al. Age Ageing. 2019. Jan. (Vol. 48, No. 1). P. 16-31. DOI: https://doi.org/10.1093/ageing/afy169

Стаття надійшла до редакції 11.10.2020

O.V. Burlaka 1,2, V.O. Vahnier 2

REPRODUCTIVE HEALTH AND CONTRACEPTION USE BY UKRAINIAN SERVICEWOMEN IN THE CURRENT WAR ZONE: QUESTIONNAIRE SURVEY

Ukrainian Military Medical Academy 1
Moskovska str., 33, 45/1, Kyiv, 01015, Ukraine
e-mail: uvma@mail.com

Institute of Pediatrics, Obstetrics and Gynecology of NAMS of Ukraine 2
Platona Mayborody str., 8, Kyiv, 14150, Ukraine
e-mail: ipag@amnu.gov.ua

Українська військово-медична академія 1
вул. Московська, 33, 45/1, Київ, 01015, Україна
Інститут педіатрії, акушерства та гінекології НАМН України 2
вул. Платона Майбороди, 8, Київ, 14150, Україна

Цитування: Медичні перспективи. 2021. Т. 26, № 1. С. 105-114
Cited: Medicni perspektivi. 2021;26(1):105-114

Key words: servicewomen, current war zone, methods of contraception, unplanned pregnancy, menstrual supression, questionnaire survey

Ключові слова: жінки-військовослужбовці, зона військових дій, методи контрацепції, незапланована вагітність, менструальна супрессія, анкетований опитування

абстракт: Репродуктивное здоровье и контрацепция, используемая украинскими служащими в зоне современного военного конфликта: анкетный опрос

Abstract. Reproductive health and contraception use by Ukrainian servicewomen in the current war zone: a questionnaire survey. Burlaka O.V., Vahnier V.O. The aim of the study is to define awareness level and use of different contraception methods by servicewomen in the current armed conflict in the East of Ukraine. Between October 2018 and September 2019, 507 military women serving in the Joint Forces Operation Zone in eastern Ukraine and 100 civilian women from the frontline region participated in the questionnaire-based survey. The survey was focused on the knowledge and use of different methods of contraception and STI preventing by military women in conditions of armed conflict in Donbas. Servicewomen reported using of different methods of contraception in 48.3±4.3% of the cases, which is 1.5 times less than civilian women (RR=1.5; 95% CI: 1.2 – 1.7, p=0.001). Among those who reported using contraception, hormonal methods were chosen by 8.2±3.4% of active duty military women, which is two times less than
by civilians (RR=2.1, 95% CI: 1.1-4.1, p=0.03). The low use of effective methods of contraception by active-duty servicewomen according to results survey is one of the reasons for the disruption of female reproductive health during military deployment. The primary reserve of preserving women’s health in the current war environment, besides access to modern contraceptives and counseling, is improving the education of military medics in the gender-specific issues of reproductive health and contraception.

Refrat. Репродуктивне здоров’я та застосування методів контрацепції українськими жінками-військовослужбовцями в зоні діючого збройного конфлікту: анкетоване опитування. Бурлака О.В., Вагнєр В.О. Метою дослідження було визначення рівня поінформованості та використання жінками-військовослужбовцями різних методів контрацепції в зоні діючого збройного конфлікту на сході України. В анкетованому опитуванні взяли участь 507 жінок-військовослужбовців, що виконували обов’язки військової служби в районах проведення операції Об’єднаних сил, та 100 цивільних жінок з прикордонного регіону. Опитування було сфокусовано на питаннях обізнаності й застосування різних методів контрацепції та профілактики інфекцій, що передаються статевим шляхом (ІППШ), жінками-військовослужбовцями в умовах військового конфлікту на Донбасі. Жінки, що виконували обов’язки військової служби, застосовували різні методи контрацепції у 48,3±4,3% випадків, що в 1,5 рази більше за цивільних жінок (RR=1,5; 95%CI: 1,2–1,7, p=0,001). Серед них, хто повідомив про використання контрацепції, гормональні методи обрали 8,2±3,4% військових жінок, що в 2,5 рази менше порівняно з цивільними (RR=2,1; 95%CI: 1,1–4,1, p=0,03). Низький рівень використання жінками-військовослужбовцями ефективних методів контрацепції, згідно з результатами проведеного опитування, одна з причин порушення гінекологічного здоров’я під час військових розгортань. Резервом збереження жіночого здоров’я у вонюному середовищі, крім доступу до сучасних методів контрацепції і консультацій, є покращення освіти військових медиків з гендер-специфічних питань репродуктивного здоров’я і контрацепції.

Increasing attention to health care of servicewomen is related to the worldwide tendency of growth of female representation in the security and defense sphere [10, 21].

With the increasing number of women in the military sphere, the number of women who have faced prolonged deployment in combat environments has been increasing [10, 28]. Ukraine, as a wartime society, has a unique experience of broad integration of women into the defense sphere, precisely in the current conditions of armed conflict in the eastern districts of the country [8].

Effective integration of women into traditional male military roles requires addressing gender-specific medical problems, such as birth control, increased regulation of menstruation, hygiene issues and pregnancy [1, 7].

According to literary sources, active duty servicewomen have a high level of unwanted pregnancies and low usage of contraceptive methods, which may be related to the lack of awareness and limited access to birth control [9, 11].

According to the small studies, rates of unintended pregnancy among American military women range from 50 to 65% of the total pregnancies in this population [16, 26, 27]. Thus, the range of unplanned pregnancies among the US servicewomen is higher than within the general population (72 pregnancies per 1,000 servicewomen compared with 52 per 1,000 of the general population) [12].

Unwanted pregnancies may also be the result of high-risk sexual practices and ineffective use of contraception, which in turn decreases military resources and responsiveness of military deployments [16, 18].

Servicewomen primarily work in a male environment and often want to minimize physical differences [18, 19]. Physiological events of woman’s health, such as pregnancy and menstrual cycles, could become a problem for servicewomen in military service [5, 14, 20, 24].

That is why the benefits of hormonal contraception, namely the foolproof birth control and increased regulation of menstruation, may be more attractive to active duty women than to women in the general population. These medications, traditionally indicated for contraception, should be considered essential for female troops during training and deployment [3, 7, 17, 18].

Researches of the factors important for female reproductive health in a changing military environment can improve health care delivery and outcomes in this unique socio-professional group [4, 6].

The aim of study: to explore awareness and the index of usage of different contraceptive methods by servicewomen in the current armed conflict in the East of Ukraine.

The survey on awareness and use of different methods of contraception and prevention of STDs by servicewomen had been conducted in the military operations zone. The information obtained from the first sources will allow us to understand better the real state of the gender-specific medical problems of modern Ukrainian servicewomen and will facilitate the elaboration of the mechanisms of its tackling.
MATERIALS AND METHODS OF RESEARCH

Between October 2018 and September 2019, we conducted a questionnaire-based survey among Ukrainian servicewomen in the current war zone. The survey was focused on the knowledge and use of different methods of contraception and STD preventing by servicewomen in conditions of armed conflict in Donbas.

507 military women serving in the Joint Forces Operation Zone in eastern Ukraine and 100 civilian women from the frontline region took part in the questionnaire. Civilian women without gynecological disorders were questioned on the base of Municipal Establishment “Regional Rehabilitation Hospital” of Kherson Regional Council.

The questionnaire designed for the study was developed by the author. Respondents completed a self-administered anonymous questionnaire which consisted of 34 questions, both closed- and open-ended regarding demographics, awareness of the contraception methods, contraceptive use, reasons for not-use contraception and other. Women could answer questions at will. Special attention in the questionnaire was given to issues of hormonal contraception use by servicewomen.

As the data in the samples were not normally distributed, statistical comparisons of data between groups were made using the nonparametric Mann–Whitney U-test for age. The chi-squared test ($\chi^2$) was carried out for a comparison of the proportion of “yes” and “no” responses between military and civilian women for each single item. Data were analyzed using the licensed software programs IBM SPSS Statistics Subscription Trial (Classic) 26.0. If not mentioned otherwise, all data are displayed as median (interquartile range) or frequency ±95% confidence interval. Significance level was set at $p$≤0.05 [15].

The study was approved by the bioethics committee of the Institute of Pediatrics, Obstetrics and Gynecology of the National Academy of Medical Sciences of Ukraine (6/2018-09-13).

RESULTS AND DISCUSSION

Questionnaires were filled in by 607 women (507 servicewomen in the current war zone and 100 civilian women of reproductive age from the frontline region).

Groups are comparable by age. The age of the servicewomen is $\text{Me}=34$, IQR: 25-42, the age of civilians – $\text{Me}=32$, IQR: 29-37. The sociodemographic profile of the women interviewed is presented in Table 1.

Military and civilian women were distinguished by socioeconomic level ($\chi^2=18.1, p=0.001$) and family status ($\chi^2=13.6, p=0.001$) with a statistically significant difference.

Among civil women married ones made up statistically significant majority, 63.0% versus 39.1% among military ($\chi^2=19.5, p=0.001$). Among servicewomen, women with high socioeconomic level (monthly expenses for themselves) made up a statistically significant majority in comparison to civil (30.3% versus 9.7%, $\chi^2=16.7, p=0.001$).

According to the obtained data, 48.3±4.3% (245/507), female soldiers used different methods of contraception during deployment. Compared to civilian women, 70.0±9.0% (70/100) among which have used contraception, servicewomen practiced contraceptive methods 1.5 times less (RR=1.5; 95%CI: 1.2–1.7) with a statistically significant difference ($p=0.001$).

Age-related contraceptive use is shown in Table 2.

When stratified by age, in the age group under 25 years, methods of contraception were used by 53.2±9.3% (59/111) of servicewomen; 25-34 years – 49.3±8.3% (68/138); 35-44 years – 48.8±7.5% (83/170); older than 44 years old – 48.6±11.5% (35/72) (Table 2). The frequency of use of contraception did not have a statistically significant difference between different military age groups ($\chi^2=0.62, p=0.89$).

In the age group up to 25, methods of contraception were used by 81.8±23.9% (9/11) of civilian women; 25-34 years – 70.6±12.5% (36/51); 35-44 years – 71.0±16.0% (22/31); older than 44 years old – 42.9±39.6% (3/7). Using contraception was the same as for servicewomen, statistically significantly did not depend upon age group for civil women ($\chi^2=3.21, p=0.34$).

Civil women aged 25-44 years use contraception 1.5 times more often than military ones (from 25 to 34 years – $\chi^2=6.84, p=0.01$, RR=1.43, 95% CI: 1.12-1.83; from 35 to 44 years – $\chi^2=5.15, p=0.02$, RR=1.45, 95% CI: 1.11-1.90). In the age group up to 25, methods of contraception were used by 81.8±23.9% (9/11) of civilian women and by 53.2±9.3% (59/111) of military women ($p=0.07$).

Servicewomen reported using hormonal contraception methods in 4.0±0.9% (20/507) of cases versus 12.0±3.2% (12/100) in civilian women.

The use of hormonal contraception by the servicewomen statistically significant does not differ from civilians in the age group of 25-34 years ($\chi^2=0.52, p=0.47$). Up to the age of 25, civilians use hormonal contraception statistically significantly more often $\chi^2=4.16, p=0.04$, and statistically significantly more often use hormonal contraception in age of 35 – 44 $\chi^2=4.86, p=0.03$, and older than 44 – $\chi^2=10.42, p=0.002$. From 35 to 44 years, the probability of contraception use by the servicewomen is 2.7 times less than that of civilians RR=2.74, 95% CI: 1.11-6.76, before 25 and over 44 years, the probability of non-use increases.
### Sociodemographic characteristics of the surveyed

| Variable                                      | Servicewomen | Civilians | \(\chi^2\) | p-value |
|-----------------------------------------------|---------------|-----------|-------------|---------|
|                                               | N  | P, % | CI, % | N  | P, % | CI, % |             |         |
| Family status, n*                             | 507 |      |       | 100 |      |       |             |         |
| Single                                        |    |      |       |     |      |       |             |         |
| Married                                       |    |      |       |     |      |       |             |         |
| Divorced                                      |    |      |       |     |      |       |             |         |
| Unknown                                       |    |      |       |     |      |       |             |         |
| Parity, n*                                    | 480 |      |       | 100 |      |       |             |         |
| 0                                             |    |      |       |     |      |       |             |         |
| 1                                             |    |      |       |     |      |       |             |         |
| 2                                             |    |      |       |     |      |       |             |         |
| >2                                            |    |      |       |     |      |       |             |         |
| Partners for the last year, n*                | 437 |      |       | 95  |      |       |             |         |
| 0                                             |    |      |       |     |      |       |             |         |
| 1                                             |    |      |       |     |      |       |             |         |
| 2-3                                           |    |      |       |     |      |       |             |         |
| >3                                            |    |      |       |     |      |       |             |         |
| Education, n*                                 | 463 |      |       | 96  |      |       |             |         |
| Secondary school                              |    |      |       |     |      |       |             |         |
| Specialized secondary education               |    |      |       |     |      |       |             |         |
| Higher education                              |    |      |       |     |      |       |             |         |
| Religious, n*                                 | 470 |      |       | 97  |      |       |             |         |
| Atheist                                       |    |      |       |     |      |       |             |         |
| Religiosity                                   |    |      |       |     |      |       |             |         |
| Confession, n*                                | 375 |      |       | 91  |      |       |             |         |
| Christian                                     |    |      |       |     |      |       |             |         |
| Moslem                                        |    |      |       |     |      |       |             |         |
| Other                                         |    |      |       |     |      |       |             |         |
| Socioeconomic level (monthly expenses for themselves), n* | 452 |      |       | 93  |      |       |             |         |
| Low                                           |    |      |       |     |      |       |             |         |
| Intermediate                                  |    |      |       |     |      |       |             |         |
| Hight                                         |    |      |       |     |      |       |             |         |

Notes. n* – questionnaires answered; P- frequency; CI - 95% confidence interval.
Frequency of contraception use according to age group

| Age group, years | Total | Used contraception | Used hormonal contraception |
|-----------------|-------|---------------------|-----------------------------|
|                 | N     | N                  | P, % CI, %                  |
| Military        |       |                     |                            |
| <25             | 111   | 59                 | 53.2 9.3                    |
| 25-34           | 138   | 68                 | 49.3 8.3                    |
| 35-44           | 170   | 83                 | 48.8 7.5                    |
| >44             | 72    | 35                 | 48.6 11.5                   |
| Total*          | 491   | 245                | 49.9 4.4                    |
| Civil           |       |                     |                            |
| <25             | 11    | 9                  | 81.8 23.9                   |
| 25-34           | 51    | 36                 | 70.6 12.5                   |
| 35-44           | 31    | 22                 | 71.0 16.0                   |
| >44             | 7     | 3                  | 42.9 39.6                   |
| Total           | 100   | 70                 | 70.0 9.0                    |

Note. P* – regarding women who used contraceptive methods in the age group.

Among those who reported using contraception, hormonal methods were used by 8.2 ±1.8% (20/245) servicewomen and 17.1±4.5% (12/70) – by civilian women ($\chi^2=4.8$, $p=0.03$) (Table 2). Thus, the survey results indicate that servicewomen have chosen hormonal contraception two times less than civilians (RR=2.1, 95% CI: 1.1-4.1). At the same time, in the age group before 25 years, hormonal contraception was used – 0.9±0.9% (1/111) of servicewomen; 25-34 years – 5.1±1.9% (7/138); 35-44 years – 7.1±2.0% (12/170); older than 44 years – 0.0±5.1% (0/72).

The comparative assessment of the frequency use of various contraceptive methods by servicewomen and civil ones is shown in Table 3. Women could state all methods used.

Comparison of contraceptive methods use between servicewomen (n=245) and civilians (n=70)

| Methods of contraception | Military | N | P, % | CI,% | N | P, % | CI,% | $\chi^2$; p-value |
|--------------------------|----------|---|------|------|---|------|------|------------------|
| Coitus interruptus       | 108      | 44.1 | 6.2  | 35  | 50.0 | 11.7 | 0.78 ; .38       |
| Male condom              | 87       | 35.5 | 6.0  | 28  | 40.0 | 11.5 | 0.47 ; .49       |
| Spermicides              | 46       | 18.8 | 4.9  | 8   | 11.4 | 7.5  | 2.07 ; .15       |
| Copper IUD               | 4        | 1.6  | 1.6  | 11  | 15.7 | 8.5  | 23.8 ; .001      |
| Patch                    | 3        | 1.2  | 1.4  | 3   | 4.3  | 4.7  | 2.73 ; .09       |
| OCs                      | 15       | 6.1  | 3.0  | 6   | 8.6  | 6.6  | 0.53 ; .47       |
| LNG-IUS                  | 4        | 1.6  | 1.6  | 5   | 7.1  | 6.0  | 5.96 ; .02       |
| Other                    | 2        | 0.8  | 1.1  | 1   | 1.4  | 2.8  | 0.22 ; .64       |
Among women using contraception, at the moment of conducting the survey, barrier methods have been used the most frequently, particularly by 54.3% of military and 51.4% of civil women, with no statistically significant difference between groups ($p>0.05$).

Using of intrauterine contraception by servicewomen was statistically significantly lower than by civil women (in case of using non-hormonal intrauterine device, $p=0.001$; and $p=0.02$, while using intrauterine system).

In this study we evaluated contraceptives use and related sociodemographic characteristics among female soldiers in the military conflict zone.

### Table 4

| Education                     | Total Used hormonal contraception | Used OCS | Used IUS | Used TP |
|-------------------------------|-----------------------------------|---------|---------|---------|
| N                             | N                                 | P*,%    | Cl,%    | N       | N       | n       |
| Secondary school              | 74                                | 2       | 2,7     | 3,7     | 1       | 1       | 0       |
| Specialized secondary education| 254                               | 8       | 3,1     | 2,1     | 7       | 1       | 1       |
| Higher education              | 135                               | 10      | 7,4     | 4,4     | 7       | 2       | 2       |
| Total*                        | 463                               | 20      | 4,3     | 1,9     | 15      | 4       | 3       |

Note. Total* – all who answered the question about education.

The frequency of hormonal contraception use among military did not have a statistically significant difference between groups with different educational levels ($\chi^2=4.42, p=0.11$). Wherein, the higher educated servicewomen were better informed than the respondents with secondary education, because they more often preferred hormonal contraception, as most effective method of birth control.

The questionnaire has included questions about reasons for the non-use of contraceptive methods in general and hormonal methods in particular.

Among servicewomen who did not use any method of contraception at the time of the survey and indicated that they did not plan to have a child soon, the most common reasons for non-use of contraception were: infrequent or absence of sex (66.4±8.1%), difficulties in obtaining consultation (4.6±3.6%), religious reasons (4.6±3.6%), the partner does not want to use contraception (8.4±4.8%), some indicated other reasons (36.6±8.3%) or more than one reason.

Reasons for non-use of hormonal contraception by servicewomen are presented in Table 5. Women could state more than one reason.

A high prevalence of concerns regarding health risks and side effects of hormonal contraception, as well as prejudice against to hormones among servicewomen draws attention.

Determining the low contraception use associated with limited awareness of servicewomen, indicates the need for improving women’s access to contraceptive counseling at all stages of military career, especially in military deployment.

We present the first report of the evaluation of awareness and contraception use among Ukrainian servicewomen in the zone of armed conflict in Donbas in comparison to civilians.

According to the results of the survey conducted in the war zone, the index of usage of different contraceptive methods by servicewomen in the current war zone turned out to be statistically significantly lower (48.3±4.3%) in comparison to civilian women (70.0±9.0%, $p=0.001$).

Herewith civil women aged 25-44 years used contraception 1.5 times more often than military, with a statistically significant difference (from 25 to 34 years, $p=0.01$; from 35 to 44 years, $p=0.02$). In the age group before 25 y.o., who are among those at highest risk for unintended pregnancy, methods of contraception were used by 81.8±23.9% (9/11) of civilian women and by 53.2±9.3% (59/111) of servicewomen ($p=0.07$).

According to the survey results, which are consistent with findings from other studies [4, 23, 25], contraceptive and reproductive health issues are particularly important for interviewed servicewomen, not only in medical but also in the professional aspect, especially during military deployment.

The use of different methods of hormonal contraception by women of this socio-professional group has a prophylactic value besides the contraceptive and therapeutic effect. It allows
preventing the development of menstrual-associated and cyclic complications, bleeding, and anemia, which according to literary sources, are almost 2 times more widespread among the servicewomen than civilians, even in peacetime [2, 7].

Despite the apparent advantages of using different methods and regimens of hormonal contraception to reliably prevent unplanned pregnancies and menstrual suppression, servicewomen in zone of armed conflict used hormonal contraception statistically significantly less often than civilians and preferred less effective methods of birth control. The frequency of hormonal contraception use in military group was 4.0±0.9% (20/507) versus 12.0±3.2% (12/100) in civilian women.

Among those who reported using contraception, hormonal methods were used by 8.2±1.8% (20/245) of military and 17.1±4.5% (12/70) of civilian women ($\chi^2$=4.8, $p$=0.03). Thus, the survey results indicate that servicewomen have chosen hormonal contraception 2 times less often than civilians (RR=2.1, 95% CI: 1.1-4.1).

The data we have obtained concerning the frequency of hormonal contraception use by the servicewomen differ from the results of previous studies. According to other researchers, the rate of hormonal contraception use among servicewomen from the United States fluctuated from 24.4%-39.2% [6] to 40% every year [13]. According to the results of another study [18], the use of oral contraceptives (OC) was higher in the military (34%) than in the general population (29%, $p$<0.05) and this difference increased with age.

According to the received data, the use of hormonal contraception by the military women significantly does not differ from civilians in the age group of 25-34 years. From 35 to 44 years, the probability of contraception use by the military is 2.7 times less than that by civilians, before 25 and over 44 years of age, the probability of non-use increases.

Determination of low level of awareness and use of hormonal contraception in the age group before 25 years, especially among military women from the eastern region of Ukraine, may be associated with their rather young age (15-20 years) and limited access to gynecological care at the beginning of the combat conflict in the area of their residence.

A significant percentage of planning pregnancy, which is among reasons for non-use contraception by servicewomen in the Joint Forces Operation Zone draws attention, which confirms the necessity of counseling both on contraception issues together with issues of reproductive health, namely safe motherhood, at all stages of a military career.

Preserving women's health during war is improving the education of military medics.

Based on the experience gained in the zone of military operations, we agree with international experts [4, 22] that the current level of medical knowledge, vital for providing gender-specific healthcare for the active-duty servicewomen is

### Table 5

| Reasons                                      | N  | P. % | 95% CI. % |
|----------------------------------------------|----|------|-----------|
| Total answered                               | 317| 100  |           |
| Fear of increasing bodyweight                | 130| 41.0 | 5.4       |
| Fear of malignant diseases                   | 38 | 12.0 | 3.6       |
| Prejudice against to hormonal contraception  | 69 | 21.8 | 4.5       |
| Inconveniences of daily intake of pills      | 48 | 15.1 | 3.9       |
| Not enough information to choose a specific method | 41 | 12.9 | 3.7       |
| Previous negative experience of using        | 40 | 12.6 | 3.7       |
| Difficulties in getting counseling of contraception | 31 | 9.8  | 3.3       |
| High price                                   | 16 | 5.0  | 2.4       |
| Difficult in obtaining                       | 3  | 0.9  | 1.1       |
| Other                                        | 31 | 9.8  | 3.3       |
critically inadequate, particularly because of lack of theoretically proved information received from scientific researches which concern issues of healthcare of servicewomen.

Our data coincides with the survey results among UK military medical professionals [23], about lack of preparation and absence of necessary experience in providing gender-specific healthcare for servicewomen during military deployments and necessity of including gynecology in medical pre-deployment training (PDT) and in Clinical Guidelines for Operations (CGOs).

The results of this study are used in the training programs of military doctors at the Ukrainian Military Medical Academy.

**Strengths and limitations**

To our knowledge, this is the first and the only research of contraception use among Ukrainian servicewomen in the armed conflict zone. A strength of the study was the possibility to obtain first-hand information about the real state of the gender-specific medical problems of servicewomen in the current war zone. The limitations of this study have been caused by the specific conditions of its organization and conduction.

**Open questions and future research**

Military experience can affect women’s reproductive health negatively.

Protective capacities of different methods and regimens of hormonal contraception in conditions of the negative impact of physical, chemical, and psychological factors of war environment need a more in-depth study in the context of the preservation of reproductive potential and successful fulfillment of reproductive life plans by servicewomen in future years.

**CONCLUSIONS**

The low level of contraception use by servicewomen serving in the Joint Forces Operation Zone increases risks of development of reproductive health disorders in this unique socio-professional group and requires improvement of access to contraceptives and effective counseling prior and at all stages of military service. The reserve of preserving women’s health in the current war environment is improving the education of military medics in the gender-specific issues of reproductive health and contraception.

Conflict of interests. The authors declare no conflict of interest.

Acknowledgements. The authors thank the Ukrainian military women serving in current war zone in the East of Ukraine for participation in the study and the opportunity to obtain new and important data.

Funding. The study was supported by the European Society of Contraception and Reproductive Health under Grant.

**REFERENCES**

1. Burlaka O, Verba N, Vahnier V. [To the question of gender-specific healthcare for military women in the current conditions]. J Military Medicine of Ukraine. 2019;19:61-66. Ukrainian.
2. Chernyavskaya TP. [Improvement of the organization gynecological assistance in conditions military garrison]. [dissertation]. Sankt-Peterburh. 2004. Russian. Available from: https://www.dissercat.com/content/sovershenstvovanie-organizatsii-ginekologicheskoi-pomoshchi-v-usloviyah-voennogo-garnizona/
3. Benson LS, Micks EA. Why Stop Now? Extended and Continuous Regimens of Combined Hormonal Contraceptive Methods. Gynecol Clin North Am. 2015;42:669-81. doi: https://doi.org/10.1016/j.goc.2015.07.009
4. Braun LA, Kennedy HP, Womack JA. Integrative Literature Review: U.S. Military Women’s Genitourinary and Reproductive Health. Military Med. 2016;181:35-49. doi: https://doi.org/10.1093/milmed/usy191
5. Burlaka O, Tatarchuk T. The therapeutic possibilities of continuous mode of oral contraceptives for Ukrainian military women in ATO zone. Gynecological endocrinology. 2016;38:58-59.
6. Cara JK. Reproductive Health of Active Duty Women in Medically Austere Environments. Military Medicine. 2016;1:63-69. doi: https://doi.org/10.7205/MILMED-D-16-00274
7. Christopher LA, Miller L. Women in War: Operational Issues of Menstruation and Unintended Pregnancy. Military Medicine. 2007;172:9-16. PMID: 17274258. doi: https://doi.org/10.7205/MILMED.172.1.9
8. Chaban O, Bezsheyko V, Khastova O, et al. Gender-related differences of stress reactions in Ukrainian combatants. Farmatsiia. 2018;65:3-10. Available from: http://ir.librarynmu.com/handle/123456789/977
9. Goyal V, Borrero S, Schwarz EB. Unintended Pregnancy and Contraception Among Active-Duty Servicewomen and Veterans. Am J Obstet Gynecol. 2012;206:463-9. doi: https://doi.org/10.1016/j.ajog.2011.11.018
10. McGraw K, Koehlmoos TP, Ritchie EC. Women in Combat: Framing the Issues of Health and Health Research for America’s Servicewomen. Military Medicine. 2016;181:7-11. PMID: 26741896. doi: https://doi.org/10.7205/MILMED-D-15-00223
11. Grindlay K, Grossman D. Contraception Access and Use Among U.S. Servicewomen
During Deployment. Contraception. 2013;87:162-9. doi: https://doi.org/10.1016/j.contraception.2012.09.019

12. Grindlay K, Grossman D. Unintended pregnancy among active-duty women in the United States military. Contraception. 2015;92:589-95. doi: https://doi.org/10.1016/j.contraception.2015.07.015

13. Hosker MK. Hormonal Contraceptive Use Among Active Duty Army Servicewomen. Trends and Implications for Risk of Musculoskeletal Injury. [dissertation]. 2018. Available from: https://scholarworks.umass.edu/dissertations_2/1244

14. Gawron LM, Mohanty AF, et al. Impact of Deployment on Reproductive Health in U.S. Active-Duty Servicewomen and Veterans. Semin Reprod Med. 2018;36:361-70. doi: https://doi.org/10.1055/s-0039-1678749

15. Roberts TA, Smalley JM, Baker LL, et al. Influence of Military Contraceptive Policy Changes on Contraception Use and Childbirth Rates Among New Recruits. Am J Obstet Gynecol. 2020;223:223.e1-10. doi: https://doi.org/10.1016/j.ajog.2020.01.060

16. Lindberg LD. Unintended pregnancy among women in the US military. Contraception 2011;84:249-51. doi: https://doi.org/10.1016/j.contraception.2011.01.017

17. Powell-Dunford NC, Cuda AS, Moore JL, et al. Menstrual suppression for combat operations: advantages of oral contraceptive pills. Womens Health Issues. 2011;21:86-91. doi: https://doi.org/10.1016/j.whi.2010.08.006

18. Enewold L, Brinton LA, McGlynn KA, et al. Oral Contraceptive Use Among Women in the U.S. Military and the General U.S. Population. J Womens Health. 2010;19:839-45. doi: https://doi.org/10.1089/jwh.2009.1706

19. Ritchie E. Issues for military women in deployment: An overview. Military Medicine. 2001;166:1033-7. doi: https://doi.org/10.1093/jmm/166.12.1033

20. Sheena ME. Menstrual Suppression for Military Women: Barriers to Care in the United States. Obstet Gynecol. 2019;134:72-76. doi: https://doi.org/10.1097/AOG.0000000000003542

21. Sheila S Mathai, Ravi Kalra. Medical challenges of women combatants: Looking to the future. Journal of Marine Medical Society. 2018;20:1-3. doi: https://doi.org/10.4103/jmms.jmms_37_18

22. Bean-Mayberry B, Yano EM, Washington DL, et al. Systematic review of women veterans’ health: update on successes and gaps. Womens Health Issues. 2011;21:84-97. doi: https://doi.org/10.1016/j.who.2011.04.022

23. Thiel M, Evans S, Sawdy R. Women’s healthcare consultations on operations: a multidisciplinary provider questionnaire. J R Army Med Corps. 2017;163:394-6. doi: https://doi.org/10.1136/jramc-2016-000693

24. Trego LL. Prevention Is the Key to Maintaining Gynecologic Health During Deployment. J Obstet Gynecol Neonatal Nurs. 2012;41:283-92. doi: https://doi.org/10.1111/j.1552-6909.2011.01337.x

25. Holt K, Grindlay K, Taskier M, et al. Unintended pregnancy and contraceptive use among women in the U.S. military: a systematic literature review. Military Medicine. 2011;176:1056-64. doi: https://doi.org/10.7205/MILMED-D-11-00012

26. Custer M, Waller K, Vernon S, et al. Unintended pregnancy rates among a US military population. Paediatr Perinat Epidemiol. 2008;22:195-200. doi: https://doi.org/10.1111/j.1365-3601.2007.00896.x

27. Robbins AS, Chao SY, Frost LZ, et al. Unplanned pregnancy among active duty servicewomen, U.S. Air Force. 2001. Military Medicine. 2005;170:38-43. doi: https://doi.org/10.7205/MILMED.170.1.38

28. Carissa van den Berk Clark, Jennifer Chang, Jessica Survey, et al. Women’s Health and the Military. Prim Care. 2018;45:677-86. PMID: 30401349. doi: https://doi.org/10.1016/j.pop.2018.07.006

29. Thiel M, Evans S, Sawdy R. Women’s healthcare consultations on operations: a multidisciplinary provider questionnaire. J R Army Med Corps. 2017;163:394-6. doi: https://doi.org/10.1136/jramc-2016-000693
9. Goyal V., Borrero S., Schwarz E. B. Unintended Pregnancy and Contraception Among Active-Duty Servicewomen and Veterans. *Am J Obstet Gynecol*. 2012. Vol. 206.P. 463-469.
   DOI: https://doi.org/10.1016/j.ajog.2011.11.018
10. McGraw K., Koehlmoos T. P., Ritchie E. C. Women in Combat: Framing the Issues of Health and Health Research for America’s Servicewomen. *Military Medicine*. 2016. Vol. 181. P. 7-11.
   DOI: https://doi.org/10.7205/MILMED-D-15-00223
11. Grindlay K., Grossman D. Contraception Access and Use Among U.S. Servicewomen During Deployment. *Contraception*. 2013. Vol. 87. P. 162-169.
   DOI: https://doi.org/10.1016/j.contraception.2012.09.019
12. Grindlay K, Grossman D. Unintended pregnancy among active-duty women in the United States military. *Contraception*. 2015. Vol. 92. P. 589-595.
   DOI: https://doi.org/10.1016/j.contraception.2015.07.015
13. Hosker M. K. Hormonal Contraceptive Use Among Active Duty Army Servicewomen. Trends and Implications for Risk of Musculoskeletal Injury. *Doctoral Dissertations*. 2018. P. 1244.
   URL: https://scholarworks.umass.edu/dissertations_2/1244
14. Impact of Deployment on Reproductive Health in U.S. Active-Duty Servicewomen and Veterans / L. M. Gawron et al. *Semin Reprod Med*. 2018. Vol. 36. P. 361-370.
   DOI: https://doi.org/10.1055/s-0039-1678749
15. Influence of Military Contraceptive Policy Changes on Contraception Use and Childbirth Rates Among New Recruits / T. A. Roberts et al. *Am J Obstet Gynecol*. 2020. Vol. 223. P. 223.e1-10.
   DOI: https://doi.org/10.1016/j.ajog.2020.01.060
16. Lindberg L. D. Unintended pregnancy among women in the US military. *Contraception*. 2011. Vol. 84. P. 249-251.
   DOI: https://doi.org/10.1016/j.contraception.2011.01.017
17. Menstrual suppression for combat operations: advantages of oral contraceptive pills / N. C. Powell-Dunford et al. *Womens Health Issues*. 2011. Vol. 21. P. 86-91.
   DOI: https://doi.org/10.1016/j.whi.2010.08.006
18. Oral Contraceptive Use Among Women in the Military and the General U.S. Population / L. Enewold et al. *J Womens Health*. 2010. Vol. 19. P. 839-845.
   DOI: https://doi.org/10.1089/jwh.2009.1706
19. Ritchie E. Issues for military women in deployment: An overview. *Military Medicine*. 2001. Vol. 166. P. 1033-1037.
   DOI: https://doi.org/10.1093/milmed/166.12.1033
20. Sheena M. E. Menstrual Suppression for Military Women: Barriers to Care in the United States. *Obstet Gynecol*. 2019. Vol. 134. P. 72-76.
   DOI: https://doi.org/10.1097/AOG.0000000000003542
21. Sheila S. Mathai, Ravi Kalra. Medical challenges of women combatants: Looking to the future. *Journal of Marine Medical Society*. 2018. Vol. 20. P. 1-3.
   DOI: https://doi.org/10.4103/jmms.jmms_37_18
22. Systematic review of women veterans’ health: update on successes and gaps / B. Bean-Mayberry et al. *Womens Health Issues*. 2011. Vol. 21. P. 84-97.
   DOI: https://doi.org/10.1016/j.whi.2011.04.022
23. Thiel M., Evans S., Sawdy R. Women’s healthcare consultations on operations: a multidisciplinary provider questionnaire. *J R Army Med Corps*. 2017. Vol. 163. P. 394-396.
   DOI: https://doi.org/10.1136/jramc-2016-000693
24. Trego L. L. Prevention Is the Key to Maintaining Gynecologic Health During Deployment. *J Obstet Gynecol Neonatal Nurs.* 2012. Vol. 41. P. 283-292.
   DOI: https://doi.org/10.1111/j.1552-6909.2011.01337.x
25. Unintended pregnancy and contraceptive use among women in the U.S. military: a systematic literature review / K. Holt et al. *Military Medicine*. 2011. Vol. 176. P. 1056-1064.
   DOI: https://doi.org/10.7205/MILMED-D-11-00012
26. Unintended pregnancy rates among a US military population / M. Custer et al. *Paediatr Perinat Epidemiol*. 2008. Vol. 22. P. 195-200.
   DOI: https://doi.org/10.1111/j.1365-3016.2007.00896.x
27. Unplanned pregnancy among active duty servicewomen, U.S. Air Force, 2001 / A. S. Robbins et al. *Military Medicine*. 2005. Vol. 170. P. 38-43.
   DOI: https://doi.org/10.7205/MILMED.170.1.38
28. Women’s Health and the Military / Carissa van den Berk Clark et al. *Prim Care*. 2018. Vol. 45. P. 677-686. PMID: 30401349.
   DOI: https://doi.org/10.1016/j.pop.2018.07.006
29. Women’s healthcare consultations on operations: a multidisciplinary provider questionnaire / M. Thiel et al. *J R Army Med Corps*. 2017. Vol. 163. P. 394-396.
   DOI: https://doi.org/10.1136/jramc-2016-000693

Стаття надійшла до редакції 15.11.2020

На умовах ліцензії CC BY 4.0