



Original research article

Contraceptive prescriptions for US servicewomen, 2008–2013^{☆,☆☆,★}Catherine T. Witkop^{a,*}, Bryant J. Webber^b, Kasi M. Chu^a, Leslie L. Clark^c^aDepartment of Preventive Medicine and Biostatistics, Uniformed Services University of Health Sciences, 4301 Jones Bridge Road, Bethesda, MD 20814^b559th Medical Group, Joint Base San Antonio-Lackland, TX 78234^cArmed Forces Health Surveillance Branch, Silver Spring, MD 20904

Received 19 December 2016; revised 17 May 2017; accepted 17 May 2017

Abstract

Objective: To determine the proportion and characteristics of US servicewomen who were prescribed contraception between 2008 and 2013 and to estimate the prevalence of contraceptive utilization among women who deployed during the surveillance period.

Study design: This is a descriptive study of all servicewomen of child-bearing potential serving in the active component of the US armed forces at any time between 2008 and 2013. We estimated contraceptive utilization status using pharmacy, procedural and diagnostic codes as recorded in the Defense Medical Surveillance System and Pharmacy Data Transaction Service. Estimates of contraceptive utilization were compared by demographic and military variables, including deployment status. Poisson regression with robust error variance was used to estimate adjusted prevalence ratios and 95% confidence intervals.

Results: Among eligible servicewomen ($N=375,847$), 68.7% received at least one form of contraception during the surveillance period. Contraceptive methods included short acting only (55.6%), long-acting (11.9%), permanent (1.0%) and barrier methods (0.2%). An additional 8.2% received counseling services only without an associated procedure or prescription. After adjusting by several demographic variables, receipt of contraception was highest among women aged 25–29 years and lowest among those aged 17–19 and 45–49 years. Receipt of any contraception was similar across racial/ethnic groups, although Hispanic and black, non-Hispanic women were more likely to receive long-acting reversible contraception. Of those who deployed ($N=131,597$), 53.6% received contraception before or during their deployment, with 7.9% using long-acting contraception.

Conclusion: US servicewomen utilize contraception at high levels, with few demographic disparities. Gaps still exist, especially among the youngest women and around the time of deployment.

Implications: US servicewomen are prescribed contraception at high levels, but utilization is lower in the youngest servicewomen and around the time of deployment. Such data provide opportunities for development and evaluation of interventions designed to improve access to contraceptive services for all servicewomen and to reduce the rate of unintended pregnancy.

Published by Elsevier Inc.

Keywords: Contraception utilization; Military; Servicewomen; Unintended pregnancy

1. Introduction

With women comprising an increased percentage of the US armed forces and entering front-line combat positions, reproductive healthcare for US servicewomen is an increasingly important public health issue. Recent papers based on surveys have reported a high rate of unintended pregnancy in this population, about 50% higher than the age-adjusted general population [1,2]. This discrepancy has been attributed to a number of potential problems, including confusion regarding sexual activity prohibition in the military, sexual assault and barriers to contraception use, including lack of predeployment counseling, care-seeking stigma and logistical obstacles [1–3]. Prescription contraceptive methods, including

[☆] Conflicts of interest: None.

^{☆☆} Disclaimer: The content of this publication is the sole responsibility of the authors and does not necessarily reflect the views or policies of the Uniformed Services University of the Health Sciences (USUHS), the Department of Defense (DoD) or the Departments of the Army, Navy or Air Force. Mention of trade names, commercial products or organizations does not imply endorsement by the US Government.

^{*} Funding: This research did not receive any specific grant from funding agencies in the public, commercial or not-for-profit sectors.

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long-acting, reversible contraceptive (LARC) methods, are available free of charge (including no co-pay or deductible) in military treatment facilities for US servicewomen. The large Contraceptive CHOICE study recently demonstrated that access to LARC in a civilian population has the potential to decrease unintended pregnancies [4], and a recent study among Military Health System beneficiaries showed high continuation rates among women who initiated LARC methods [5].

Previous studies have attempted to draw causal links between lack of contraception access and unintended pregnancy rates, both during deployment and at home station [3]. For example, citing a convenience sample of servicewomen, in which 63% of 281 respondents self-reported using contraception for part or all of their deployment, Grindlay et al. concluded there was insufficient counseling and access to contraceptives for deploying women, which could contribute to unintended pregnancies [6].

Evidence-based public health efforts are needed to address unintended pregnancy and obstacles to contraceptive utilization. There is currently a gap in the published literature regarding population-based estimates of contraceptive utilization among women in the military, and it is clear that current, objective and more comprehensive data are needed to better inform the discussion of reproductive health needs among US servicewomen. In this study, we describe the proportion of women who were prescribed contraception among all women of child-bearing potential who served in the active component of the US armed forces between 2008 and 2013, and estimate the prevalence of contraceptive utilization in the subset of those servicewomen who deployed during that period.

2. Methods

Using the Defense Medical Surveillance System (DMSS), we identified all US servicewomen who served in the active component of the Army, Navy, Air Force, Marine Corps and Coast Guard at any time between January 1, 2008 and December 31, 2013. Servicewomen aged 50 years and older or with a documented hysterectomy (per *International Classification of Diseases, Ninth Revision, Clinical Modification* [ICD-9-CM] codes 68.31, 68.39, 68.41, 68.49, 68.51, 68.59, 68.61, 68.69, 68.71, 68.79 and V code 88.01) at the start of the surveillance period were excluded from the analysis, leaving a population considered eligible for contraception.

Contraception utilization was defined as one or more of the following: (a) receiving a prescription for contraception (per American Hospital Formulary Service Pharmacologic-Therapeutic Class: 681,200); (b) receiving an ICD-9-CM procedure or diagnostic code for contraception (Supplementary Table 1); or (c) ever receiving a diagnostic code for permanent sterilization (ICD-9-CM codes 65.5, 65.6, 66.4 and V code 25.2). LARC methods, including all intrauterine devices and etonogestrel

implants, were identified in this analysis. Code V25.12 was used to identify discontinuation of intrauterine devices. Barrier methods likely reflect contraceptive diaphragms almost exclusively, as male condoms are not covered by TRICARE under benefits for Military Health System beneficiaries (<https://tricare.mil/CoveredServices/IsItCovered/BirthControl.aspx>). Women who had an ICD-9-CM counseling code without a prescription or procedure code at the same visit were identified as having received “counseling only.” Prescription information was obtained from the Pharmacy Data Transaction Service, which contains medication records for all TRICARE beneficiaries, regardless of point of service (i.e., military, retail and mail order pharmacies). Procedure, diagnostic and counseling codes were obtained from DMSS, including the Theater Medical Data Store, which collectively contain data on hospitalizations and ambulatory visits by actively serving members in US military and civilian (i.e., contracted or purchased care through the Military Health System) medical facilities worldwide, including combat theaters of operation.

Descriptive statistics were used to estimate the overall proportion of women utilizing contraception and the proportion by age, marital status, education level, self-reported race/ethnicity, service branch, military rank, occupation and contraceptive method (permanent, long acting, short acting and barrier [see Supplementary Table 2]). In order to observe time trends and to account for the long surveillance period, utilization data were also stratified and analyzed by calendar year.

Individuals who used both long-acting and short-acting contraceptives during the surveillance period were included in the same group as those who used long-acting contraceptives only. Those who used only short-acting contraceptives were assigned into a mutually exclusive group. Patients who received at least one code for contraceptive counseling, but who did not have any prescriptions or procedure codes, were designated as “counseling only.” Time-varying variables, such as age and military rank, were determined at the start of the surveillance period or, for those who entered after this time, at entry to active military service.

Utilization was also estimated among a subset of servicewomen who deployed during the surveillance period, using deployment start dates as recorded in deployment records from the Contingency Tracking System of the Defense Manpower Data Center and archived in DMSS. To account for different effective durations of contraceptive methods, predeployment utilization was defined as follows: within 6 months of deployment for short-acting oral contraception, injectables, patches, vaginal rings, diaphragms, barrier method and counseling only without a conceptive prescription or procedure; within 3 years of deployment for the etonogestrel implant; within 5 years of deployment for levonorgestrel-releasing IUD; within ten years of deployment for copper-containing IUD; and at any time preceding deployment for permanent contraception. Due to the desire to estimate prevalence ratios (PRs) directly and because of the nonrarity of the outcome, Poisson

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