IIR 13-294: Impact of Sexual Assault and Combat-Related Trauma on Fertility in Veterans
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Background / Rationale:
Responding to increased pressure from Veteran advocates and a Senate bill from December 2012, the VA recently renewed efforts to provide limited infertility care to Veterans. Very little is known about the true prevalence of infertility in Veterans, especially in the male population, or the impact of combat-related and sexual assault trauma on fertility, much less the existing disparities, barriers, and preferences regarding infertility care in the VA system. The Pentagon is monitoring the number of OEF/OIF/OND Veterans who have suffered pelvic or genital injuries that could impact reproductive capability, and traumatic injury benefits are now being paid to those affected. Sexual assault is an even more common trauma in female Veterans and a relatively overlooked issue for male Veterans; officials estimate that 26,000 military members were sexually assaulted in 2012 alone (up 35% from the previous year). Our team's study of 1,004 female Veterans suggested sexual assault is also a risk factor for infertility as well as for delay and avoidance of pregnancy. Other studies indicate duration of deployment, concurrent mental health diagnoses, and traumatic brain injury can also increase the risk of infertility in Veterans.

Objective(s):
Specific Aims:
1. Assess infertility prevalence in a nationally representative sample of reproductive-aged male and female Veterans.
2. Compare prevalence of infertility in those who have and have not experienced sexual and/or combat-related trauma and quantitatively investigate how physical and psychological injury and biological and behavioral alternations mediate risk of infertility due to these traumas.
3. Use qualitative methods to further elucidate associations between trauma exposures and infertility, identify unexpected connections, and explore Veteran-identified best opportunities for VA intervention.

Methods:
Guided by a novel conceptual framework, we will use an explanatory mixed methods design: subject selection model for this study. To begin, quantitative data will be collected using computer-assisted telephone interviews (CATI) with nationally representative samples of male and female Veterans <45 years old in order to determine the prevalence of infertility. Associations between sexual assault and combat-related trauma and infertility will then be estimated using accelerated failure time and logistic regression models. Next we will qualitatively examine infertile Veterans unique experiences, exploring the complex relationships between trauma exposures, fertility outcomes and infertility care seeking. Data will be collected using semi-structured telephone interviews with a purposeful sampling of subjects identified as infertile in the CATI. This qualitative study phase will ensure that all relevant associations are analyzed in the quantitative analysis and will also extend our knowledge of Veteran preferences for infertility-related health services. Our conceptual framework will help integrate the quantitative and qualitative components coherently while emerging itself as an improved framework to guide next step interventions.

Findings / Results:
1300 CATI interviews are complete, though the following statistics are from the first 1134 participants. Mean age of participants is 34.2 years (range 20-45) and mean income is $78,058. Fifty-nine percent of participants self-report Caucasian ethnicity, 23% 'more than one race,' 11% African-American, 5% Hispanic/Latino and 2% Asian/Pacific Islander. Sixty-three percent of participants self-report being married, 19% single, and 14% divorced. Seventy-three percent of participants report highest education as some college or college graduate. Fifty-nine percent of participants report male sex at birth and 41% report female sex at birth; one participant reports being intersex and three participants report a current gender identity that is different than sex assigned at birth. Seven percent of participants self-identify as gay or bisexual. Seventy-two percent of participants have been deployed at least once, with mean number of deployments being 2.2. Sixteen percent of participants have a current or former episode of homelessness. Sixty-nine percent of men and 48% of women have had at least one military injury, with spine/spinal cord and head injuries half as likely in women but genital/pelvic injuries twice as likely in women. Fifty-one percent of women and 9% of men have experienced an attempted or completed sexual assault in their lifetimes; 22% of women and 2% of men have experienced a completed sexual assault in military. Almost half of all participants have been diagnosed with PTSD or screened positive for PTSD during the CATI interview. Fourteen percent of women and 10% of men report an infertility diagnosis for themselves or a partner during their lifetimes. Twenty percent of all participants report failing to conceive a pregnancy after trying for 12 months or more. Time to pregnancy was at least 12 months for 29% of all participants, and 7% of all participants who had experienced at least one pregnancy had sought and received medical care to conceive a pregnancy. Early analyses show some associations between military injury, sexual assault or PTSD and increased risk of infertility but decreased care seeking. Qualitative interviews have begun with a purposeful sampling of participants from the CATI (see Specific Aim 3).

Status:
Computer assisted telephone interviews are ongoing and data are being gathered to answer Specific Aims 1 and 2. We have 7 interviewers and 2 work-study students dedicated to recruitment and interviews. While the average CATI interview duration is 97 minutes, approximately 4 hours of staff time is required for each completed interview. An interim analysis of limited variables from 1134 of the 1300 CATI interviews has been completed (see above). Three trained qualitative interviewers have completed 12 of the planned 60 qualitative interviews.

Impact:
The project's anticipated Impact on Veterans' Health Care: Veterans of OEF/OIF/OND are young, increasingly female, and include growing numbers of Veterans who have survived historically mortal injuries. These patriots face unique physical and mental health challenges that may be detrimental to future fertility; challenges include: sexual assault, blast injuries causing genito-urinary trauma and traumatic brain injury, chemical exposures, and post-traumatic stress disorder. Thus comprehensive, high-quality reproductive care, including infertility prevention and treatment, is vitally important for the post-deployment health and quality of life of this generation of Veterans. Our goal is to better identify, understand, and treat infertility and to facilitate infertility care utilization for Veterans in order to make a positive impact on post-deployment health and quality of life for affected Veterans.