**Review Article**

**Social Determinants of Health in Pregnancy Related to U.S. Military Lifestyle**

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**Abstract**

The purpose of this paper is to explore social determinants of pregnancy among military families to enhance future outcomes. Methods included data collection through one-on-one interviews of participants who willingly volunteered to take part in the research. This is a descriptive qualitative study influenced by phenomenology. Significant statements were noted and formulated meanings for each statement were composed. A total of 4 themes were identified and analyzed, discussing insurance coverage and level of care received, support systems or lack there-of, military-related stress, and education and advocacy. This study will attempt to address one main question, what social determinants of health do military families face during pregnancy? The aims of this study are to evaluate trends in pregnancy data and establish a foundation for innovative initiatives.

**Keywords:** Colaizzi; Intrapartum; Military spouse; Post-partum; Tricare

**Introduction**

The culture and lifestyle experienced by members of the military and their families differ from the civilian life experience. Service members and their families experience unique hardships and specific health risks associated with the military lifestyle. Civilians are defined as individuals who do not serve within the armed forces; as such they may be unfamiliar with common military customs and methods. The purpose of this research was to increase awareness of the struggles and barriers military members and spouses face during pregnancy and identify the gaps in care. The following section will encompass a review of the current literature to further understand the evidence presented on this topic. Literature regarding military lifestyle and pregnancy complications are abundant. However, there is less literature regarding social determinants of health and the level of care received during pregnancy with respect to them.

**Postpartum Depression**

Postpartum depression and preterm delivery are a problematic occurrence often experienced by spousal pregnant partners of military personnel. Evidence has indicated the deployment of a spouse during the pregnancy and birth of a child was correlated with an increased risk for preterm delivery and Postpartum Depression (PPD) [1]. A quantitative study was conducted by Tarney, et al. [1], where the investigators focused on spousal deployment and pregnancy outcomes. The researchers compared the pregnancies of primigravid women whose spouse was deployed to a combat zone (183 women) to the pregnancies of primigravid women whose spouse was not deployed (214 women). Antepartum and postpartum periods were compared in the two groups, and evidence of potential health risks was found. According to Tarney et al. [1], “Spouse deployment was associated with increased risk of preterm delivery (38 [20.8%] compared with 16 [7.5%], P<.001) and postpartum Depression [PPD] (30 [16.4%] compared with 13 [6.1%], P=.001) when compared with women in the non-deployed group.”

Further research has demonstrated the need for future research examining subgroups of service members and military families who may be experiencing particular stressors such as deployment, overseas residence, and social isolation. Schachman & Lindsey [2] linked PPD to military spouses, adding to the data surrounding the vulnerable population of military spouses may have increased likelihood of PPD to that of civilian wives. In addition, Levine et al. [3] conducted a study indicating a significant association between service members that were deployed during their wife’s pregnancy and delivery with an increased risk of PPD experienced by the military spouse. Thus, the results may indicate the importance for health care providers to be aware of spousal deployment as a unique stressor for military spouses and the need for increased screening for PPD in this population.

**Insurance Coverage**

Tricare is a universal medical insurance that is available to service members and their families. Tricare is offered in two different coverage programs: direct (military care) and purchased (civilian care). Service members have autonomy in deciding if their dependents (spouse and children) receive care on base or off base. The difference in the two coverage programs is how the health care is delivered to the patient, either at one of the military health care institutions without a copay or at a civilian institution with a copay. A quantitative study conducted by Ranjit, et al. [4] compared the intrapartum obstetric care between direct and purchased Tricare insurance among pregnant active-duty members or their dependents. Tricare insurance claims data was gathered and analyzed from 2006 to 2010 totaling 440,138 deliveries that were included in the study [4]. The investigators of this study determined direct care had less frequencies of cesarean deliveries and less risk of severe acute maternal morbidity (SAMM) related to those cesarean deliveries, but higher risk of common complications, such as postpartum hemorrhage, infections, third‐ and fourth‐degree perineal lacerations (for vaginal delivery), operative complications (for cesarean delivery), and thrombotic complications [4]. The data indicated direct (military) healthcare facilities are less equipped to handle the higher risk pregnancies, resulting in the patients being sent out to civilian facilities. Pregnancies conducted at direct care facilities have a higher chance of cesarean section; thus, the higher numbers for SAMM. Furthermore, Ranjit, et al. [4] investigators determined that direct care facilities have higher incidences of complications during intrapartum. Direct care insurance holders may be at a disadvantage due to the lack of specialized care for complex procedures and higher incidences of common complications.

**Preterm Birth and Small for Gestational Age**

Very few studies have been conducted correlating the deployment of a servicewoman and the preterm birth of her child [5]. conducted a quantitative study to estimate the association between prior deployment, recency of said deployment, Post-Traumatic Stress Disorder (PTSD), and Spontaneous Preterm Birth (SPB); SPB is less than 37-weeks of pregnancy. Data was collected from official Department of Defense sources between 2011 and 2014 of active-duty U.S. Army servicewomen. 12,877 deliveries were included in this study, with 785 of them reporting SPB (6.1%). Of these SPBs, 16.3% occurred among women who had returned from deployment in the past 12 months [5]. Although PTSD did not have a significant impact on SPB, the timing of birth relative to return from deployment did. “Specifically, pregnancies that probably began during deployment (as indicated by birth within 6 months of return) were twice as likely to end in SPB” [5]. The data from this study may provide evidence for an increase in education and awareness regarding the risks of conceiving during deployment and stress the importance of contraceptives. In addition, there is evidence to suggest women become a temporary single parent when they have a spouse that deploys [6]. Furthermore, previous researchers have determined there is a higher risk of low birth weight and decreased development for gestational age in homes with two or more children with a deployed spouse [6]. Spieker, et al. [6] associated the low birth weight and decreased development for gestational age with the lack of social support on part of the deployed spouse and the disconnect from family support due to the increased distance from relatives.

**Pregnancy Related to Primary Interventions**

Primary interventions to curb the above-mentioned problems for pregnant military spouses can be a vital way to improve the quality of life of military service member families. Centering Pregnancy is an integrative approach to prenatal visits emphasizing group education, concerns, and peer support from other women who were around the same gestational age [7]. Walton, et al. [7] examined the Centering Pregnancy program aimed at determining if there were improved prenatal outcomes within the group, active-duty members who were nulliparous. Although the study did not yield any clinically significant outcomes, it did provide information and the need for future studies examining Centering Pregnancy, specifically for different areas and population groups of the military [7]. In addition to Centering Pregnancy, Weis, et al. [8] conducted a study examining the effects of an integrated program to reduce pregnancy related anxiety and depression and to increase resilience in military women, active duty or dependent. The MOMS (Mentors Offering Maternal Support) program, focused on the first and second trimester of pregnancy, and was effective in reducing prenatal anxiety related to preparation for labor and the new role of motherhood [8].

It is evident the military lifestyle may have a negative impact on pregnancy and pregnancy outcomes. The literature reviewed included evidence from multiple sources examining current trends ranging from insurance needs to preterm birth and pregnancy-related interventions. The military lifestyle affects the service member as well as the dependents’ health during and after pregnancy. There are a minimal number of studies on military dependents that examine topics such as pregnancy overall, insurance coverage, and support during pregnancy in the military. It is the goal of this author to provide a comprehensive data analysis that may lay a foundation for informational services to military spouses about the increased risks for adverse effects during and after pregnancy.

**Methods**

**Design**

Qualitative research involves an interpretive, naturalistic approach to a subject. It can be used to understand how a particular set of individuals perceive situations and gives meaning to their reality [9]. This was a qualitative study using a modification of Paul Colaizzi’s phenomenological methodology. Phenomenology involves the exploration of the lived experience of a phenomenon through interviews and discussions and then representing it from the perspective of the participants [10]. This methodology is a useful approach in qualitative research as it enables researchers to put aside their perceptions of a certain phenomenon and give meaning to an individual’s experience. As the primary investigator sought to understand social determinants of pregnancy related to military lifestyle, this design allowed them to obtain that information appropriately and accurately.

This study was designed to evaluate previously pregnant married dependents of active-duty service members or active-duty service members whose pregnancy took place while affiliated with the military, by asking each participant the following question:

Please describe to me your experience of being a military dependent or active-duty service member while pregnant. What, if any, were particular problems that you encountered during the experience? Consider the influence of deployments, insurance coverage, and level of care received and or unintended pregnancies. Describe to me your thoughts, feelings and perceptions regarding these experiences or any experience that you had in general regarding this matter.

**Setting and Sample**

A sample of active-duty military dependents who were previously pregnant while affiliated with the military from Marine Corps Base Camp Lejeune in North Carolina were recruited for this study. A total of 10 women partook in the research from start to finish. Saturation was achieved after 8 interviews, but 2 more were conducted to confirm and validate the achievement of saturation. Participant inclusion criteria included:

Be PREVIOUSLY pregnant while affiliated with the military

18 years of age or older

Married dependent of an active-duty service member OR the active-duty service member whose pregnancy took place while affiliated with the military

Of the 10 women who participated in the interviews, all 10 of them were married dependents of an active-duty service member. There were no active-duty females that participated in this research.

**Procedure**

After obtaining IRB approval, a letter of recruitment was posted on Facebook to Camp Lejeune military spouses’ groups. The primary investigator’s contact information was included with the ending date for the contract. Participants were encouraged to contact the primary investigator if interested in the study. A phone interview was scheduled at the convenience of the participant. A consent form was posted alongside the recruitment letter on the military spouses Facebook group, ensuring the participants understood what was going to happen, how their confidentiality would be protected, and their rights as a participant the voluntary research.

Verbal consent was obtained at the beginning of the phone interview due to COVID-19 restrictions. This research was voluntary, and consent could be withdrawn at any time. No participants chose to withdraw from the study as all were eager to let their voices and experiences be heard. This research was anonymous, and no contact information was collected. A phone interview took place at the previously scheduled time, lasting approximately 10-20 minutes. Participants were encouraged to be in a place where they were comfortable and could talk freely at a time that was best for them. Interviews were audio-recorded for the purposes of data collection and analysis. The recordings were destroyed after the completion of transcription.

**Data Collection**

Participants took part in a descriptive qualitative approach which allowed them to reveal their experiences, each unique in their own way. Individual phone interviews were conducted with each participant at a time of their choice. Audio recording was started, and a phone call was initiated. Each participant gave their verbal consent to the research at the beginning of the call. After verbal consent was obtained, the primary investigator stated the research question and then allowed the participants to answer in their own time.

The primary investigator replied sparingly to participants’ comments, being less likely to influence data collection or analysis. The primary investigator took notes during each interview to clarify statements or to have the participant elaborate on a subject. Participants were encouraged to elaborate on all experiences they thought to be relative to the research question “Describe to me your experience of being a military dependent or active-duty service member while being pregnant. "What, if any, were some complications or positives that you encountered during the experience?.” If the conversation ever got off track, the primary investigator would make a statement redirecting the flow to the study. All interviews were participant driven and ended when they felt there was nothing else to share about their experience.

**Data Analysis**

Interviews continued until the primary investigator reached saturation plus 2, for a total of 10 interviews. After the completion of all 10 interviews, the primary investigator began the transcription process, transitioning the audio recordings into word documents. The audio recordings were then destroyed, and an analysis of the word documents was initiated. Each document was carefully read multiple times, with significant statements being extracted and numbered. 148 significant statements were obtained and then put into themes. Ten theme clusters were initially identified and were eventually condensed into 4 themes.

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| Identify research question. | What social determinants of health do military families face during pregnancy? |
| Determine research statement. | Describe to me your experience of being a military dependent or active-duty service member while being pregnant. What, if any, were some complications or positives that you encountered during the experience? Consider the influence of deployments, insurance coverage and level of care received and or unintended pregnancies. Describe to me your thoughts, feelings and perceptions regarding these experiences or any experience that you had in general regarding this matter. |
| Collect data. | Previously pregnant dependents of active-duty service members were interviewed, until saturation was achieved. Interviews were conducted by one primary investigator. |
| Transcribe interviews (protocols). | Transcription of interviews were completed by the primary investigator. |
| Extract significant statements. | Each transcript was read thoroughly. Phrases and sentences that directly pertained to the investigated phenomenon were extracted from the transcripts. |
| Identify formulated meanings of each significant statement. | The primary investigator identified formulated meanings of significant statements. There were no hidden meanings identified within the statements. |
| Organize Formulated meanings into clusters of themes. | Themes were identified, allowing for emergence of themes which were common to all the participants’ interviews. |
| Refer clusters of themes back to the original interviews to validate them. | All identified themes were referred to the original interview transcripts to validate them. |
| Identify any discrepancies among/or between the clusters. | Discrepancies were noted. |
| Integrate all results thus far into an exhaustive description of the investigated topic. | All data to this point was integrated into an “exhaustive description” of the women’s experiences. |
| Final validation is completed by returning to each subject and asking the subject about the findings to this point. | Due to time constraints, no final validation was completed. |

**Table 1:** Colaizzi’s Method and its Influence in this Descriptive Qualitative Study Colaizzi This Study.

**Results**

Findings of this study will be presented in 4 themes. Common theme clusters were revealed after significant statements were identified and each given a formulated meaning. These themes, common to most interviews, were descriptions of ten women’s experiences of being pregnant while affiliated with the military. This chapter includes an exhaustive description of the military dependent’s perceptions regarding their experiences.

A total of 10 interviews yielded a total of 148 significant statements. From these statements, 148 formulated meanings were created and then grouped into 10 theme clusters. 10 theme clusters were further reduced into 4 themes. The 4 themes revealed during the analysis were 1) “Care was sporadic”; 2) “Worries… are magnified times 100” ;3) “It was really frustrating”; 4) “You wouldn't normally do (it) by yourself”.

The method used for analysis of the data allowed the interviewers to speak for themselves. The themes will be presented individually with directed quotes and their formulated meanings.

**Theme 1: “Care was sporadic”**

In the military,insurance coverage is a significant factor in the level of care a person receives. Women in this study describe their troubles with military Tricare insurance and compare Tricare Prime with Tricare Select. According to most of the participants, the level of care received on the military bases with Tricare Prime was under par; however, with Tricare Select they indicated more freedom in choosing a provider. Tricare Prime participants provided an account of military medical record mismanagement. A participant stated the following qualitative report: “Nobody knew what was going on my entire pregnancy because none of the previous doctors from the previous appointments kept track of any papers that they had filled out or notes that they had created from any of my subsequent appointments.” Further supporting this claim, a subsequent participant stated: “It was the absolute worst care. They did not listen to anything when I was going through a miscarriage….” The level of care received on base with Tricare Prime appeared to be a challenge for most participants.

Tricare Prime users are often restricted to healthcare services provided by specific military medical facilities. The restriction to specific military medical facilities can be challenging for pregnant military members and spouses, as not all services required may be offered. An example of this type of obstacle was noted by a participant who had Tricare Select but needed to be emergently seen at a Naval Hospital during her pregnancy. The qualitative data revealed: “I informed the physicians, I am thirty-five weeks and three days pregnant. I am bleeding a lot. I need help. And the emergency room team just laughed at me, and asked if I was ready to be seen, if so, you need to go up to L&D (labor and delivery). They did not offer me a wheelchair. Nobody offered to assist me up to the L&D room. They just wanted me to just waddle up there as I had blood running down my leg that you could see.” Additionally, she stated: “The naval hospital in general did not handle my care at the level to which I was expecting. It was a terrible experience, absolutely traumatized.” Based on the data collected, it was uncommon for the women to state they enjoyed or perceived satisfaction from their care at a military facility.

Another difficulty highlighted by Tricare Prime users were the scheduling protocols and length of time between appointments. “There is an exceptionally long wait in between appointments. I was not impressed by the quality of care, so I went ahead and switched to Tricare Select since I can have more freedom with my health care providers,” described by a participant who opted out of Tricare Prime. A subsequent participant added: “It was really challenging getting appointments, being seen at the military base.” Patient group appointments are an option with Tricare Prime, a participant interviewed indicated their frustrations with the group option as scheduling was a challenge with multiple patients during the same time. Unfortunately, with the absence of co-pay, many families must remain on Tricare Prime due to the low cost. Moving from Tricare Prime and Tricare Select can also present challenges. One participant described their experience with said scenario: “… you can only change from prime to select or select to prime based on if you’re moving to a different location or during a select time of year from November to December.”

Overall, the participants revealed challenges and complications resulting in decreased confidence and poor satisfaction with the Tricare Prime policy. The level of care received with Tricare Prime is a primary concern and has resulted in many families switching to Tricare Select, allowing them more freedom to choose healthcare providers outside of military medical facilities. “I mean, I should tell you that none of us are on Prime. We had that mix-up with Tricare Prime at the Naval Hospital, and myself and both of my children will remain on Select for the duration of my husband’s enlistment.”, said one participant unhappy with her care received at a Naval Hospital. Upon switching to Tricare Select, the participants did express their approval, most notably the freedom to choose an off-base health care provider. Nevertheless, switching to Tricare Select may not be a viable option for those families of lower socioeconomic status as the co-payments and cost-shares are more expensive than Tricare Prime [11].

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| **Significant Statements:** | **Formulated Meanings:** |
| 23. “Nobody knew what was going on during my entire pregnancy because none of the previous doctors from the previous appointment kept track of any papers that they had filled out or notes that they had created from any of my subsequent appointments.” | The participant expresses the trouble she went through with the military hospital keeping up with her appointment records. |
| 48. “It was the absolute worst care. They did not listen to anything when I was going through a miscarriage…” | The participant states that the seriousness of the situation was not acknowledged during her care at the military hospital. |
| 67. “You’re just treated like a number there instead of a person in that hospital” | The participant states that she feels like the military hospital treats their patients without regards to feelings or emotions. |
| 94. “I was like, look, I am thirty-five weeks and three days. I am bleeding a lot. I need help. And the emergency room team kind of just laughed at me. And they are like, well, you don't want to be seen in here like you do not want us to see you. You need to go up to L&D. They did not offer me a wheelchair. Nobody offered to, like, rush and take me there. Nothing. They just wanted me to just waddle up there as I had like blood running down my leg that you could see.” | The participant states that during her experience with the military hospital she was treated without urgency and not taken seriously in a serious situation. |
| 99. “But the naval hospital in general just did not really, they did not handle it like I would have liked them to be. It was a terrible experience. Like absolutely traumatized.” | The participant stated she was unhappy with the care she received at the military hospital. |
| 90. “There is an exceptionally long wait in between appointments. I was not a fan, so I went ahead with the Tricare select route.,” | The participant states that there are long wait times for receiving appointments through Tricare Prime. |
| 135. “It was really challenging getting appointments, being seen at the military base.” | The participant states that trying to obtain an appointment with Tricare Prime at a military facility is challenging. |
| 136. I just felt like that was inconvenient to have group appointments because you were constantly waiting on other people.” | The participant states that group appointments resulted in late participants therefore a late running appointment |
| 36. “… you can only change from prime to select or select to prime based on if you’re moving to a different location or during a select time of year from November to December.” | The participant explains the timeframe for being able to switch from Tricare Prime to Select or vice versa. |
| 40 “I mean, I should tell you that none of us are on Prime. We had that mix-up with Tricare Prime at the Naval Hospital, and myself and both of my children will remain on Select for the duration of my husband’s enlistment.,” | The participant states that neither of her children are on Tricare Prime and will never be again. |

**Table 2:** Theme 1: “Care was sporadic”.

**Theme 2: “Worries… are magnified times 100”**

Several participants described an overwhelming feeling of stress and anxiety from normal day-to-day actions due in part to their partners' absence. Specifically, multiple participants identified their partners were absent for a significant amount of time during their pregnancies and there was a perceived lack of support-systems. One participant stated, “The last month and a half of the pregnancy, he was in a schoolhouse for a drill instructor, which led to confusion of if he was even going to be allowed to come back to Pennsylvania for the birth because this schoolhouse was so competitive and strict. Which was stressful when you thought, okay, I am going to have to have my first baby without my husband.” A subsequent participant described a similar event where they were unsure if the partner would be able to attend the birth of their child due to the lack of communication provided by commanding officers. The absence of a spouse during a woman’s pregnancy seems to have put extra stress on the participants. One participant described her experience with pregnancy while her husband was deployed which highlights this theme’s indication well; “So all the daily worries of a normal pregnant mom in civilian life, it's magnified times 100 with a military wife, because you're by yourself and most of it, you don’t have the family to help you out.” The research team identified a trend amongst the participants response; more specifically, the perception of being alone and away from their family enhances the worries experienced compared to that of pregnant civilian families.

In addition to pregnancy periods, some participants expressed frustrations with postpartum periods if their military spouse was deployed, most notably, excessive stress from normal day-to-day activities, and feelings of loneliness. Conversely and supporting this claim, participants who experienced pregnancy and post-partum with their military spouse at home experienced more positive support from medical facilities. Thus, a potential correlation with their military spouse’s presence during the pregnancy and increased satisfaction with military medical facilities. When the spouse is absent during most of a pregnancy, there seems to be strain on the pregnant spouse and an increase in frustrations when receiving services from military medical facilities. Perhaps there may be unintended bias occurring on part of the military medical facilities when the military spouse is present. However, these claims would need to be validated through research to be considered substantial.

It was clear to the authors, the participants expressed their complications and frustrations with medical care received, support systems lacking, and an overall discontent with the resources available to pregnant military spouses. The lack of family support due to station, and lack of resources on part of the military resulted in challenges for military spouses who were on deployment their spouse's pregnancy. Nevertheless, the participants did highlight the above-mentioned challenges resulted in some participants developing relationships with other spouses who were in similar situations. Thereby creating a support network within their local military base communities. For instance, one participant noted, “I have been lucky enough that I have friends that have become family. Even with being further away from family for both of my pregnancies, I had no issues.” This participant described her experience in a positive manner due to the friends and support group she had developed on base. It would be interesting to note these results to military resource office, as this may be one avenue the military could attempt to support and develop to potentially foster a support system community for families who live on base.

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| **Significant Statements:** | **Formulated Meanings:** |
| 2. “The last month and a half of the pregnancy, he was in a schoolhouse for a drill instructor, which led to confusion of if he was even going to be allowed to come back to Pennsylvania for the birth because this schoolhouse was so competitive and strict. Which was stressful when you thought, okay, I am going to have to have my first baby without my husband.” | The participant states that her husband’s schedule was very demanding which led to confusion about if he would be there for the birth of their child. |
| 52. “I think the pregnancy was good because I don’t think my husband really went anywhere during my pregnancy.” | The participant states that she had a good pregnancy because her husband was present during it. |
| 114. "I know a lot of other spouses, you know, have to go through that, their husbands being deployed, and they had to deliver alone, basically. So, I think a lot of people do not realize how hard that can be, especially for a lot of women who have postpartum depression.” | The participant states that most people do not realize the effects that spouses being away can have on a woman even after pregnancy. |
| 63. “So all the daily worries of a normal pregnant mom in civilian life, it's magnified times 100 with a military wife, because you're by yourself and most of it, you don’t have the family to help you out.” | The participant states that the struggles of a pregnant military spouse are magnified due to being alone and not having support. |
| 128. “It was extremely hard for him to come to appointments. We did not even know he was going to make it to the birth.” | The participant states that it was hard for her husband to make appointments and they did not know if he be able to be present for the birth. |
| 42. “I was lonely. I did not know anybody here. I did not have any friends at the time. So, I did not really have a lot of emotional support.” | The participant states that she did not have a lot of emotional support due to not knowing many people. |
| 57. “I really was not involved in anything, so I did not really know any resources either. Except for working. I did not work on the base. But other than that, I really did not form any friendships with anybody.” | The participant states she was not involved in much and was unaware of resources available to her. |
| 118. “I have been lucky enough that I have friends that have become family. Even with being further away from family for both of my pregnancies, I had no issues.” | The participant states that she had a good support system of friends while away from family. |

**Table 3:** Theme 2: “Worries… are magnified times 100”.

**Theme 3: “It was really frustrating”**

In the military, there is a chain of command that is followed, and a policy on how questions, requests, and reports are filed. Several participants reported their concerns and dissatisfaction with their spouse’s commands, specifically pregnancy care and resources. One participant reported, “It was frustrating because his command would consistently describe family comes first; yet their action would be the opposite with little to no support for a family-first approach.” There was a trend with reporting amongst the military spouses regarding the dissatisfaction and unhappiness with their spouse’s command lack of support.

Military families have lifestyle obstacles that civilian families do not necessarily confront. More specifically, military families have specific rules and regulations they must follow for living on base, how deployment occurs, and frequent moves to other regions with the U.S. or other countries; all can promote increased stress. Most of the participants of the study highlighted several scenarios where these stressors were magnified and frustrated with the lack of resources for families who were pregnant. One participant identified the difficulties and frustrations felt when she gave birth in another country while her spouse was deployed. Thus, she was in a foreign country with her spouse deployed and described little to no resources offered by the military to support her situation. Several participants described increased frustration with the lack of support or resources provided when they were pregnant and moving to another base, specifically when their spouses were deployed. One participant indicated she attempted to reach her deployed spouse during a move while she was pregnant and being denied the ability to speak with her spouse. Further, the military did not provide any insight into when she would be able to contact her spouse, nor did they offer support for the move. It was clear to the authors, there is a lack of support and resources offered to pregnant military families. It should be noted, the authors of this manuscript do understand the need on part of the military to perform duties that must remain confidential and provide minimal information during deployments. However, there seems to be a disconnect with remaining confidential while maintaining adequate support for pregnant families.

Interestingly, two participants reported positive outcomes during their pregnancy. One of the participants noted, “His command was very helpful and tried their best to accommodate our situation during my pregnancy.” Another participant indicated her spouse’s commanding officer (CO) allowing him to stay home from a deployment after the birth of their daughter. The participant reported that his spouse’s CO said the following, “I have been in your situation before, and I don't want you to go through the frustration my family faced.” The CO clearly demonstrated empathy for the service member and his family. It should be noted this occurrence is not common as demonstrated by our participant cohort. Nonetheless, this type of behavior may indicate to military administration the need for improving support for pregnant military families.

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| **Significant Statements:** | **Formulated Meanings:** |
| 73. “So it was really frustrating because a lot of his command would tell me that or tell him and kind of give him the feeling that your family comes first.” | The participant states that the command would say one thing and do the opposite regarding family. |
| 144. “I had scheduled it during lunch time… they told him that was not acceptable, that he would have to actually take the entire day off to attend that appointment.” | The participant states that her husband’s command told him he would have to take a leave day to attend their prenatal appointment. |
| 45. “There was extra paperwork, just because we were in a foreign country. So again, it was a little stressful not knowing when she was coming.” | The participant states that there were extra stressors on her regarding her daughter’s birth in a foreign country. |
| 28. “So I was thirty-six weeks pregnant when we moved. It was quite stressful because I had to move halfway across the country.” | The participant states that she moved across the country at thirty-six weeks pregnant due to the military. |
| 140. “I actually couldn’t even get a hold of my husband because they weren't allowed to have their phones.” | The participant states that she could not get ahold of her husband during a crucial time in her pregnancy. |
| 132. “His command was very helpful and tried their best to accommodate our situation.” | The participant states that her husband’s command was helpful and accommodating to them. |
| 108. “It definitely helped our situation a lot with him saying, you know, hey, I have been in your situation before, and I don't want you to go through that.” | The participant states that her husband’s command was empathetic towards her and her husband. |

**Table 4:** Theme 3:“It was really frustrating”.

**Theme 4: “Advocating for oneself”**

There are resources available for military families; however, the participants reported the resources vary in quality from station to station, and/or the resources are underutilized due to poor solicitation. One of the participants stated, “If you plan to have kids in the military, I recommend being an advocate for yourself. Basically, you must be prepared to do things that you would not normally do by yourself.” Adding to the statement, she said: “You have to be able to be ok with asking for help when you need it from friends, because the family nor military support will not always be there.” The participant continued and described her experience of being on a new base, away from family, while her spouse worked long hours.

New military spouses struggle to familiarize themselves with the healthcare options available to them. Many are educating themselves on resources and insurance which is critical to successful adaptation to military lifestyle. “When I had both of my girls, I did not really know how Tricare worked. I just knew we were covered.” Statements similar to this occurred frequently during the interview process. Another new military spouse said this: “I did not even know if I was on Tricare select or Tricare prime. I had no idea. It was initially a complicated process to manage as the insurance system was not user friendly.” Lack of resource knowledge in the military spousal community regarding pregnancy was abundant in the data.

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| **Significant Statements:** | **Formulated Meanings:** |
| 12. “I think if you're going to have kids in the military, you have to be told to advocate for yourself you have to be prepared to do things that you wouldn't normally do by yourself” | The participant states that one must do things on their own that they normally would not if they have kids while in the military. |
| 13. “You have to be able to be ok with asking for help when you need it from friends, because family can't always be there.” | The participant states that one must accept that asking for help from friends is acceptable when family cannot be there. |
| 117. “A lot of people are either opened up and they make friends or become family of the military, or they don't, and then they struggle.” | The participant states that people who do not open and make friends in the military struggle during their experience. |
| 56. “The reason I didn't know anybody at that time I guess was just because I was just so young.” | The participants stated that they did not know many people due to their young age. |
| 123. “When I had both of my girls, I did not really know how Tricare worked. I just knew we were covered.” | The participant states that they did not know how their insurance worked, just that she and her children were covered under it. |
| 88. “I did not even know if I was on Tricare select or Tricare prime. I had no idea. So that was a bit of like the first like loophole that I had to jump through to figure out what plan I was on. And it was not a straightforward process.” | The participant states that she was unfamiliar with her insurance policy and that it was hard for her to deal with the process of finding answers. |

**Table 5:** Theme 4: “You wouldn't normally do (it) by yourself”.

**Discussion**

The study findings were grouped into themes based on the research questions and inquiries provided to the participants. The main research question for this study was “What social determinants of health do military families face during pregnancy?” The analysis of this study revealed 4 theme clusters of issues that military families face while pregnant. Each of the themes were affirmed by supporting statements and their formulated meanings, with each interview attributing statements to the analysis. The first theme “Care was sporadic” recognized the issues that military spouses face with their insurance coverage and the level of care received. The second theme “Worries… are magnified times 100” brought to light the struggles and worries of a military spouse regarding the spousal and family support, or the lack of, and the stress it can have on a pregnancy. The third theme “It was really frustrating” discussed the military command system and its influence on a military spouse. The fourth and final theme “You wouldn’t normally do (it) by yourself” indicated the need for military spouses advocating and educating themselves about the resources available to them. Researching and recognizing the unique struggles that these families face daily is a key step to establishing a foundation for innovative initiatives.

**Recommendations & Limitations**

Patient education for pregnant women in the military or military spouses should be better promoted to address the need for an increased preparedness for pregnancy and lifestyle changes required. The findings indicate there is inconsistency in the delivery of the programs, and the potential room for improvement. Many women also expressed their feelings about their insurance coverage, specifically their knowledge and satisfaction of coverage. Dissatisfaction and confusion with Tricare in this analysis demonstrated a potential need for change. The military should implement or improve awareness of programs for newly married military couples or individual spouses educating and informing on the resources available for topics such as pregnancy health initiatives and/or insurance coverage. Better education of available resources may result in increased participation of said programs, which may improve upon the military experience. An increase in education regarding the Tricare insurance plan may allow families to be more familiar with available resources and coverage options. Overall, an increase in education and exposure to resources within the military community is needed.

This study was limited due to the sample size and population of participants. A total of 10 participants willingly agreed to participate in this research study. Of the 10 participants, no active-duty females were identified. Data from active-duty females who were previously pregnant while associated with the military could have highlighted different information from that of spouses of active-duty members. Future studies should be conducted to include active-duty females who are, or plan to become pregnant to determine potential needs.

**Conclusion**

This study identified potential social determinants of health in pregnancy among military families with the intention to enhance future outcomes. Participants expressed overall dissatisfaction with Tricare and their spouse’s unit commands’ handling of family situations. The participants also expressed lack of knowledge regarding resources available to them and the hardships of being away from support systems. While the military does have programs in place for assisting their families, awareness of the programs is limited. Further research regarding the military lifestyle and pregnancy is essential for enhancing future outcomes and to establish a foundation for innovative initiatives.

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