

## Strengthening the Pipeline from Service to STEM

A series focusing on the future of Women Veterans in STEM



Transition  
Services



STEM  
Education



Women  
Veterans



STEM  
Workforce



Health &  
Well-being

### ARTICLE 1 of 5

This paper was developed as part of a National Science Foundation-funded project seeking to improve participation by women veterans in the STEM workforce. It is the first of five papers aimed at providing a snapshot of what is currently known about women veterans' participation in the STEM workforce, factors that affect their participation, and promising practices to increase participation and success in these fields. A convening in early 2021 will bring together key stakeholders to discuss the implications of these findings and how to best strengthen and scale the impact of existing initiatives to support women veterans' success.

# Engaging and Retaining Women Veterans in the STEM Workforce

## Why is it important to support women veterans' entry into STEM careers?

**Women veterans bring many strengths to the civilian workforce, including leadership, teamwork, problem-solving skills, resilience and persistence.**



Supporting women veterans' entry into the STEM workforce will be advantageous to the field, and also will help the women themselves. Women veterans in STEM professions make 54% more than do women veterans in non-STEM jobs, and they earn 13% more than non-veteran women in STEM.<sup>1</sup> Stronger pathways to STEM careers for women veterans will strengthen post-service financial stability for them and their families.

We know that women veterans are interested in pursuing STEM careers: They are nearly twice as likely to be in a STEM occupation than are non-veteran women. The top three STEM occupation

categories for women veterans are computer and mathematical, computer science and information technology, and engineering.<sup>2</sup> This ranking is notable because engineering and computer science are two STEM occupation areas where women are most underrepresented, making up just 15% and 26% of the total workforce, respectively.<sup>3</sup> Given that most women in the military are women of color,<sup>4</sup> supporting women veterans' entry into STEM professions will increase both gender and racial diversity in a field where most jobs are held by men who identify as White or Asian.

## What are the challenges women veterans face when (re)entering the civilian workforce?

While there are vast networks of veterans' support services, most were developed primarily for male veterans; programs specifically for women are typically fractured and isolated. When trying to (re)enter the civilian workforce, women veterans face the following additional challenges.

### Career Development Programs, Education, and Training

Women veterans typically are underserved by existing career development programs and policies.<sup>5</sup> In addition, their difficulty in transitioning to the civilian workforce may be exacerbated by their military assignments; women veterans report they do not feel they were given equal opportunities for advancement or given assignments that would lead to promotions. Further studies indicate that may be due to the same gender stereotypes and advancement issues that exist in the civilian workforce.<sup>6</sup>

Woman veterans suffer from the same pay inequities as other women in the workforce, even when they are better educated than their male counterparts.<sup>7</sup> The enlisted active duty force represents the ethnic and racial diversity of the United States, but African American women veterans are far less likely to successfully return to the civilian workforce than are African American males, White females, and White males.<sup>8</sup> There also is a rising incidence of homelessness among women veterans, who are twice as likely to be homeless as are non-veteran women.<sup>9</sup>

### Mental Health Services

Women veterans often benefit from the support of mental health services, in part because they are more likely to experience frequent mental distress—both during and after active duty—as well as post-traumatic stress disorder (PTSD), trauma in their pre-military lives, and military sexual trauma.<sup>10, 11, 12</sup> Lack of appropriate mental health services can affect their ability to obtain and keep jobs.

### Parenting and Childcare Support

Another unique challenge for women veterans that affects their reentry into the workforce and ability to engage in higher education is the lack of parenting and childcare services.<sup>13, 14</sup> They report feeling as though they were expected to immediately resume their parenting role, with no time for transition and little assistance finding childcare.<sup>15</sup> In addition, women veterans are more likely than men to be single parents, or to be married to another service member, or to be divorced.<sup>16</sup> Often an inability to find childcare is a tremendous additional burden for women veterans who are trying to return to the workforce.<sup>17</sup> And just as homelessness may affect a woman's employability, it also likely affects her access to quality childcare. In fact, homeless veterans have continually cited childcare as their number one unmet need.<sup>18</sup>



## How can we help women veterans meet the challenges they face?

The percentage of the US veterans who are women is projected to double between 2010 and 2040, from 8% to 16%.<sup>19</sup>

As the number of woman veterans continues to grow, the availability and quality of services available to them must evolve accordingly. Once they are hired, women veterans often continue to struggle with their transition; in fact, 44% of women veterans surveyed said they did not feel completely adjusted.<sup>20</sup> They require support throughout the transition period, including ongoing access to education and training, mental health services, and childcare.

An issue that applies more broadly to all veterans who wish to pursue a career in STEM is limitations of GI Bill benefits. The GI Bill allowed a student to take up to four years to complete a college degree, but many STEM

programs require applicants to have successfully completed prerequisite courses that push degree completion beyond the four-year timeframe. To address this and other issues, Congress enacted the Harry W. Colmery Veterans Educational Assistance Act (the Forever GI Bill; H.R.3218) to make education more accessible to veterans; one provision allows veterans pursuing STEM careers additional time and benefits to complete their degree. While the Forever GI Bill makes much-needed improvements, none of them specifically targets women. We must define and enact specific revisions to GI Bill benefits that could boost female participation in STEM education.

## Why do we need a comprehensive approach to supporting women veterans in STEM?

While much is known about the specific needs of women veterans and the transition from service to civilian life, there is still much work to be done to ensure that those who have served our country can leverage their experience and leadership expertise into economic opportunities.

By gathering and analyzing findings about the current state of this effort, we can advance understanding and pave the way for greater collaboration among organizations that seek to support the unique needs of women veterans. With better communication and stronger collaboration, we can avoid duplication of efforts to serve women veterans, devoting more resources to their support and strengthening the pipeline from service to STEM. To further this goal, in 2021 we will convene representatives from the National Science Foundation, federal agencies serving the military and veterans, industry, higher education, women veterans themselves, and others interested in broadening participation in the STEM workforce by actively recruiting women veterans. This convening will focus on two



overarching questions: (1) What is the current ecosystem of veterans' support services that specifically target women? and (2) How can we develop and leverage existing services to provide more targeted outreach to engage, train, and retain women veterans in the STEM workforce?

## In Summary

These findings will provoke national dialogue on the importance of policies and programs to support women veterans in seeking greater economic opportunities through STEM work. We can leverage the unique expertise of these individuals only by providing the additional support they need to be able to successfully join the STEM workforce. While such support exists in isolated pockets and instances, it is critical that our nation create opportunities for all female veterans. We seek to bring key stakeholders together for this timely and critical discussion, and invite those who are interested to join us.

For more information about the project, check out our website [womenvetsstem.edc.org](http://womenvetsstem.edc.org)

## References

1. Maury, R. V., Zoli, C., Fay, D., Armstrong, N., Boldon, N. Y., Linsner, R. K., & Cantor, G. (2018, March). Women in the military: From service to civilian life. Syracuse, NY: Institute for Veterans and Military Families, Syracuse University.
2. Maury, R., Stone, B., & Armstrong, N. (2018). Enhancing veterans' access to STEM education and careers: A labor market analysis of veterans in the STEM workforce. Syracuse, NY: Institute for Veterans and Military Families, Syracuse University.
3. National Science Board. (2018). Science and engineering indicators 2018. NSB-2018-Alexandria, VA: National Science Foundation. Retrieved from <https://www.nsf.gov/statistics/indicators/>
4. Service Women's Action Network (2019). Women in the military: Where they stand (10th Ed.). Author. <https://www.servicewomen.org/wp-content/uploads/2019/04/SWAN-Where-we-stand-2019-0416revised.pdf>
5. Greer, T. (2017). Career Development for Women Veterans: Facilitating Successful Transitions From Military Service to Civilian Employment. *Advances in Developing Human Resources*, 19(1), 54-65. <https://doi.org/10.1177/1523422316682737>
6. Murphy, F. M., & Hans, S. (2014). *Women veterans: The long journey home.*. Cold Spring, KY: Disabled American Veterans. Retrieved from <https://www.dav.org/wp-content/uploads/women-veterans-study.pdf>
7. Lange, R. & Cedillo, C. (2014, April 21). Workforce transition proves more challenging for female veterans. Retrieved from <https://bainesreport.org/2014/04/workforce-transition-proves-more-challenging-for-female-veterans/>
8. Moore, C. L., Wang, N., Johnson, J., Manyibe, E. O., Washington, A. L., & Muhammad, A. (2016). Return-to-Work Outcome Rates of African American Versus White Veterans Served by State Vocational Rehabilitation Agencies: A Randomized Split-Half Cross-Model Validation Research Design. *Rehabilitation Counseling Bulletin*, 59(3), 158-171. <https://doi.org/10.1177/0034355215579917>
9. Murphy, F. M., & Hans, S. (2014). *Women veterans: The long journey home.*. Cold Spring, KY: Disabled American Veterans. Retrieved from <https://www.dav.org/wp-content/uploads/women-veterans-study.pdf>
10. DiBiasio, E., Rosenthal, S. R., & Clark, M. A. (2014). Correlates of Frequent Mental Distress among Active and Former Military Personnel. *Health & Wellness Department Faculty Publications and Research*, 22(2). [https://scholarsarchive.jwu.edu/health\\_fac/18](https://scholarsarchive.jwu.edu/health_fac/18)
11. Franklin, E. (2009). The Emerging Needs of Veterans: A Call to Action for the Social Work Profession. *Health & Social Work*, 4(3), 163-167. <https://doi.org/10.1093/hs/w/34.3.163>
12. Street, A. E., Vogt, D., & Dutra, L. (2009). A new generation of women veterans: Stressors faced by women deployed to Iraq and Afghanistan. *Clinical Psychology Review*, 29, 685-694. <https://doi.org/10.1016/j.cpr.2009.08.007>
13. Women. Ramirez, R. & Van Dielen, M. (2013). *Responding to the needs of women veterans involved in the criminal justice system.* Washington, D.C.: National Resource Center on Justice Involved Women. Retrieved from <https://cjinvolvedwomen.org/wp-content/uploads/2015/09/WomenVeteransREV1-21-14.pdf>
14. Lange, G. (2008). *Pilot study of reintegration and service needs for women veteran mothers.* East Orange, NJ : U.S. Department of Veterans Affairs, Health Services Research and Development Service. Retrieved from [https://www.hsrd.research.va.gov/research/abstracts.cfm?Project\\_ID=2141698773](https://www.hsrd.research.va.gov/research/abstracts.cfm?Project_ID=2141698773)
15. Business and Professional Women's Foundation. (2015). *Women veterans in transition: Understanding the complexity of women veterans' career transitions.* Washington, DC: Business and Professional Women's Foundation. Retrieved from <http://joiningforces.issuelab.org/resource/understanding-the-complexity-of-women-veterans-career-transitions.html>
16. Mulhall, E. (2009). *Women warriors: Supporting she "who has borne the battle" (Issue Report).* New York, NY: Iraq and Afghanistan Veterans of America. Retrieved from [https://dma.wi.gov/DMA/hr/eoo/IAVA\\_WomensReport\\_2009.pdf](https://dma.wi.gov/DMA/hr/eoo/IAVA_WomensReport_2009.pdf)
17. Greer, T. (2017). Career Development for Women Veterans: Facilitating Successful Transitions From Military Service to Civilian Employment. *Advances in Developing Human Resources*, 19(1), 54-65. <https://doi.org/10.1177/1523422316682737>
18. Williamson, V., Mulhall, E. (2009). *Coming Home: The Housing Crisis and Homelessness Threaten New Veterans.* New York, NY: Iraq and Afghanistan Veterans of America. Retrieved from [https://issuu.com/iaava/docs/coming\\_home\\_2009](https://issuu.com/iaava/docs/coming_home_2009)
19. National Center for Veterans Analysis and Statistics. (2017). *Women Veterans Report: The past, present, and future of women veterans.* Washington, D.C. : Department of Veteran Affairs. Retrieved from [https://www.va.gov/vetdata/docs/specialreports/women\\_veterans\\_2015\\_final.pdf](https://www.va.gov/vetdata/docs/specialreports/women_veterans_2015_final.pdf)
20. Business and Professional Women's Foundation. (2015). *Women veterans in transition: Understanding the complexity of women veterans' career transitions.* Washington, DC: Business and Professional Women's Foundation. Retrieved from <http://joiningforces.issuelab.org/resource/understanding-the-complexity-of-women-veterans-career-transitions.html>



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