



**WOUNDED WARRIOR  
PROJECT®**

# ANNUAL WARRIOR SURVEY 2022

WOUNDED WARRIOR  
JASON FOSTER

LONGITUDINAL: WAVE 2

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<b>AUTHORS AND ACKNOWLEDGMENTS</b> .....	1
<b>AUTHORS</b> .....	1
<b>ACKNOWLEDGMENTS</b> .....	1
<b>SUGGESTED CITATION</b> .....	1
<b>TABLE OF CONTENTS</b> .....	1
<b>EXECUTIVE SUMMARY</b> .....	3
<b>ABOUT WOUNDED WARRIOR PROJECT</b> .....	4
<b>ABOUT THE ANNUAL WARRIOR SURVEY</b> .....	4
Aim.....	4
The 2022 Survey.....	4
Methodology.....	5
Population Sampling.....	5
New Topics & Updates to Existing Topics.....	5
AWS Questions That Will Be Included in Alternating Years...	5
<b>HOW TO INTERPRET THIS REPORT</b> .....	6
Who It Represents: WWP Warriors.....	6
Comparisons.....	6
Callout Boxes.....	6
Appendix.....	6
<b>OVERALL FINDINGS</b> .....	7
<b>STRONGEST PREDICTOR OF GOOD QUALITY OF LIFE:</b>	
SLEEP.....	8
<b>STRONGEST PREDICTOR OF POOR QUALITY OF LIFE:</b>	
DEPRESSION.....	8
CURRENT EVENT CONTEXT.....	9
AWS LIMITATIONS.....	9
<b>WWP WARRIORS: A 360-DEGREE VIEW</b> .....	10
AGE.....	11
SEX.....	12
RACE AND ETHNICITY.....	12
EDUCATION.....	14
MARITAL STATUS.....	15
CHILDREN IN THE HOUSEHOLD.....	15
CURRENT MILITARY STATUS.....	16
BRANCH OF SERVICE.....	16
PAY GRADE/RANK.....	16
UNEMPLOYMENT.....	17
VA DISABILITY RATING.....	17
<b>SELF-REPORTED SERVICE-RELATED</b>	
<b>INJURIES AND HEALTH PROBLEMS</b> .....	18
Amputations & Prosthetics.....	19
<b>INTRODUCTION: QUALITY OF LIFE</b> .....	21
<b>QUALITY OF LIFE: DEFINITION &amp; APPROACH</b> .....	22
<b>QUALITY OF LIFE:</b>	
<b>HOLISTIC WELL-BEING COMPONENTS</b> .....	22
Additional Factors Driving Quality of Life:	
Support and Care.....	23
Quality of Life Measure.....	24
Statistical Analysis of Quality of Life.....	24
Overall QoL Results.....	25

# TABLE OF CONTENTS



<b>MENTAL HEALTH &amp; WELLNESS</b> .....	<b>27</b>	<b>FINANCIAL WELL-BEING</b> .....	<b>57</b>
<b>POST-TRAUMATIC STRESS DISORDER</b> .....	<b>28</b>	Financial Well-Being and QoL.....	58
PTSD and QoL.....	29	<b>HOMELESSNESS</b> .....	<b>59</b>
<b>DEPRESSION</b> .....	<b>29</b>	Homelessness and QoL .....	59
Depression and QoL .....	30	<b>OVERALL IMPACT OF FINANCIAL WELLNESS ON QoL</b> .....	<b>59</b>
<b>ANXIETY</b> .....	<b>31</b>	<b>SOCIAL CONNECTION</b> .....	<b>61</b>
Anxiety and QoL .....	32	<b>LONELINESS</b> .....	<b>62</b>
<b>SELF-DIRECTED VIOLENCE</b> .....	<b>32</b>	Loneliness and QoL.....	64
Suicidal Thoughts and Behavior .....	33	<b>OVERALL IMPACT OF SOCIAL CONNECTION ON QoL</b> .....	<b>64</b>
Resources Used for Suicidality .....	33	<b>SPIRITUAL</b> .....	<b>65</b>
Suicidal Thoughts and QoL.....	35	<b>POST-TRAUMATIC GROWTH</b> .....	<b>66</b>
<b>MILITARY SEXUAL TRAUMA</b> .....	<b>35</b>	PTG (Overall and Spiritual Change Domain) and QoL .....	67
MST and QoL.....	36	<b>RESILIENCE</b> .....	<b>68</b>
<b>BRAIN HEALTH</b> .....	<b>36</b>	Resilience and QoL.....	69
Head-Related Trauma.....	36	<b>OVERALL IMPACT OF SPIRITUAL WELLNESS ON QoL</b> .....	<b>69</b>
Head-Related Trauma and QoL.....	37	<b>OVERALL IMPACT ON WWP WARRIORS' QoL</b> .....	<b>71</b>
<b>SUBSTANCE USE</b> .....	<b>37</b>	<b>SUPPORT AND CARE</b> .....	<b>73</b>
Drug Abuse .....	38	<b>ACCESS TO CARE</b> .....	<b>74</b>
Drug Abuse and QoL.....	38	Health Care Coverage .....	74
<b>ALCOHOL</b> .....	<b>39</b>	Health Care Providers.....	75
Hazardous Drinking and QoL .....	39	Health Care Services.....	76
<b>MENTAL HEALTH COMORBIDITIES: PTSD, DEPRESSION,</b>		<b>BARRIERS TO CARE</b> .....	<b>78</b>
<b>AND ANXIETY</b> .....	<b>40</b>	Barriers to VA Care.....	78
Mental Health Comorbidities and QoL .....	40	Barriers to Physical Care.....	79
<b>COMORBID MENTAL HEALTH CONDITIONS AND</b>		Barriers to Physical Care and QoL .....	80
<b>SUBSTANCE ABUSE</b> .....	<b>40</b>	Barriers to Mental Health Care.....	80
Comorbid Mental Health Conditions, Substance Abuse,		<b>TELEHEALTH</b> .....	<b>82</b>
and QoL .....	41	Telehealth and QoL .....	83
<b>OVERALL IMPACT OF MENTAL HEALTH ON QoL</b> .....	<b>41</b>	<b>AID AND ASSISTANCE</b> .....	<b>83</b>
<b>PHYSICAL HEALTH</b> .....	<b>43</b>	Instrumental Support .....	83
<b>PHYSICAL ACTIVITY</b> .....	<b>44</b>	Instrumental Support and QoL.....	84
Physical Activity and QoL.....	45	Caregiving.....	84
<b>BODY MASS INDEX</b> .....	<b>45</b>	Caregiver Relationships.....	84
Obesity and QoL .....	46	<b>SUPPORT AND CARE FACTORS' IMPACT</b>	
<b>CHRONIC PAIN</b> .....	<b>46</b>	<b>ON WWP WARRIORS QoL</b> .....	<b>85</b>
Pain Management .....	47	<b>SPECIAL TOPIC: TOXIC EXPOSURE</b> .....	<b>87</b>
Chronic Pain and QoL .....	48	<b>EXPOSURE TO ENVIRONMENTAL HAZARDS</b> .....	<b>88</b>
<b>SLEEP</b> .....	<b>48</b>	<b>BURN PITS</b> .....	<b>90</b>
Sleep and QoL.....	50	<b>EXPOSURE-RELATED SYMPTOMS</b> .....	<b>90</b>
<b>OVERALL IMPACT OF PHYSICAL HEALTH ON QoL</b> .....	<b>50</b>	<b>EXPOSURE-RELATED HEALTH CONDITIONS</b> .....	<b>90</b>
<b>FINANCIAL WELLNESS</b> .....	<b>51</b>	<b>EXPOSURE-RELATED TREATMENT</b> .....	<b>90</b>
<b>EMPLOYMENT</b> .....	<b>52</b>	<b>EXPOSURE-RELATED DISABILITY CLAIMS</b> .....	<b>91</b>
Unemployment .....	53	The Honoring Our Pact Act.....	91
Barriers to Employment .....	53	<b>APPENDIX</b> .....	<b>93</b>
Income.....	54		
Employment and QoL .....	54		
<b>FINANCIAL STRAIN</b> .....	<b>54</b>		
Financial Strain and QoL.....	56		
<b>FOOD SECURITY</b> .....	<b>56</b>		
Food Security and QoL .....	57		



# **EXECUTIVE SUMMARY**

# EXECUTIVE SUMMARY



## ABOUT WOUNDED WARRIOR PROJECT

**Wounded Warrior Project is a nonprofit 501(c)(3) veterans service organization that is transforming the way America's injured post-9/11 veterans are empowered, employed, and engaged in their communities.** WWP supports warriors through and beyond their transitions to civilian life with services in mental health, physical health, peer connection, career counseling, and financial wellness.

In addition to its direct services to warriors, WWP advocates before Congress, the Department of Veterans Affairs (VA), and the Department of Defense (DoD) for veteran policies and initiatives that make a real difference. These efforts have led to the creation and passage of life-changing legislation, including the Honoring Our Promise to Address Comprehensive Toxics Act of 2022 (known as the PACT Act), Servicemembers' Group Life Insurance Traumatic Injury Protection program, the Caregivers and Veterans Omnibus Health Services Act of 2010, the Ryan Kules and Paul Benne Specially Adaptive Housing Improvement Act of 2019, and the Veteran Families Financial Support Act of 2020.

WWP's programs, services, and advocacy efforts are all driven by the greatest needs of warriors, informed by the responses to this survey.

### AIM

The Annual Warrior Survey (AWS) aims to identify and highlight emerging trends among WWP warriors over time and understand the impact of different factors on quality of life.

## ABOUT THE ANNUAL WARRIOR SURVEY

### THE 2022 SURVEY

WWP's 2022 AWS has grown to represent more than 165,000 post-9/11 veterans across the continental U.S. and its territories. The AWS gives WWP warriors a platform to be heard by individuals and organizations who have the power to initiate change. This data provides a 360-degree view of the warriors WWP serves and allows us to understand and address warriors' most pressing needs in areas such as mental, physical, and financial wellness. It guides WWP's efforts, as well as the efforts of those who share and support our mission of honoring and empowering warriors.

The 2022 WWP AWS is the 13th administration of the survey. The 2022 AWS included survey questions addressing warrior demographics, military experience, service-connected injuries, whole health, access to health care, financial wellness, social connection, and support. The survey is not intended to measure the impact of individual WWP programs; however, WWP uses AWS data to determine how it can better serve its warriors through direct service programs and advocacy efforts.

## NEW TOPICS AND UPDATES TO EXISTING TOPICS

- **POST-TRAUMATIC GROWTH** *measured by the Post-traumatic Growth Inventory.*
- **PHYSICAL HEALTH** *measured by the Physical Activity Scale for Individuals with Physical Disabilities (PASIPD) in the 2022 AWS as it accounts for individuals with physical injuries and who use assistive devices. It also provides similar outcomes to the previous measure. In the 2021 AWS, this was measured by the Global Physical Activity Questionnaire (GPAQ).*
- **RESILIENCE** *measured by the Connor-Davidson Resilience Scale 2-Item (CD-RISC-2) in 2022 AWS as it provides similar, robust results in fewer questions to help with survey burden. In the 2021 AWS, this was measured by the Connor-Davidson Resilience Scale 10-Item (CD-RISC-10).*
- **PAIN** *measured by the Pain, Enjoyment of Life, and General Activity (PEG) scale in 2022 AWS as it provides an overview of the impact of pain in fewer questions to reduce survey burden. In the 2021 AWS, this was measured by the Chronic Pain Grade Scale.*

## AWS QUESTIONS THAT WILL BE INCLUDED IN ALTERNATING YEARS

Select AWS questions are only included in alternating years of the survey to reduce the survey burden. For example, questions about gaming were included in the 2021 AWS and will be included in the 2023 AWS.

## METHODOLOGY

The first AWS was administered in 2010 and has been revised over the years to collect the most timely and pertinent information as the needs of warriors evolve. As part of this evolution and WWP's commitment to understanding warriors' most pressing needs, the survey transitioned in 2021 from a cross-sectional census to a longitudinal sample survey. This shift in design and methodology was retained for 2022 and will remain for future iterations.

The primary advantage of a longitudinal design over a cross-sectional design is that it allows WWP to observe changes in individuals over time. This makes it possible for WWP to predict, with greater accuracy, how aging and particular life events affect warriors.

## POPULATION SAMPLING

The 2022 AWS was administered by NORC and was sent to 94,781 WWP warriors. Data collection continued for 10 weeks, from June 15 to August 24, 2022. A multimodal survey recruitment approach was used for the 2022 survey. Warriors received weekly email reminders, text message reminders, and three postal mail reminders throughout the field period. Incentive gifts were provided to thank warriors for their time and increase overall participation. Warriors who submitted the survey received a WWP-branded survival multitool and magnet.

The final response rate for 2022 was 20.4% (19,303 completed surveys among 94,781 eligible WWP warriors in the survey population) and represents the 165,967 warriors registered with WWP as of April 2022. The Appendix includes more details on survey methods and administration.

As a longitudinal sample survey, the AWS is sent only to a preselected portion of the warrior population. This group is selected using random sampling to ensure the results of this report can be interpreted as statistically representative of the entire WWP warrior population. Oversampling of women and young adults was implemented to ensure their representation in analyses.

# HOW TO INTERPRET THIS REPORT

## WHO IT REPRESENTS: WWP WARRIORS

Results from the AWS represent veterans and service members registered with WWP, referred to in this report as “warriors” or “WWP warriors.” Veterans and service members registered with WWP served in the military on or after September 11, 2001, and incurred a mental or physical injury, illness, or wound as a result of their service.

## COMPARISONS

To provide context for the information presented, comparisons between 2021 AWS (wave 1) and 2022 AWS (wave 2) data will be made throughout the report. The report also makes comparisons between the WWP warrior population and these three other populations:

- **THE U.S. VETERAN POPULATION:** the broader U.S. adult population who are veterans of the U.S. Armed Forces, as reported by the 2020 U.S. census.<sup>1</sup>
- **THE U.S. POST-9/11 VETERAN POPULATION:** U.S. veterans who served after September 2001, as reported by the 2020 U.S. census.<sup>1</sup>
- **THE U.S. GENERAL POPULATION:** U.S. adults aged 18 years or older, as reported by the 2020 U.S. census.<sup>1</sup>

The report compares 2022 AWS data with the 2021 AWS and other populations only when comparative data is relevant and available. Some comparisons in the report may include only specific years or populations due to data availability.



## CALLOUT BOXES

The callout boxes provide additional information to aid readers in understanding the content of this report.

## APPENDIX

The Appendix provides detailed supplemental information on topics such as methodology, weighting, and survey communications. The Appendix also includes a list of all WWP programs and the contact information for the WWP Resource Center.



# **OVERALL FINDINGS**



# OVERALL FINDINGS



In the 2022 AWS, WWP warriors had an average physical health quality of life (QoL) score of 39.0 and average mental health QoL score of 35.7, which are slightly different than 2021 AWS results (physical health QoL score of 38.8; mental health QoL score of 36.1). This suggests that, overall, WWP warriors' physical health has slightly improved since last year, and their mental health has slightly decreased.

We performed analyses to explore which variables within each QoL component (mental, physical, financial, social connection, and spiritual) are the best predictors of quality of life for WWP warriors. These analyses found the following variables to have the strongest impact on each QoL component:

- **MENTAL COMPONENT:** Post-traumatic stress disorder (PTSD) and depression
- **PHYSICAL COMPONENT:** Body mass index (BMI) and sleep quality
- **FINANCIAL COMPONENT:** Employment
- **SOCIAL CONNECTION COMPONENT:** Loneliness
- **SPIRITUAL COMPONENT:** Post-traumatic growth



## STRONGEST PREDICTOR OF GOOD QUALITY OF LIFE: SLEEP

This suggests that as warriors' quality of sleep improves, so does their quality of life. This is a critical insight considering 80% reported sleep problems in 2022, making it the most common self-reported injury or health problem for all WWP warriors.



## STRONGEST PREDICTOR OF POOR QUALITY OF LIFE: DEPRESSION

This suggests that as the severity of depressive symptoms increases, WWP warriors' quality of life decreases. This is also a critical insight considering nearly three in every four warriors report experiencing depression (74%) and about half screened positive for moderate to severe depressive symptoms at the time of the survey (55%).

## OUTSIDE FACTORS

In addition to the five QoL components mentioned above, outside factors such as the support and care warriors receive (e.g., access to care, aid and assistance) can also impact quality of life. Overall, the findings suggest that the support and care components appear to **mediate** rather than **directly impact** WWP warriors' quality of life.

# CURRENT EVENT CONTEXT

Some key events have taken place that are important to consider when reviewing the findings in this report. This list provides additional context for what was happening in society during the time that survey data was collected, which may impact the interpretation of the results:

- Conflict in Ukraine
- Afghanistan withdrawal
- Outcomes from events on January 6, 2021
- Outcomes from the COVID-19 pandemic
- Current economic climate and inflation in the U.S.
- The Honoring Our Promise to Address Comprehensive Toxics Act of 2022, known as the Honoring Our PACT Act of 2022, was signed into law
- Passing of gender-specific care legislation, such as the Deborah Sampson Act of 2020, and Making Advances in Mammography and Medical Options for Veterans Act (the MAMMO Act)
- Updates to the Care for the Veteran Caregiver Act

# AWS LIMITATIONS

While reviewing the findings within this report, it is important to remember that no survey or research project is without its limitations. The findings are representative of the WWP warrior population and may not be relevant to the wider veteran community. The analyses in this report provide an initial attempt to understand the relationship among factors that may impact WWP warriors' quality of life. Other possible background factors, such as pre-existing characteristics, may affect WWP warriors' quality of life and were not included in the analyses. These limitations should not have an impact on the results, but they could be used as explanatory reasons for inequities behind WWP warriors' quality of life. It is also important to remember that these findings provide an overview at this moment in time and do not provide the full picture of what is happening for any one individual and his/her situation or why.



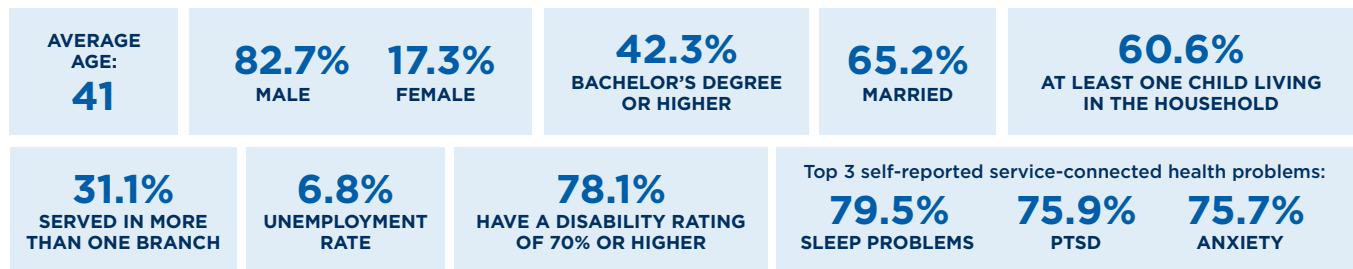
**If you would like to learn more about the support WWP can provide to you or someone you know, please see the Appendix for a full list of WWP's free programs and services and contact information for the WWP Resource Center.**

**WWP  
WARRIORS:  
A 360-DEGREE  
VIEW**



# WWP WARRIORS: A 360-DEGREE VIEW

This 360-degree view lays out the basic characteristics that begin to paint a picture of those whom this survey represents — WWP warriors. To provide further context, this section compares WWP warrior demographic data with demographic data of the broader U.S. veteran population, post-9/11 veteran population, and U.S. general population, as reported by the 2020 U.S. census.<sup>1</sup>



## AGE

The 2022 survey found the average age of WWP warriors to be 41 years. The largest subset of WWP warriors is 35 years and older (79.4%). When comparing average age, WWP warriors are older compared to the U.S. post-9/11 veteran population (37 years) and younger than all U.S. veterans (60 years) and U.S. adults (48 years).

Any references to “WWP warrior age cohorts” throughout the report refer to the breakdown of the different age categories included in Table 1.

**TABLE 1: Age - WWP Warriors and Comparative Populations**

Age (in years)	★ WWP WARRIORS	U.S. Post-9/11 Veterans	U.S. Veterans	U.S. General Population (Adults 18 years & over)
<b>Average</b>	<b>41</b>	<b>37</b>	<b>60</b>	<b>48</b>
18-24	1.1%	13.6%	3.4%	12.0%
25-34	19.5%	36.0%	9.1%	17.9%
35-44	49.5%	27.0%	9.9%	16.4%
45-54	21.1%	14.9%	13.6%	16.4%
55-64	8.1%	7.1%	16.8%	16.6%
65+	0.7%	1.4%	47.2%	20.7%

# SEX

In the 2022 survey, **82.7% of WWP warriors reported their sex as male; 17.3% reported as female** – a larger representation of females compared with the overall U.S. veteran population and a similar proportion to the U.S. post-9/11 veteran population.

**TABLE 2: Sex – WWP Warriors and Comparative Populations**

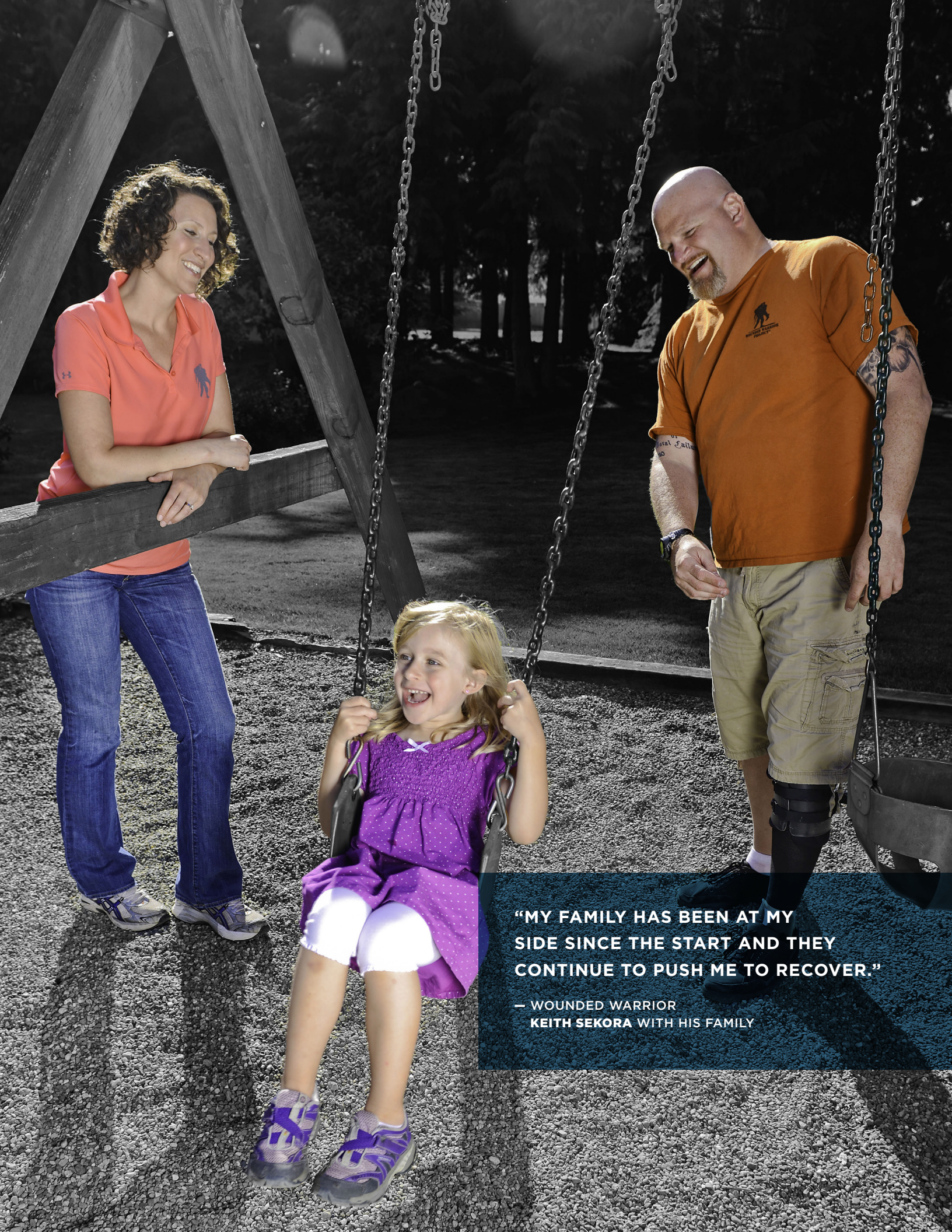
Sex	★ WWP WARRIORS	U.S. Post-9/11 Veterans	U.S. Veterans	U.S. General Population (Adults 18 years & over)
Male	<b>82.7%</b>	84.0%	90.6%	48.7%
Female	<b>17.3%</b>	16.0%	9.4%	51.3%

# RACE AND ETHNICITY

In terms of race and ethnicity, the WWP warrior population is more diverse than the broader U.S. veteran, post-9/11 veteran, and U.S. general populations.

**TABLE 3: Race – WWP Warriors and Comparative Populations**

Race	★ WWP WARRIORS	U.S. Post-9/11 Veterans	U.S. Veterans	U.S. General Population (Adults 18 years & over)
White alone	<b>66.8%</b>	72.0%	80.3%	72.2%
Black or African American alone	<b>14.7%</b>	15.1%	12.1%	12.3%
American Indian/ Alaskan Native alone	<b>1.9%</b>	0.8%	0.8%	0.8%
Asian alone	<b>2.4%</b>	3.1%	1.8%	5.8%
Native Hawaiian/ Pacific Islander alone	<b>1.1%</b>	0.4%	0.2%	0.2%
Other	<b>3.7%</b>	2.9%	1.7%	4.8%
Two or more races	<b>9.4%</b>	5.6%	3.1%	4.0%



**“MY FAMILY HAS BEEN AT MY  
SIDE SINCE THE START AND THEY  
CONTINUE TO PUSH ME TO RECOVER.”**

**— WOUNDED WARRIOR  
KEITH SEKORA WITH HIS FAMILY**

**TABLE 4: Ethnicity - WWP Warriors and Comparative Populations**

Ethnicity	★ WWP WARRIORS	U.S. Post-9/11 Veterans	U.S. Veterans	U.S. General Population (Adults 18 years & over)
Mexican, Mexican American, Chicano/a	8.9%	7.6%	4.3%	9.6%
Puerto Rican	4.8%	2.6%	1.4%	1.6%
Cuban	0.5%	0.4%	0.3%	0.7%
Other Hispanic, Latino/a, or Spanish Origin	5.8%	3.3%	1.7%	4.2%
Not of Hispanic, Latino/a, or Spanish Origin	80.1%	86.1%	92.3%	83.9%

**NOTE:** Hispanic origin is considered an ethnicity, not a race. The population that is Hispanic may be of any race.

## EDUCATION

**With 42.3% having obtained a bachelor’s degree or higher, WWP warriors tend to be more educated compared to the two veteran population groups and the U.S. adult population.**

About one in seven WWP warriors are currently pursuing education (14.6%), and 20.7% have used or are currently using the VA’s Veteran Readiness and Employment Program (VR&E) for job readiness and education.

WWP warriors who have used or are currently using VR&E have enrolled in Employment Through Long-Term Services - Training/Education more than any other VR&E service. The common utilization of this service could point to the difficulties warriors face in translating military skills for the civilian workforce.

**TABLE 5: Education - WWP Warriors and Comparative Populations**

Education	★ WWP WARRIORS	U.S. Post-9/11 Veterans	U.S. Veterans	U.S. General Population (Adults 18 years & over)
Less than high school diploma/GED	0.3%	1.9%	5.2%	11.6%
High school diploma/GED	9.6%	21.5%	27.9%	27.5%
Some college or associate degree	47.9%	43.9%	37.9%	30.6%
Bachelor’s degree	25.4%	19.9%	17.1%	19.0%
Master’s degree	15.2%	10.2%	8.4%	8.0%
Professional or doctorate degree	1.7%	2.5%	3.4%	3.2%

# MARITAL STATUS

WWP warriors reported being married (65.2%) and divorced or separated (21.4%) at higher rates than the other three population groups. Only 12.7% of WWP warriors report never being married, which is less than half of what is reported among the U.S. post-9/11 veteran population (28.7%) and U.S. general population (30.4%).

**TABLE 6: Marital Status – WWP Warriors and Comparative Populations**

Marital Status	★ WWP WARRIORS	U.S. Post-9/11 Veterans	U.S. Veterans	U.S. General Population (Adults 18 years & over)
Married	65.2%	55.7%	62.7%	50.4%
Widowed	0.7%	0.6%	7.6%	6.0%
Divorced or separated	21.4%	14.9%	17.1%	13.3%
Never married; single	12.7%	28.7%	12.5%	30.4%

# CHILDREN IN THE HOUSEHOLD

About three in five WWP warriors have at least one child living within the household (60.6%), which is notably higher than the other population groups. Of those with children in the household, the average number of children is two.

**TABLE 7: Children in the Household – WWP Warriors and Comparative Populations**

Children in the Household	★ WWP WARRIORS	U.S. Post-9/11 Veterans	U.S. Veterans	U.S. General Population (Adults 18 years & over)
At least one child living within the household	60.6%	47.6%	21.3%	34.5%
No children living within the household	39.4%	52.4%	78.7%	65.5%



# CURRENT MILITARY STATUS

More than nine in 10 WWP warriors are veterans (94.6%) and have been out of the service for an average of 9.5 years. Just 3.8% are currently on active duty, meaning they are actively serving and can be deployed at any time if necessary, and 4.4% are currently members of the National Guard or Reserve. Among warriors who are veterans, 47.7% are separated or discharged, 36.3% are retired due to medical reasons, and 16.0% are retired due to non-medical reasons. The average number of deployments among WWP warriors is five.

**TABLE 8: Active Duty – WWP Warriors and Comparative Populations**

Military Status	★ WWP WARRIORS	U.S. Post-9/11 Veterans	U.S. Veterans	U.S. General Population (Adults 18 years & over)
Active duty	3.8%	22.8%	5.7%	0.4%

## BRANCH OF SERVICE

About three in 10 WWP warriors served in more than one branch (31.3%). Most WWP warriors reported having served in the Army (64.5%), followed by the National Guard or Reserve (31.9%), Marine Corps (16.8%), Navy (13.3%), Air Force (12.5%), Coast Guard (1.0%), and Space Force (0.2%).

**TABLE 9: Branch of Service – WWP Warriors**

Branch of Service	★ WWP WARRIORS
Army	64.5%
National Guard or Reserve	31.9%
Marine Corps	16.8%
Navy	13.3%
Air Force	12.5%
Coast Guard	1.0%
Space Force	0.2%

**NOTE:** Percentages do not total 100% as warriors were asked to choose all that apply.

## PAY GRADE/RANK

To assess military rank, WWP warriors were asked about their highest military pay grades. Most warriors were enlisted (91.4%), with the remaining proportion consisting of warrant officers and officers (8.6%). The largest proportion of enlisted warriors were midgrade enlisted at 42.7% (E5 to E6), followed by junior enlisted at 32.8% (E1 to E4), and senior enlisted at 15.9% (E7 to E9).

**TABLE 10: Highest Military Pay Grade – WWP Warriors**

Pay grade/rank	★ WWP WARRIORS
E1-E4 (junior enlisted)	32.8%
E5-E6 (midgrade enlisted)	42.7%
E7-E9 (senior enlisted)	15.9%
W1-W5 (warrant officers)	1.4%
O1-O3 (junior officers)	3.3%
O4-O10 (senior officers)	3.8%

# UNEMPLOYMENT

While the unemployment rates for each population have fallen in the past year, the WWP warrior unemployment rate appears to have made the greatest improvement — falling from 13.4% in 2021 AWS to 6.8% in 2022 AWS. However, **the WWP warrior unemployment rate is still higher than the other veteran populations and the general U.S. population.** Overall, the WWP warrior unemployment rate in 2022 AWS is comparable to that of the U.S. general population with a disability (7.7%).

**TABLE 11: Unemployment Rates – WWP Warriors and Comparative Populations**

	★ WWP WARRIORS		U.S. Post-9/11 Veterans*	U.S. Veterans*	U.S. General Population*	U.S. General Population with a disability*
	2022	2021				
Unemployment	<b>6.8%</b>	13.4%	1.9%	2.4%	3.7%	7.7%

\*Data from U.S. Bureau of Labor Statistics at time of 2022 AWS (August 2022)<sup>2</sup>

# VA DISABILITY RATING

WWP serves a specific population — veterans who served on or after September 11, 2001, and who sustained an injury, illness, or wound related to their service. A high percentage of WWP warriors with VA disability ratings is to be expected.

**Nearly all WWP warriors have a service-connected disability rating (91.9%). This is more than three times as prevalent compared with post-9/11 veterans (29.0%) and more than four times as prevalent as what is observed among all U.S. veterans (21.0%).**

A higher VA disability rating indicates a greater number of service-connected conditions and greater severity of each condition. Nearly four in five WWP warriors have a rating of 70% or higher (78.1%), which is significantly greater when compared with all post-9/11 veterans (12.8%) and all U.S. veterans (8.1%). Among WWP warriors, 8.1% report that they have no rating or that they have a VA claim pending or on appeal.

**TABLE 12: VA Disability Ratings – WWP Warriors and Comparative Populations**

VA Disability Rating	★ WWP WARRIORS	U.S. Post-9/11 Veterans	U.S. Veterans
0%	<b>0.6%</b>	1.0%	1.0%
10 or 20%	<b>2.5%</b>	5.8%	6.2%
30 or 40%	<b>3.9%</b>	5.2%	3.6%
50 or 60%	<b>6.9%</b>	5.2%	3.0%
70, 80, 90, or 100%	<b>78.1%</b>	12.8%	8.1%
None/Pending or on Appeal	<b>8.1%</b>	70.0%	78.0%

# SELF-REPORTED SERVICE-RELATED INJURIES AND HEALTH PROBLEMS

When broken down by different WWP warrior age cohorts, the top four most frequently cited service-related injuries and health problems remain the same.

**TABLE 13: Self-Reported Injuries and Health Problems Among WWP Warriors**

Self-Reported Injury/Health Problem	★ WWP WARRIORS
Sleep Problems	79.5%
PTSD	75.9%
Anxiety	75.7%
Depression	74.3%
Hearing loss or tinnitus	67.3%
Bone, joint, or muscle injury <small>(i.e., fracture, break or injury to extremities, back, shoulder, or neck)</small>	66.1%
Migraines, or chronic headaches	55.4%
Traumatic brain injury (TBI)	36.5%
Nerve injuries	32.3%
Head injury other than TBI	17.3%
Spinal cord injury	16.4%
Military sexual trauma (MST)	10.1%
Other	8.6%
Burns or lacerations	7.9%
Blindness or other vision impairment	5.2%
No severe physical or mental health problems experienced	1.9%
Amputation	1.4%

## TOP 5 Self-Reported Injuries & Health Problems



**79.5%**

SLEEP PROBLEMS



**75.9%**

PTSD



**75.7%**

ANXIETY



**74.3%**

DEPRESSION



**67.3%**

HEARING LOSS OR TINNITUS

# SELF-REPORTED SERVICE-RELATED INJURIES AND HEALTH PROBLEMS

(continued)

## AMPUTATIONS AND PROSTHETICS

About one in 70 WWP warriors indicated amputation as a service-related injury (1.4%), and 3.5% indicated they have a prosthesis. Among those with a prosthesis, 23.1% are persons with amputation as a result of post-9/11 military service.

**AMPUTATION:** John Hopkins Medicine defines amputation as “the loss or removal of a body part such as a finger, toe, hand, foot, arm or leg.”<sup>3</sup>

**PROSTHESIS:** MedlinePlus defines prosthesis as a “device designed to replace a missing part of the body or to make a part of the body work better. Diseased or missing eyes, arms, hands, legs, or joints are commonly replaced by prosthetic devices.”<sup>4</sup>

### Prosthetic Work and Support

VA medical centers are the most common places warriors go for prosthetic work. More than half of WWP warriors with a prosthesis exclusively use VA medical centers for prosthetic work (58.4%), 13.5% use services from both the VA and DoD, 7.2% exclusively use services from the DoD, and 21.0% selected “other.”

The VA is also the most common place that WWP warriors turn to for prosthesis-related *support* (59.3%). About one in 10 seek out support through support groups (10.5%).

### Prosthesis-Related Challenges

Most WWP warriors with a prosthesis reported that they do not have any prosthesis-related challenges (64.9%). However, some report challenges such as the inability to get medical care (14.2%), the inability to get training or physical therapy (10.9%), and the inability to get expenses covered (10.2%).





**“WOUNDED WARRIOR PROJECT HELPED ME GET OUT OF THE HOSPITAL ROUTINE AND LEARN TO DO NEW THINGS ON MY PROSTHETIC.”**

**— WOUNDED WARRIOR CHRIS GORDON WITH HIS SON**



# **INTRODUCTION: QUALITY OF LIFE**

# INTRODUCTION: QUALITY OF LIFE



**Wounded Warrior Project’s vision is to foster the most successful, well-adjusted generation of wounded service members in our nation’s history. We believe that being a successful, well-adjusted generation is predicated on an enhanced quality of life.**

## QUALITY OF LIFE: DEFINITION AND APPROACH

Various terms and definitions are used within research to capture the overall concept of quality of life. The World Health Organization (WHO) defines it as “individuals’ perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns.”<sup>5</sup>

**For purposes of this report, “quality of life” is defined as the degree to which a warrior’s health and wellness promote fulfilling participation and enjoyment in life.**

## QUALITY OF LIFE: HOLISTIC WELL- BEING COMPONENTS

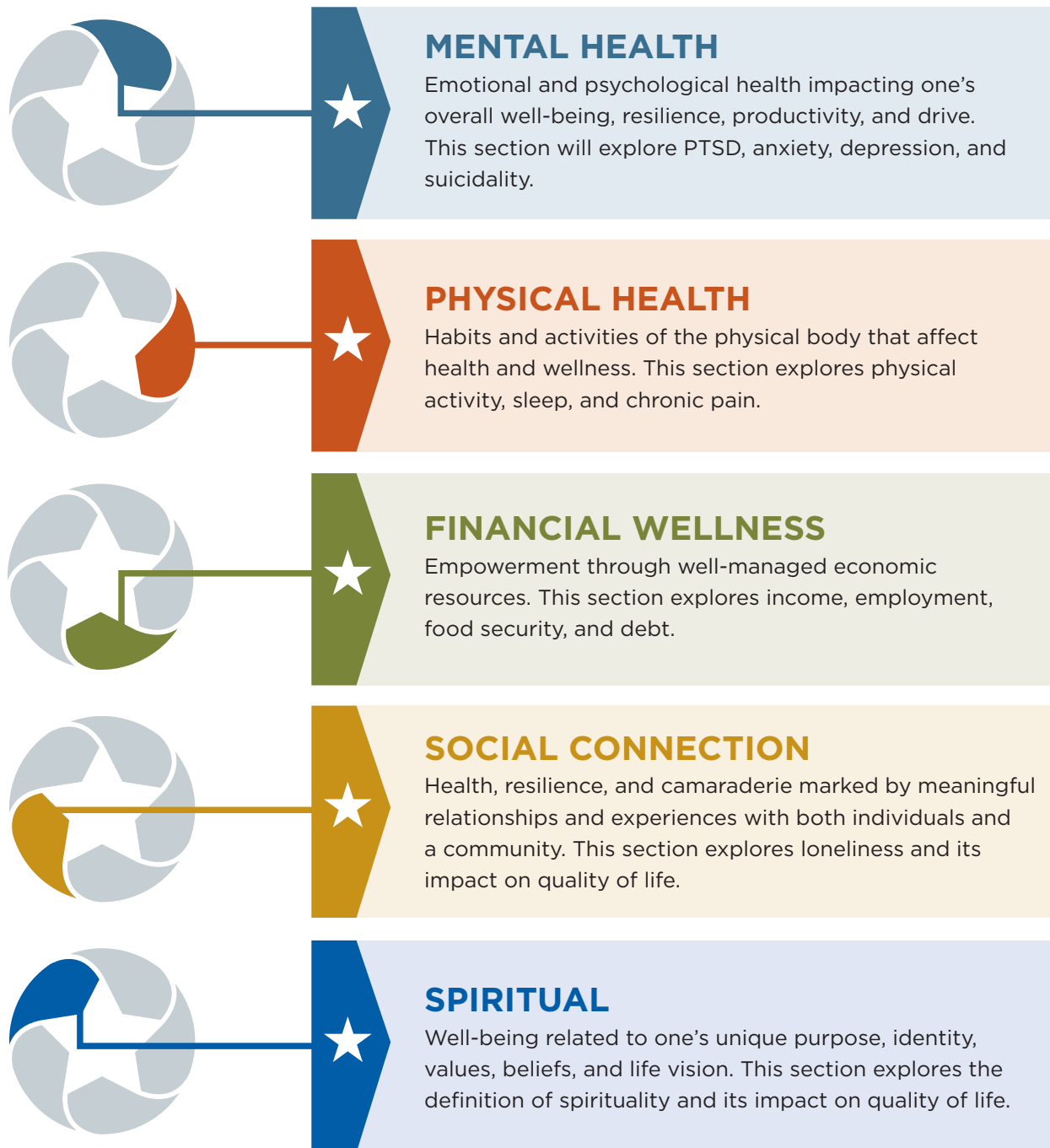
WWP aims to understand what factors *hinder* a warrior’s ability to live life to the fullest — and what factors *contribute* to a WWP warrior’s ability to live life to the fullest. This understanding helps inform the need for and direction of support that WWP provides for warriors.

In line with this commitment, a holistic approach highlights and appreciates how different components of warriors’ lives are interdependent and change over time. The holistic approach focuses on the multiple components of well-being — mental, physical, financial, social connection, and spiritual — and how those components are interdependent and impact warriors’ quality of life.

**FIGURE 1A:**  
Quality of Life Components



**FIGURE 1B: Quality of Life Components**



## **ADDITIONAL FACTORS DRIVING QUALITY OF LIFE: SUPPORT AND CARE**

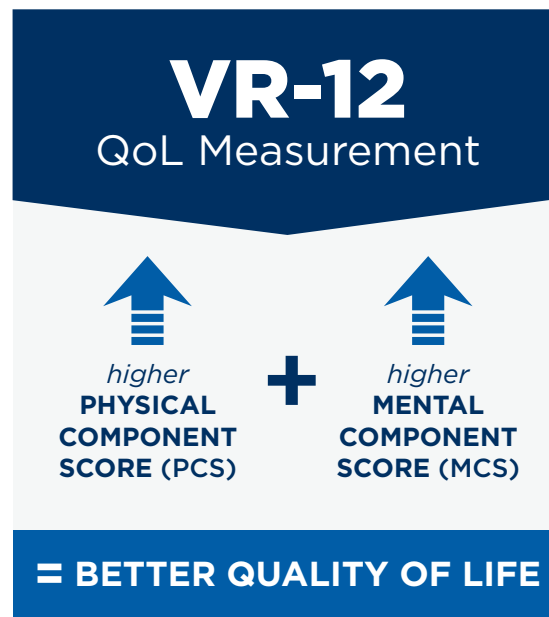
In addition to the QoL components mentioned above, outside factors such as the support and care warriors receive (e.g., access to care, aid and assistance) can also impact quality of life. This report includes sections dedicated to illustrating how these additional factors play a role in warriors' quality of life.



## QUALITY OF LIFE MEASURE (VR-12)

Currently, there is no gold standard for measuring quality of life. This report assessed quality of life using the Veterans RAND 12-Item Health Survey (VR-12)<sup>6</sup>. The VR-12 is a widely used quality-of-life measure, providing physical and mental health summary scores, reported as a Physical Component Score (PCS) and a Mental Component Score (MCS).<sup>6</sup> Higher PCS and MCS indicate better health. For the purposes of this report, the summary PCS and MCS measures will be reported as **physical health QoL scores** and **mental health QoL scores**. Throughout this report, we included how the QoL components (mental, physical, financial, social connection, and spiritual) impact warriors' quality of life by using VR-12 physical health and mental health QoL scores.

FIGURE 2: VR-12 Quality of Life Measure



## STATISTICAL ANALYSIS OF QUALITY OF LIFE

**SUMMARY:** We performed analyses to better understand how each of the five QoL components impacts a warrior's quality of life. These analyses controlled for demographic factors, which means that our analyses were conducted after considering the effects of differences in demographics.

**ANALYSIS DETAILS:** Regression analysis was performed within each QoL section to explore the relationship between the five QoL components (mental, physical, financial, social connection, and spiritual) and quality of life, controlling for demographic characteristics (such as sex, age, race, marital status, VA disability, branch, employment, education, and having a child in the household).

Factor analysis was conducted to explore which factors from each of the five QoL components were the best predictors of WWP warriors' quality of life.

At the end of the QoL section, a hierarchical multiple regression (HMR) analysis was conducted to test the incremental variance of the five QoL components to explore which component drives quality of life. The physical and mental health QoL scores were used as dependent variables. The independent variables were entered in the following steps: Step 1: demographic characteristics; Step 2: mental; Step 3: physical; Step 4: financial; Step 5: social connection; and Step 6: spiritual.

## OVERALL QoL RESULTS

Overall, WWP warriors' QoL scores remain steady compared to 2021 and are still much lower when comparing mental health QoL scores with the U.S. population average. WWP warriors had an average physical health QoL score of 39.0 and mental health QoL score of 35.7 in 2022, which are similar to the 2021 AWS results (physical health QoL score of 38.8; mental health QoL score of 36.1). Compared with U.S. population standard scores, WWP warriors scored much lower in mental health and only slightly lower in physical health.<sup>6</sup>

**TABLE 14: VR-12 Scores – WWP Warriors and Comparative Populations**

	★ WWP WARRIORS AVERAGE		U.S. Population Average <sup>6</sup>	U.S. Military/ Veterans Average <sup>7</sup>
	2022	2021		
Mental Component Score	<b>35.7</b>	<b>36.1</b>	50.1	42.9
Physical Component Score	<b>39.0</b>	<b>38.8</b>	39.8	40.7

Differences are observed when comparing physical and mental health QoL scores by age cohort, gender, and time since military departure. For example, the findings suggest as WWP warriors get older, their physical health QoL scores decrease; however, the mental health QoL scores seem to be lower during middle age before increasing again.

**TABLE 15: Comparison of QoL Scores Across WWP Warrior Age Cohorts**

Age	2022 Mental Health QoL Score	2022 Physical Health QoL Score
18-24	37.8	41.7
25-34	34.9	40.2
35-44	35.4	40.0
45-54	34.6	39.3
55-64	35.4	38.7
64+	37.3	37.7

**TABLE 16: Comparison of QoL Scores Between Male and Female WWP Warriors**

Sex	2022 Mental Health QoL Score	2022 Physical Health QoL Score
Female	34.5	38.6
Male	35.9	39.0

**TABLE 17: Comparison of QoL Scores and Time Since Last Served on Active Duty**

Time Since Served on Active Duty	2022 Mental Health QoL Score	2022 Physical Health QoL Score
0-5 Years	36.5	39.0
> 5-10 Years	35.5	38.7
10+ Years	34.8	39.0



**“WOUNDED WARRIOR PROJECT  
HELPED ME LEARN TO MOVE BEYOND  
PHYSICAL OR MENTAL WORRIES AND  
JUST LIVE LIFE AGAIN.”**

**— WOUNDED WARRIOR  
JESSICA COULTER**



# **MENTAL HEALTH & WELLNESS**

# MENTAL HEALTH & WELLNESS



**WWP defines the “mental” QoL component as “emotional and psychological health impacting one’s overall well-being, resilience, productivity, and drive.”**

Poor mental health may prevent individuals from functioning, coping, and thriving in their daily lives, which may lead to low self-esteem and isolation — all of which can negatively impact quality of life.

Previous studies have found that mental health conditions such as PTSD and depression can have a negative impact on quality of life.<sup>8,9,10</sup> Our analysis of 2022 AWS data suggests a similar pattern among WWP warriors — **mental health conditions such as PTSD, anxiety, and depression negatively impact warriors’ quality of life.** This section explores these different mental health factors and the role they play in quality of life.

This section also examines the experiences of WWP warriors who present with moderate or severe symptoms of more than one mental health condition or a mental health condition in conjunction with substance abuse and the impact this has on their quality of life.

## POST-TRAUMATIC STRESS DISORDER

PTSD can have a detrimental impact on an individual’s daily activities and quality of life. Studies have shown PTSD to be a strong predictor of poor health-related quality of life.<sup>11</sup> To better understand the presence and severity of PTSD symptoms and the impact of PTSD on quality of life, the survey included the PTSD Checklist for DSM-5 (PCL-5).

### **i** *HOW WE MEASURE IT:*

The PCL-5 is a validated and reliable tool used by the VA for individuals receiving treatment or mental health care to monitor, screen, and assist in the provisional assessment of PTSD symptoms.<sup>12</sup> The PCL-5 assesses symptoms over the past month, with each item scored on how often an individual has been bothered by symptoms, from 0 (not at all) to 4 (extremely). Final summary scores range from 0 to 80, with higher scores reflecting a greater presence and severity of PTSD symptoms.<sup>13</sup>

# POST-TRAUMATIC STRESS DISORDER

(continued)

It is estimated that about 6% of the general population will experience PTSD at some point in their lives and that approximately 29% of the post-9/11 veteran population experience PTSD.<sup>14,15</sup> The AWS consistently shows that WWP warriors experience PTSD at a much higher rate. Similar to the 2021 AWS results, in 2022, WWP warriors had an average PCL-5 score of 33.0, which falls within the range indicating the presence of PTSD symptoms.



When asked about PTSD symptoms in the past month, 48.6% of all WWP warriors reported a presence of PTSD symptoms.



## PTSD AND QoL

Our QoL analysis determined that PTSD has a **NEGATIVE IMPACT** on WWP warriors' quality of life.

**ANALYSIS DETAILS:** The general U.S. population and all U.S. veterans were used as reference populations when assessing the impact of PTSD on warriors' quality of life. After controlling for demographic factors, WWP warriors with PTSD (as determined by PCL-5) were found less likely to have physical or mental health QoL scores above the median of the general U.S. population (physical health QoL score Odds Ratio = 0.70; mental health QoL score Odds Ratio = 0.04) and U.S. veterans (physical health QoL score Odds Ratio = 0.65; mental health QoL score Odds Ratio = 0.08).

**SUMMARY:** The results suggest that PTSD has a negative impact on WWP warriors' quality of life. These results are consistent with other studies with post-9/11 veterans, highlighting the associations between mental and physical health on a veteran's well-being.<sup>16,17,18</sup>

## DEPRESSION

Depression is a common mental health disorder worldwide<sup>19</sup> and is the fourth most common health issue self-reported by WWP warriors.

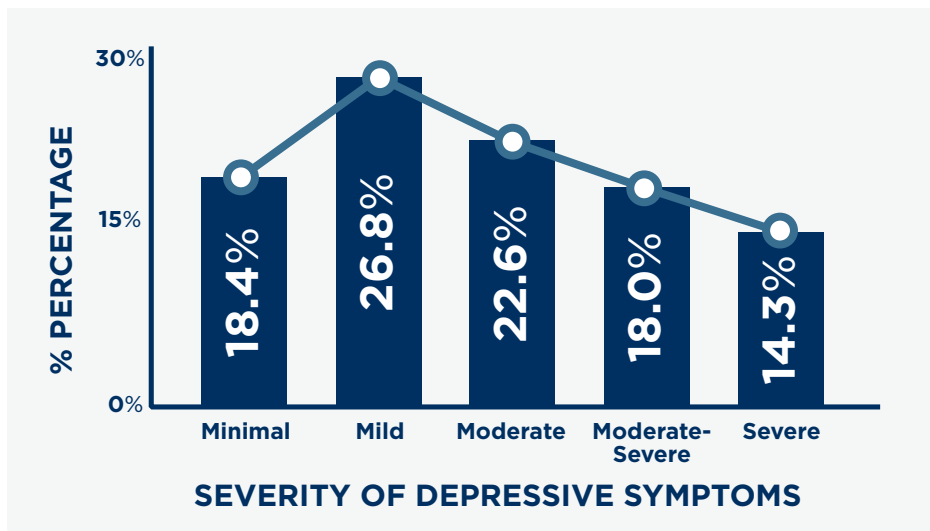
Feelings of depression can hinder a warrior's ability to live life to the fullest. Feeling tired, having little interest or pleasure in doing things, and dealing with sleep issues are the most common symptoms reported by WWP warriors. These feelings can interfere with the functioning of everyday activities, socialization, and quality of life. To better understand the presence and severity of depressive symptoms and their impact on quality of life, the survey included the Patient Health Questionnaire (PHQ-9).

### **i** HOW WE MEASURE IT:

The PHQ-9 is a validated and reliable instrument that assesses the presence and severity of depression based on the nine diagnostic criteria for DSM-IV depressive disorders.<sup>20</sup> Total scores range from 0 to 27, with higher scores indicating greater depressive symptom severity. PHQ-9 final scores can be divided into five levels of increasing depression severity: minimal (0-4), mild (5-9), moderate (10-14), moderate-severe (15-19), and severe (20-27), and a total score greater than 10 indicates the presence of depressive symptoms warranting further consideration for treatment.<sup>20</sup>

When asked about depressive symptoms in the past two weeks, more than half (54.9%) of WWP warriors presented with moderate to severe depressive symptoms (PHQ-9  $\geq 10$ ). The average depression score among WWP warriors is 11.3, which falls within the moderate range of depressive symptom severity. These findings are similar to the 2021 AWS.

**FIGURE 3: Severity of Depressive Symptoms Among WWP Warriors**



## DEPRESSION AND QoL

Our QoL analysis determined that depression has a **NEGATIVE IMPACT** on WWP warriors' quality of life.

**ANALYSIS DETAILS:** After controlling for demographic factors, the result shows that moderate to severe depressive symptoms (as determined by PHQ-9) negatively impact WWP warriors' quality of life. WWP warriors who presented with moderate to severe depressive symptoms were less likely to have physical or mental health QoL scores above the median of the general U.S. population (physical health QoL score Odds Ratio = 0.68; mental health QoL score Odds Ratio = 0.04) and U.S. veterans (physical health QoL score Odds Ratio = 0.63; mental health QoL score Odds Ratio = 0.07).

**SUMMARY:** The results suggest that moderate to severe depressive symptoms have a negative impact on WWP warriors' quality of life. The high prevalence and severity of depression among both warriors and all U.S. veterans further highlights the wide-reaching impact of this finding. This is reflected in the wider literature, where a study found depression to be an important factor in self-reported health satisfaction among veterans.<sup>21</sup>

# TOP 3 DEPRESSION SYMPTOMS

reported by WWP warriors

Percentages show WWP warriors who reported experiencing these symptoms "nearly every day"

  
**32.0%**

Trouble falling or staying asleep or sleeping too much

  
**27.3%**

Feeling tired or having little energy

  
**17.8%**

Little interest or pleasure in doing things

For a full list of depression symptoms reported by WWP warriors, please see the Appendix.



## HOW WE MEASURE IT:

To better understand the presence and severity of anxiety symptoms, the survey included the General Anxiety Disorder 7-Item (GAD-7) scale.<sup>24</sup> The GAD-7 is a valid and reliable seven-item scale that assesses the presence and severity of anxiety symptoms. The scale's seven items measure how often an individual has been bothered by anxiety-related problems on a 4-point Likert scale of 0 (not at all) to 3 (nearly every day), with a final summary score ranging from 0 to 21 points.<sup>24</sup>

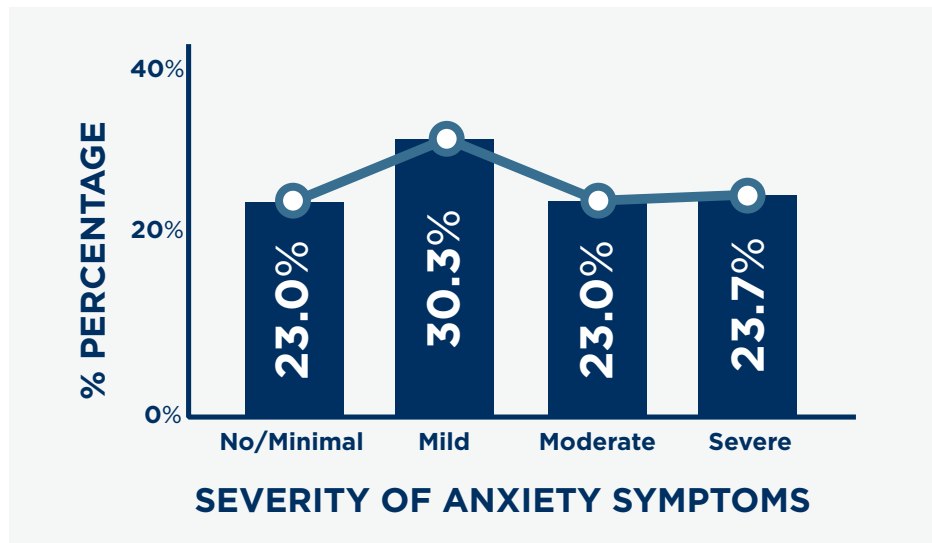
## ANXIETY

While occasional anxiety in everyday life is normal, individuals with a generalized anxiety disorder (GAD) experience prolonged excessive worry or uneasiness that lasts for months or longer.<sup>22</sup> Any form of anxiety can cause restlessness and impact an individual's sleep, concentration, and functioning with daily tasks. Research studies have shown a negative association between anxiety and reduced quality of life.<sup>23</sup>

It is estimated that 31.1% of U.S. adults will experience an anxiety disorder in their lifetime.<sup>25</sup> However, this number is notably higher among WWP warriors, with nearly half presenting with moderate to severe anxiety symptoms.

**The average anxiety score among WWP warriors in 2022 is 9.7, which indicates mild symptom severity.** This is lower than the average score in 2021 (11.5), which indicates moderate symptom severity. **The overall presence of moderate to severe anxiety symptoms is also lower in 2022, with 46.7% of WWP warriors scoring in this range, compared to 63.3% in 2021.**

**FIGURE 4: Severity of Anxiety Symptoms Among WWP Warriors**



The most common anxiety symptoms reported by WWP warriors include becoming easily annoyed or irritable (24.6%), trouble relaxing (23.6%), and feeling nervous, anxious, or on edge (21.1%). For a full list of anxiety symptoms as reported by WWP warriors, please see the Appendix.





## ANXIETY AND QoL

Our QoL analysis determined that anxiety has a **NEGATIVE IMPACT** on WWP warriors' quality of life.

**ANALYSIS DETAILS:** The general U.S. population and all U.S. veterans were used as reference populations when assessing the impact of anxiety on warriors' quality of life. After controlling for demographic factors, WWP warriors with moderate to severe anxiety symptoms (as determined by GAD-7) were found less likely to have physical or mental health QoL scores above the median of the general U.S. population (physical health QoL score Odds Ratio = 0.77; mental health QoL score Odds Ratio = 0.05) and U.S. veterans (physical health QoL score Odds Ratio = 0.73; mental health QoL score Odds Ratio 0.08).

**SUMMARY:** The results suggest that moderate to severe anxiety symptoms have a negative impact on WWP warriors' quality of life. This is reflected in the wider literature that shows anxiety is associated with a reduced quality of life.<sup>26</sup>

## SELF-DIRECTED VIOLENCE

The Centers for Disease Control and Prevention (CDC) defines self-directed violence as "anything a person does intentionally that can cause injury to self, including death."<sup>27</sup>

The most recent VA National Veteran Suicide Prevention report estimated an average of 16.8 veteran suicides per day in 2020.<sup>28</sup> Suicidal thoughts can be very detrimental to well-being and severely impact quality of life. The literature on suicidality highlights the complexities of trying to understand the risk factors and their causation.

The 2022 AWS shows that some factors, including **PTSD, military sexual trauma (MST), and substance abuse, are associated with higher rates of suicidal thoughts among WWP warriors. Protective factors, which are associated with lower rates of suicidal thoughts, include social support and the ability to access care when needed (WWP warriors who reported experiencing no barriers to accessing health care for their physical injuries or problems in the past 12 months).** These findings coincide with the evidence in the external literature.<sup>29,30</sup> Veteran suicide prevention efforts have been a large focus in recent years among the entire veteran service and support community.

# TOP 3

## ANXIETY SYMPTOMS

reported by WWP warriors

Percentages show WWP warriors who reported experiencing these symptoms "nearly every day"



### 24.6%

Becoming easily annoyed or irritable



### 23.6%

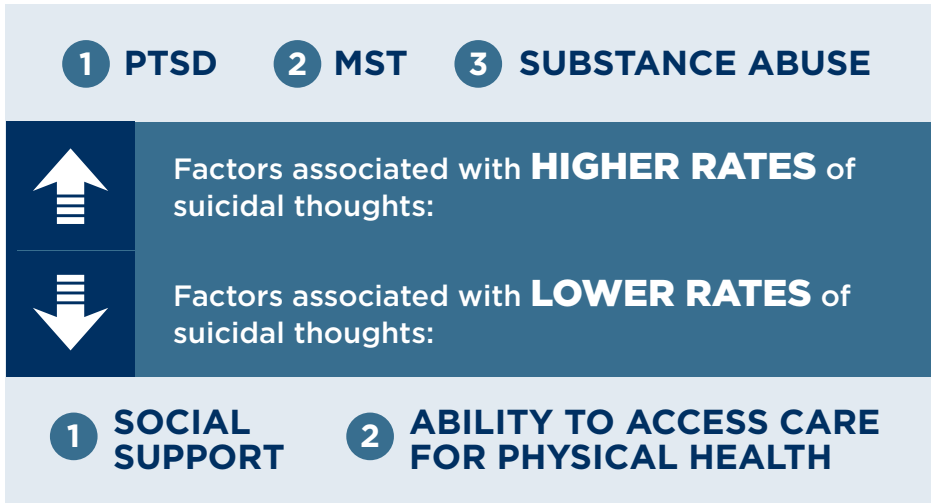
Trouble relaxing



### 21.1%

Feeling nervous, anxious, or on edge

**FIGURE 5: Factors Associated with Higher and Lower Rates of Suicidal Thoughts Among WWP Warriors**



## SUICIDAL THOUGHTS AND BEHAVIOR

The 2022 AWS found that **28.3% of WWP warriors have had suicidal thoughts in the past 12 months**. Of warriors who reported suicidal thoughts, 72.0% reported having them in the past two weeks. These numbers are slightly higher than the 2021 AWS, in which these figures were 24.8% and 69.7%, respectively.

The number of WWP warriors who report ever experiencing suicidal ideation has grown since the 2021 AWS. In 2022 AWS, about half (51.5%) of WWP warriors reported at least one instance of suicidal ideation in their lifetimes, compared to 48.2% in 2021.

The number of WWP warriors who report attempting suicide has also grown since the 2021 AWS. **In 2022, nearly one in five (18.5%) WWP warriors report that they have attempted suicide at least once in their lifetime, compared to 15.5% in 2021.**

28.3% of WWP warriors have had suicidal thoughts in the past 12 months.

## RESOURCES USED FOR SUICIDALITY

When a warrior is in a vulnerable state, having someone to talk to is critical. When it comes to the often-difficult topics of suicidal thoughts or attempts, WWP warriors report that they most frequently turn to medical professionals (counselors, therapists, doctors, and health care providers), followed by family members and friends. These were the same top resources named by WWP warriors in 2021.



### HOW WE MEASURE IT:

To assess suicide risk among WWP warriors, the Columbia-Suicide Severity Rating Scale (C-SSRS) was used to measure suicidal ideation and behavior. The C-SSRS assesses five subtypes of suicidal ideation, five subtypes of suicidal behavior (or suicide attempts), and self-injurious behavior without suicidal intent.<sup>31</sup> For purposes of this survey, only questions related to suicidal ideation and suicide attempts were asked (omitting questions related to preparatory acts of suicide). Suicidal ideation is defined as any thoughts of suicide and/or the “wish to be dead.” Suicidal behavior is defined as preparatory acts of suicide and suicidal attempts.<sup>31</sup>

**“THE DAY I REALIZED I NEEDED HELP  
WAS THE DAY I ALMOST TOOK MY OWN  
LIFE. IF WWP HADN’T BEEN THERE  
WHEN I FINALLY DECIDED TO GET HELP,  
I DON’T THINK I’D BE HERE TODAY.”**

**— WOUNDED WARRIOR  
CHRIS HOFF**





## SUICIDAL THOUGHTS AND QoL

**Suicidal thoughts among WWP warriors are associated with lower mental health QoL scores but higher physical health QoL scores — highlighting the complexity of this topic and the need for more in-depth analyses and further research.**

**ANALYSIS DETAILS:** After controlling for demographic factors, the results show that experiencing suicidal thoughts in the past 12 months impacts WWP warriors' quality of life. WWP warriors who have experienced suicidal thoughts in the past 12 months were more likely to have mental health QoL scores below the median of the general U.S. population (mental health QoL score Odds Ratio = 0.13) and U.S. veterans (mental health QoL score Odds Ratio = 0.17) but higher physical health QoL score (U.S. population, physical health QoL score Odds Ratio = 1.17; U.S. veterans, physical health QoL score Odds Ratio = 1.11).

**SUMMARY:** These results highlight the complexity of this topic and how an individual who may be at risk for suicide can appear to be high functioning. Furthermore, there is a stigma surrounding suicide, which may make the risk factors less observable.<sup>32</sup> There is a need for more in-depth analyses and further research to investigate the relationship between suicidal behavior and quality of life.

## MILITARY SEXUAL TRAUMA

The VA defines military sexual trauma as sexual assault or harassment experienced during military service. Sexual harassment is the request for or pressure to engage in sexual favors (e.g., threats of negative treatment, refusal to cooperate, or promises of better treatment in exchange for sex), unsolicited sexual advances, or verbal comments that are sexual in nature. Sexual assault is unwanted sexual contact or activities without your consent, including when you are asleep or intoxicated and being overpowered or physically forced to have sex.<sup>33</sup> MST, like any trauma, is associated with a higher likelihood of PTSD, depression, and substance use disorder (SUD).<sup>34</sup>

Due to the stigma and lack of support that has surrounded military sexual trauma (MST), we are only beginning to understand the complexities of the trauma and its impact on an individual's quality of life. Research has focused on the concept of "institutional betrayal" with military sexual trauma and the widespread impact of not receiving necessary or appropriate support at the time of the incident, and the far-reaching impact of this betrayal on well-being, relationships, and accessing care.<sup>35,36,37</sup> It is important for WWP to understand the experiences of warriors who have experienced MST to help provide the necessary support and care to improve well-being.

**One in 10 (10.1%) WWP warriors report experiencing MST during their service; 44.6% of all women and 2.9% of all male warriors are MST survivors.** This is similar to the prevalence of MST in the 2021 AWS (10.0%). When asked about the main services WWP warriors receive through VA benefits (either at VA or in the community), 5.6% reported care related to military sexual trauma compared to 6.6% in 2021.



## MST AND QoL

Our QoL analysis determined that MST has a **NEGATIVE IMPACT** on WWP warriors' quality of life.

**ANALYSIS DETAILS:** After controlling for demographic factors, WWP warriors who report experiencing MST during their service were found less likely to have physical or mental health QoL scores above the median of the general U.S. population (physical health QoL score Odds Ratio = 0.94; mental health QoL score Odds Ratio = 0.35) and U.S. veterans (physical health QoL score Odds Ratio = 0.93; mental health QoL score Odds Ratio = 0.46).

**SUMMARY:** The results show that WWP warriors who report experiencing MST during service experience a lower quality of life compared to U.S. veterans and the U.S. general population. Our analyses show that mental health quality of life is impacted to a greater degree than physical health quality of life. This supports the wider literature that highlights the lasting impact of MST experiences on different aspects of well-being beyond any physical trauma endured.<sup>34,35</sup>

## BRAIN HEALTH

For an aging population like WWP warriors, brain health is increasingly important to consider when it comes to overall quality of life. Warriors' experiences in the military put them at an increased risk of head-related trauma, which can impact brain health. Head-related trauma, including traumatic brain injury (TBI), is sometimes referred to as the "signature injury" for post-9/11 veterans due to the increase in TBI prevalence amongst veterans since the year 2000.<sup>38,39</sup>

There is evidence to suggest that TBI can impact health, social interactions, and satisfaction with relationships, highlighting the importance of understanding the full impact of head traumas to provide immediate and long-term support to help warriors improve their quality of life and adjust to living with these conditions.<sup>40,41</sup>

## HEAD-RELATED TRAUMA

Military service members are at an increased risk of brain injury due to head-related trauma as a result of blasts or injuries sustained during combat or training exercises.<sup>42</sup> **The majority of WWP warriors (84.2%) reported being injured during military service as a result of one of the following events:**





## HEAD-RELATED TRAUMA AND QoL

Our QoL analysis determined that head-related trauma has a **NEGATIVE IMPACT** on WWP warriors' quality of life.

Among those, 73.2% reported experiencing symptoms typical of head-related trauma (such as losing consciousness or being “knocked out”) immediately following any of these events.

Furthermore, **36.5% of WWP warriors self-reported experiencing TBI** as a result of serving in the military after September 11, 2001. This is similar to the self-reported prevalence of TBI in 2021 AWS (34.8%).

### **i** **HOW WE MEASURE IT:**

The Neurobehavioral Symptom Inventory (NSI) scale was used to evaluate the presence of postconcussive symptoms among WWP warriors. The NSI is regularly used by the VA and Department of Defense for TBI evaluations and provides a reliable and valid measure for postconcussive symptoms.<sup>43</sup> The final summary NSI score indicates the presence and severity of postconcussive symptoms, ranging from 0 to 88, with higher scores corresponding to greater distress or impairment of postconcussive symptoms.<sup>43</sup>

**WWP warriors who reported some form of head-related trauma had a significantly higher mean NSI score of 40.0 compared to those without head-related trauma (32.4)** — with a higher overall mean score indicating greater severity of and impairment from postconcussive symptoms. The mean NSI scores for both groups are higher, compared to 2021 (38.6 and 26.8, respectively). The most common symptoms that began or worsened for WWP warriors after head-related trauma include feeling anxious or tense, sleep problems, and irritability.

**ANALYSIS DETAILS:** After controlling for demographic factors, WWP warriors who report some form of head-related trauma were found less likely to have physical or mental health QoL scores above the median of the general U.S. population (physical health QoL score Odds Ratio = 0.84; mental health QoL score Odds Ratio = 0.62) and U.S. veterans (physical health QoL score Odds Ratio = 0.78; mental health QoL score Odds Ratio = 0.66).

**SUMMARY:** The result shows that WWP warriors who report some form of head-related trauma experience a negative impact on quality of life. These findings, in context with the long-term postconcussive symptoms being reported by warriors, show how the enduring effects of TBI may be experienced on a day-to-day basis and how TBI impacts overall quality of life.<sup>44</sup>

## SUBSTANCE USE

Substance use is the consumption of drugs or alcohol. Substance use disorder (SUD) is the excessive use of drugs, such as alcohol, pain medications, or illegal drugs, which can lead to other life and health problems. When substance use is no longer under control or is being used as an unhealthy coping mechanism, it can adversely affect an individual's behavior, decision-making, health, relationships, and career, which in turn can impact a person's quality of life.<sup>45,46,47</sup> It is also important to consider the cyclical nature of recovery and addiction and how this may impact quality of life. In 2020, 12% of adults in the U.S. general population had a substance use disorder.<sup>48</sup>

## DRUG ABUSE

While SUD considers all substances, misuse of illicit drugs, over-the-counter drugs, and prescription drugs was assessed separately from alcohol use.

### HOW WE MEASURE IT:

To measure drug abuse, warriors were asked questions from the Drug Abuse Screening Test (DAST-10). The DAST-10 measures the degree of consequences related to drug abuse.<sup>49</sup>

The DAST-10 results show that **57.2% of the warriors have no problems related to drug abuse**, while 2% have a substantial or severe level of problems related to drug abuse.

**TABLE 18: Degree of Problems Related to Drug Abuse Among WWP Warriors**

DAST-10 Score	Degree of Problems Related to Drug Abuse	★ WWP WARRIORS
0	No problems reported	57.2%
1-2	Low Level	36.5%
3-5	Moderate Level	4.3%
6-8	Substantial Level	1.6%
9-10	Severe Level	0.4%



## DRUG ABUSE AND QoL

**ANALYSIS DETAILS:** After controlling for demographic factors, WWP warriors who indicated a substantial or severe level of problems related to drug abuse (as determined by DAST-10) were more likely to have mental health QoL scores below the median of the general U.S. population (mental health QoL score Odds Ratio = 0.54) and U.S. veterans (mental health QoL score Odds Ratio = 0.54) but higher physical health QoL score (U.S. population, physical health QoL score Odds Ratio = 1.26; U.S. veterans, physical health QoL score Odds Ratio = 1.24).

**SUMMARY:** The results show that substantial or severe levels of drug abuse appeared to have a negative impact on WWP warriors' mental health but a positive impact on their physical health. Although we are unable to draw firm conclusions about why this might be the case, it does highlight the fact that the influence of drug abuse on well-being is complex. These findings also highlight the need to understand the motivators for drug abuse among warriors (e.g., mental health coping, recreation, pain management) to tailor effective interventions and ultimately improve quality of life.



## HAZARDOUS DRINKING AND QoL

### ANALYSIS DETAILS:

After controlling for demographic factors, WWP warriors who indicated hazardous drinking or active alcohol disorders (as determined by AUDIT-C) were more likely to have mental health QoL scores below the median of the general U.S. population (mental health QoL score Odds Ratio = 0.82) and U.S. veterans (mental health QoL score Odds Ratio = 0.79) but higher physical health QoL score (U.S. population, physical health QoL score Odds Ratio = 1.19; U.S. veterans, physical health QoL score Odds Ratio = 1.17).

**SUMMARY:** The results show that hazardous drinking or active alcohol disorders appear to have a negative impact on WWP warriors' mental health, but a positive impact on their physical health. Similar to the findings on drug abuse and QoL, we are unable to draw firm conclusions about why this may be the case. However, these findings highlight the multifaceted influence of hazardous drinking on well-being and the need to understand the root causes of alcohol abuse among warriors.

## ALCOHOL

For some, drinking alcohol can be a normal part of ordinary life. However, alcohol use turns into *alcohol abuse* when drinking behaviors become hazardous to the individual's health and well-being or put those around them at risk. It is important to understand the drinking behaviors of WWP warriors (discerning alcohol use from alcohol abuse), the impacts on quality of life, and where there are opportunities to intervene or provide support.

### **i** HOW WE MEASURE IT: \_\_\_\_\_

To measure the drinking behaviors of warriors, the Alcohol Use Disorders Identification Test-Concise (AUDIT-C) scale was included in the survey. The AUDIT-C is a screening measure consisting of three questions on weekly alcohol consumption, average number of alcoholic drinks consumed in one day, and frequency of consuming six or more drinks on one occasion. Each question is scored (0-4), with final summary scores ranging from 0 to 12. For men, a score of 4 or more is suggestive of hazardous drinking or active alcohol use disorders, and a score of 3 or more for women is suggestive of this behavior.<sup>50</sup> Overall, higher scores indicate unhealthy or unsafe drinking behavior.<sup>51,52</sup>

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**More than two in five WWP warriors screened positive for potential hazardous drinking or active alcohol use disorders** on the AUDIT-C (43.5%), indicating they may have unhealthy and unsafe drinking habits. This is a higher percentage than the average for U.S. active-duty service members (35.3%).<sup>53</sup>



# MENTAL HEALTH COMORBIDITIES: PTSD, DEPRESSION, AND ANXIETY

**The proportion of WWP warriors experiencing multiple mental health conditions is more than three times greater than those experiencing just one.** When looking at PTSD, anxiety, and depression, about half (49.8%) of all WWP warriors presented with moderate to severe symptoms for two or more of these mental health conditions, 13.7% presented with moderate to severe symptoms for only one, and 36.6% presented with mild or no notable symptoms for either PTSD, depression, or anxiety.



## MENTAL HEALTH COMORBIDITIES AND QoL

Our QoL analysis determined that co-occurring mental health conditions **NEGATIVELY IMPACT** warriors' quality of life.

**ANALYSIS DETAILS:** After controlling for demographic factors, WWP warriors presenting with two or more co-occurring mental health conditions were found less likely to have physical or mental health QoL scores above the median of the general U.S. population (physical health QoL score Odds Ratio = 0.71; mental health QoL score Odds Ratio = 0.03) and U.S. veterans (physical health QoL score Odds Ratio = 0.66; mental health QoL score Odds Ratio = 0.07).

**SUMMARY:** The results show that mental health comorbidities negatively impact warriors' quality of life. This impact was observed in both mental and physical health quality of life, but at a greater degree in mental health quality of life. Previous research studies in this area have shown that veterans with comorbid PTSD and major depressive disorder reported lower QoL scores than veterans with PTSD or major depressive disorder alone.<sup>54</sup>

# COMORBID MENTAL HEALTH CONDITIONS AND SUBSTANCE ABUSE

The relationship between substance abuse and mental health is complex. For some, substance abuse is a coping mechanism for dealing with mental health challenges. It is critical to identify patterns or relationships between substance abuse and mental health conditions, considering the high prevalence of mental health issues among WWP warriors.

**Substance abuse is more than twice as common among WWP warriors with two or more mental health conditions, compared to just one.** About one in five (22.1%) WWP warriors presented with two or more mental health conditions and co-occurring substance abuse (warriors who indicated a substantial or severe level of problems related to drug abuse, and/or warriors who indicated hazardous drinking or active alcohol disorders). Just 6.0% of WWP warriors presented with one mental health condition (PTSD, depression, or anxiety) and substance abuse.



## COMORBID MENTAL HEALTH CONDITIONS, SUBSTANCE ABUSE, AND QoL

Our QoL analysis determined that comorbid mental health conditions and substance abuse **NEGATIVELY IMPACT** warriors' quality of life.

**ANALYSIS DETAILS:** After controlling for demographic factors, WWP warriors who presented with symptoms for one mental health condition (PTSD, depression, or anxiety) and substance abuse, were found less likely to have physical or mental health QoL scores above the median of the general U.S. population (physical health QoL score Odds Ratio = 0.98; mental health QoL score Odds Ratio = 0.04) and U.S. veterans (physical health QoL score Odds Ratio = 0.91; mental health QoL score Odds Ratio = 0.09).

**SUMMARY:** The results show that comorbid mental health conditions and substance abuse negatively impact warriors' quality of life. This negative impact was observed in both mental and physical health quality of life, but to a greater degree on mental health quality of life. This finding is consistent with what is reflected in the external literature. A systematic review and meta-analysis exploring quality of life for individuals with substance use disorders found that those with comorbid mental health problems had a poorer quality of life.<sup>55</sup>



Our QoL analysis determined that mental health conditions **NEGATIVELY IMPACT** WWP warriors' quality of life.

## OVERALL IMPACT OF MENTAL HEALTH ON QoL

PTSD (measured by PCL-5) and depression symptoms (measured by PHQ-9) were found to be the best predictors of mental health and were used to understand the relationship between mental health conditions and quality of life.

Prior studies have reported that PTSD and depression negatively impact quality of life. In line with previous studies,<sup>16,21,23</sup> our analysis of the 2022 survey shows that mental health conditions, including PTSD, anxiety, and depression, can have a negative impact on quality of life.



**“BIKING IS A MEDITATIVE THING FOR ME. WHEN I AM RIDING ALONG TRAILS, I FEEL A SENSE OF FREEDOM. IT HELPS LESSEN THE ‘NAILS ON THE CHALKBOARD’ ANXIETY I GET WITH PTSD.”**

**— WOUNDED WARRIOR  
DANIEL SMEE**



# **PHYSICAL HEALTH**

# PHYSICAL HEALTH



**WWP defines the “physical” component of QoL as “health and wellness affected through the habits and activities of the body.”** Physical health encompasses several health and lifestyle factors, such as physical activity, chronic pain, and sleep quality. While this may look different for every warrior, assessing physical wellness is important to understand and promote higher quality of life. Given the high number and severity of injuries and health problems reported by WWP warriors, it’s important to understand what impact these issues may have on overall quality of life.

## PHYSICAL ACTIVITY

Several studies have shown that physical activity and exercise are key factors in individuals’ perception of their quality of life. That is, individuals tend to engage in physical activities because activities contribute to their quality of life. Moreover, engaging in moderate amounts of physical activity daily and strength training can reduce the risk of non-communicable diseases and provide protective effects against psychological disorders, poor sleep, and chronic pain.<sup>56,57,58</sup> **In fact, 54.6% of WWP warriors report using physical activity (e.g., exercise, golf, gym workouts, biking, etc.) as a resource or tool to help them with feelings of stress or emotional or mental health concerns.**

### **i** HOW WE MEASURE IT:

The Physical Activity Scale for Persons with Physical Disabilities (PASIPD) was included in the survey to measure warriors’ current level and frequency of physical activity and exercise in the past seven days.<sup>59</sup> The scale measures the “metabolic equivalent value” (MET), which indicates the intensity of exercise and includes household and occupational activities, as well as leisure (moderate, vigorous, and strengthening physical activity). The scale rates responses from 1 (never) to 4 (often) for how often participants complete an activity in a week and rates the duration from 1 (less than 1 hour/day) to 4 (greater than 4 hours/day). The total PASIPD score is calculated by multiplying the duration (hours per week) by the weight (the METs) and adding the results together.<sup>59</sup>

Unfortunately, for many warriors, issues like service-related injuries and chronic pain can make it difficult to get healthy amounts of physical activity. **The total average physical activity (including leisure, household, and occupational activities) reported by WWP warriors is 9.2 MET-hours per week, with 64.1% of WWP warriors not meeting the WHO recommendation of 10 MET-hours per week.**<sup>60,61</sup>

# PHYSICAL ACTIVITY (continued)

Focusing specifically on leisure activities, the following is a breakdown of the different types of physical activity WWP warriors report:

- Average Moderate Activity Time: 1.03 MET-hours per week
- Average Vigorous Activity: 2.1 MET-hours per week
- Average Strength Training Time: 1.7 MET-hours per week



## PHYSICAL ACTIVITY AND QoL

Our QoL analysis determined that physical activity has a **POSITIVE IMPACT** on WWP warriors' quality of life.

**ANALYSIS DETAILS:** The general U.S. population and all U.S. veterans were used as reference populations when assessing the impact of physical activity (as determined by PASIPD) on warriors' quality of life. After controlling for demographic factors, WWP warriors whose physical activity level is above the WHO recommendation (10 MET-hours per week) were found more likely to have physical or mental health QoL scores above the median of the general U.S. population (physical health QoL score Odds Ratio = 1.41; mental health QoL score Odds Ratio = 1.69) and U.S. veterans (physical health QoL score Odds Ratio = 1.45; mental health QoL score Odds Ratio = 1.58).

**SUMMARY:** The results suggest physical activity positively impacts warriors' quality of life and implies that when warriors move more, they feel better. This is supported in the wider literature, including a systematic review that showed the positive impact of physical activity on quality of life for combat veterans with physical and mental injuries.<sup>62</sup>



### HOW WE MEASURE IT:

Body mass index is defined as a person's weight relative to his or her height (weight [pounds]/height [inches]<sup>2</sup> x 703). BMI is used as an inexpensive and indirect screening method to assess weight category.<sup>63</sup> BMI does not account for body fat or muscle or bone mass; however, BMI is correlated with more direct body fat measures, and BMI is often predictive of body fat.<sup>63</sup>

## BODY MASS INDEX

The relationship between body mass index (BMI) and quality of life is complex; the association between BMI and quality of life may vary between the physical and mental components of quality of life and by population subgroups.

### BMI WEIGHT CATEGORIES:<sup>64</sup>

- Underweight (< 18.5)
- Healthy weight (18.5-24.9)
- Overweight (25-29.9)
- Obese (30-39.9)
- Severely obese (40+)



**The average BMI among all WWP warriors is 30.8, which falls within the range for obesity.** This is similar to what was reported in 2021 (average BMI of 30.9).

**Similar to 2021, 51.9% of WWP warriors are considered obese or severely obese (BMI  $\geq$  30).** Obesity rates among the WWP warrior population are comparable to the U.S. adult population, where 42.4% are considered obese and 9.2% severely obese.\*<sup>65</sup> The rate of obesity among U.S. adults has continued to increase over the last 20 years, signaling an issue that is not specific to the warrior or overall veteran populations.

*\*2017-2018 age-adjusted obesity rates of U.S. adults (20 years and older).<sup>65</sup>*



## OBESITY AND QoL

Our QoL analysis determined that obesity has a **NEGATIVE IMPACT** on WWP warriors' quality of life.

**ANALYSIS DETAILS:** After controlling for demographic factors, WWP warriors who are considered obese or severely obese (as determined by BMI  $\geq$  30) were found less likely to have physical or mental health QoL scores above the median of the general U.S. population (physical health QoL score Odds Ratio = 0.85; mental health QoL score Odds Ratio = 0.86) and U.S. veterans (physical health QoL score Odds Ratio = 0.85; mental health QoL score Odds Ratio = 0.89).

**SUMMARY:** The results suggest that being obese or severely obese negatively impacts warriors' quality of life. These findings are supported by the wider literature, which shows an association between obesity and poor quality of life among U.S. veterans.<sup>66</sup> This finding regarding obesity in conjunction with findings on physical activity suggests lifestyle interventions for physical activity and/or weight loss interventions for those currently classified as obese can improve quality of life.

## CHRONIC PAIN

Studies have shown that chronic pain is negatively associated with physical and mental health quality of life. Chronic pain may significantly reduce individuals' quality of life by causing functional, social, emotional, and socioeconomic changes, such as changes in sleep patterns, isolation, an increase in depression, and lack of productivity.<sup>67,68</sup>

### **i** HOW WE MEASURE IT:

The Pain, Enjoyment of Life and General Activity scale (PEG scale) was included in this survey. The PEG scale consists of three questions and is used as a pain screening tool to capture how pain has interfered with activities and enjoyment of life.<sup>69</sup> Each question is scored on a range from 0 (no pain or interference) to 10 (pain as bad as you can imagine or high interference). The overall score is calculated by adding the scores together and dividing by 3. The screening tool is best used to detect changes over time in the same individual, but in general, a higher score indicates more severe pain and pain-related interference with life and activities.<sup>69</sup>

### **About three in four (75.8%) WWP warriors scored in a range indicating moderate or severe pain.**

The overall average PEG score among all WWP warriors was 5.3, which indicates moderate pain that interferes with activities and enjoyment of life.



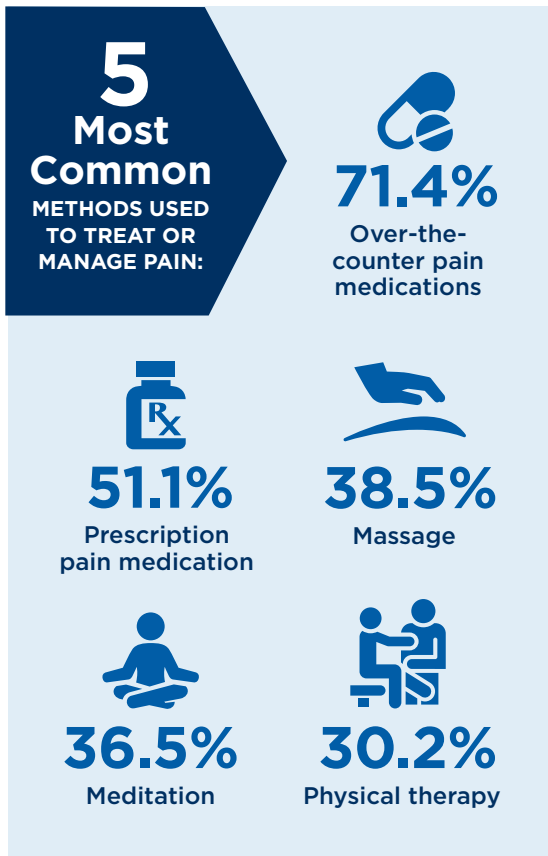
75.8% of WWP warriors scored in a range indicating moderate or severe pain.

**TABLE 19: Chronic Pain (PEG Scores) Among WWP Warriors**

PEG Question	★ WWP WARRIORS MEAN SCORE (Range from 0-10)
What number best describes your pain on average in the past week?	5.4
What number best describes how, during the past week, pain has interfered with your enjoyment of life?	5.3
What number best describes how, during the past week, pain has interfered with your general activity?	5.3

## PAIN MANAGEMENT

Half of WWP warriors who reported pain in the past three months say that they were “only a little effective” or “not at all effective” in managing their pain (39.2% and 10.9%, respectively). Less than one in 12 say they were “very effective” at managing pain (7.9%), and 39.5% say they were “somewhat effective” in managing pain.



**TABLE 20: Pain Management Effectiveness Among WWP Warriors**

Effectiveness in Managing Pain	★ WWP WARRIORS
Very effective	7.9%
Somewhat effective	39.5%
Only a little effective	39.2%
Not at all effective	10.9%
I haven't had pain in the past three months	1.5%
Don't know	1.1%





## CHRONIC PAIN AND QoL

Our QoL analysis determined that pain has a **NEGATIVE IMPACT** on WWP warriors' quality of life.

**TABLE 21: Methods for Treating and Managing Physical Pain Among WWP Warriors**

Method	★ WWP WARRIORS
Over-the-counter pain medication	71.4%
Prescription pain medication	51.1%
Massage	38.5%
Meditation (e.g., mindfulness, mantra, spiritual medication)	36.5%
Physical therapy (physical, rehabilitative, or occupational therapy)	30.2%
Chiropractic/spinal manipulation	27.9%
Psychotherapy	20.3%
Guided imagery or progressive relaxation (i.e., relaxation techniques)	19.7%
Educational class/workshop	13.3%
Yoga/Tai Chi	13.2%
Acupuncture	11.5%

**ANALYSIS DETAILS:** After controlling for demographic factors, WWP warriors who indicated moderate and severe pain (as determined by PEG) were found less likely to have physical or mental health QoL scores above the median of the general U.S. population (physical health QoL score Odds Ratio = 0.13; mental health QoL score Odds Ratio = 0.18) and U.S. veterans (physical health QoL score Odds Ratio = 0.12; mental health QoL score Odds Ratio = 0.23).

**SUMMARY:** The results suggest having moderate and severe pain negatively impacts warriors' quality of life. This finding is supported by the wider literature, where studies have shown pain intensity to be negatively associated with quality of life.<sup>70</sup> The findings on chronic pain, in combination with half of WWP warriors reporting that their pain management efforts have had little to no effect, highlight a critical need for additional research and strategic development of both clinical and non-clinical pain interventions.

## SLEEP

Many issues that lead to sleep disruption during deployment don't go away when veterans return home, but often persist post-deployment and well into their retirement years.<sup>71,72</sup> The impact that poor sleep has on quality of life has been well documented — affecting mental health and cognitive function and leading to an increase in unhealthy decisions around risky behaviors, diet, and exercise.<sup>73,74,75,76,77</sup>



## HOW WE MEASURE IT:

The Pittsburgh Sleep Quality Index (PSQI)\* is a widely used measure of sleep quality and disturbances.<sup>81</sup> It provides a total summary score of overall sleep quality ranging from 0 to 21, with higher scores indicating poorer sleep quality. The overall sleep score is a composite of seven subcomponent scores that influence sleep (duration, disturbance, latency, days of dysfunction due to sleepiness, efficiency, quality, and the need for medication to sleep).

*\*PSQI is copyright 1989 and 2010. University of Pittsburgh. All rights reserved.*

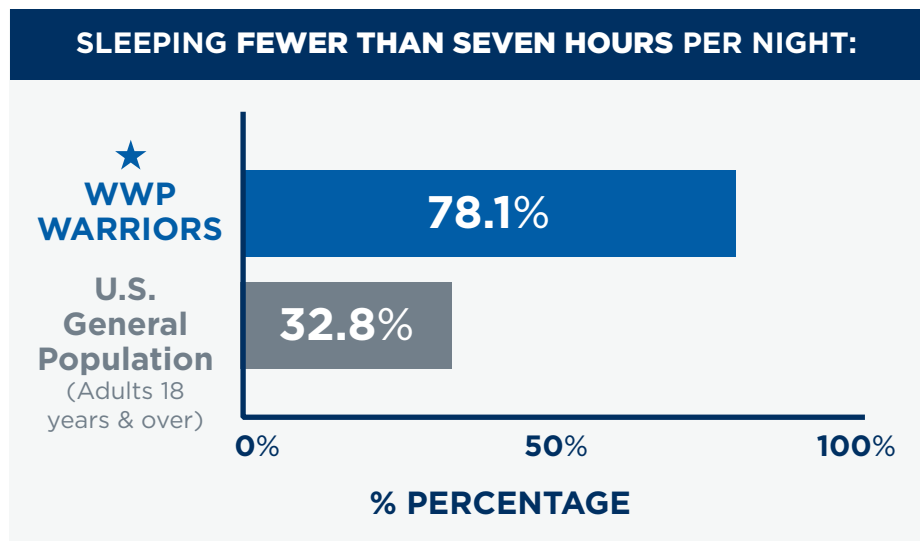
## SLEEP (continued)

There is evidence that veterans' duration of sleep and sleep quality are associated with PTSD, TBI, and other mental and physical health conditions.<sup>78,79,80</sup> Given how prevalent these conditions are among the WWP warrior population, sleep is an important factor to consider when looking at the full picture of wellness and quality of life. An improvement in sleep quality could lead to an improvement in quality of life due to the interconnected nature of sleep quality on physical and mental health.

The American Academy of Sleep Medicine and the Sleep Research Society recommend that adults 18-60 years of age regularly sleep **seven or more hours** per night to promote good health.<sup>82</sup>

**The proportion of WWP warriors getting less than the recommended amount of sleep is more than double that of the general U.S. population.** Overall, WWP warriors reported sleeping an average of 5.4 hours per night, with 78.1% reporting fewer than the recommended seven hours of sleep per night, which is consistent with findings from 2021. In contrast, only 32.8% of U.S. adults reported sleeping fewer than seven hours per night.<sup>83</sup>

**FIGURE 6: Sleep Duration Among WWP Warriors and U.S. Adults**



**Only 9.2% of WWP warriors indicated good sleep quality (PSQI scores of 0 to 5) while 90.8% of WWP warriors indicated poor sleep quality (PSQI scores of greater than 5).** These findings are similar to 2021 (90.3% indicated poor sleep quality).



## SLEEP AND QoL

Our QoL analysis determined that sleep has a **POSITIVE IMPACT** on WWP warriors' quality of life.

**ANALYSIS DETAILS:** After controlling for demographic factors, WWP warriors who indicated good quality sleep (as determined by PSQI) were found more likely to have physical or mental health QoL scores above the median of the general U.S. population (physical health QoL score Odds Ratio = 2.33; mental health QoL score Odds Ratio = 7.87) and U.S. veterans (physical health QoL score Odds Ratio = 2.46; mental health QoL score Odds Ratio = 7.66). The high odds ratio here indicates a strong positive impact of sleep on physical health QoL, and in particular, mental health QoL. The findings suggest WWP warriors who indicated good quality sleep have 7.9 times the odds of having better mental health QoL scores compared to the general U.S. population, and as much as 7.7 times the odds of having better mental health QoL scores compared to U.S. veterans.

**SUMMARY:** The results suggest good quality sleep positively impacts warriors' quality of life. This is supported by the wider literature that highlights the association between sleep and quality of life among veterans.<sup>84,85</sup> This is important to consider when sleep problems were the most common service-connected injury reported by WWP warriors in 2022 AWS and 2021 AWS. This finding also suggests that interventions focused on improved sleep and addressing root causes of poor sleep quality may have a high impact on quality of life among WWP warriors.



Our QoL analysis determined that having good physical health can have a **POSITIVE IMPACT** on WWP warriors' quality of life.

## OVERALL IMPACT OF PHYSICAL HEALTH ON QoL

BMI and sleep quality and disturbances (PSQI) were found to be the best predictors of physical health and were used to understand the relationship between physical health conditions and quality of life.

In line with previous studies, our analysis of the 2022 survey shows that having good physical health, including BMI  $\leq 30$  and good quality sleep, can have a positive impact on quality of life.

# **FINANCIAL WELLNESS**

# FINANCIAL WELLNESS



**WWP defines the “financial” component of QoL as “empowerment through well-managed economic resources.”** It is

important to note that individuals can experience financial well-being or financial strain no matter their level of income.<sup>86</sup>

Financial wellness is an important indicator of quality of life, as the ability to meet current or future financial responsibilities can impact health and well-being.

To assess financial wellness among WWP warriors, the 2022 survey explored financial factors including employment, income, food security, financial strain, debt, financial well-being, and homelessness.

## EMPLOYMENT

For most individuals, steady employment provides financial stability to meet current or future financial responsibilities. The prospect of obtaining a job when seeking employment or being in the wrong job with no sense of purpose can have a negative impact on an individual’s quality of life. Mental and/or physical injuries acquired during military service and the challenges of transferring military skills to civilian careers often make it difficult for veterans to obtain stable employment.<sup>87,88</sup>

**Of the 57.0% of WWP warriors who are currently employed, the most common industries include public administration, health care and social assistance, and professional, scientific, and technical services.** For a full list of industries in which WWP warriors work, please see the Appendix. Furthermore, of those who are currently employed, 27.2% reported their employer has a resource group for veterans or a veteran mentorship program.

**TABLE 22: Industries of Employment Among WWP Warriors**

Industry	★ WWP WARRIORS
Public Administration	21.0%
Health Care and Social Assistance	10.6%
Professional, Scientific, and Technical Services	8.4%
Transportation and Warehousing	7.8%
Construction	6.4%
Other	25.8%

## EMPLOYMENT (continued)

Service-connected injuries and health problems play a major role in employment among WWP warriors. When looking at disability ratings alongside employment status, 100% disability ratings are least common among employed warriors, while more than half (53.7%) of those who are unemployed and looking for work have disability ratings of 100%.

Among WWP warriors who are not currently looking for work, 70.3% have a disability rating of 100%. When asked why they are not looking for work, the most common reasons reported are mental health issues from a service-connected disability (28.9%) and physical injury from a service-connected disability (20.0%), followed by being retired (19.8%).

**TABLE 23: Employment Status and WWP Warriors With 100% VA Disability Rating**

Employment Status	★ WWP WARRIORS WITH 100% VA DISABILITY RATING
Employed	37.1%
Unemployed	53.7%
Do not currently want/need to work	70.3%

## UNEMPLOYMENT

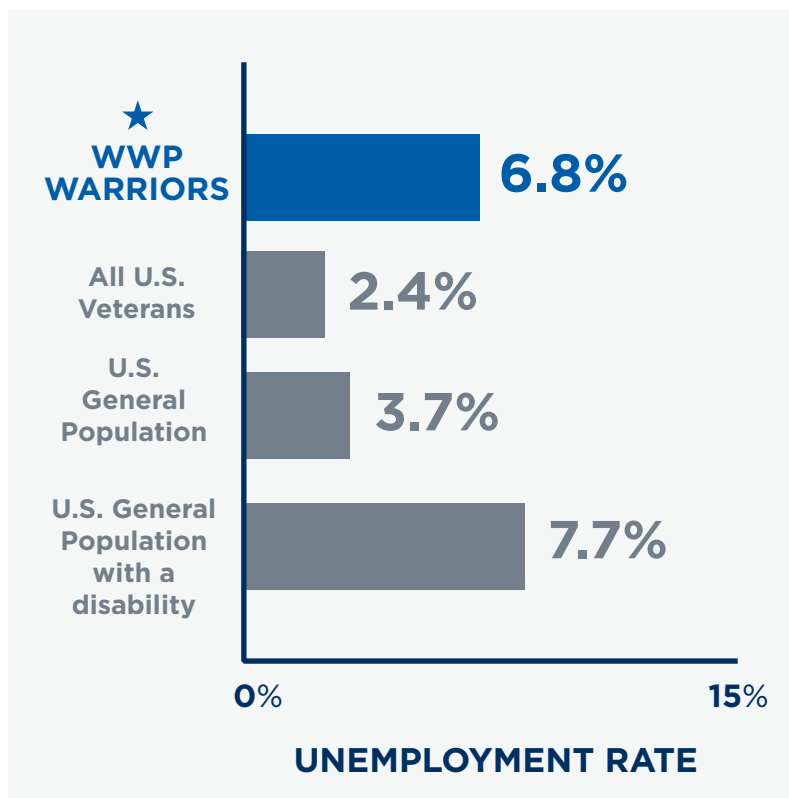
The WWP warrior unemployment rate appears to have made great improvement since 2021 — falling from 13.4% to 6.8%. However, it is still higher than the U.S. veteran and general populations, and most similar to the rate among the U.S. general population with a disability.<sup>2</sup>

## BARRIERS TO EMPLOYMENT

Given their unique experiences in the military and the high rate of injuries and health problems, WWP warriors face unique barriers to employment. For the 6.8% of warriors who are unemployed, the top-reported barriers to employment are:

- Mental health or psychological distress: 48.0%
- Difficulty translating military skills to the civilian workforce: 37.0%
- Lack of education: 23.6%

**FIGURE 7: Unemployment Rates Among WWP Warriors and Comparative Populations**



**NOTE:** Data from U.S. Bureau of Labor Statistics at time of 2022 AWS (August 2022)<sup>2</sup>

## INCOME

The ability to fund pursuits beyond covering the basic costs for survival has been shown to be associated with a higher quality of life. Studies suggest that income is positively associated with quality of life, but only up to a certain point.<sup>89,90</sup>

The average weekly income for WWP warriors employed full time was \$1,400, and for warriors working part time, the weekly income was \$627. This is higher than the average weekly income for WWP warriors employed full time and part time in the 2021 AWS (\$1,127 and \$382, respectively).

**The median household income reported by WWP warriors was \$50,000 to \$74,999. That income range encompasses the median income of \$70,784 for the U.S. general population.<sup>91</sup> On average, WWP warriors' household income supported three people.**



## EMPLOYMENT AND QoL

Our QoL analysis determined that employment has a **POSITIVE IMPACT** on WWP warriors' quality of life.

**ANALYSIS DETAILS:** After controlling for demographic factors, WWP warriors who are employed were found more likely to have physical or mental health QoL scores above the median of the general U.S. population (physical health QoL score Odds Ratio = 1.63; mental health QoL score Odds Ratio = 2.01) and U.S. veterans (physical health QoL score Odds Ratio = 1.65; mental health QoL score Odds Ratio = 1.79).

**SUMMARY:** The results suggest that employment positively impacts warriors' quality of life. The wider literature supports this finding with evidence of associations between employment and quality of life among veterans.<sup>92,93,94,95</sup> It is important to consider that the primary barriers to employment for WWP warriors are mental health challenges.

## FINANCIAL STRAIN


Financial strain was measured by asking if there was a time in the past year when WWP warriors felt they did not have enough money to make ends meet (i.e., to pay for rent/mortgage, food, utilities, phone, or other basic needs). **Financial strain among WWP warriors has risen since 2021 with 64.2% indicating that at some point in the past 12 months, they did not have enough money to make ends meet (42.0% in 2021).**

The proportion of WWP warriors who reported they did not have enough money to make ends meet in the past 12 months was higher amongst WWP warriors who are currently unemployed compared to WWP warriors who are currently employed full time.




64.2% of WWP warriors reported that, at some point in the past 12 months, they did not have enough money to make ends meet.

**TABLE 24: Financial Strain Among WWP Warrior Sub-Populations**

WWP Warrior Sub-Populations	 <b>WWP WARRIORS</b> Who Reported They Did Not Have Enough Money to Make Ends Meet in the Past 12 Months
WWP warriors who are unemployed	<b>80.3%</b>
WWP warriors in part-time employment	<b>73.4%</b>
WWP warriors with 70% or more VA disability rating	<b>65.1%</b>
WWP warriors with 100% VA disability rating	<b>64.0%</b>
WWP warriors in full-time employment	<b>58.1%</b>

WWP warriors reported that in the past 12 months, the top two reasons for financial strain or struggle were increased costs of goods (81.8%) and working but not making enough money (26.8%).

**TABLE 25: Top Reasons for Financial Strain or Struggle Among WWP Warriors**

Reason for Financial Strain or Struggle	 <b>WWP WARRIORS</b>
Increased cost of goods (e.g., food, gas, rent)	<b>81.8%</b>
Working but not making enough money	<b>26.8%</b>
Family obligations	<b>26.6%</b>
Out of work	<b>17.5%</b>
Medical bills	<b>6.1%</b>

**DEBT**

Taking on too much debt can place a strain on an individual’s quality of life and well-being. Studies suggest that high financial debt is associated with poor psychological and physical health.<sup>96,97,98</sup>

**More than nine in 10 (92.8%) WWP warriors have debt other than mortgage debt**, of which nearly half (56.8%) have at least \$20,000 in total debt (excluding mortgages). WWP warriors’ overall indebtedness is in line with the findings reported in the 2021 AWS (92.5% and 49.8%, respectively).





## FINANCIAL STRAIN AND QoL

Our QoL analysis determined that financial strain has a **NEGATIVE IMPACT** on WWP warriors' quality of life.

**ANALYSIS DETAILS:** After controlling for demographic factors, WWP warriors who report financial strain (as determined by not having enough money to make ends meet) were found less likely to have physical or mental health QoL scores above the median of the general U.S. population (physical health QoL score Odds Ratio = 0.71; mental health QoL score Odds Ratio = 0.37) and U.S. veterans (physical health QoL score Odds Ratio = 0.69; mental health QoL score Odds Ratio = 0.40).

**SUMMARY:** The results suggest that financial strain negatively impacts warriors' quality of life. This finding is supported by the wider literature among veterans and the impact of financial strain on well-being.<sup>86,89</sup> The reasons for financial strain are not easily controlled at the individual level. This, in combination with indebtedness, describes a negative financial scenario that can be difficult to quickly recover from. This suggests a need for long-term, multilevel interventions (individual-, system-, and community-level) to impact this area of quality of life.

## FOOD SECURITY

The U.S. Department of Agriculture (USDA) defines food security as having access to enough food for an active, healthy life.<sup>99</sup> Being unable to afford food or to feed your whole family is associated with feelings of guilt, worry, and poor health-related quality of life.<sup>100</sup>

The overall mean score for the WWP warrior population was 1.9, which falls in the middle of food secure and insecure, but closer to food insecure. This is similar to the 2021 AWS findings (1.5).

Rates of low and very low food security among WWP warriors have grown since 2021. **Nearly two in five WWP warriors met the threshold for being food insecure (38.7%), which is almost four times higher than the U.S. general population (10.2%).** Similarly, high food security is less common among WWP warriors than among the U.S. general population (61.3% and 89.8%, respectively).<sup>102</sup>



### HOW WE MEASURE IT:

The U.S. Household Food Security Survey (FSS) Module: Six-Item Short Form was used to measure food security levels among WWP warriors. Final summary scores range from 0 to 6, with higher scores indicating lower food security. FSS scores can be categorized as high/marginal food security (0 to 1), low food security (2 to 4), and very low food security (5 to 6). Overall scores can be collapsed further into two dichotomous groups of food secure (scores 0 to 1) and food insecure (score 2 or more).<sup>101</sup>



38.7% of WWP warriors met the threshold for being food insecure.

**TABLE 26: Food Security Among WWP Warriors and U.S. General Population (FSS Scores)**

Level of Food Security	★ WWP WARRIORS		U.S. General Population <sup>102</sup>
	2022	2021	
Very low food security	<b>23.2%</b>	<b>18.5%</b>	3.8%
Low food security	<b>15.5%</b>	<b>14.6%</b>	6.4%
High food security	<b>61.3%</b>	<b>66.9%</b>	89.8%



## FOOD SECURITY AND QoL

Our QoL analysis determined that food security has a **POSITIVE IMPACT** on WWP warriors' quality of life.

**ANALYSIS DETAILS:** After controlling for demographic factors, WWP warriors who reported food security (as determined by FSS) were found more likely to have physical or mental health QoL scores above the median of the general U.S. population (physical health QoL score Odds Ratio = 1.42; mental health QoL score Odds Ratio = 3.33) and U.S. veterans (physical health QoL score Odds Ratio = 1.52; mental health QoL score Odds Ratio = 2.83). The high mental health QoL score odds ratio here indicates a strong positive impact of food security on mental health QoL. The findings suggest WWP warriors who report food security have 3.3 times the odds of having better mental health QoL scores compared to the general U.S. population, and 2.8 the odds of having better mental health QoL scores compared to U.S. veterans.

**SUMMARY:** The results suggest that food security has a positive impact on warriors' quality of life, which is supported by the wider literature on food security and well-being among veterans.<sup>103,104</sup> The prevalence of food insecurity draws attention to the issue of competing priorities for WWP warriors. The need to prioritize securing food as a basic, physiological necessity can raise potential challenges in prioritizing other elements of well-being like psychological needs, interpersonal relationships, or self-actualization.<sup>105</sup>

## FINANCIAL WELL-BEING

The Consumer Financial Protection Bureau (CFPB) defines financial well-being as a state of being wherein a person can fully meet current and ongoing financial obligations, can feel secure in his or her financial future, and is able to make choices that allow him or her to enjoy life.<sup>86</sup> Individuals can experience financial well-being or lack of it no matter their level of income.



## FINANCIAL WELL-BEING AND QoL

### **i** HOW WE MEASURE IT:

The InCharge Financial Distress/Financial Well-Being Scale (IFDFW) was used to measure overall financial distress and well-being. The IFDFW provides self-reported responses to evaluate current financial positions and the state of fiscal issues, specifically related to overall well-being and distress.<sup>106</sup> Final scores can be categorized as low (1 to 4), moderate (5 to 6), and high (7 to 10) financial well-being.

**Nearly half (46.1%) of WWP warriors report that they live paycheck-to-paycheck (“sometimes” to “all the time”), and 43.2% say they have little to no confidence that they could find the money to cover a \$1,000 emergency expense.** These factors, among others, contribute to financial distress.

The overall mean score for the WWP warrior population was 5.3, indicating moderate financial distress. This is in line with the U.S. general population’s overall score of 5.7, also indicating moderate financial distress, and the mean score in the 2021 AWS (5.6).<sup>106</sup>

**TABLE 27: Financial Well-Being and Distress Among WWP Warriors and the U.S. General Population**

Level of Financial Well-Being	★ WWP WARRIORS		U.S. General Population**
	2022	2021	
High financial well-being (low distress)	<b>30.8%</b>	<b>38.3%</b>	42.0%
Moderate financial well-being (moderate distress)	<b>48.7%</b>	<b>46.1%</b>	28.0%
Low financial well-being (high distress)	<b>20.6%</b>	<b>15.6%</b>	30.0%

**Our QoL analysis determined that financial well-being has a POSITIVE IMPACT on WWP warriors’ quality of life.**

**ANALYSIS DETAILS:** After controlling for demographic factors, WWP warriors who reported moderate and high financial well-being (as determined by IFDFW) were found more likely to have physical or mental health QoL scores above the median of the general U.S. population (physical health QoL score Odds Ratio = 1.28; mental health QoL score Odds Ratio = 4.55) and U.S. veterans (physical health QoL score Odds Ratio = 1.32; mental health QoL score Odds Ratio = 3.48). The high mental health QoL score odds ratio here indicates a strong positive impact of financial well-being on mental health QoL. The findings suggest WWP warriors who reported moderate and high financial well-being have 4.6 times the odds of having better mental health QoL scores compared to the general U.S. population, and 3.5 the odds of having better mental health QoL scores compared to U.S. veterans.

**SUMMARY:** The results suggest that having moderate to high financial well-being has a positive impact on warriors’ quality of life. This is supported in the wider literature that highlights the impact of financial satisfaction on quality of life.<sup>106</sup> In the greater context of the current economic state of the US,<sup>107,108</sup> researchers and service providers for veterans need to continue to monitor changes in financial well-being over time, particularly the associated effects on mental health.

# HOMELESSNESS

There is limited research on the quality of life and well-being of individuals who find themselves homeless, due to the constraints surrounding the recruitment of that population for research studies. A literature review found that, overall, individuals who are homeless had a lower subjective quality of life compared to the general population and those who are housed.<sup>109</sup>

**About 1 in 25 WWP warriors indicated some form of homelessness in the past 12 months (4.0%).** Of those indicating homelessness in the past 12 months, 38.6% indicated they are no longer homeless (slept in a home or apartment they owned or rented within the previous 24 hours).



## HOMELESSNESS AND QoL

**ANALYSIS DETAILS:** After controlling for demographic factors, the result shows that individuals who are homeless were more likely to have mental health QoL scores below the median of the general U.S. population (mental health QoL score Odds Ratio = 0.30) and U.S. veterans (mental health QoL score Odds Ratio = 0.40). There is no difference between the median physical health QoL scores for WWP warriors who are homeless and the median physical health QoL scores for the U.S. general population and veterans.

**SUMMARY:** These findings on the impact of mental health quality of life are consistent with the observation of a higher prevalence of mental health conditions among those experiencing homelessness<sup>110,111</sup> and how homelessness can worsen existing mental health conditions.<sup>112,113</sup> While homelessness can be chronic and ongoing, the findings on physical QoL support the idea that hidden, transitional, and episodic experiences of homelessness can be more difficult to directly observe or detect among any given warriors.



Our QoL analysis determined that being employed has a **POSITIVE IMPACT** on WWP warriors' quality of life.

## OVERALL IMPACT OF FINANCIAL WELLNESS ON QoL

Employment (being employed) was found to be the best predictor of financial wellness and was used to understand the relationship between financial wellness conditions and quality of life.

In line with previous studies,<sup>92,93,94,95</sup> our analysis of the 2022 survey shows that being employed has a positive impact on quality of life.



**“VETERANS BRING A LOT OF VALUE  
TO THE CIVILIAN WORKFORCE,  
LIKE DISCIPLINE, LEADERSHIP, AND  
ORGANIZATIONAL SKILLS.”**

**— WOUNDED WARRIOR  
SEVERA PARRISH**

# **SOCIAL CONNECTION**

# SOCIAL CONNECTION



WWP defines the “social connection” component of QoL as “health, resilience, and camaraderie marked by meaningful relationships and experiences, with both individuals and a community.”

The beneficial consequences of social support on well-being have been well documented. Perceived levels of high social support have been associated with fewer self-reported symptoms of PTSD, anxiety, and depression, as well as better physical health and quality of life.<sup>114,115,116</sup>

Conversely, mental health challenges, along with physical health problems, are often barriers to social connection for WWP warriors. **About two in five (39.1%) WWP warriors reported their physical health and emotional problems interfere with their social activities “most of the time” or “all of the time.”**

## LONELINESS

Experiencing loneliness and being alone are two different things. Individuals can feel comfortable in their own company, whereas loneliness is the emotional distress felt when social involvements and relationships are not what an individual wants them to be. Individuals can be alone and not feel lonely — conversely, individuals can be surrounded by people and still feel lonely.

Experiencing loneliness at certain points in life can be a normal response — for example, when leaving home for the first time or moving to a new city. However, loneliness and chronic loneliness can have an impact on individuals’ physical and emotional well-being and impact their quality of life. A systematic narrative review found veterans have a unique experience of loneliness and social isolation due to their military experiences and highlighted this as an important area to explore further.<sup>117</sup>

### **i** HOW WE MEASURE IT:

The AWS measures loneliness using the Three-Item Loneliness Scale, which measures three dimensions of loneliness: relational connectedness, social connectedness, and perceived isolation. Overall loneliness scores are sums of all three questions, ranging from 3 to 9, for which a higher score represents greater loneliness.<sup>118</sup> Final scores can also be grouped as not lonely (scores 3 to 5) or lonely (scores 6 to 9).



**“THE ABILITY TO RECONNECT  
WITH A SUPPORTIVE VETERAN  
COMMUNITY CHANGED MY MINDSET  
ABOUT PERSONAL GROWTH AND  
DEVELOPMENT.”**

**— WOUNDED WARRIOR  
TANIKI RICHARD (CENTER)**



The average loneliness score of 6.2 among WWP warriors falls within the threshold indicating loneliness, which is similar to last year's result (6.1). When further categorized into groups, 33.7% are considered not lonely, while the majority of warriors, 66.3%, are lonely. The levels of loneliness as reported by warriors are higher than the 2021 AWS, in which 62.4% of WWP warriors were lonely.

**70.5%** Of warriors reported that they lack companionship

**73.0%** Of warriors reported feeling left out

**77.6%** Of warriors reported feeling isolated — sometimes or often



## LONELINESS AND QoL

Our QoL analysis determined that loneliness has a **NEGATIVE IMPACT** on WWP warriors' quality of life.

**ANALYSIS DETAILS:** The general U.S. population and all U.S. veterans were used as reference populations when assessing the impact of loneliness on warriors' quality of life. After controlling for demographic factors, WWP warriors considered lonely (as determined by Three-Item Loneliness Scale) were found less likely to have physical or mental health QoL scores above the median of the general U.S. population (physical health QoL score Odds Ratio = 0.90; mental health QoL score Odds Ratio = 0.13) and U.S. veterans (physical health QoL score Odds Ratio = 0.83; mental health QoL score Odds Ratio = 0.16).

**SUMMARY:** The results suggest that loneliness has a negative impact on WWP warriors' quality of life, which is supported by the wider literature.<sup>119</sup> One study found loneliness was associated with poorer mental and physical health among older U.S. veterans.<sup>120</sup> This is important to consider as this research continues to explore the impact of loneliness among WWP's aging warrior population.



Our QoL analysis determined that loneliness has a **NEGATIVE IMPACT** on WWP warriors' quality of life.

## OVERALL IMPACT OF SOCIAL CONNECTION ON QoL

The loneliness variable was used to understand the relationship between social connection components on quality of life. In line with previous research,<sup>119,120</sup> the results from 2022 AWS show that loneliness predicts lower quality of life in the WWP warrior population.



**SPIRITUAL**

# SPIRITUAL



**WWP defines the “spiritual” component of QoL as “well-being related to one’s unique purpose, identity, values, beliefs, and life vision.”**

Spiritual wellness can also include a person’s approach to life after trauma and finding purpose beyond difficult experiences.

Even when presented with difficult life events, factors such as resilience and psychological growth can help warriors face situations in a positive manner and overcome difficulties.

Veterans face unique challenges that can deteriorate their sense of purpose, such as the transition to civilian life, self-perception after service, and low resilience and psychological growth. This loss of a sense of purpose can negatively impact quality of life. For the 2022 AWS, part of the survey explored the amount of psychological growth WWP warriors report after having experienced a traumatic event.

## POST-TRAUMATIC GROWTH

Exploring WWP warriors’ experiences of post-traumatic growth (PTG) provides the opportunity to present the full spectrum of responses to a traumatic event and capture positive outcomes, such as appreciation of life, that may arise out of hardship. PTG is not mutually exclusive from PTSD or other mental health conditions, but it’s a factor that may be able to provide some stability for individuals who have experienced a traumatic event. Research studies on post-9/11 military personnel and veterans have found that PTG has a positive impact on quality of life.<sup>121,122</sup>

### **i** **HOW WE MEASURE IT:**

PTG was measured using the short form of the Post-traumatic Growth Inventory (PTGI-SF). This standardized tool is a way to measure positive coping following trauma and includes five components: relating to others, new possibilities, personal strength, spiritual change, and appreciation for life.<sup>123</sup> The PTGI-SF includes 10 statements, and warriors indicated how much the statements were true to their life, from “not at all” (score of 0) to “a very great degree” (score of 5). A total PTGI-SF score is created by adding all the scores together from the 10 statements (scores range from 0 to 50).<sup>123</sup>

**WWP warriors have a mean growth score of 20.3, which is similar to the mean scores reported in previous studies exploring PTGI in military personnel and veterans.<sup>124</sup>** This is the baseline score that we will refer back to in future AWS waves to see how WWP warriors’ post-traumatic growth has changed.

# POST-TRAUMATIC GROWTH

(continued)

In the five PTG domains, we found the highest mean growth scores within appreciation of life, followed by personal strength and new possibilities.

WWP warriors were asked to identify areas in which their lives have changed as a result of traumatic experiences. **Most commonly, warriors agreed that “I have a greater appreciation for the value of my own life” (34.9%), “I changed my priorities about what is important in life” (31.2%), and “I discovered that I’m stronger than I thought I was” (23.3%).**

**TABLE 28: WWP Warriors’ Mean Scores Within the Five Post-Traumatic Growth Domains**

PTG Domain	★ WWP WARRIORS MEAN SCORE
Appreciation of life	5.2
Personal strength	4.4
New possibilities	4.2
Spiritual change	3.7
Relating to others	3.1



## PTG (OVERALL AND SPIRITUAL CHANGE DOMAIN) AND QoL

**PTG OVERALL ANALYSIS DETAILS:** The general U.S. population and all U.S. veterans were used as reference populations when assessing the impact of PTG on warriors’ quality of life. After controlling for demographic factors, WWP warriors with a positive perspective (determined by PTGI  $\geq 30$  for the purpose of this analysis) were more likely to have mental health QoL scores above the median of the general U.S. population (mental health QoL score Odds Ratio = 2.19) and U.S. veterans (mental health QoL score Odds Ratio = 2.39). When assessing the relationship between PTG and physical health QoL score, these differences between WWP warriors and the reference populations (the general U.S. population and all U.S. veterans) were not statistically significant. Further research of these factors could provide additional understanding of the relationship between PTG and its impact on quality of life.

**PTG SPIRITUAL CHANGE DOMAIN ANALYSIS DETAILS:** After controlling for demographic factors and focusing specifically on the two spiritual components within the PTGI measure (understanding of spiritual matters and religious faith), the results show that spiritual change impacts WWP warriors’ quality of life. WWP warriors with a positive spiritual change (determined by PTGI  $\geq 5$  for the purpose of this analysis) were found more likely to have mental health QoL scores above the median of the general U.S. population (mental health QoL score Odds Ratio = 1.22) and U.S. veterans (mental health QoL score Odds Ratio = 1.33) but lower physical health QoL scores (U.S. population, physical health QoL score Odds Ratio = 0.86; U.S. veterans, physical health QoL score Odds Ratio = 0.86).

**SUMMARY:** The results show that higher overall PTG scores had a positive impact on WWP warriors’ mental health quality of life, but no significant difference on WWP warriors’ physical health quality of life. When focusing on spiritual change in particular, the findings show positive spiritual change had a positive impact on WWP warriors’ mental health quality of life, but a negative impact on physical health quality of life. PTG is a relatively new topic in the wider literature and is a new measure to AWS. We look forward to exploring the changes in WWP warriors’ PTG scores over time through future surveys and better understanding the impact on quality of life.



**HOW WE MEASURE IT:**

Resilience was measured using the Connor Davidson Resilience Scale 2-Item (CD-RISC 2). This is an abbreviated version of the CD-RISC 10 and measures how well an individual can adapt when changes occur and endure difficult experiences.<sup>126</sup> The final summary resilience score ranges from 0 to 8, with higher scores indicative of greater resiliency.

**RESILIENCE**

Resilience is an individual’s ability to overcome adversity. A study with post-9/11 veterans found those with a resilient personality reported fewer sleep problems, less distress, more health-promotive behaviors (e.g., physical activities, stress management strategies), and higher quality of life.<sup>125</sup>

WWP warriors have a mean resilience score of 4.8, which falls within moderate levels of resilience. This is similar to the 2021 AWS (4.9) and is lower than the overall score for a general population sample (6.9).<sup>126</sup>

**TABLE 29: Resilience Among WWP Warriors**

	“I am able to adapt when changes occur”	“I tend to bounce back after illness, injury, or other hardships”
Not true at all	4.5%	5.1%
Rarely true	11.0%	12.0%
Sometimes true	37.5%	37.7%
Often true	30.3%	28.6%
True nearly all the time	16.8%	16.6%



## RESILIENCE AND QoL

Our QoL analysis determined that resilience has a **POSITIVE IMPACT** on WWP warriors' quality of life.

**ANALYSIS DETAILS:** The general U.S. population and all U.S. veterans were used as reference populations when assessing the impact of resilience on WWP warriors' quality of life. After controlling for demographic factors, an increase in resilience (as determined by CD-RISC 2) was found more likely to have physical or mental health QoL scores above the median of the general U.S. population (physical health QoL score Odds Ratio = 1.07; mental health QoL score Odds Ratio = 1.69) and U.S. veterans (physical health QoL score Odds Ratio = 1.08; mental health QoL score Odds Ratio = 1.58).

**SUMMARY:** The results suggest that resilience has a positive impact on WWP warriors' quality of life, which is supported by the wider literature. Several studies show resilience has a positive impact on psychological and social functioning for individuals with amputations<sup>127</sup> and chronic physical disabilities.<sup>128</sup> There is also evidence resilience has a positive impact on health outcomes in older adults,<sup>129</sup> which is important to consider as the WWP warrior population ages.

## OVERALL IMPACT OF SPIRITUAL WELLNESS ON QoL

The PTGI variable was used to understand the impact of spiritual components on quality of life. In line with previous studies,<sup>121,122</sup> our analysis of the 2022 AWS shows that an overall positive perspective of life, including high levels of post-traumatic growth, can have a positive impact on quality of life.

However, the findings are slightly different when specifically exploring the questions that focus on spirituality in the PTG measure (understanding of spiritual matters and religious faith). Here, our analysis shows a positive relationship between the spiritual PTG components and QoL on WWP warriors' mental health QoL score but a negative relationship with WWP warriors' physical health QoL score. This suggests the stronger the PTG spiritual components are, the more likely the warrior is to have a higher mental health QoL score than U.S. veterans and the U.S. population but a lower physical health QoL score. There is a need for further research to investigate the relationship between PTG spiritual components and quality of life.



Our QoL analysis determined that an overall positive perspective of life can have a **POSITIVE IMPACT** on WWP warriors' quality of life.



**“I’VE CLIMBED MOUNT KILIMANJARO  
AND DONE SO MUCH MORE NOW  
THAN I DID BEFORE I LOST MY LEG.  
I DIDN’T LET IT STAND IN THE WAY  
OF ENJOYING MY LIFE.”**

**— WOUNDED WARRIOR BRYAN WAGNER  
WITH HIS FAMILY**

# OVERALL IMPACT ON WWP WARRIORS' QoL



# OVERALL IMPACT ON WWP WARRIORS' QoL



We have explored which factors have had the strongest impact on each individual component of the quality of life definition (mental, physical, financial, social connection, and spiritual). In this section, we review which of the five QoL components has the greatest overall impact on WWP warriors' quality of life. The following variables were selected from the factor analysis for each of the QoL components:

- **PTSD AND DEPRESSION** (Mental component)
- **BMI AND SLEEP QUALITY AND DISTURBANCE** (Physical component)
- **EMPLOYMENT** (Financial component)
- **LONELINESS** (Social connection component)
- **POST-TRAUMATIC GROWTH** (Spiritual component)



Overall, **SLEEP QUALITY** was found to have the **HIGHEST POSITIVE IMPACT** on quality of life for WWP warriors. This suggests that as WWP warriors' quality of sleep increases, their quality of life improves. Sleep has the strongest positive impact on quality of life for WWP warriors out of the five QoL components.



Conversely, our analysis showed that **DEPRESSION** has the **HIGHEST NEGATIVE IMPACT** on quality of life for WWP warriors. This suggests that as the severity of depressive symptoms increases, WWP warriors' quality of life decreases. Depression has the strongest negative impact on quality of life for WWP warriors out of the five QoL components.

Understanding these factors that positively and negatively impact quality of life can inform efforts to improve the lives of warriors — from far-reaching legislation down to local programs at veterans service organizations. Recognizing and tracking the long-lasting impacts of military service allows us to better serve our nation's heroes and supports WWP's vision of fostering the most successful, well-adjusted generation of wounded service members in our nation's history.



# **SUPPORT AND CARE**

# SUPPORT AND CARE



In addition to the components outlined in the previous report sections, quality of life can also be influenced by the support and care individuals receive as they manage life events and look after their well-being. This section of the report focuses on the impact of support and care on WWP warriors' quality of life, particularly in areas like access to care and aid and assistance. Receiving the necessary support and care is beneficial for overall well-being and quality of life. By understanding WWP warriors' experiences in these areas, we can help those we serve to overcome barriers, while advocating for broader systematic changes that can benefit all veterans.

## ACCESS TO CARE

Reliable and easily accessible health care is a critical component of any strong support system, especially for WWP warriors, who live with service-related injuries and health problems. According to WHO, "quality of care is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes."<sup>150</sup> Therefore, barriers to physical and mental health care, such as stigma, location, availability, affordability, and accessibility of treatment, may impact the quality of care and thus an individual's well-being and quality of life.

## HEALTH CARE COVERAGE

Availability and access to health insurance coverage, utilization of services, and quality services are critical to effective and efficient access to care.<sup>151</sup> In the 2022 AWS, WWP warriors most frequently cited VA Health Care (90.5%) or TRICARE (51.5%) as their form of health care coverage.

**TABLE 30: Types of Health Care Coverage Reported by WWP Warriors**

Health Care Coverage	★ WWP WARRIORS	
	2022	2021
VA health care	90.5%	90.0%
TRICARE or other military health care	51.5%	49.4%
Employment-based coverage	30.6%	28.0%
Medicare	12.4%	13.8%
Medicaid	8.7%	8.4%
Directly purchased health care	5.5%	4.8%
Other	1.9%	1.8%
Indian Health Service	1.1%	0.8%

## HEALTH CARE PROVIDERS

Overall, the three most common health care providers that WWP warriors utilize for any service are: VA medical centers (75.7%), non-VA providers (51.2%), and VA community-based outpatient clinics (33.5%). When looking specifically at VA medical centers, warriors predominantly utilize them for primary care (66.8%), mental health care (54.3%), and specialty care (53.5%).

**About half of WWP warriors (52.5%) who use VA Medical Centers for primary care reported the VA as “very helpful” or “somewhat helpful” in coordinating their general medical care.**

**TABLE 31: Providers Used by WWP Warriors for Specific Services**

Type of Service	VA Medical Center	Non-VA Provider	VA Community-Based Outpatient Clinic	Community Care Network Provider	Vet Center	Does Not Apply to Me
Any of the below services	<b>75.7%</b>	<b>51.2%</b>	<b>33.5%</b>	<b>26.1%</b>	<b>8.6%</b>	<b>85.5%</b>
Primary care	66.8%	26.2%	26.6%	9.7%	3.9%	4.9%
Specialty care (e.g., cardiologist, endocrinologist, gastroenterologist)	53.5%	22.5%	14.0%	12.5%	2.2%	20.4%
Mental/behavioral health care	54.3%	15.2%	16.6%	5.9%	6.6%	20.4%
Women’s health care (female warriors only)	61.9%	25.2%	14.9%	11.1%	1.8%	7.1%
Reproductive health and/or contraceptive services	15.6%	6.4%	3.1%	2.3%	0.7%	76.2%
Same-day or urgent care	37.3%	36.0%	9.5%	13.3%	1.5%	19.7%
Emergency room care	38.3%	40.0%	6.2%	12.0%	1.2%	19.1%

- **VA Medical Centers** provide a wide range of hospital-based services through the VA, such as surgery, critical care, mental health, pharmacy, and physical therapy.

- **VA Community-Based Outpatient Clinics** aim to make access easier by providing common outpatient services, including health and wellness visits in clinics outside of the larger medical centers.

- **Community Care Network Provider** refers to care that is received from a provider in the warrior’s community but paid for by the VA (formerly known as the Choice Program).

- **Private Provider (non-VA provider)** is a health care provider outside of the VA that provides direct services to the public.

- **Vet Centers:** Defined by the VA as “community-based counseling centers that provide a wide range of social and psychological services, including professional counseling to eligible Veterans, service members, including National Guard and Reserve components, and their families.”<sup>132</sup>

# TOP 3

## FACTORS CONSIDERED

when selecting  
a health care provider

WWP warriors report the most important factors they consider when selecting a health care provider are:



# 91.9%

How quickly they can be seen



# 91.2%

Ease of scheduling appointments (e.g., telehealth, text appointment reminders, convenient online scheduling methods)



# 90.7%

The provider has a medical license

For a full list of factors that are important to WWP warriors when selecting a health care provider, please see the Appendix.

## HEALTH CARE SERVICES

The 2022 AWS found that about nine in 10 (91.4%) WWP warriors have sought to use VA health care services since separating from the military, compared to 87.9% in 2021. The top three main services WWP warriors receive through VA benefits (either at the VA or in the community) are: regular or routine health care (89.7%); prescription medications, eyeglasses, hearing aids, or other devices (75.9%); and mental health care (71.6%).

**TABLE 32: Services WWP Warriors Receive Through VA Benefits (Either at VA or in the Community)**

Services	★ WWP WARRIORS
Regular or routine health care	89.7%
Prescription medications, eyeglasses, hearing aids, or other devices	75.9%
Mental health care	71.6%
Specialist health care (e.g., cardiologist, endocrinologist, gastroenterologist)	59.2%
Dental care	35.1%
Special emphasis care, such as for a spinal cord injury, traumatic brain injury, blind rehabilitation, prosthetics	22.3%
Women's health services	12.4%
Care related to toxic exposure	6.4%
Care related to military sexual trauma	5.6%
Other	4.9%
Home health care	2.7%
Maternal care	1.6%
Nursing home care	0.6%



**“THROUGH THE VA PROCESS, ALL THE  
FILINGS, DOCTOR’S APPOINTMENTS,  
BENEFITS APPLICATIONS, AND  
EVERYTHING — WOUNDED WARRIOR  
PROJECT WAS THERE.”**

**— WOUNDED WARRIOR  
JASON FOSTER**

Among WWP warriors who use non-VA providers for primary care, the most common reasons reported include: easier access to care (85.5%), appointments at a more convenient time (60.4%), and better-quality care (52.2%).

**TABLE 33: Reasons WWP Warriors Use Non-VA Providers For Primary Care**

Reasons	★ WWP WARRIORS
Easier access to care	85.5%
Appointments at more convenient time	60.4%
Better-quality care	52.2%
Provider that you really like and trust	47.0%
Required immediate attention and could not get appointment at VA	39.7%
Dissatisfied by prior experiences with VA care	36.7%
Perceived or confirmed ineligibility to receive the needed services at VA	9.5%
Need information on eligibility for VA services	9.3%

## BARRIERS TO CARE

One of the factors that makes the WWP warrior population unique from the wider post-9/11 veteran population is that every individual incurred a physical or mental injury, illness, or wound related to their service. As such, understanding access to care for WWP warriors, particularly barriers to care, is fundamental to provide support for this population.

The survey asked warriors about their ease and motivation for accessing care to address their health needs. **More than two in five (44.0%) WWP warriors indicated they had difficulty or put off getting needed care for physical injuries or problems**, which is a higher proportion than in 2021 AWS (41.3%).

## BARRIERS TO VA CARE

As the majority of WWP warriors use the VA for primary care, the survey asked about significant barriers that have kept them from using VA care now or in the past. These responses give insight into some of the obstacles WWP warriors may face when trying to access care. The top five barriers include: “There is not enough access to VA health care services and benefits” (16.4%), “the VA is too far away” (15.6%), “VA providers are not sensitive to my needs” (14.7%), “I don’t understand my benefits” (12.3%), and “VA hours are inconvenient” (12.2%).

**TABLE 34: Significant Barriers to VA Care (Now or in the Past) Reported by WWP Warriors**

Barriers	★ WWP WARRIORS
	There is not enough access to VA health care services and benefits
The VA is too far away	15.6%
VA providers are not sensitive to my needs	14.7%
I don't understand my benefits	12.3%
The VA hours are inconvenient	12.2%
I am embarrassed or afraid to seek mental health services	7.7%
I have no access to childcare	5.1%
I haven't been provided with any information about VA health care	4.3%
VA facilities lack privacy or safety	3.7%
I have no way to get to a VA facility	2.2%
Other	9.1%

## BARRIERS TO PHYSICAL CARE

Facing delays or barriers to receiving care for physical injuries or health concerns can exacerbate the problem or negatively impact the recovery process. There is limited research on the impact of barriers to physical health care on long-term outcomes for veterans, but it is acknowledged that the burden of overcoming additional barriers to care can negatively impact an individual's quality of life.

Among WWP warriors who reported difficulty getting health care for physical injuries or health problems, the top five barriers reported in 2022 AWS are the same as 2021 AWS — outlined below. For a full list of barriers to care, please see the Appendix.

**TABLE 35: Barriers to Care for Physical Injuries or Health Problems Reported by WWP Warriors**

Barriers	★ WWP WARRIORS	
	2022	2021
Difficulty scheduling appointments with provider	70.5%	66.6%
Delays or cancellation in treatment	61.0%	60.3%
Lack of availability in VA specialty clinic	59.2%	55.6%
Personal schedule (work, school, family responsibilities) conflicted with the hours of operation of health care facilities	56.1%	53.2%
VA requirements made it difficult getting referrals to specialty treatment for your physical problems	53.8%	52.9%





## BARRIERS TO PHYSICAL CARE AND QoL

Our QoL analysis determined that experiencing barriers to physical care has a **NEGATIVE IMPACT** on WWP warriors' quality of life.

**ANALYSIS DETAILS:** The general U.S. population and all U.S. veterans were used as reference populations when assessing the impact of barriers to physical care on warriors' quality of life. After controlling for demographic factors, WWP warriors who faced barriers to physical care were found less likely to have physical or mental health QoL scores above the median than the general U.S. population (physical health QoL score Odds Ratio = 0.63; mental health QoL score Odds Ratio = 0.38) and U.S. veterans (physical health QoL score Odds Ratio = 0.57; mental health QoL score Odds Ratio = 0.43).

**SUMMARY:** These findings from the 2022 AWS are similar to what is highlighted in other research studies on barriers to care for veterans and the impact this may have on quality of life.<sup>133,134</sup> One study reported geographic distance and wait times as significant barriers for veterans accessing health care.<sup>134</sup> These findings regarding access to care suggest that closer proximity to providers, ease of accessing care systems (scheduling and wait times), and care navigation and understanding of benefits are key areas of need for warriors.

## BARRIERS TO MENTAL HEALTH CARE

No warrior's mental health journey is the same, and finding the right support system or care plan for their unique challenges is critical in their path to healing. **The 2022 AWS shows that warriors rely on many different support mechanisms when it comes to mental health** — highlighting the importance of a supportive community, veteran peer connection, and easily accessible professional care.

A number of studies have explored stigma and access to mental health care for veterans.<sup>135</sup> The benefits of seeking support when experiencing mental health challenges are well established, and individuals are encouraged to reach out.

When dealing with stress, emotional challenges, or mental health concerns, WWP warriors report that they most often turn to: talking with family and friends (65.5%), talking with another veteran (60.6%), prescription medication (59.0%), services at VA medical centers (55.3%), and physical activity (54.6%).

### TOP 5

Tools and Resources Used for Help with Stress, Emotional Challenges, or Mental Health Concerns

**65.5%** Talking with family and friends

**60.6%** Talking with another veteran

**59.0%** Prescription medication

**55.3%** Services at VA medical centers

**54.6%** Physical activity

**TABLE 36: Tools and Resources WWP Warriors Use to Help with Stress, Emotional Challenges, or Mental Health Concerns**

Tools and Resources	★ WWP WARRIORS
Talking to family or friends	65.5%
Talking with another veteran	60.6%
Prescription medication	59.0%
Services at VA Medical Center	55.3%
Physical activity (e.g., exercise, golf, gym workouts, biking)	54.6%
Prayer, religion, or talking to a religious leader	39.1%
Service dogs/pets/other animals	38.1%
Meditation, journaling, or yoga	31.2%
Psychotherapy with non-VA counselor, family, or psychiatrist	26.9%
Support groups (e.g., PTSD groups, peer-to-peer counseling, Alcoholics Anonymous, CBT groups)	18.5%
Services at Vet Center	16.7%
Inpatient treatment programs (in a facility for PTSD or other mental health condition)	11.6%
Other	7.4%

Nearly seven in 10 WWP warriors have visited a professional at least once in the past 12 months to help with issues such as stress, emotional, alcohol, drug, or family problems (66.3%).

**TABLE 37: Frequency of Professional Care for Stress, Emotional Challenges, or Mental Health Concerns Among WWP Warriors (in Past 12 Months)**

Frequency (in Past 12 Months)	★ WWP WARRIORS
Never	33.8%
Once	8.6%
Two or three times	15.9%
Four or five times	10.9%
Six to 12 times	13.1%
More than 12 times	17.9%

# TELEHEALTH

The use of telemedicine has risen dramatically since the COVID-19 pandemic and provides accessible and cost-effective care for a wide range of medical needs. Due to personal preferences, some individuals prefer in-person care given the choice but, overall, telehealth helps to address some of the barriers to care outlined above, such as appointment availability.

The idea of telehealth appears to be well received by warriors, as most who've been offered a telehealth appointment have utilized it and even many of those who were not offered a telehealth appointment report that they would have used it if offered.

**More than three in four WWP warriors reported that they were offered a telehealth appointment in the past 12 months (77.7%). Among them, 89.3% report utilizing telehealth at some point in the past 12 months.**

In the past 12 months, has a provider offered you a telehealth appointment where you met with a doctor, nurse, or health professional by video or by phone?

- **22.2%** No, I was not offered a telehealth appointment.
- **27.6%** Yes, I was offered a telehealth appointment for physical health care.
- **17.9%** Yes, I was offered a telehealth appointment for mental health care.
- **32.2%** Yes, I was offered a telehealth appointment for both mental health care and physical health care.

**About one in five WWP warriors report that they were not offered a telehealth appointment in the past 12 months (22.2%).**

When asked if they would have utilized telehealth if offered, most reported that they would (63.9%):

- **17.1%** Would have used telehealth services if offered for mental health care
- **9.4%** Would have used telehealth services if offered for physical health care
- **37.3%** Would have used telehealth services if offered for physical and/or mental health care

**When using telehealth for mental health care, WWP warriors tend to use it with higher frequency than when using it for physical health care.** Among those who have used telehealth when offered in the past 12 months, the number of warriors using telehealth weekly for mental health care (9.8%) is more than twice as high as those using it weekly for physical health care (4.8%). The frequency of mental health care via telehealth is also higher when looking at monthly usage.

**TABLE 38: How Often WWP Warriors Use Telehealth for Physical and Mental Health Care** (among those who have used telehealth services when offered in the past 12 months)

Frequency	Physical Health Care	Mental Health Care
Never	13.0%	11.0%
Less than once a month	57.8%	44.1%
Once or twice a month	21.1%	30.9%
Once or twice a week	4.8%	9.8%
Nearly every day	0.4%	0.6%
More often	2.9%	3.6%

**TABLE 39: Types of Health Care Coverage and Telehealth Utilization Among WWP Warriors (in Past 12 Months)**

Types of Coverage	Utilized Telehealth When Offered	Not Offered a Telehealth Appointment
Medicare	91.3%	14.6%
Medicaid	90.3%	21%
TRICARE or other military health care	90.0%	21.9%
VA health care	89.5%	19.5%
Directly purchased health care	88.7%	23.2%
Employment-based coverage	87.7%	25.2%
Indian Health Service	85.4%	21.6%

## TELEHEALTH (continued)

WWP warriors who **were offered a telehealth appointment and utilized it** most often report Medicare (91.3%) or Medicaid (90.3%) as their type of health care coverage. WWP warriors who were not offered a telehealth appointment most often report employment-based coverage (25.2%) or directly purchased health care (23.2%) as their type of health care coverage.



## TELEHEALTH AND QoL

Due to the limitations in the number of WWP warriors reporting utilization of telehealth services, the analysis between telehealth and impact on quality of life could not be reported.

## AID AND ASSISTANCE

Some WWP warriors require the aid and assistance of another person due to the nature of their injuries - whether physical, mental, or both. Receiving caregiving or support can improve an individual's quality of life, as it provides the necessary support to manage daily tasks that may otherwise be impacted by an injury or health condition.

### INSTRUMENTAL SUPPORT

Instrumental support is characterized as having someone in your social network that you can call on to help with daily tasks and provide tangible, material, or functional aid. The feeling of having somebody in your life to be there and offer support when needed can provide comfort and improve quality of life and overall well-being.



### HOW WE MEASURE IT:

Instrumental support was measured using the NIH Toolbox.<sup>136</sup> The NIH Toolbox is a comprehensive set of neurobehavioral measurements that assess cognitive, emotional, sensory, and motor functions.

**More than six in 10 (66.5%) WWP warriors reported normal or high levels of instrumental support, with 33.5% indicating low support.** These findings are similar to the levels of instrumental support reported by WWP warriors in the 2021 AWS (67.9% normal or high levels of support; 32.1% low levels of support).



## INSTRUMENTAL SUPPORT AND QoL

**ANALYSIS DETAILS:** After controlling for demographic factors, WWP warriors with moderate to high instrumental support were found more likely to have mental health QoL scores above the median of the general U.S. population (mental health QoL score Odds Ratio = 2.10) and U.S. veterans (mental health QoL score Odds Ratio = 1.85). However, there is no significant difference between WWP warriors and the reference populations (the general U.S. population and all U.S. veterans) when assessing the relationship between instrumental support and physical health QoL score.

**SUMMARY:** In the wider literature, one study found emotional support was associated with enhanced well-being, whereas instrumental support was inconsistently associated.<sup>137</sup> This suggests the type of support is important and that instrumental support may play a mediator role rather than have a direct impact on quality of life. Further research is needed to fully understand the relationship between instrumental support and quality of life.

## CAREGIVING

For many warriors, a well-rounded support system includes another person's aid and assistance for daily activities and tasks due to the nature of their injuries – whether physical, mental, or both. **About three in 10 (31.2%) WWP warriors need aid and assistance from another person due to service-connected injuries or health problems and need an average of 55 hours of care per week.** However, nearly half (49.3%) who need aid and assistance are not receiving it.

The Program of Comprehensive Assistance for Family Caregivers (PCAFC) provides various resources and support to caregivers of eligible veterans (often referred to as the “caregiver program”). Of the WWP warriors who received aid and assistance (15.8%), 30.1% are participating in PCAFC.

### Caregiver Relationships

Caring for an individual who requires aid and assistance can often feel like a full-time job. In fact, nearly half of warriors who require aid and assistance (48.2%) report needing 40 hours or more per week. Most often, spouses occupy this role for WWP warriors (75.6%). These findings are similar to the 2021 AWS; however, they differ from caregiver relationships of the wider U.S. post-9/11 veteran population.

Military Family Advisory Network (MFAN) conducted a survey in 2021 with military veterans and families to understand their experiences. The MFAN report findings showed that military family members who are caregivers were more likely to report loneliness and moderate or poor family health than those who are not caregivers.<sup>138</sup>

**TABLE 40: Caregiver Relationships of WWP Warriors and U.S. Post-9/11 Veterans**

Caregiver Relation to Veteran	★ WWP WARRIORS	U.S. Post-9/11 Veterans <sup>139</sup>
Spouse	75.6%	33.2%
Parents or siblings	10.5%	29.4%
Children	2.9%	5.8%
Other	11.0%	31.6%

**NOTE:** The U.S. post-9/11 veteran sample includes WWP warrior caregivers.

## SUPPORT AND CARE FACTORS’ IMPACT ON WWP WARRIORS QoL

In the 2022 AWS, the findings show that WWP warriors’ quality of life can be influenced by the five QoL components demonstrated in the previous report sections (e.g., mental health and wellness, physical); however, there are outside factors, such as support and care when managing life events, or lack thereof, that may also have a direct impact on WWP warriors’ health and well-being.

Throughout the Support and Care section of this report, we explored which aspects have had the strongest impact within the areas of access to care and aid and assistance. In this section, we are going to review whether the two factors below have an impact on WWP warriors’ quality of life.

- **BARRIERS TO PHYSICAL CARE** (access to care)
- **INSTRUMENTAL SUPPORT** (aid and assistance)

**Overall, our analysis suggests that the two Support and Care components outlined above appear to mediate rather than directly impact WWP warriors’ quality of life.** For example, with barriers to physical care, the association appears to be slightly negative. This suggests that as the number of barriers to physical care increases, WWP warriors are less likely to score higher than U.S. veterans and the U.S. general population for physical and mental health QoL. Thus, the analysis shows that other factors may be at play in determining whether barriers to physical care impact quality of life. Further research is needed to explore these relationships.



**“MY WIFE HAS BEEN WITH ME FROM DAY ONE OF THIS JOURNEY. MY INJURY IMPACTED BOTH OF US. IT IS NOT EASY BUT EVERYTHING IMPROVES AS YOU LEARN TO RELATE TO EACH OTHER.”**

**— WOUNDED WARRIOR DAVID CAMACHO WITH HIS WIFE**

# **SPECIAL TOPIC: Environmental Hazards**



# SPECIAL TOPIC: ENVIRONMENTAL HAZARDS



In addition to the comprehensive topics explored, WWP identified and included a topic of special interest in the 2022 AWS: exposure to environmental hazards and its impact on quality of life.

## EXPOSURE TO ENVIRONMENTAL HAZARDS

Support for veterans living with health conditions as a result of exposure to environmental hazards has been a large focus in recent years, culminating in the full passage of the Honoring Our PACT Act. Read more about the legislation and its impacts on page 91.

Exposure to environmental hazards is defined as being exposed to or coming into contact with hazardous chemicals, materials, or other toxic substances during military service.<sup>140</sup> Military personnel can knowingly or unknowingly come into contact with hazardous or toxic substances while deployed during specific times of war or while not deployed but doing daily work, such as stripping paint from aircraft parts or handling jet fuel.

Exposure to hazardous materials and toxic substances can have long-term negative health effects linked to respiratory, renal, cardiovascular, and reproductive disease or dysfunction, which can impact quality of life.<sup>140</sup> The extended length of time between toxic exposure and the onset of symptoms imposes many challenges in understanding the direct relationship between toxic exposure and health conditions.

The top countries or theaters that WWP warriors served while in the military (including the air space over these areas) were Iraq, Kuwait, Saudi Arabia, the neutral zone between Iraq and Saudi Arabia (63.7%); Afghanistan (38.7%); and Bahrain, Qatar, the United Arab Emirates, Oman (20.0%).

**TABLE 41: Where WWP Warriors Served While in the Military** (including the air space over these areas)

Areas	WWP WARRIORS
Iraq, Kuwait, Saudi Arabia, the neutral zone between Iraq and Saudi Arabia	63.7%
Afghanistan	38.7%
Bahrain, Qatar, the United Arab Emirates, Oman	20.0%
None of these	19.4%
Gulf of Aden, the Gulf of Oman, the Persian Gulf, the Arabian Sea, the Red Sea	14.6%
Djibouti	6.9%
Uzbekistan	3.8%
Syria	1.3%

# TOP 5

## Exposures to Environmental Hazards Reported by WWP Warriors



**95.0%**

EXPOSURE TO LOUD NOISES



**87.4%**

DUST AND SAND



**83.6%**

DIESEL, KEROSENE, AND/OR OTHER PETROCHEMICALS



**79.1%**

INSECT REPELLENT



**74.9%**

LOCAL FOOD OTHER THAN FOOD PROVIDED BY ARMED FORCES

The top five exposures to environmental hazards among all WWP warriors include: exposure to loud noises (95.0%), dust and sand (87.4%), diesel, kerosene, and/or other petrochemicals (83.6%), insect repellent (spray, lotion, or cream) (79.1%), ate local food other than food provided by the U.S. Armed Forces (74.9%).

**TABLE 42: WWP Warriors and Hazardous Exposures/Experiences During Service**

Types of Exposures/Experiences	★ WWP WARRIORS
Exposure to loud noises	<b>95.0%</b>
Dust and sand	<b>87.4%</b>
Diesel, kerosene, and/or other petrochemical fumes	<b>83.6%</b>
Insect repellent (spray, lotion, or cream applied to your skin)	<b>79.1%</b>
Ate local food other than food provided by Armed Forces	<b>74.9%</b>
Solvents or degreasers	<b>72.2%</b>
Burning trash/feces	<b>71.9%</b>
Skin exposure to JP8, diesel, or other petrochemical fluid	<b>68.0%</b>
Pesticide-treated uniforms	<b>63.3%</b>
Industrial pollution	<b>56.2%</b>
Other exposure you consider harmful	<b>55.4%</b>
Smoke from oil fires	<b>46.8%</b>
Paint operations (vehicles or equipment)	<b>45.6%</b>
Contact with prisoners of war (POWs)	<b>31.6%</b>
Radiation	<b>30.0%</b>
Depleted uranium (DU) (e.g., handling DU munitions)	<b>23.6%</b>

## BURN PITS

Emissions from burn pits contain harmful chemicals and toxins that are dispersed into the air. Being near burn pits can result in exposure to toxic emissions that can potentially lead to latent health problems with long-term effects. The use of most burn pits has been banned because of these health risks.

Among WWP warriors who were deployed to OEF, OIF, or OND (where burn pits were most commonly used), 80.3% indicated burn pit exposure — most of whom were exposed daily or weekly (82.6%). These findings are similar to the 2021 AWS, with 80.5% and 84.3%, respectively.



## EXPOSURE-RELATED SYMPTOMS

Warriors who reported exposure to environmental hazards were asked follow-up questions about what symptoms they have experienced as a result of the exposure(s). **The five most common exposure-related symptoms reported were: decreased ability to exercise (38.3%); shortness of breath or breathlessness (38.2%); chronic sinus infection/sinusitis (29.9%); chest pain, chest discomfort, or chest tightness (28.4%); and cough for more than three weeks (26.5%).** For a full list of exposure-related symptoms as reported by WWP warriors, please see the Appendix.

## EXPOSURE-RELATED HEALTH CONDITIONS

Warriors who reported exposure to environmental hazards were also asked follow-up questions about what health conditions they've experienced as a result of the exposure(s). These include long-term and chronic diseases that can negatively impact warriors' health and may require ongoing medical treatment.

**The five most common exposure-related health conditions were neurological problems (e.g., numbness, tingling, or weakness in arms or legs, or difficulty with thinking or memory) (35.1%); hypertension (high blood pressure) (33.2%); chronic multisymptom illnesses (24.4%); conditions of the immune system (10.5%); and liver condition (7.8%).** For a full list of exposure-related health conditions as reported by WWP warriors, please see the Appendix.

## EXPOSURE-RELATED TREATMENT

The survey asked WWP warriors if they had received treatment at the VA for exposure to environmental hazards: **8.4% reported receiving treatment at the VA for exposure to environmental hazards, and 8.5% reported that they tried but have not received treatment at the VA.** More than half have not received or tried to receive treatment (55.3%), and just over a quarter have not received treatment but are enrolled in the VA Burn Pit Registry (26.0%).

# EXPOSURE-RELATED DISABILITY CLAIMS

Among WWP warriors, 18.9% have filed a VA disability claim for an exposure-related condition. Fewer than three in 10 who have filed a VA disability claim for an exposure-related condition have been granted VA service connection (32.0%).\* Compared to the 2021 AWS, more WWP warriors have now filed a VA disability claim, and a similar proportion have been granted VA service connection (15.7% and 32.0% of warriors in 2021 AWS, respectively).

**NOTE FOR CONTEXT:** *On August 10, 2022, the Honoring Our PACT Act was signed into law and its benefits had not been enacted yet at the time of this survey. Its passage this year is important context to consider when interpreting these findings in the 2022 AWS and future surveys.*

*\*Only pertains to warriors whose military status is “veteran.”*

## THE HONORING OUR PACT ACT

This legislation, commonly known as the “PACT Act,” expands VA health care and benefits to veterans exposed to toxic and hazardous substances during service. WWP tirelessly supported and advocated for the PACT Act, which was signed into law in August 2022. If you’re a veteran looking for more information about the PACT Act, how it may affect you, and how to reap its benefits, please visit [woundedwarriorproject.org/PACT](https://woundedwarriorproject.org/PACT).



**“WOUNDED WARRIOR PROJECT HELPED  
ME LIVE A HEALTHIER LIFE AND FIND MY  
CONFIDENCE AGAIN.”**

**— WOUNDED WARRIOR  
JOSE RODRIGUEZ**



# APPENDIX



## WWP PROGRAMS

Wounded Warrior Project is committed to helping warriors and their families face the future with confidence. We understand that there is always another goal to achieve and another mission to discover — that's why we provide a variety of programs and services, which are all available at no cost to warriors and their families. This guide is a brief overview of what WWP offers. To learn more about these programs:

- The WWP Resource Center is just a phone call away to offer guidance, direction, and a listening ear: 888.WWP.ALUM, Monday – Friday, 9 am – 9 pm EST
- Or visit: [woundedwarriorproject.org/programs](https://woundedwarriorproject.org/programs)

### Experiencing things like PTSD, anxiety, depression, or emotional challenges? WWP Mental Health programs can help.

**Telephonic emotional support:** WWP Talk is a nonclinical telephonic emotional support and goal-setting program that connects warriors and/or family members, via a weekly call, with a dedicated team member who can help with developing an individualized plan to promote a path toward personal growth.

**Adventure-based healing:** Project Odyssey® is a 12-week program that includes outdoor, adventure-based learning to help warriors develop better coping and communication skills. Project Odyssey is also available as a couples' program.

**Clinical PTSD treatment:** Warrior Care Network® treatment provides warriors with the tools to help manage symptoms of post-traumatic stress disorder, military sexual trauma, and traumatic brain injury during a two-to-three-week intensive outpatient program at one of our partner academic medical centers.

### Experiencing things like pain, sleep issues, or self-confidence challenges? WWP Physical Health and Wellness programs can help.

**Fitness and nutrition:** WWP's Physical Health and Wellness program empowers warriors and family members to make long-term changes toward a healthier life through movement, nutritional education, coaching, goal-setting, and skill-building.

**Sports tailored for all abilities:** Adaptive Sports empowers warriors to unleash their highest potential by participating in modified athletic opportunities designed for their individual abilities.

**Cycling:** Soldier Ride® is a multiday adaptive cycling event that lets warriors get active and build camaraderie while riding alongside fellow warriors.

## Experiencing things like a lost sense of camaraderie or isolation? WWP Connection programs can help.

**Warrior and family events:** The WWP Alumni program creates meaningful opportunities through face-to-face, virtual, and gaming engagements for warriors and families to meet other veterans and families within and outside their local communities.

**A tight-knit group that has your back:** Peer Support offers a safe, judgment-free environment to regularly meet, share experiences, and build relationships with other veterans.

## Experiencing challenges with employment, VA benefits, or personal finances? WWP Financial Wellness programs can help.

**Career coaching:** Warriors to Work® is here to help warriors and family members succeed in the civilian workforce by finding meaningful employment that matches their skillsets.

**Benefits counseling:** The WWP Benefits Services program puts a team of certified VA representatives in charge of helping each warrior and family navigate the VA claims process and receive the benefits they have earned.

**Financial education and counseling:** WWP's Financial Education and Emergency Financial Assistance® teams are here to help warriors and families succeed in improving their financial well-being through education and support.

## Experiencing a loss of independence due to catastrophic injury? The WWP Independence program can help.

**Long-term support for the most severely injured warriors:** The WWP Independence Program provides long-term support to catastrophically wounded veterans living with injuries that impact their independence, such as a moderate to severe brain injury, spinal cord injury, or neurological condition.

## Eager to get involved in advocacy efforts and help shape policy? WWP's Government Affairs Team is here to support you.

**Veteran advocacy opportunities:** Government Affairs amplifies warriors' voices before Congress, VA, and other federal policymakers and provides opportunities for warriors to advocate for change and improvements at the national level.

# SURVEY POPULATION

Over the 12 years that it has been conducted, the Annual Warrior Survey has undergone several revisions to ensure it still serves its purpose in accurately conveying the evolving and emerging needs of warriors. In 2020, WWP recognized an opportunity to conduct an in-depth assessment of the survey to set it up to be successful for the coming years as the warrior population continues to grow and change. WWP partnered with NORC at the University of Chicago, a nonprofit, nonpartisan firm that has been performing survey research for more than 75 years, to conduct this assessment, including a review of the survey methodology.



After a thorough review of warrior needs and the ways in which WWP programs, policymakers, and data users rely on informed decision making through survey data, the decision was made to transition the Annual Warrior Survey from a cross-sectional census (in which WWP attempted to collect data from all warriors) to a longitudinal sample survey. In a sample survey, WWP does not attempt to collect data from all warriors, but instead randomly selects a representative subset of WWP's warrior population to complete the survey. This method is intended to provide a group of respondents who accurately reflect the characteristics of the entire WWP warrior population. Those selected will continue to be asked to complete the survey prospectively on an annual basis. The sample survey design will allow WWP to better observe, understand, and act upon changes over warriors' lives and to be more proactive in meeting their needs.

Following the evaluation of the Annual Warrior Survey, WWP contracted NORC to conduct the survey in the new format. In April 2021, NORC selected a random sample from the database of all WWP warriors to be included in the longitudinal survey. At that time, the entire WWP member database included a total of 152,499 warriors. Overall, 90,000 warriors were selected for the sample. For 2022 AWS, the same 90,000 warriors were invited to participate in this year's survey, along with an additional 4,781 warriors to represent the WWP members as of April 2022.

## **SURVEY ELIGIBILITY**

To be eligible to participate in the survey, respondents must be registered warriors with WWP. All warriors registered with WWP served on or after Sept. 11, 2001, and incurred a physical or mental illness, injury, or wound as a result of their service. Additionally, warriors must not have opted out of WWP communications or surveys.

## **SURVEY DEVELOPMENT**

In 2021, this research initiative underwent significant revisions from prior years to account for emerging issues among the warrior population. NORC, with guidance from WWP, conducted a series of focus groups and expert panels with warriors, warrior family members and caregivers, and subject matter experts to better understand the emerging needs among the injured post-9/11 veteran population. These qualitative discussions helped identify sources for new questions on topics such as traumatic brain injuries (TBIs), toxic exposures, and women's health care.

## **QUESTIONNAIRE**

The final 2022 Annual Warrior Survey questionnaire included 15 sections.

The survey included 143 questions, with many being formatted as multi-item grids. The web survey was programmed with skip logic so warriors would only receive relevant questions. The paper-and-pencil questionnaire included skip logic instructions formatted in accordance with survey design best practices.

# METHOD

## SURVEY MODE

The 2022 survey was administered in web and paper-and-pencil modes. By offering a paper-and-pencil questionnaire, warriors without access to a computer or internet were given the opportunity to participate, thereby improving the representativeness of the sample. This year we also offered a Spanish version of the questionnaire. Warriors who called the help line requesting to complete by phone were also given the opportunity to participate. Very few warriors requested a telephone administration — only two warriors requested to complete the survey by phone. These requests were handled by survey professionals at NORC.

## FIELD PERIOD

The 12-week field period began on June 15, 2022, and ended on Aug. 24, 2022.

## SURVEY RECRUITMENT

A multimodal survey recruitment approach was used for the 2022 Annual Warrior Survey. Warriors received weekly email and text message reminders in addition to several mailing reminders throughout the field period. WWP sent the email invitation and reminders, while NORC sent the text message reminders and the mailings.

The initial email invitation provided warriors with information about participating in the survey, including:

- A link to the survey and unique PIN for logging in
- The purpose of the survey
- The estimated time to complete the survey
- A statement informing warriors they did not have to complete the survey in one sitting
- A statement indicating participation is voluntary
- WWP's email address, NORC's help line, and a link to the study website
- A picture of the gift to be received upon completing the survey: a tactical survival multitool

The reminder email content varied slightly for warriors who had started the survey but had not completed it and those who had not yet started the survey. Each email included a link to the web survey along with the warrior's unique PIN to log in. Warriors could use this PIN to reenter the survey at the last question answered. Each text message reminder included a link to the survey. PINs were auto-filled on the login screen after clicking the link so that warriors could click to enter the survey without having to copy and paste or enter the PIN themselves. Warriors could reply "STOP" to opt out of receiving text message reminders. A link to the FAQs was also displayed on the web survey login screen.

## SURVEY HELP CENTER

Emails requesting information about lost PINs or trouble accessing or completing the survey were directed to NORC to respond. NORC managed the phone help line to respond to incoming calls from warriors (e.g., requests to confirm survey validity, seeking assistance with trouble completing the survey, or additional assistance to complete the survey). The WWP Resource Center directed any calls of this nature to the NORC help line. The help line was managed during regular business

hours (9 am to 5 pm EDT). Warriors could leave a voicemail when calling after business hours or on weekends, and messages were answered within one business day.

## DISTRESSED PROTOCOL

NORC and WWP implemented a protocol for responding to warriors who indicated they were in distress or in need of services in a timely manner. NORC identified warriors each morning who provided survey responses that indicated they might be in distress or in need of WWP services. These cases were shared daily with WWP through a secure file transfer protocol. WWP staff then reached out to warriors to offer support and connect them with any programs or services needed. NORC and WWP also reviewed responses to the weekly text message reminder to identify warriors who may need support and services.

**TABLE 1A: Final Case Disposition**

Disposition	Frequency	Description
Complete	19,303	Completed survey through Section M
Partial Complete	5,458	Started survey but did not complete through Section M
Survey Not Started	70,020	Did not start survey
Survey Opt-Out	2,708	Asked WWP to be removed from the survey

## RESPONSE RATE

The 2022 response rate was calculated using the standard calculation for Response Rate 1 that was developed by the American Association for Public Opinion Research, which is the governing body for scientific survey research organizations. The number of interviews includes both completed and partial questionnaires; the number of non-interviews includes refusal and break-off, non-contacts, and other; and the number of unknown eligibility includes emails or mailings that were undelivered or other unknown reasons that resulted in unknown reasons for not completing the survey.

**The 2022 rate was calculated as follows:**

**WHERE:**

- C = Completed Interviews
- I = Total Interviews (Complete + Partial Complete)
- N = Non-Interviews
- U = Unknown Eligibility

$$RPI = \frac{C}{I + N + U}$$

$$RPI = \frac{19,303}{24,761 + 69,902 + 118}$$

$$RPI = 0.2037, \text{ or } 20.37\%$$

## INCENTIVE

Warriors were offered the incentive of a WWP-branded survival multitool (pictured below) and magnet for participating in the 2022 Annual Warrior Survey. This incentive was chosen by WWP to be appealing and useful to warriors and a way for WWP to show appreciation to warriors for participating in the survey.



## WEIGHTING

The 2021 Annual Warrior Survey began the transition to a longitudinal survey design. In 2022, for the first time, the survey attempted to collect data from, among others, a panel of warriors who also were sampled in 2021. Some warriors in this group completed the 2021 survey, while others did not. NORC divided the 2022 frame into the following three groups:

1. New entrants who were added to the frame in 2022 (these warriors will be part of the 2022 wave)
2. The 89,785 warriors who were sampled in 2021 and were in the 2022 frame (these warriors will be part of the 2021 wave)
3. Warriors who were not sampled in 2021

For the 2022 survey, the warriors in the 2021 wave received the survey again in 2022. The 62,499 warriors who were in the frame in 2021 but not sampled were not eligible for the sample in 2022. Warriors who were new to the frame (i.e., joined WWP after the 2021 frame was delivered) were sampled using the 2021 sample methodology. Warriors who died or were classified as a hard refusal to the survey in 2021 were excluded. Due to the survey design, two types of weights (cross-sectional weights and longitudinal weights) were calculated for the warriors who responded in 2022.

To calculate the weights, we used information about how warriors who responded and warriors who did not respond to the survey differed from each other. The same factors from the 2021 AWS Weighting were used to divide the sample into nonresponse adjustment cells, and the nonresponse adjustment was calculated by dividing the sum of the base weights (or the inverse of the sampling probabilities) by the sum of the cells for each combination of variables. Using the nonresponse adjustment, nonresponse weights could be calculated by multiplying the adjustment by the base weights. The nonresponse weights were then used as the initial weights for the iterative proportional fitting or raking algorithm to create final weights. Due to the sample being created for waves, males, and females separately, weights were similarly created for waves, males, and females separately.

From the 2021 survey, three variables were determined to be associated with the outcomes from the logistic regressions: race/ethnicity (seven levels), age group (seven levels), and injury status (three levels). Additionally, we included participation in WWP programs (two levels) in the adjustment, as this variable was unavailable during sampling. This initially created 294 adjustment cells; however, cells containing fewer than 20 respondents were collapsed with cells of similar completion status.

Raking is a statistical weighting technique that is used to improve the accuracy of survey estimates by both reducing bias and increasing precision, which accurately matches sample distributions to known demographic characteristics of the population.\* The use of raking reduces nonresponse bias and has been shown to reduce error within estimates. Implementing raking procedures requires the specification of appropriate weighting classes. Data used to form classes for adjustments must be available for both the sample and the population. Raking variables for these data included age group, race/ethnicity, injury status, region, and rurality.

Raking was completed by adjusting for one dimension individually. For example, the weights were first adjusted for age groups, and then those estimates were adjusted by race/ethnicity, and so on. This procedure was repeated iteratively until all group proportions in the sample differed from the population by less than a specified threshold. Once raked, weight trimming was used to reduce errors in the outcome estimates caused by unusually high or low weights in some categories, and then raking was performed again on the trimmed weights.

## TABLES

**TABLE 2A: Full List of Depression Symptoms Reported by WWP Warriors (PHQ-9)**

In the past two weeks, how often have you been bothered by any of the following problems?				
	Not at all	Several days	More than half the days	Nearly every day
Little interest or pleasure in doing things?	19.5%	38.9%	23.8%	17.8%
Feeling down, depressed, or hopeless?	23.0%	38.8%	22.4%	15.9%
Trouble falling or staying asleep, or sleeping too much?	14.0%	28.6%	25.4%	32.0%
Feeling tired or having little energy?	10.8%	34.1%	27.8%	27.3%
Poor appetite or overeating?	29.7%	32.6%	20.7%	17.0%
Feeling bad about yourself—or that you are a failure or you have let yourself or your family down?	29.6%	32.7%	20.1%	17.6%
Trouble concentrating on things such as reading the newspaper or watching television?	23.9%	35.8%	22.7%	17.6%
Moving or speaking so slowly that other people could have noticed. Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual?	52.1%	26.1%	13.7%	8.1%
Thoughts that you would be better off dead or of hurting yourself in some way?	68.5%	18.0%	7.4%	6.0%

\*Little, R. (1993). Post-stratification: A modeler's perspective. *Journal of the American Statistical Association*, 88(423), 1001-1012. doi:10.2307/2290792.

**TABLE 3A: Full List of Anxiety Symptoms Reported by WWP Warriors (GAD-7)**

Over the past two weeks, how often have you been bothered by any of the following problems?				
	Not at all	Several days	More than half the days	Nearly every day
Feeling nervous, anxious or on edge	17.5%	37.4%	23.9%	21.1%
Not being able to stop or control worrying	27.8%	33.2%	21.2%	17.8%
Worrying too much about different things	22.5%	35.2%	22.4%	20.0%
Trouble relaxing	15.3%	35.5%	25.7%	23.6%
Being so restless that it is hard to sit still	29.9%	34.9%	19.4%	15.8%
Becoming easily annoyed or irritable	14.6%	35.0%	25.8%	24.6%
Feeling afraid as if something awful might happen	35.9%	30.7%	16.8%	16.6%

**TABLE 4A: Full List of Industries in Which WWP Warriors Are Employed**

Industry	★ WWP WARRIORS (2022)
Management and Remediation	0.6%
Mining, Quarrying, and Oil and Gas Extraction	0.9%
Wholesale Trade	0.9%
Accommodation and Food Services	1.5%
Real Estate and Rental and Leasing	1.4%
Administrative and Support of Waste	1.4%
Utilities	2.5%
Agriculture, Forestry, Fishing, and Hunting	2.1%
Management of Companies and Enterprises	2.1%
Health Care and Social Assistance	10.6%
Arts, Entertainment, and Recreation	1.6%
Federal Government	2.8%
Finance and Insurance	3.5%
Retail Trade	4.6%
Information	4.4%
Manufacturing	4.9%
Educational Services	5.1%
Construction	6.4%
Transportation and Warehousing	7.8%
Professional, Scientific, and Technical Services	8.4%
Public Administration	21.0%
Other	25.8%

**TABLE 5A: Full List of Factors That Are Important to WWP Warriors When Selecting a Health Care Provider**

What factors are important to you when selecting a health care provider for yourself?			
	Not Important	Important	Not Sure
Provider has a medical license	3.9%	90.7%	5.4%
Provider has medical certification	4.1%	89.9%	6.0%
Provider participates in your insurance plan	6.8%	86.5%	6.7%
How quickly you can be seen	4.3%	91.9%	3.8%
Office location	11.4%	84.5%	4.0%
Cost	13.5%	80.7%	5.8%
Provider education	12.8%	79.8%	7.4%
Provider's years of experience	21.9%	69.6%	8.5%
Type of provider	12.5%	80.3%	7.2%
Recommendations from others	27.9%	62.1%	10.0%
Easy to schedule appointments (e.g., telehealth, text appointment reminders, convenient online scheduling methods)	5.1%	91.2%	3.7%
Online review	34.5%	54.6%	10.9%
Provider has experience working with veterans	18.2%	76.1%	5.7%
LGBTQ+ friendly	74.9%	14.5%	10.6%
Culturally sensitive (e.g., they are respectful of my race, ethnicity, age, sexual orientation)	51.8%	40.5%	7.7%



**TABLE 6A: Full List of Barriers to Physical Health Care Reported by WWP Warriors**

<p>In the past 12 months did you: (a) have difficulty getting physical health care, (b) put off getting physical health care, or (c) not get the physical health care you thought you needed—for any of the following reasons?</p>		
	No	Yes
Did not have health insurance to cover care or could not afford costs for your physical health problems	73.5%	26.5%
Did not know about existing resources available within the DoD or VA	62.0%	38.0%
Did not feel comfortable with existing resources within the DoD or VA	52.4%	47.6%
Lack of resources in your geographic area for your physical health care problems	55.7%	44.3%
Personal schedule (work, school, family responsibilities) conflicted with the hours of operation of health care facilities	43.9%	56.1%
Delays or cancellation in treatment (e.g., changes in provider, provider canceled or moved appointments)	39.0%	61.0%
Difficulty scheduling appointments with provider	29.5%	70.5%
No peer support available	68.7%	31.3%
Lack of transportation to get to health care services for your physical health problems	83.4%	16.6%
VA requirements made it difficult getting referrals to specialty treatment for your physical problems	46.2%	53.8%
Lack of availability in VA specialty clinics (orthopedics, dental, etc.)	40.8%	59.2%
Concerns about taking time off from work to receive health care for your physical health problem	58.6%	41.4%
Other reason(s) NOT marked above	80.8%	19.2%

**TABLE 7A: Full List of Exposure-Related Symptoms**

<p>In the past 12 months, have you experienced any of the following symptoms as a result of military toxic exposure? Choose ALL that apply.</p>	
Cough for more than 3 weeks	26.5%
Congestion without sputum or phlegm production for more than 3 weeks	20.1%
Sputum or phlegm production for more than 3 weeks	16.4%
Wheezing or whistling in the chest	24.5%
Shortness of breath; breathlessness	38.2%
Decreased ability to exercise	38.3%
Hay fever or other respiratory allergy	20.8%
Sore throat, hoarseness, change in voice	26.4%
Chest pain, chest discomfort, or chest tightness	28.4%
Chronic sinus infection/sinusitis	29.9%
I do not wish to answer	9.1%
I do not have these symptoms	25.5%

**TABLE 8A: Full List of Exposure-Related Health Conditions**

<p>Have you experienced or been diagnosed with any of the following health conditions since toxic exposure? Choose ALL that apply.</p>	
Hypertension or high blood pressure	33.2%
Coronary artery disease	1.9%
Angina pectoris	1.4%
Heart attack or myocardial infarction	1.7%
Heart condition other than coronary artery disease, angina, or myocardial infarction	5.2%
Neurological problems (examples include numbness, tingling, or weakness in arms or legs, or difficulties with thinking or memory)	35.1%
Problems of the immune system	10.5%
Liver condition	7.8%
Chronic multi-symptom illness (examples include irritable bowel syndrome, chronic fatigue syndrome, and fibromyalgia)	24.4%
Cancer or a malignancy (tumor) of any kind	4.4%
I do not wish to answer	9.7%
I do not have these health conditions	30.6%

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