

# Employment Patterns During Middle Adulthood Among Japanese-American World War II Veterans

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## Introduction

An enduring question in military research is how military experiences influence post-service psychosocial outcomes, such as employment. Of interest is how military service and combat exposure affect employment patterns in middle adulthood (age 45–64). Middle adulthood represents an opportunity to study long-term consequences or delayed onset of issues related to military service. Employment is essential as it is a primary source of income, it secures health insurance, and most workers in this period are financially preparing for retirement.

Military service has affected post-service employment variably. For example, veterans may find positions similar to those they held in service,<sup>1</sup> and service can support higher education via the GI Bill and the development of job-related skills or personal characteristics—attributes that employers value<sup>2</sup>—resulting in higher veteran employment rates.<sup>3</sup> Further, veterans may maintain steady employment over civilians due to a health advantage presented as medical care access in the military, physical screening upon entry and requirements to maintain a standard of physical fitness.<sup>4</sup> Conversely, absence from the labour market due to active service could put veterans behind civilians in job tenure, military skill transfer to the civilian labour market and employer evaluation of military service.<sup>5</sup> Military service has also been associated with physical or mental health problems,<sup>6,7</sup> which may hinder steady employment. Further, others found no differences in career trajectories and promotion rates outcomes.<sup>8</sup>

Mixed findings were found among veterans-only analyses. In combat exposure research, some analyses identified an association between combat exposure and unemployment;<sup>9</sup> some reported that combat exposure predicted a greater likelihood of being employed and earning more;<sup>7</sup> and others found that combat exposure did not affect outcomes such as occupational attainment<sup>10</sup> or years employed.<sup>11</sup>

These mixed results underscore the need to study military service and employment in middle adulthood. Additionally, the minority population increase within the US Military inserts an important factor in this topic. US Military minority populations have consistently grown since World War II (WWII), when minority groups represented approximately 5.5% of veterans, to post-9/11, when minorities represented 33.6% of veterans.<sup>12</sup>

This research is important because military experience might influence employment patterns differently among and between minority groups. For example, research suggested that the military offered better opportunities (e.g., use of the GI Bill)<sup>13</sup> for those who had a troubled past or faced an uncertain future.<sup>14</sup> This was significant for minorities who might otherwise encounter difficulty finding and securing employment.<sup>2,5,15</sup> Known as the bridging hypothesis,<sup>16</sup> research frequently suggested that military service economically benefited disadvantaged groups (often ethnic minority groups) compared to non-veteran counterparts and other veterans.<sup>1,2</sup> However, research is lacking among Asian-American veterans and civilians.

The current sample includes Japanese-American WWII military veterans from Hawaii. Nearly 30 000 Japanese-Americans served in WWII.<sup>17</sup> Many were drafted prior to the US involvement in the war, but after the Pearl Harbor bombing and internment of approximately 130 000 Japanese-Americans on the US mainland, enlistment became voluntary after President Roosevelt declared the formation of the 442nd, an all Japanese-American Army Regiment.<sup>17</sup>

In Hawaii, Japanese-Americans' experiences differed. They represented approximately 30% of the population, and many were not interned as they served in critical community leadership roles. However, many Japanese-American men in Hawaii served in the military, most notably in the 442nd Regiment and 100th Battalion.<sup>17</sup>

The current study will use this cohort to investigate how military experience affects employment stability, focusing on middle adulthood. Three questions were examined: (1) What is the relationship between military service and employment stability among veterans and civilians; (2) Among those with histories of job loss, what is the relationship between military service and unemployment severity among veterans and civilians; and (3) What is the relationship between level of combat exposure and employment stability among veterans?

### Method

*Participants:* Data for the current study were drawn from the Honolulu Heart Program (HHP) longitudinal study developed in 1965 to prospectively measure heart disease and stroke among 8006 Japanese-American men living in Hawaii born between 1900 and 1919.<sup>18</sup> The 8006 HHP participants represented approximately 66% of the entire population of Japanese-American men living on Oahu island. Of the 8006, approximately 1479 served in WWII. Few participants reported internment of themselves or family members.

At each HHP exam, participants were assessed on several topics, including employment and medical and family history. A sample of 5433 participants was identified after eliminating participants born before 1910 ( $n = 2573$ ). An additional 760 participants were excluded due to missing military service information ( $n = 21$ ), death ( $n = 170$ ), or incomplete employment data from the first three HHP examinations ( $n = 569$ ), resulting in a final sample of 4673 (1235 veterans, 3438 civilians) for current analyses. These criteria included men who likely did not have prior war experience until WWII and to ensure sufficient data were present to establish employment stability patterns for veteran and civilian comparisons.

A comparison of the excluded group ( $n = 760$ ) and the final sample ( $n = 4673$ ) revealed several significant differences. The excluded group were older in 1941, and a greater proportion reported being a smoker, consuming more alcohol per month, and having less education and more medical problems (e.g., high blood pressure, diabetes). The excluded group also had more individuals who were unmarried and did not own a home.

Data from the first three exams were used to address the first two questions. Each exam period was 2–3 years (Exam 1 1965–1968, Exam 2 1967–1970, and Exam 3 1971–1975), and participants completed all three exams in an average of 6.1 years ( $SD = 0.32$ ). Average age at Exam 1 for all participants was 51.0

years ( $SD = 2.9$ ). For the third, veterans-only question, 477 veterans who completed Exam 6 (1997–1999) were analysed. Exam 6 included questions about combat exposure and military-related information (e.g., receipt of VA care).

*Dependent variables:* All information was gathered via self-report. Employment stability served as the outcome to address Questions 1 and 3. At each exam, participants were asked about present employment. Employment was positively coded regardless of hours per week or consistency of job type across time. Retirement was an option to describe current employment status at each exam. Responses were compiled into an employment status (employed [E], unemployed [U] and retired [R]) variable for each exam.

Sequence of employment status at each of the three exams was used to determine employment stability patterns. Employment stability was dichotomised into two categories: stable and unstable. Stable employment included five combinations: employed at all three exams (E, E, E) or employed at two consecutive exams (e.g., [E, E, U/R] or [U, E, E]). Unstable employment included nine combinations and included patterns of sporadic employment (e.g., [E, U, E]) or only one report of employment (e.g., [U, E, U/R]). Thirteen uncommon combinations (e.g., [R, R, U]) were dropped, excluding 31 individuals.

The second question examined unemployment severity among participants by analysing unstable employment patterns ( $n = 449$ ). To facilitate analysis, the nine unstable employment patterns were dichotomised into mild ( $n = 386$ ) and severe ( $n = 63$ ) unemployment. The sequence of unemployment status at each of the three exams was considered to determine these binary categories. Four mild unemployment combinations were identified with one report of unemployment (e.g., [E, U, E], [E, U, R]). Five severe unemployment combinations were defined by the presence of at least two reports of unemployment (e.g., [E, U, U], [U, E, U]).

*Control variables:* Most control variables were taken from Exam 1, which included age in 1941, marital status, home ownership, education level, number of children, monthly alcohol consumption and number of medical conditions (0–5, including heart attack, high blood pressure, diabetes, stroke, other heart diseases). Medical conditions were chosen because the age of the cohort was a risk factor for these conditions; they might interfere with the ability to maintain steady employment and were used in previous research.<sup>19</sup> WWII military service status was a binary variable derived from information gathered

from Exams 1 and 6. Receipt of VA care was taken from the Exam 6 interview.

During Exam 6, participants with military service were administered the Combat Exposure Scale (CES), a 7-item scale assessing combat exposure.<sup>20</sup> A total score (possible range 0–41) is the sum of converted individual item scores. The total score is divided into five categories, indicating combat exposure severity. For current analyses, categories were collapsed into three categories: no combat exposure (CES total = 0), low exposure (CES total = 1–16), and moderate to severe exposure (CES total  $\geq$  17). No combat exposure indicated that veterans reported deployment to a combat theatre but reported no combat exposure.

*Analyses:* For each research question, initial logistic regression analyses were run, and each model included military service indicators or severity of combat as well as all control variables. Four interactions were included for Questions 1 and 2: military service by age in 1941, living situation, education and total medical conditions. For Question 3, which analysed veteran data only, an interaction between combat exposure and total medical conditions was included. Variables with a *p*-value less than or equal to 0.25 from the Wald test were kept in the final model. This cut-off was used to capture potentially meaningful variables that a smaller *p*-value may miss.<sup>21</sup> As the main variables of interest, military service or combat exposure was forced into the final models. Results

**Table 1. Characteristics of veterans and civilians at Exam 1**

	Veterans n = 1235	Civilians n = 3438	<i>p</i>
Age in 1941 (yr.), mean + sd	24.3+2.2	26.3+2.7	<.0001a
Number of children mean + sd	2.3+1.4	2.8+1.6	<.0001
Alcohol consumption (oz./month) mean + sd	12.5+20.6	14.0+24.3	0.0183
Number of medical conditions mean + sd	0.26+0.50	0.32+0.56	0.0003
Marital Status, N (%)			
Married	1152 (94.4%)	3244 (93.4%)	0.1875b
Not married	82 (5.6%)	193 (6.6%)	
Living Situation, N (%)			
Own home	981 (79.4%)	2626 (76.4%)	0.0295
Other	254 (20.6%)	811 (23.6%)	
Education, N (%)			
Less than high school	418 (33.8)	1618 (47.1%)	<.0001
High school	556 (45.1%)	1336 (38.8%)	
More than high school	260 (21.1%)	483 (14.1%)	
Employment stability, N (%)			
Stable	1107 (89.6%)	3117 (90.7%)	0.258
Unstable	128 (10.4%)	321 (9.3%)	
Employment instability, N (%)			
Mild	115 (89.8%)	271 (84.4%)	0.136
Severe	13 (10.2%)	50 (15.6%)	
Combat exposure, N (%) <sup>c</sup>			
None	208 (43.6%)		
Light	134 (28.1%)		
Moderate to severe	135 (28.3%)		
Receiving VA Care, N (%) <sup>c</sup>			
Yes	70 (14.7%)		
No	406 (85.3%)		

<sup>a</sup>*p*-values for continuous variables are determined by t-test for independent samples.

<sup>b</sup>*p*-values for categorical variables are determined by chi-square tests of association.

<sup>c</sup>n = 477; participants were used from Exam 6

**Table 2. Logistic regression comparing veterans and civilians on employment stability**

Variable	OR	95% CI	<i>p</i>
Age in 1941	0.80	0.77-0.83	<.0001
Number of children	1.05	0.98-1.12	0.160
Veteran status	0.46	0.32-0.68	<.0001
Number of medical conditions	0.74	0.62-0.90	0.002
Highest education (ref: less than high school)	$X^2(2) = 0.51, p = 0.775$		
High school	0.96	0.73-1.22	0.663
More than high school	0.89	0.63-1.26	0.502
Military service*Medical conditions (ref: civilian*medical conditions)	$X^2(1) = 2.14, p = 0.143$		
Veteran*medical conditions	0.76	0.53-1.10	0.143
Military service*Education (ref: civilian*less than high school)	$X^2(2) = 4.37, p = 0.113$		
Veteran*high school	1.51	0.92-2.45	0.101
Veteran*more than high school	1.84	0.96-3.49	0.064

**Table 3. Logistic regression comparing veterans and civilians on unemployment severity**

Variable	OR	95% CI	<i>p</i>
Age in 1941	0.94	0.84-1.05	0.253
Veteran status	0.01	0.01-2.64	0.095
Number medical conditions	1.66	1.16-2.39	0.006
Unmarried	2.17	0.60-7.81	0.235
Own home	0.62	0.33-1.14	0.125
Highest education (ref: less than high school)	$X^2(2) = 2.94, p = 0.229$		
High school	1.33	0.69-2.54	0.394
More than high school	0.50	0.16-1.57	0.232
Military service*Age 1941 (ref: civilian*Age 1941)	$X^2(1) = 2.91, p = 0.088$		
Veteran*Age 1941	1.24	0.94-1.59	0.088
Military service*Education (ref: veteran*less than HS)	$X^2(2) = 3.54, p = 0.170$		
Veteran*high school	0.23	0.05-1.16	0.068
Veteran*more than high school	0.10	0.13-7.75	0.999

**Table 4. Logistic regression using combat exposure to predict employment stability among veterans**

Variable	OR	95% CI	<i>p</i>
Age in 1941	0.85	0.72-1.00	0.054
Number medical conditions	0.25	0.10-0.64	0.004
Number of children	1.46	1.08-1.98	0.015
Combat exposure (ref: no combat)	$X^2(2) = 3.51, p = 0.173$		
Light combat	0.35	0.11-1.06	0.063
Moderate to severe combat	0.46	0.13-1.58	0.216
Combat exposure*Medical conditions (ref: no combat*medical conditions)	$X^2(2) = 3.06, p = 0.216$		
Light combat*medical conditions	4.69	0.57-38.59	0.151
Moderate to severe combat*medical conditions	2.95	0.61-14.24	0.177

of the initial logistic regressions are not included here. Analyses were completed using SAS Enterprise Guide 5.1.

## Results

Table 1 provides the demographics of the sample. Civilians were older in 1941, reported more children and medical conditions at Exam 1, and consumed more alcohol monthly. A higher percentage of veterans reported owning a home and graduating from college. Among the 477 veterans who reported combat experience, the mean total CES score was 9.6 (SD = 11.3).

Both veterans and civilians had stable employment patterns (89.6% veterans, 90.7% civilians). During Exam 1, employed veterans and civilians were mostly in skilled or clerical/sales positions. Further, most veterans (84.8%) and civilians (80.0%) reported working at a position that matched their usual job. Among the participants who were employed at all three exams, 49.3% of civilians and 50.3% of veterans maintained the same type of job.

Table 2 depicts results from the final logistic regression that examined employment stability and military service (Question 1). The overall model was significant  $X^2(9) = 157.05, p < .001$ . Neither of the interactions were statistically significant; thus, the main effects of military service, education and the number of medical conditions on employment stability can be interpreted directly. Military service was significant in relation to employment stability. Compared to civilians, veterans were less likely to report employment stability in middle adulthood (OR = 0.46, 95% CI [0.32, 0.68]). Compared to younger

participants, those who were older in 1941 (OR = 0.80; 95% CI [0.77, 0.83]) were less likely to report employment stability. Finally, those who reported more medical conditions at Exam 1 (OR = 0.74; 95% CI [0.62, 0.90]) were less likely to report employment stability.

Table 3 shows results from the logistic regression that examined military service and employment stability among those with histories of job loss (Question 2). Among the participants in this analysis (n = 449), unemployment severity was primarily mild (86.0%). The final model was significant:  $X^2(10) = 19.32, p = 0.036$ . Neither of the interactions were significant, and the main effects of military service, age in 1941 and education are interpreted directly. Veteran status did not predict unemployment severity (OR = 0.01; 95% CI [0.01, 2.64]). Similar to Question 1, the main effect for the number of medical conditions was significant (OR = 1.66; 95% CI [1.16, 2.39]), indicating that participants with more medical conditions were more likely to report severe unemployment.

Results related to Question 3, which examined combat exposure and employment stability among veterans only, are shown in Table 4. The final logistic regression model (n = 477) was significant  $X^2(7) = 18.09, p = 0.01$ . The combat exposure by medical conditions interaction was not significant,  $X^2(2) = 3.06, p = 0.22$ . Veterans with no combat exposure served as the reference group in these analyses, though the level of combat exposure did not predict employment stability,  $X^2(2) = 3.51, p = 0.17$ . Significant predictors of employment stability for this veteran sample included age in 1941, total medical conditions and number of children. Veterans were less likely to experience employment stability if they

were older in 1941 (OR = 0.85; 95% CI [0.72, 1.00]) or reported more medical conditions (OR = 0.25; 95% CI [0.10, 0.64]). Veterans experienced greater employment stability when they had more children (OR = 1.46, 95% CI [1.08, 1.98]).

### Discussion

The current study examined the influence of WWII military service and combat exposure on employment outcomes during middle adulthood among a large community sample of Japanese-American males living in Hawaii. Employment outcomes included stable employment and unemployment severity patterns over time. Results suggest that most veterans and civilians were steadily working by middle adulthood, but military service and combat exposure had minimal significant effect on employment.

Several findings are noted. First, military experience pointed towards a negative effect on employment stability in middle adulthood. It is possible that absence from the labour market or skill incompatibility with civilian jobs hindered post-service employment stability.<sup>5</sup> However, in combination with education level, a marginally significant effect for military service at the highest education level was detected, similar to previous research.<sup>7</sup> Nearly half of US veterans took advantage of the GI Bill for education and training at the end of WWII.<sup>22</sup> It is possible that higher education, along with work ethic or other skills learned from the military, gave veterans advantages in finding and maintaining employment.

Second, more medical conditions were associated with worse outcomes in each model, like previous research.<sup>6</sup> Civilians reported more conditions at Exam 1, which could be due to veterans' younger age, greater educational attainment, the military health standard, and greater health practices related to military service, including health care access.<sup>23</sup> Although veteran status and medical condition interaction were non-significant, research suggests that the 'healthy warrior effect' dissolves, and veterans' health declines faster than civilians.<sup>24</sup> Thus, employment status during middle adulthood into retirement could indicate how the effect presents and changes.

Third, age in 1941 played a role in employment stability. Questions 1 and 3 showed that older age in 1941 was associated with poorer employment stability. These findings suggest that older age of societal and economic upheaval periods may disrupt an established life course, leading to difficulty with long-term employment.<sup>14,25</sup>

Fourth, number of children was associated with an increased likelihood of employment stability in the veterans-only analysis (Question 3). More children could encourage a person to keep a job for financial support. In combination with age, this finding suggests that veterans who were older at service entry possibly started their families prior to service. Upon return, they likely encountered urgency to find and maintain employment to support their families, thus maintaining any employment position available.<sup>14,25</sup> Other analyses of HHP data found that some veterans were more likely to marry at an older age,<sup>25</sup> and separate analyses by Mackintosh and colleagues (unpublished data, 2018) found veterans were slightly more likely to have fewer children. These findings suggest that veterans' need for steady employment extended into middle adulthood because they supported young families.

Finally, the trends identified in several interactions suggest that military service and combat exposure could interact with other variables that affect employment. In several studies, military service was linked to mental health problems associated with employment outcomes.<sup>6,3</sup> Regarding combat exposure, an interaction between combat exposure and coping strategy type was significant in predicting achievement.<sup>10</sup> Future studies should examine risk and protective factors (not analysed in this study) that might be related to employment and military service, and combat exposure.

We acknowledge that examining Japanese-American men in Hawaii who were veterans of WWII represents a specific person, place and time. The current study represents an opportunity to study military service and employment stability in middle adulthood among a veteran cohort not often studied. However, prior analyses from the HHP have yielded results consistent with observations in other populations.<sup>27</sup> To date, studies with middle-aged veterans and employment did not analyse race,<sup>11</sup> or if included, they did not examine Japanese- (or Asian-) Americans<sup>1,7</sup> or middle adulthood employment.<sup>5,6</sup> Reasonably, the inclusion of race will be limited by veteran population diversity and the study of wartime military service, and middle adulthood will be limited by the timing of service era; thus, the current study provides insight into these topics.

The sample is also specific to place. These soldiers returned home to Hawaii, where Japanese-American men likely had a different experience during and after WWII than Japanese-American men on the US mainland.<sup>28</sup> While they may have encountered racism during active duty,<sup>17</sup> upon returning to Hawaii, they likely experienced familiarity and acceptance.

Thus, they might not have encountered difficulty finding and keeping employment, as reported in high employment stability rates. Our findings suggested that in combination with education, veterans had an advantage, like other studies.<sup>15</sup> The consideration that military service could favour veterans within minority groups (i.e., bridging hypothesis) was not demonstrated in current stability and unemployment severity rates. We acknowledge the specificity of our sample and note that Asian-Americans are the majority group in Hawaii. This limits our interpretation both within the context of the bridging hypothesis and the generalisation of our findings. However, these observations highlight interesting intersections of pre-military socioeconomic status, race, military service and human capital.

Further, it is noted that the high employment stability rate of the current study may also reflect the post-WWII cultural era, even years later. The effect of military service on one's life may be moderated by the social and economic environment of the culture to which they are returning.<sup>29</sup> Further, at the time of Exam 1, Hawaii had recently become a US state, and the economy was flourishing;<sup>30</sup> offering many jobs, which could have contributed to high employment stability rates.

**Strengths:** The study cohort represented approximately 80% of the Japanese-American men living on Oahu in 1965 and who were born between 1910 and 1919, minimising participation bias. The focus on health in the original study<sup>17</sup> also minimises bias related to occupation or military service and supports the validity of the data considered in our models of employment stability. The longitudinal study design and low attrition rates between examinations also support the generalisation and validity of the reported results.

The current study examined employment across time, whereas others used different methods such as a single question,<sup>3</sup> income<sup>2,7</sup> and occupational attainment.<sup>7,25</sup> The use of multiple time points offers a reasonable estimate of employment stability. Further, changes in unemployment were examined over time, which is essential because unemployment during middle adulthood may affect later-life economic wellbeing.

**Limitations:** Limitations of the sample include a possible selection bias for better physical health and social responsibility. HHP participants survived the war, returned and remained on Oahu until 1965, and agreed to participate in a large, federal lifetime research investigation of heart disease and stroke.<sup>18</sup> All data used for these analyses were collected by

interview and self-report, without further validation efforts.

The dataset had limited information about pre-war characteristics; other studies reported that pre-war differences between groups partly explain military service effects.<sup>13</sup> Others reported that employment stabilises by middle adulthood.<sup>25</sup> The current study did not identify consistent, significant differences between groups as employment information immediately following the war is missing. This study began approximately 20 years after the war, representing a significant amount of time to stabilise employment. Further, we used three timepoints across six years to establish an employment pattern. Thus, our definition and label of employment stability/instability may not accurately depict the participant's employment during the study period. However, our analyses provide a glimpse into employment patterns during an adult's earning career.

We had limited data on veteran-specific variables. Future research should control for disability status, military benefit use and VA care use. Although VA care is currently non-significant, it should be examined in contrast to obtaining insurance from employment. Additionally, military-related illnesses should be identified and tracked as other influences on employment stability.

Despite concerns about military service and combat exposure on employment stability, findings suggest that veterans did not encounter difficulty in maintaining employment in middle adulthood. Continued examination of longitudinal data is essential to elucidate issues related to an ageing veteran population.<sup>29</sup> However, individuals and experiences are unique; learning how some persevere while others do not provide valuable information for future cohorts. Issues that occurred immediately post-war may persist or dissipate with time, whereas other issues may arise years after service. Identifying these issues and the related factors are important for the treatment or prevention of issues and may inform decision makers on how to allocate services and funding to anticipate and address the needs of veterans.

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