

ORIGINAL RESEARCH

Developing a measure for health professionals' attitudes toward veterans

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ABSTRACT

U.S. veterans have complex healthcare needs that require professionals who are properly trained to address these issues. However, little is known about the attitudes that nurses and other professionals have toward veteran patients, particularly those working in community-based settings where it is unlikely training on veterans' issues has occurred. Understanding health professionals' attitudes toward caring for veterans is an important step in developing a workforce that is knowledgeable and willing to serve this complex and growing population. The purpose of this study was to develop and validate the Health Professionals' Attitudes Toward Veterans (HPATV) scale, which explores attitudes regarding military cultural sensitivity and awareness, provision of care to veteran patients, and the prominent veterans' health issues. The HPATV was developed across several phases, including review of existing measures and literature regarding veterans' health and attitude structure, hypothesis of a factor structure, identification of a theoretical framework for attitude construction, item generation, 3-round Delphi survey to refine items and test content validity, piloting the measure among health professions students, and exploratory (EFA) and confirmatory factor analysis (CFA). Following CFA, the final 14-item scale revealed 3 latent factors to describe health professionals' more nuanced attitudes toward working with veteran patients: culture, care, and health. The HPATV is a validated and readily available tool for needs assessment, quality improvement, and evaluation. Use of this tool will help increase understanding of these culture, care, and health domains and generate quality improvement initiatives based on them—ultimately benefiting veteran patients through more sensitive, patient-centered care.

Key Words: Veterans health, Healthcare provider attitudes, Delivery of health care, Cultural competency, Evaluation tool

1. INTRODUCTION

In the U.S., 1 in every 15 persons is a veteran.^[1] Military service can have a long-term psychological, physical, and socioeconomic impact on veterans and their families.^[2] Veterans have higher rates of multiple chronic conditions and report a lower health-related quality of life, including worse mental and physical health status, as compared to non-veterans.^[3-5] Therefore, it is imperative that health systems and profes-

sionals are prepared to treat the complex needs of veterans. However, little is known about the attitudes that nurses and other healthcare providers have toward veteran patients, particularly those working in community-based settings where it is unlikely training on veterans' experiences and health issues has occurred.

Of the 22 million U.S. veterans, less than 9 million receive care from the U.S. Department of Veterans Affairs (VA)

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healthcare system.^[2] The VA system provides a comprehensive package of services, yet an increasing number of veterans utilize civilian services due to perceptions of increased flexibility, accessibility, and confidentiality; fear of stigma toward behavioral health issues; and living in a rural area without access to a VA facility.^[6-9] Passage of the Veterans Access, Choice and Accountability Act of 2014 further supported utilization of community-based services by allowing veterans to receive care from eligible non-VA providers if they meet certain requirements.^[10] The number of veterans seeking community-based care is projected to grow,^[6,7,11-13] shifting even more responsibility to community-based settings and increasing the demand for qualified professionals.^[14]

Unfortunately, many veterans utilizing community healthcare services have never been identified as veterans and providers are unable to associate the presenting health issues as being related to their military service.^[1,2] Limited data are available regarding health professionals' knowledge of veteran health needs and their interest in increasing knowledge and skills to better serve this population.^[15,16] One study of 300 behavioral health and primary care providers found that only a third had received VA-related training, less than half screened patients for military service, and less than 30% felt knowledgeable about how to refer to the VA health system.^[15] A similar study of clinicians in behavioral health settings found providers had limited training or supervision in veteran-specific care.^[6] A 2012 survey showed just 3 out of 110 U.S. medical schools included education about veterans.^[17] These gaps in education impede the provision of patient-centered care for veterans in community clinics.

Often connected with a deficit in knowledge and experience, healthcare professionals' attitudes toward their patients can affect the quality of care provided.^[18] A culturally competent attitude—one that avoids prejudice, bias, or stereotyping—can help reduce disparities in healthcare.^[19] Providers' culturally aware attitudes can aid in the early identification of health issues related to military service and help build patient trust.^[6] A study on veteran disclosure of trauma to health providers found that veterans do not disclose their experiences because of perceptions that providers are not interested in their experiences or do not believe them.^[20]

Little is known about the attitudes that nurses and other health professionals have about veteran patients. Existing scales have explored the general public's attitude toward veterans, and health care professionals' attitudes toward other patient sub-populations, such as persons experiencing homelessness, persons with disabilities, older adults, and the LGBTQI population.^[21-23] The purpose of this study was to develop and

validate a measure that explored health professionals' attitudes regarding military cultural sensitivity and awareness, provision of care to veteran patients, and the prominent veterans' health issues. This scale will help assess existing attitudes and inform efforts to increase workforce capacity to care for veterans. This paper describes the process of developing and validating the measure and implications for how it can be used.

2. METHODS

The Health Professionals' Attitudes toward Veterans (HPATV) scale was developed across several phases, including review of existing measures and literature regarding veterans' health and attitude structure, hypothesis of a factor structure, identification of a theoretical framework for attitude construction, item generation, Delphi survey to refine items and test content validity, piloting the measure among health professions students, and exploratory and confirmatory factor analysis to test construct validity and confirm factor structure.

2.1 Item generation

A literature search was conducted to identify existing measures of health professionals' attitudes toward veterans and topics of importance regarding military culture and veterans' health. One existing measure was identified, but it focused on personal beliefs outside the context of healthcare.^[24]

The tripartite (or multicomponent) model of attitudes^[25-27] was selected to construct the HPATV items. Broadly defined, attitudes are psychological tendencies, which are measured by the degree to which a person favors or disfavors a specific object.^[25] Within this framework, there are 3 components of attitude: affective, cognitive, and behavioral.^[28] The HPATV scale seeks to explore the cognitive, affective, and behavioral components of health professionals' attitudes about working with veteran patients. The cognitive component encompasses beliefs and knowledge.^[25] Beliefs are the linkages or associations of thoughts about the object.^[25,29] Cognition is a compilation of ideas, knowledge, and beliefs about an attitude object.^[30] Affects are feelings, mood, or temperament generally associated with a particular attitude object.^[30,31] Affect is influenced not only by what is known about the attitude object, but can also be influenced by experience or inexperience with the object.^[30] Affect is also associated with the level of strength of beliefs about the object.^[30] Lastly, the behavioral component of attitude relates to how one performs an action when confronted with the attitude object.^[30]

A 3-factor structure was hypothesized to describe the attitudes health professionals have toward veteran patients.

These factors included military cultural sensitivity and awareness (culture), providing care to veteran patients (care), and views toward prominent veterans' health issues (health). Items were generated based on these domains and address cognitive, affective, and behavioral components. The initial version of the scale contained 73 Likert-type items with a 5-choice format (1-strongly disagree, 2-disagree, 3-neutral, 4-agree, 5-strongly agree).

2.2 Item refinement

A 3-round Delphi survey was used to refine item construction, establish content validity, and reach consensus on the scale's items. A Delphi survey is an iterative, structured feedback process that utilizes several rounds of surveying content experts to develop consensus.^[32] This method has been used previously to develop and validate attitudinal scales, including scales designed to measure health professions students' attitudes about professionalism and homelessness.^[21,33] The process of this Delphi survey was modeled after the methods used by Klemenc-Ketis & Vrecko^[33] and conducted via online surveys. Procedures were approved by the university's institutional review board.

A convenience sample of participants was recruited through university faculty and local VA contacts. The first round of the Delphi survey, participants were asked whether each item should be part of the scale, should not be part of the scale, or should be part of the scale but needed revising (open-ended comments were provided to capture suggested revisions for each item). Based on aggregate feedback from participants, including a minimum threshold of 80% consensus, a revised scale was developed. In the second round, participants were asked to rate each item for 1) clarity of assessment of attitudes and 2) necessity for assessment of attitudes. Based on aggregate feedback from participants with an 80% consensus threshold, a revised scale was developed. In the third and final round, participants provided a yes/no response to approve inclusion of each item in the final version. Based on aggregate feedback from participants with an 80% consensus threshold, a final version of the scale was developed.

2.3 Piloting of measure

The measure was piloted with a convenience sample of graduate-level health professions students (Doctor of Nursing Practice [DNP], Doctor of Clinical Psychology [Clinical Psychology PhD], Doctor of Pharmacy [PharmD], and Master of Social Work [MSW] students) participating in an advanced nursing education interprofessional immersion course and clinical experience at the local VA that focused on improving care to medically underserved veterans with multiple chronic conditions. Students completed the scale pre- and

post-course.

2.4 Exploratory and confirmatory factor analysis

Exploratory and Confirmatory Factor Analysis (EFA and CFA) were conducted using the R programming environment and the R packages: lavaan, semPlot, foreign, psych, and pander.^[34-39] Bivariate correlations were explored to find redundant items; none were found to be problematic ($r > 0.8$). After this stage, an EFA was conducted using the first wave of data (pre-course) to explore the factor loading structure of 2, 3, and 4 factor solutions. The 3-factor solution was selected and an iterative procedure of CFAs were conducted, resulting in the final 3-factor solution, where latent factors represent culture, care, and health. The accepted model was then verified by testing it again with the second wave of data (post-course).

3. RESULTS

3.1 Delphi survey

Eighteen participants agreed to take part in the Delphi survey and were invited to participate in all rounds, although some did not complete the survey in all rounds (15 participated in round 1, 15 in round 2, and 13 in round 3). Participants were healthcare professionals at the local VA or faculty at University of Missouri-Kansas City. Participants' professional backgrounds included advanced practice nursing, clinical psychology, pharmacy, social work, and research/evaluation. Two participants were also veterans. In the first round, 41 of 73 original items (56.1%) were retained; 32 of 41 items (78.0%) were retained in the second round; and 31 of 32 items (96.9%) were retained in the final round.

3.2 Piloting of measure

Across 4 semester cohorts, 54 DNP ($n = 22$), clinical psychology PhD ($n = 10$), PharmD ($n = 9$), and MSW ($n = 13$) students participated in the 8-week course and completed the 31-item measure at pre- and post-course. The majority were white (71.7%) and female (83.0%). The average age was 30.78 and ranged from 23 to 54 years of age. Table 1 contains the means and standard deviations at pre- and post-course. Items 3, 14, 15, 23, 24, 26, and 27 were reverse-coded to indicate that a higher mean corresponded with a positive attitude.

3.3 Preparation and missing data techniques

Graphical exploration of the data identified 2 data entry errors that were consequently resolved (i.e., 44 instead of 4). Reverse items were recoded. Missing data was explored and found to be non-problematic (i.e., missing at random). Between the 2 measurement occasions, a total of 15 of 3162 responses were missing (this proportion only included items

relevant to the CFA and does not include missing demographic information). To deal with missing data, the correlation matrices provided to both the EFA and CFA were calculated using only pairwise complete observations.

Table 1. HPATV item pre- and post-course means and standard deviations

HPATV Item	Pre-Course n = 54		Post-Course n = 54	
	M	SD	M	SD
1 I have sufficient knowledge of differences between military eras (e.g., Vietnam era vs. Iraq/Afghanistan era) that may impact Veterans' health.	2.47	1.08	3.86	.601
2 I routinely ask Veterans about the community-based services they may need (e.g., housing, vocational services).	2.73	1.13	3.82	.962
3 I am uncomfortable talking to Veterans about possible symptoms of post-traumatic stress disorder (PTSD) including nightmares and feeling on guard.	3.65	1.23	3.88	1.28
4 I am knowledgeable about behavioral health issues prevalent in the Veteran population.	3.39	1.00	4.31	.583
5 I am comfortable discussing alcohol and drug use with Veteran patients.	3.74	1.05	4.43	.575
6 Veterans have unique health needs.	4.49	.644	4.75	.440
7 I routinely screen patients for a history of military service.	2.75	1.11	3.66	1.06
8 I am comfortable addressing the unique health needs of women Veterans.	3.45	1.14	3.98	.735
9 I am comfortable asking a Veteran for permission to discuss health issues related to their military service.	3.8	.987	4.45	.503
10 It is necessary to ask a Veteran permission to discuss their military service.	4.37	.774	4.53	.612
11 I feel confident in my ability to recognize the symptoms of traumatic brain injury (TBI).	3.00	1.00	3.71	.756
12 I have sufficient knowledge of Veterans' health needs.	2.82	.974	4.04	.605
13 I feel comfortable asking Veterans about sexual harassment or sexual trauma they may have experienced while serving in the military.	3.08	1.11	3.88	.864
14 Working with Veteran patients feels more challenging than working with non-Veteran patients.	3.12	1.09	3.10	1.13
15 I need more training on military culture to feel comfortable working with Veterans.	2.18	1.07	3.22	.966
16 I have sufficient knowledge of post-traumatic stress disorder (PTSD) triggers that could occur in a Veteran's daily life.	3.22	1.03	4.00	.800
17 I feel comfortable having a conversation with Veterans about their military experience.	3.90	.922	4.45	.541
18 I routinely screen Veterans for behavioral health issues prevalent in this population.	2.78	1.17	3.90	.953
19 I am confident in my ability to screen Veterans for environmental exposures (e.g., Agent Orange, toxic nerve agents).	2.18	.888	3.14	1.05
20 It is important for health professionals to understand military culture in order to provide quality care to Veterans.	4.65	.559	4.65	.483
21 Military sexual trauma is an important issue to consider among Veteran patients.	4.53	.612	4.78	.415
22 I plan to stay current on the literature regarding Veteran health issues.	4.02	.707	4.32	.768
23 The health needs of Veterans are no different than those of non-Veterans.	4.04	.720	3.84	.925
24 I am not familiar with the resources and services available to Veterans.	2.82	1.09	3.78	.789
25 It is important to let Veterans decide if and how they share their military experiences with health professionals.	4.35	.744	4.49	.612
26 I feel more comfortable working with non-Veteran patients than Veteran patients.	3.08	.997	3.53	.946
27 Sometimes I feel I do not relate well to Veteran patients due to my lack of military experience.	2.75	1.29	3.27	1.10
28 I try not to make assumptions about how a Veteran views their military experience.	4.33	.554	4.35	.779
29 I make an effort to understand the needs of Veterans.	4.31	.648	4.72	.454
30 I try to consider the trauma that may have occurred before and/or after a Veteran's military experience.	4.31	.648	4.62	.490
31 I am interested in increasing my knowledge of Veterans' needs.	4.82	.434	4.59	.572

*Items 4, 6, 8, 10-12, 14, 17-21, 23, 25, 29-31 were excluded from HPATV after confirmatory factor analysis

3.4 Exploratory factor analysis

An EFA was conducted on the first wave of data to explore the number of likely factors in the items. Further, this stage helped identify which items may have problematic cross loadings (i.e., loadings above .3 on multiple factors). The first stage explored the eigenvalue structure of the model utilizing a scree plot. The plot suggested the most likely solution was 2, 3, or 4 factors based on elbow rule and the Keiser-Guttman criteria.^[40,41] Thus, 2, 3, or 4 factor solutions were generated utilizing varimax (orthogonal) rotations. The 3 factor solution provided the least cross loadings, and was thus selected.

3.5 Confirmatory factor analysis

3.5.1 CFA as an iterative procedure

The final accepted model was selected through an iterative process:

- (1) A model was specified and the CFA was conducted.
- (2) The model fit was checked by comparing fit statistics (RMSEA, SRMR, CFI, and TLI) to accepted thresholds for acceptable model fit (RMSEA & SRMR < .08, and CFI & TLI > .90^[42]).
- (3) If model fit was unacceptable, problematic items were removed and the process was repeated until good model fit was obtained. Problematic items were characterized by having low loadings. Further issues arose if inspection of modification indices indicated that model fit would significantly improve from adding cross loadings.
- (4) Once a final model was selected, the model was tested on a new wave of data to verify the model was not over-fit (over-fitting refers to a model only performing well on a specific sample).

3.5.2 Model building

The following factor model was specified: Factor 1 (culture) items: 1, 15, 20, 25, 27, 28. Factor 2 (care) items: 2, 6, 7, 8, 9, 10, 14, 17, 22, 23, 24, 26, 29, 31. Factor 3 (health) items: 3, 4, 5, 11, 12, 13, 16, 18, 19, 21, 30. No cross loadings or correlated error terms were specified; however, the 3 factors were permitted to correlate. The original model converged, however the model implied covariance matrix was non-positive definite. Exploration of this matrix revealed a non-positive variance also known as a Heywood case.^[43] Thus, the original model was rejected. Problematic items were removed and the model was re-specified. This iterative procedure was then completed 17 times resulting in the final model (17 items were removed). Figure 1 displays the final 14 items by factor.

3.5.3 Final model and verification of results

Inspection of model fit indices revealed acceptable to good model fit: RMSEA = 0.025, SRMR = 0.079, CFI = 0.985, TLI = 0.981. The standardized factor loading structure is presented in Table 2. To verify the model did not over-fit the sample, it was tested on the second wave of data. The model performed well, obtaining acceptable to good fit: RMSEA = 0.023, SRMR = 0.075, CFI = 0.983, TLI = 0.991. Table 2 also provides the standardized solution, including the factor loading structure. Further, a Chi Squared difference test comparing the differences in model implied covariance matrices is non-significant $\chi^2 (74, N = 2) = -10.89, p = 1.0$, suggesting the models performed equally.

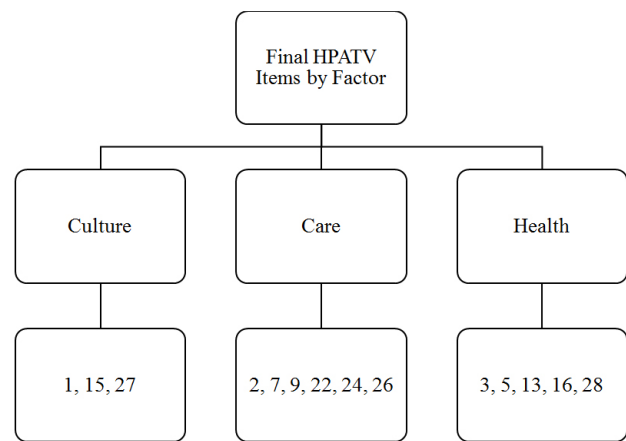


Figure 1. Final HPATV items by factor

4. DISCUSSION

Attitudes—including beliefs, feelings, and behavioral intentions—are an important attribute of the healthcare equation that influence the quality of patient-provider interactions.^[44] The complexity of interactions with veteran patients can be compounded by possible intercultural differences between civilian and military cultures.^[45] Quality care for veterans is facilitated by health professionals’ knowledge and confidence about delivering evidence-based services related to veteran health issues and culture.^[15] Adequate preparation, which may improve provider attitudes, is needed to recognize and respond to intercultural differences.

In order to provide patient-centered care to the veterans who receive services outside the VA system, community-based health professionals have a responsibility to screen regularly for military history, pursue training on the healthcare needs of veterans, and become familiar with veteran-specific resources for referrals.^[1] Within patient-provider interactions, certain communication techniques can be employed to help sensitively address the socio-cultural aspects of reverse culture shock that veterans may experience when readjusting to

civilian life.^[45] Examples include eliciting challenges and fostering growth across intrapersonal (e.g., mental and physical health), professional/educational (e.g., job and academic satisfaction), and interpersonal domains (e.g., social support). Pre-service education on these topics would lay the foundation for better quality care, and prior research has begun to identify core competencies in veterans health for nursing and other professions.^[1,46] However, prior research has not

yet explored how nurses and other health professionals view this patient population and the associated responsibilities of tailoring care to veterans’ needs. Understanding health students’ and professionals’ attitudes about caring for veterans is an important first step in developing a healthcare workforce that is knowledgeable and willing to serve this complex and growing patient population.

Table 2. Standardized solution for wave 1 and 2 model estimation

Factor	Item	Estimate Wave 1	p	Estimate Wave 2	p
Factor Loadings					
Culture	HPATV1	0.729	.000	0.464	.001
Culture	HPATV15r	0.732	.000	0.352	.018
Culture	HPATV27r	0.766	.000	0.894	.000
Care	HPATV2	0.651	.000	0.842	.000
Care	HPATV7	0.508	.000	0.684	.000
Care	HPATV9	0.610	.000	0.745	.000
Care	HPATV22	0.446	.000	0.749	.000
Care	HPATV24r	0.726	.000	0.319	.024
Care	HPATV26r	0.645	.000	0.305	.032
Health	HPATV3r	0.420	.001	0.189	.228
Health	HPATV5	0.504	.000	0.734	.000
Health	HPATV13	0.930	.000	0.813	.000
Health	HPATV16	0.420	.001	0.511	.000
Health	HPATV28	0.581	.000	0.143	.369
Variances					
-	HPATV1	0.468	.000	0.785	.000
-	HPATV15r	0.464	.000	0.876	.000
-	HPATV27r	0.413	.000	0.201	.481
-	HPATV2	0.576	.000	0.290	.004
-	HPATV7	0.742	.000	0.532	.000
-	HPATV9	0.627	.000	0.444	.000
-	HPATV22	0.801	.000	0.438	.000
-	HPATV24r	0.473	.000	0.898	.000
-	HPATV26r	0.583	.000	0.907	.000
-	HPATV3r	0.824	.000	0.964	.000
-	HPATV5	0.746	.000	0.461	.001
-	HPATV13	0.135	.302	0.339	.020
-	HPATV16	0.824	.000	0.739	.000
-	HPATV28	0.663	.000	0.979	.000
Latent Correlations					
Culture	Care	0.943	.000	0.589	.000
Culture	Health	0.449	.002	0.262	.140
Care	Health	0.697	.000	0.675	.000

The HPATV provides a mechanism for assessing these attitudes. Factor analysis of the instrument revealed 3 latent factors: culture, care, and health. The items in the culture

subscale relate to awareness of and comfort with military culture, largely cognitive and affective attitude components. Items in the care subscale correspond with how health profes-

sionals provide care to veteran patients, such as knowledge of and linkage with community-based services, screening for a history of military service, asking permission to discuss military-related health issues, and staying current on literature regarding veteran health issues; items in this subscale are largely about behavioral intentions. Finally, the health subscale items relate to knowledge and feelings toward prevalent veterans' health issues such as PTSD, military sexual trauma, and substance use; these are cognitive and affective attitude components.

The data generated by the HPATV and its 3 subscales has a number of potential applications that contribute to quality improvement. The HPATV can be used as a needs assessment tool in health professions schools and healthcare settings to identify areas of strength and weakness. Based on HPATV results, training curriculum can be developed or modified to increase positive feelings and confidence (affective component) and knowledge (cognitive component). Results could be used to better address the needs of veterans by guiding modification or development of organizational procedures and policies (behavioral component) to meet the needs of veteran patients. The HPATV can also be used as a program evaluation tool to determine the efficacy of veteran-specific education initiatives.

There are many directions for future research using the HPATV given its broad applicability across professions and settings. Studies could explore how health professionals' demographic characteristics, prior experience working with veterans, own veteran status, having veteran family members, and working in a VA versus community-based setting affect

the culture, care, and health domains of their attitudes toward veteran patients. Additionally, a comparison of attitudes among different health disciplines could provide further insight into what type of pre-service training is of value for different professions.

5. CONCLUSION

As military conflicts continue worldwide and the veteran population expands and increasingly seeks care in community-based settings, cultural competence of healthcare providers is paramount. Preparation of health professionals in the care of veterans should begin with an assessment of their attitudes toward this stigmatized and complex population with the goal of improving the quality of care provided. The HPATV was designed to capture nuances regarding health professionals' attitudes about providing care to veterans and identified three domains: culture, care, and health. Further research examining and understanding these domains and what factors might influence them, and building quality improvement initiatives based on these domains, will provide for sensitive, high quality, patient-centered care for veterans.

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CONFLICTS OF INTEREST DISCLOSURE

The authors declare that there is no conflict of interest.

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