Original article

World Health Organization Disability Assessment Schedule 2.0: psychometric properties and validation of the Ukrainian version in a sample of cadets of the armed forces

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Abstract

Introduction: The health and functioning of the military are a priority in Ukraine. The WHODAS as the international tool for assessing the level of disability can be effectively used within the health care system in such a group of the population. The aim was to examine the psychometric properties of Ukrainian version of the WHODAS 2.0 in a sample of cadets.

Material and methods: Military cadets responded to the Ukrainian 36-item version of the WHODAS and MOS SF-36 scales. The internal consistency, structure, and construct validity of the WHODAS were examined.

Results: A homogeneous sample of military personnel's was obtained in terms of age, living situations and level of physical activity. Internal consistency of the all WHODAS domain by Cronbach's alpha was 0.951. Final model which consisted of six factors was identified by the results of exploratory factor analysis. Factors covered 66.413% of the total variance. Numerous negative moderate or high correlations were also found between almost all MOS SF-36 questionnaire scales and WHODAS domains (r = –0.553 – –0.513). Ten out of 14 a priori assumed hypotheses (71.4%) were confirmed, that indicated moderate construct validity of the WHODAS 2.0.

Conclusions: The Ukrainian version of WHODAS 2.0 had a high internal consistency and sufficient construct validity. It shows as a valid instrument to assess the general level and main domains of functioning of specific categories of the population. The WHODAS can be a useful to obtain information about the limitations in functioning in Ukrainian speaking population for health and social policy services in different countries.

Keywords: rehabilitation, International Classification of Functioning, disability and health, questionnaires, disability evaluation

Introduction

Together with morbidity and mortality, functioning is regarded as the third indicator of health, and is critical for physical therapy [1]. Indeed, both the United States FDA (Food and Drug Administration) and the European Medicines Agency, in particular, require an indication of improved biological parameters and higher level of functioning during drug approval [1]. Difficulties in functioning at the level of structure, body functions or activity, or participation in the social life by a person with health problems in association with

contextual factors is defined as disability [2]. This definition relates to all levels of the current biopsychosocial understanding of disease and health.

The International Classification of Functioning, Disability, and Health (ICF) was developed based on a biopsychosocial conceptual model [3]. The ICF can be implemented using the WHO Disability Assessment Schedule 2.0 (WHODAS 2.0) questionnaire, developed by WHO specialists on the basis of the ICF [3,4]; its main purpose is to ensure the standardization of measurements of general health and impairment of functioning.

Three versions of WHODAS 2.0 are available: a *full* version with 36 items, a *short* screening version with 12 items, available in interviewer, self-administered and trustee forms, and a third version with 12+24 items. The most detailed form is the full 36-item WHODAS 2.0, which provides estimates for six areas of operation and calculates overall performance. The intercultural viability of the tool is evidenced by the fact that, by the end of 2015, it was used in almost 100 countries in 50 languages and dialects [4,5].

Prior to the full-scale invasion of by the Russian Federation, the war in the eastern part of Ukraine had lasted for eight years. As such, ensuring the health and functioning of military personnel was a priority for the state. Cadets at military higher education institutions were no exception, as the significant amount of physical activity associated with training, along with intensive learning, increases the risk of injury. Since February 24, 2022, there has also been an increasing need to prepare rehabilitation specialists, and other health professionals, to cope with growing numbers of wounded and injured soldiers, as well as their own deteriorating health due to the specifics of their service.

Assessing the functioning and level of disability in such a group, and implementing measures to address any identified problems and assess the effectiveness of interventions are important strategic steps being taken to strengthen the defence capabilities of the state. To this end, the WHODAS is an effective international tool for assessing the level of disability. Although the questionnaire was not designed for military personnel [6], some studies have evaluated the use of the WHODAS to assess disability in veterans [7−10] and the Armed Forces [6]. A better understanding of the psychometric

properties of the WHODAS among cadets will supplement the information on its possibilities for use among military personnel of all levels. Taking into account the limitations of life identified by the WHODAS as the basis for reimbursements of additional home and community-based services, diagnostic assessments, health care and social services [11,12] would be an effective step in supporting injured service personnel of Ukraine.

Although the first translation of the ICF into Ukrainian was published by the Ministry of Health in May 2019, the WHODAS 2.0 is still not available. It is assumed that WHODAS can be an important tool for standardizing screening studies of disability level of the general population and various nosological groups, and for assessing the effectiveness of health measures, including rehabilitation and physical therapy. The aim of this study is to examine the psychometric properties of the Ukrainian version of the WHODAS 2.0 questionnaire in a sample of cadets.

Material and methods

Participants and procedure

The study was conducted among cadets at the Hetman Petro Sahaidachnyi National Ground Forces Academy (Lviv, Ukraine). The inclusion criteria comprised (a) currently studying at the Faculty of Combat Arms, (b) Ukrainian native speaker, (c) providing informed and written consent to participate in the study. The exclusion criterion was refusal to participate in the survey. Data was obtained by research convenience sampling. All cadets who studied at the Academy in May 2021 and meeting the inclusion criteria were qualified for the study.

The total number of participants was 256. All were male, with a mean age of 19.73 ± 2.53. Assuming that the minimum sample size should include between 3 and 20 times the number of variables, and that the minimum sample size begins to stabilize when the variables-to-factors ratio exceeds 6 [13], our sample corresponded to the allowable sample size, i.e. of 216 participants.

The demographic and anthropometric characteristics of the cadets according to year of study are presented in Table 1.

Tab. 1. Characteristics of the cadets (n=256)

Year of study	Number of cadets	Age (years)	Height (cm)	Weight (kg)	Body Mass Index (kg/m^2)
1	76	18.57 ± 2.2	180.3 ± 6.71	71.51 ± 7.19	21.99 ± 1.54
2	90	19.39 ± 1.76	179.29 ± 7.26	72.65 ± 8.71	22.56 ± 2.03
3	87	21.16 ± 2.8	178.42 ± 5.73	72.54 ± 6.61	22.5 ± 3.03

The WHO authorized the Lviv State University of Physical Culture to translate WHODAS 2.0 (36-item, self-administered). Thus, a research group was established to perform the cultural adaptation of the questionnaire. The head of the research group (K.T-S) coordinated translation, validation, and distribution management.

The translation and linguistic evaluation of WHODAS 2.0 were carried out under the WHO protocol on the "WHODAS 2.0 Translation Package (Version 1.0)" with the necessary stages of translation [7]. The study was performed in accordance with the ethical standards of the Helsinki Declaration and all participants provided their informed consent. The study was supported by the Bioethics committee of LSUPC regarding its research organization and application of methods (letter of 24.05.2021, 359).

Measures

The WHO Disability Assessment Schedule 2.0 (WHODAS) is a patient-reported outcome measure developed on the conceptual basis of the ICF framework [8] to describe the state of health and disability. A self-administrated version of 36 items was used, which are grouped into six domains: cognition, mobility, self-care, getting along with people, life activities, and participation. The questions covered a period of 30 days. All questions are answered using a 5-point Likert scale, with 0 indicating no difficulty in performing a specific action and 4 indicating that the task is extremely difficult or impossible to perform.

The results were summarized for each domain individually. In accordance with the instructions, these values were converted to a scale from 0 to 100, where 0 means no disability, whilst 100 means extreme disability [3,14]. The original English version of the WHODAS was demonstrated to have good reliability and internal consistency (test–retest reliability yielded an intra-class coefficient of 0.69–0.89 at item level; 0.93–0.96 at domain level; and 0.98 at overall level; Cronbach's alpha for overall sample and subgroups was 0.97–0.99) [3].

The Medical Outcomes Study: 36-Item Short Form Survey (MOS SF-36) is a general tool aimed at assessing health-related quality of life [4,9]. The questionnaire consists of 36 items, grouped into eight scales: physical functioning, physical role functioning, bodily pain, general health, vitality, social functioning, emotional role functioning, mental health. Scale scores were summarized into a Physical Component Score and Mental Component Score. The items cover the respondent's experience over the last 30 days. The result for each scale was calculated on a 100-point scale, with a higher the score indicating a higher quality of life value. The internal consistency reliability of the English version was found to range from 0.83 to 0.93 for the eight scales, and to be 0.94 and 0.89, respectively, for the Physical and Mental Component Score [15]. The questionnaire was translated and adapted for the Ukrainian population in accordance with international standards [16], and it has been used to study the quality of life of military personnel [17].

Statistical analysis

The internal consistency, structure, and construct validity of the questionnaire were examined. The α-Cronbach index of the entire questionnaire and its domains was calculated; the result was considered satisfactory if its value was ≥0.7 [18,19]. Correlation analysis and exploratory factor analysis were applied. The Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of sphericity were used to determine the data adequacy for factor analysis. The calculations were performed using SPSS software.

Results

The sample group comprised 256 participants, i.e. 63% of the cadets who studied at the Faculty of Combat Arms in Hetman Petro Sahaidachnyi National Ground Forces Academy in May 2021. This faculty was chosen because it trains servicemen for whom physical training is the most important requirement for service activities [20], and their combat missions take place in close proximity to the enemy. The general socio-demographic characteristics are presented in Table 2.

Tab. 2. General socio-demographic characteristics of the study population (n=256)

Variables	Total n (%)
Age, M±SD (years)	19.73 ± 2 .53
Marital status:	
– single	248 (97%)
– married	8 (3%)
Children:	
– yes (present)	4 (1%)
– none	252 (99%)
Presence of unhealthy habits:	
– cadets indicating unhealthy habits	162 (63%)
– smoking (tobacco, hookah, GLO)	148 (58%)
– alcohol consumption	26 (10%)
– other	3 (1%)
Military service experience before studying in the Academy:	
– yes	51 (20%)
– no	205 (80%)

The mean score obtained by the cadets based on the WHODAS 2.0 was 8.26 ± 10.97 points (maximum 55.91 points). However, 85 respondents (33%) received 0 points.

Internal consistency of the WHODAS

Cronbach's alpha for the whole questionnaire was 0.951, indicating a high level of consistency across all the tool's elements. All the items significantly impacted the final result ($\alpha = 0.945$–0.948), with the correlation between the items and the overall result lying in the range 0.401 to 0.720. The values that were most closely related to the overall score were those associated with items related to concentrating on doing something ($r = 0.671$), analysing and finding a solution to the problem ($r = 0.677$), standing for long periods ($r = 0.643$), doing the most important household tasks well ($r = 0.652$), getting all the necessary household work done ($r = 0.665$), day-to-day work/school ($r = 0.699$), doing the most important work/school well ($r = 0.681$), doing all the work that needs to be done ($r = 0.720$), completing work as quickly as needed ($r = 0.673$).

An analysis of the internal consistency of the questionnaire found all domains to have satisfactory Cronbach's α indicators (Tab. 3); in particular very high scores were noted for life activities: household work ($\alpha = 0.952$) and life activities: work/school ($\alpha = 0.909$), and high for cognition ($\alpha = 0.886$), mobility ($\alpha = 0.888$), getting along with people ($\alpha = 0.828$) and participation ($\alpha = 0.816$). The removal of individual items did not affect Cronbach's α values for these domains. Also, all of the answered items, or almost all, were related to the results of the following domains: cognition ($r = 0.848$–0.880), mobility ($r = 0.685$–0.803), life activities: household work ($r = 0.840$–0.916), life activities: work/school ($r = 0.702$–0.853), self-care (for 75% of items $r = 0.508$–0.661), getting along with people (for 80% of questions $r = 0.533$–0.671), participation (for 75% of items $r = 0.503$–0.568).

Examining the WHODAS structure

Before conducting a research factor analysis, the data were first checked for adequacy. The Kaiser-Meyer-Olkin test result was in the 0.5 to 1 range

Tab. 3. Indicators of internal consistency of the WHODAS

The questionnaire domain	Item No.	Item content	rjx	α-x
Cognition ($\alpha = 0.886$, AVE = 0.403, CRC = 0.791)	1.1	Concentrating on doing something	0.646	0.873
	1.2	Remembering to do important things	0.763	0.854
	1.3	Analysing and finding solution to the problem	0.797	0.848
	1.4	Learning a new task	0.676	0.868
	1.5	Understanding what people say	0.706	0.864
	1.6	Starting and maintaining a conversation	0.610	0.880
Mobility ($\alpha = 0.888$, AVE = 0.463, CRC = 0.808)	2.1	Standing for long periods	0.685	0.881
	2.2	Standing up from a sitting position	0.723	0.865
	2.3	Moving around inside home	0.768	0.854
	2.4	Getting out of home	0.803	0.849
	2.5	Walking a long distance	0.706	0.870
Self-care ($\alpha = 0.772$, AVE = 0.379, CRC = 0.705)	3.1	Washing whole body	0.468	0.723
	3.2	Getting dressed	0.661	0.643
	3.3	Eating	0.619	0.631
	3.4	Staying by yourself	0.508	0.734
Getting along with people ($\alpha = 0.828$, AVE = 0.478, CRC = 0.820)	4.1	Dealing with people you do not know	0.671	0.748
	4.2	Maintaining a friendship	0.650	0.757
	4.3	Getting along with people who are close to you	0.483	0.800
	4.4	Making new friends	0.771	0.702
	4.5	Sexual activities	0.533	0.819

Tab. 3. cont.

The questionnaire domain	Item No.	Item content	rjx	α-x
Life activities: household work (α = 0.952, AVE = 0.634, CRC = 0.870)	5.1	Taking care of household responsibilities	0.840	0.945
	5.2	Doing most important household tasks well	0.907	0.926
	5.3	Getting all the household work done that is needed to be done	0.916	0.921
	5.4	Getting household work done as quickly as needed	0.866	0.940
Life activities: work/school (α = 0.909, AVE = 0.662, CRC = 0.886)	5.5	Day-to-day work/school	0.702	0.914
	5.6	Doing most important work/school well	0.811	0.873
	5.7	Getting all the work done	0.853	0.857
	5.8	Getting work done as quickly as needed	0.806	0.873
Participation (α = 0.816, AVE = 0.516, CRC = 0.796)	6.1	Problems with joining in community activities	0.476	0.802
	6.2	Problems because of barriers or hindrances in the world around	0.568	0.788
	6.3	Living with dignity	0.560	0.789
	6.4	Time spent on health	0.563	0.790
	6.5	Emotional affection by health conditions	0.629	0.777
	6.6	Drain on the financial resources due to health conditions	0.503	0.797
	6.7	Problems that family have because of your health conditions	0.422	0.808
	6.8	Problems in doing things individually for relaxation or pleasure	0.551	0.790

α – α-Cronbach; α-x – Cronbach's alpha if the item was deleted; rjx – item-total correlation (an indicator of correlation between the item and the overall result); AVE – average variance extracted (acceptable AVE ≥ 0.40); CRC – composite reliability coefficient (acceptable CRC ≥ 0.70) [21, 22].

(KMO = 0.881), confirming the possibility of factor analysis. Furthermore, testing the hypothesis that the variables for factor analysis did not correlate with each other revealed an acceptable level of significance ($p < 0.001$; $\chi^2 = 5041.741$, df = 630): this also indicated that factor analysis could be performed for this sample.

Research factor analysis was performed by factorization of the main axis, using promax rotation. Seven factors were identified initially whose eigenvalues exceed 1, which explained 69.5% of the total variance. Based on further analysis and application of the Kaiser criteria, six factors were identified in the model, which covered 66.413% of the total variance. This value comprised the following: first factor – 37.793%, the second – 8.334%, the third – 6.505%, the fourth – 5.296%, the fifth – 4.664%, and the sixth – 3.820%. A detailed analysis of the structure of the questionnaire revealed that some items were practically unrelated to

any factor (factor load <0.4), particularly barriers or hindrances in the world around ($r = 0.380$), problems that family have because of health conditions of the respondent ($r = 0.356$), and problems in doing things individually for relaxation or pleasure ($r = 0.326$) (Tab. 4).

In general, the final model consisted of six factors – the first factor covered the domain of getting along with people, the second – life activities (household work), the third – mobility, the fourth – cognition, the fifth – life activities: (work/school) and the sixth – participation. The items in the self-care domain were related to the first, second, and third factors. The first factor also included some items from the participation domain, particularly those that focus on the difficulties associated with participation in social activities, environmental barriers, and problems with self-esteem due to the attitudes and actions of others.

Tab. 4. Structure of the WHODAS (based on the results of exploratory factor analysis)

Item No. WHODAS 2.0	Factor					
	1	2	3	4	5	6
1.1.				0.401		
1.2				0.767		
1.3				0.713		
1.4				0.789		
1.5				0.613		
1.6				0.402		
2.1			0.578			
2.2			0.656			
2.3		0.412	0.682			
2.4			0.882			
2.5			0.557			
3.1	0.633					
3.2	0.463		0.454			
3.3		0.625				
3.4		0.717				
4.1	0.687					
4.2	0.630					
4.3	0.737					
4.4	0.737					
4.5	0.660					
5.1		0.936				
5.2		0.897				
5.3		0.714				
5.4		0.588				
5.5					0.683	
5.6					0.838	
5.7					0.847	
5.8					0.873	
6.1	0.401	0.550				
6.2	0.380					
6.3	0.469					
6.4						0.839
6.5						0.805
6.6						0.779
6.7			0.356			
6.8						0.326

Construct validity of WHODAS

The general index of the WHODAS correlates with the values of the MOS SF-36 scales (Tab. 5). Numerous negative moderate or high correlations were also found between almost all MOS SF-36 questionnaire scales, except the Physical Component Score, and WHODAS domains. In particular, negative correlations were observed between physical functioning and mobility (r = –0.553), and social functioning and participation (r = –0.531); in addition, the overall result of WHODAS 2.0 was negatively correlated with the MOS SF-36 scales vitality (r = –0.513) and social functioning (r = –0.524). Negative moderate correlations (r = –0.410– –0.496) were found for the general WHODAS 2.0 index and physical functioning, general health, mental health, Mental Component Score; life activities (work/school) and physical functioning, vitality, social activity, Mental Component Score; participation and vitality, emotional role functioning and Mental Component Score; getting along with people and social activity. Ten out of 14 *a priori* assumed hypotheses (71.4%) were confirmed, which indicated that the WHODAS 2.0 has moderate construct validity.

CRC and AVE indicators are adequate for almost all domains of the questionnaire, particularly for cognition (AVE = 0.403, CRC = 0.791), mobility (AVE = 0.463, CRC = 0.808), getting along with people (AVE = 0.478, CRC = 0.820), life activities – household work (AVE = 0.634, CRC = 0.870), life activities – work/school (AVE = 0.662, CRC = 0.886) and participation (AVE = 0.516, CRC = 0.796). The average extracted variance for the self-care domain was lower than required (AVE = 0.379). The validity of the questionnaire is also confirmed by the fact that, for all factors, the square root of the AVE was higher than the correlation between the factors (Tab. 6).

Discussion

This is the first study to validate the Ukrainian version of the WHODAS 2.0 (36 self-completion items) and assess its psychometric properties. Our findings are of great importance due to the need for informative and reliable tools to assess the level of health, functioning and disability among the population. Such data is also needed to accurately compare results between different population groups, regions and countries, and determine the impact of treatment and rehabilitation interventions. Assessing the level of functioning, in particular, is critical in physical therapy, for determining the effectiveness of rehabilitation. This study is also pertinent to implementing the ICF in Ukraine.

Tab. 5. Correlations (r) between the structural parts of the WHODAS and MOS SF-36 questionnaires

WHODAS domains	MOSSF-36 Scales									
	PF	RF	BP	GH	VT	SF	RE	MH	PSC	MCS
General index	−0.465[*]	−0.375[*]	−0.342[*]	−0.424[*]	−0.513[*]	−0.524[*]	−0.386[*]	−0.410[*]	–	−0.431[*,1]
Cognition	−0.266[*]	−0.205[*]	−0.203[††]	−0.282[*]	−0.366[*]	−0.382[*]	−0.231[*]	−0.312[*]	–	−0.296[*]
Mobility	−0.553[*,1]	−0.375[*]	−0.358[*]	−0.362[*]	−0.361[*]	−0.356[*]	−0.243[*]	−0.249[*]	−0.165[†]	−0.164[†]
Self-care	−0.301[*]	−0.155[**]	−0.170[**]	−0.211[*]	−0.244[*]	−0.261[*]	−0.139[†]	−0.194[*]	–	−0.152[†]
Getting along with people	−0.155[*]	−0.130[†]	−0.159[†]	−0.250[*]	−0.390[*]	−0.478[*,1]	−0.256[*]	−0.354[*]	–	−0.398[*,1]
Life activities: household work	−0.270[*]	−0.196[†]	–	−0.239[*]	−0.279[*]	−0.280[*]	−0.185[†]	−0.197[†]	–	−0.181[†]
Life activities: work/school	−0.420[*,1]	−0.392[*,1]	−0.288[*]	−0.396[*]	−0.432[*]	−0.456[*,1]	−0.381[*]	−0.340[*]	–	−0.411[*]
Participation	−0.389[*]	−0.391[*]	−0.390[*]	−0.386[*,1]	−0.496[*]	−0.531[*,1]	−0.453[*,1]	−0.387[*]	–	−0.459[*,1]

PF – physical functioning, RF – physical role functioning, BP – bodily pain, GH – general health, VT – vitality, SF – social functioning, RE – emotional role functioning, MH – mental health, PCS – Physical Component Score, MCS – Mental Component Score. * – $p < 0.0001$; † – $0.02 \leq p \leq 0.04$; ** – $p = 0.01$; †† – $p = 0.002$; [1] these correlation coefficients were expected to be moderate or high ($r \geq 0.3$); *A priori* formulated hypotheses that were verified are marked in bold and underlined; *A priori* formulated hypotheses that were rejected are marked in bold.

Tab. 6. Correlations between factors

Factors	1	2	3	4	5	6
1	(0.691)					
2	0.376	(0.892)				
3	0.266	0.419	(0.680)			
4	0.346	0.322	0.371	(0.635)		
5	0.486	0.461	0.474	0.452	(0.814)	
6	0.422	0.376	0.258	0.396	0.412	(0.718)

$p < 0.01$. AVE square root is given on the diagonal.

The present study tests the properties of the tool on servicemen, who are a population group of considerable interest in Ukraine. In Ukraine, as a result of the military action performed by the Russian Federation since 2014, the number of servicemen participating in hostilities has been increasing. According to the Ministry of Defence of Ukraine, at the start of the 2022 invasion, about 200,000 people had received the status of a participant in hostilities, and since then, more than 10,000 servicemen have received physical injuries [23]. Accordingly, the level of disability among servicemen has a significant influence on disability in the general population. In addition, there is a particular need to assess the level of functioning and rehabilitation among

this population to provide medical, rehabilitation, psychological and social assistance, and to allow for the possibility of returning to their duties.

In addition, as of May 16, 2022, more than six million people had left Ukraine due to the attack by the Russian Federation on February 24, 2022 [24]. The primary recipients of this flow within the European Union are Poland, Hungary and Slovakia. For the governments of these countries, WHODAS 2.0 can be a key tool for assessing the level of disability among refugees in order to determine the necessary rehabilitation and social assistance.

WHODAS 2.0 has already been translated and validated in different languages [25−30], and considerable attention has been paid to the study of its psychometric properties among patients with different nosologies [31−38]. The present study validates the WHODAS 2.0 conceptual model and its psychometric properties for the general Ukrainian population. The questionnaire had a high internal consistency (> 0.7), while construct validity was moderate [39]. The WHODAS and its domains demonstrated a high level of consistency across all elements of the tool ($\alpha = 0.945$–0.948), with internal correlation coefficients ranging from 0.401 to 0.720. The internal consistency of the questionnaire on individual scales was satisfactory across all domains, as indicated by Cronbach's α (0.816–0.952). The results are commensurate with previously-obtained indicators [3]. Six factors were found to account for 66.413% of the total variance, which was sufficient [40].

Like other adaptations, the Ukrainian version of WHODAS demonstrates ease of comprehension and accurate cultural adaptation [41,42]: Cronbach's alpha and its subscales match the baseline [41,43]. Our findings indicate that the six-factor solution of the Ukrainian version of the WHODAS is similar to that of the original English version, confirming that the Ukrainian version is a successful adaptation that preserves the structure of the original. This also provides an opportunity to use the Ukrainian version of WHODAS 2.0 among serviceman to assess the main aspects of functioning.

The tool addresses six distinct aspects of functioning, which are presented in the form of distinct domains: cognition (features of cognitive activity, including such processes as focusing, memorization, finding solutions, etc.), mobility (respondent's mobility), self-care (self-care aspects – hygiene, being able to dress, eat, live independently, etc.), getting along with people (interaction with others), life activities: household work/work, school (the respondent's daily activities, in particular activities at work/school, at home), and participation (characteristics of functioning in community and the impact of health on it). The results obtained with the Ukrainian self-administered version of WHODAS 2.0

(36-items) can be included in intercultural research and compared with global normative data.

Correlations were found between the WHODAS domains and the MOS SF-36 scales, although most were insignificant or moderate in size. This confirms that the two questionnaires assess various aspects of related concepts, i.e. disability and quality of life, respectively. Until recently, the predominant tool for assessing the quality of life of patients with various nosologies in Ukraine was the MOS SF-36 [16]; with most assessments examining the impact of health on quality of life. However, it is not part of a disability assessment strategy, and our results confirm that it can only be regarded as an additional tool in this strategy, not the main one. As a result, WHODAS is better used to assess disability, with this indicator serving as a complement to the overall health-related quality of life.

However, our study has some limitations, and this should be borne in mind when interpreting our findings. The study did not test the sensitivity of the tool, i.e. the ability to track improvements or deteriorations in health. Furthermore, since the respondents involved in the survey can be described as a general sample, their differentiation into individual groups, e.g. depending on health status and nosology, did not make sense. Finally, no assessment was made of test-retest reliability. Further analyses of the Ukrainian version of WHODAS 2.0 are planned, and these will include the discriminatory power of the tool.

Conclusion

The Ukrainian version of the 36-item WHODAS 2.0 was found to be a simple to use self-administrated test among military personnel, and showed the same structural and psychometrics properties as the original version. This questionnaire can be used to successfully obtain information about the general level of functioning and its main domains, and can be used for studying specific categories of the population with impaired health.

Conflict of Interest
The authors declare no conflict of interest.

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