

TESTING IN MENTAL HEALTH RESEARCH: PROFESSIONAL HARDINESS QUESTIONNAIRE (ENGLISH-LANGUAGE VERSION)

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ABSTRACT

The aim: To develop and validate the English-language version of the Professional Hardiness Questionnaire (PHQ).

Materials and methods: A total of 425 skilled English-speaking respondents (188 men, 237 women; aged 19–75 years, $M = 34.12 \pm 13.18$ years) from different countries of various professions participated in a remote online survey. The results were used to validate the English-language version of the PHQ. English-language versions of six other measures were also used to check the PHQ's competitive validity.

Results: The 24-item PHQ determines eight indicators of professional hardiness: general level of professional hardiness; professional commitment; professional control; professional challenge; and the emotional, motivational, social and namely professional aspects of professional hardiness. We calculated means and standard deviations for each indicator and determined normative data (in points) for general level of professional hardiness, sorted into five levels: low, below average, average, higher than average and high. The PHQ had sufficiently high internal consistency ($\alpha = 0.76\text{--}0.90$) and competitive validity. General level of professional hardiness was significantly correlated ($r = 0.17\text{--}0.45$; $p < 0.001$) with the scales of all of the additional six measures used.

Conclusions: The professional hardiness of specialists in different professions should be examined, both to strengthen specialists' hardiness and to prevent negative consequences of occupational stress on their mental health. It is also necessary to test the PHQ in various professional fields to clarify the quantitative indicators of professional hardiness for skilled people in various professions.

KEY WORDS: occupational stress, mental health, public health, social medicine, hardiness assessment

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INTRODUCTION

The concept of «hardiness» came into scientific circulation after the publications of Kobasa S. and Maddi S. examining telephone company managers' «hardiness» were presented in the late 1970s and early 1980s [1-3]. Subsequent studies on hardiness were actively initiated and are now widespread in other professional fields, including education, health, sports and law enforcement. Special attention has been paid to the important role of hardiness in service-members' successful military training and work as well as its ability to prevent negative mental health consequences after severe stress. Such studies have been conducted under the supervision of Bartone P. T. [4, 5], Hystad S. W. and Thomassen Å. G. [6, 7], among many other scientists.

The exceptional and multifaceted significance of hardiness for people's mental health in various activities and fields has been confirmed by many studies. Duquette A. et al. [8] examined hardiness as a prerequisite for preventing professional burnout in various occupations. Analogous studies have been conducted with nurses [9, 10], school-teachers [11], university lecturers [12] and journalists [13]. Hardiness has also been confirmed to have an impact on psychological well-being and various aspects of adaptability among students [14-17] and Paralympic athletes [18]. In addition, research has shown that people with higher

levels of hardiness are less prone to high blood pressure [19], heart disease [20], anxiety [21] and depressive disorders [22].

Many examination tools have been developed to study hardiness over the last four decades. The most well known are the Personal Views Survey (Kobasa S., Maddi S. et al.), the initial version of which contained 101 items; the Hardiness Survey (Maddi S. et al.), whose first version contained 65 items; and the Dispositional Resilience Scale (Bartone P. T. et al.), whose first version contained 45 items. These measures have numerous modifications and have been adapted into various languages.

In the past decade alone, many publications have appeared proposing new methods for studying hardiness, including the Psychological Hardiness Questionnaire with 27 items [21], the Connor-Davidson Resilience Scale with 25 items [23], the Resistant Personality Questionnaire with 21 items [24], the Academic Hardiness Scale with 18 items [25] and the Brief Resilience Scale with 21 items [26], among others. This evidences the gradual tendency to use a decreased number of items (15–25 items) in the examination of hardiness.

Although the phenomenon of hardiness was initially identified based on research in the professional field (managers at Illinois Bell Telephone), the variety of chosen

samples in later studies led to the use of the 'professional' content of hardiness in a more general sense, and existing methods examining hardiness did not focus clearly on professional aspects. However, in our opinion, such generalised representations of hardiness are not entirely correct, as its levels in different areas can vary significantly for the same person. For example, a person can have high hardiness in a professional sphere and relatively lower hardiness in everyday life or alternatively may cope well with adverse learning factors while remaining completely helpless in interpersonal relationships (and so on). Hardiness can include different elements in various conditions; for example, the hardiness of an imprisoned person is determined by different qualities and manifestations than that of someone working at a large corporation. In particular, Skomorovsky A. and Sudom K. A. [27] substantiated the concept of 'military-specific hardiness', which was a more accurate predictor of military personnel's psychological well-being and effectiveness than general hardiness, and proposed developing specific examination tools for this population.

THE AIM

The aim of our study was to develop and validate the English-language version of the Professional Hardiness Questionnaire (PHQ).

MATERIAL AND METHODS

MEASURES

The development of the English-language version of the PHQ (provided in the Annex 1) was based on its initial Ukrainian-language version (<http://prof-diagnost.org>). The accuracy of its translation into English was checked and corrected by 12 bilingual specialists with degrees in medicine and/or psychology.

The PHQ is a 24-item self-report measure. All questions are directly related to a specialist's occupational activities. In addition to the 'traditional' components of hardiness (commitment, control, and challenge), we also highlighted four more specific aspects for each: emotional, motivational, social and namely professional.

Respondents were asked to rate each item on a 5-point Likert scale ranging from A to E. For each answer, option A was worth 0 points, option B 1 point, option C 2 points, option D 3 points and option E 4 points. We improved the traditional version of the Likert scale to take into account the specifics of possible answers to various questions.

Thus, the PHQ provides an opportunity to examine not only the traditional commitment, control and challenge components but also the emotional, motivational, social and content-professional aspects of professional hardiness within a clear professional context. The method for calculating these figures is given in Table I.

As the table indicates, each of the three components of professional hardiness (commitment, control and chal-

lenge) in the PHQ is evaluated with eight questions: two questions each for the emotional, motivational, social and namely professional aspects. Due to this progressive approach, the 24-item PHQ identifies eight indicators of professional hardiness.

To check the PHQ's competitive validity, we used English-language versions of six methods: the Personal Orientation Inventory (Shostrom E., adapted by Alioshyn Yu. et al.), the General Self-Efficacy Scale (Schwarzer R. and Jerusalem M.), the Motivation for Professional Activities inventory (Zamfir C.'s technique with Rean A.'s modification), the questionnaire identifying satisfaction with a profession and a job (Zhurin N. and Ilyin E.), the Maslach Burnout Inventory (Maslach C. and Jackson S. E., adapted by Poliakova O.) and the Professional Self-Fulfilment Questionnaire (Kokun O.).

DATA COLLECTION

We conducted a remote online survey using the trilingual website <http://prof-diagnost.org>.

PARTICIPANTS

In total, 1,024 skilled English-speaking respondents from different countries, representing various ages and professions, participated in the remote online survey. Only 425 respondents (188 men, 237 women; aged 19–75 years, $M = 34.12 \pm 13.18$ years) filled out all proposed questionnaires and were thus ultimately selected for data processing.

ETHICS

The author asserts that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008. All participants were informed that their participation in the study was voluntary and that they could refuse to participate or withdraw from the study at any time. Participants were informed that there were no right or wrong answers and were encouraged to respond candidly. Complete confidentiality was assured. Only de-identified data were used in the statistical analysis. We recorded only general data about respondents, such as gender, age and profession. Participants were motivated to participate in the study by the automatic presentation of their results, which was accompanied by a psychological and professional interpretation.

STATISTICAL ANALYSIS

The software package SPSS version 22.0.0 was used to conduct the statistical analysis. Descriptive statistics (means and standard deviations), independent sample *t*-tests, Pearson's correlation coefficient and Cronbach's alpha were used to analyse the data. The data were normally distributed according to the one-sample Kolmogorov–Smirnov test.

Table I. Calculation of PHQ quantitative indicators

Indicator	Σ points for associated questions	Number of items	Score range (min-max)
General level of professional hardiness	1–24	24	0–96
Professional commitment	1, 4, 7, 10, 13, 16, 19, 22	8	0–32
Professional control	2, 5, 8, 11, 14, 17, 20, 23	8	0–32
Professional challenge	3, 6, 9, 12, 15, 18, 21, 24	8	0–32
Emotional component	1, 2, 3, 13, 14, 15	6	0–24
Motivational component	4, 5, 6, 16, 17, 18	6	0–24
Social component	7, 8, 9, 19, 20, 21	6	0–24
Namely professional component	10, 11, 12, 22, 23, 24	6	0–24

Table II. Means and standard deviations for the English-language version of the PHQ ($N = 425$)

Indicator	M	SD
General level of professional hardiness	62.33	9.52
Professional commitment	19.88	4.12
Professional control	21.35	3.40
Professional challenge	21.10	3.98
Emotional component	15.15	3.05
Motivational component	16.78	2.99
Social component	15.12	2.75
Namely professional component	15.28	3.15

Table III. Normative data for general level of professional hardiness (in points)

General level of professional hardiness	Points	Cumulative percentage ($N = 425$)
Low	0–54	0–20%
Below average	55–60	21–40%
Average	61–64	41–60%
Higher than average	65–70	61–80%
High	71–96	81–100%

RESULTS

We developed and validated the English-language version of the PHQ using the general scheme of test development [28]. Tables II and III show the results of test standardisation for the English-language version of the PHQ. The independent sample *t*-tests for the questionnaire scores did not reveal significant differences between men and women; therefore, means, standard deviations and normative data are presented without gender differentiation. Some significant differences between men and women ($p < 0.05$) were obtained only for the professional challenge scale and the scale representing the emotional component of professional hardiness but were not significantly expressed in absolute terms.

Cronbach's α for the scales of professional commitment, control and challenge was 0.76; 0.80 for the emotional, motivational, social and namely professional aspects of pro-

fessional hardiness scales; and 0.90 for all scales together. Thus, the results indicated that the internal consistency of the PHQ was sufficiently high.

For normalisation, to determine the quantitative limits of the five professional hardiness levels, we used a step of 20% of the obtained distribution for the general level of professional hardiness indicator for the total sample (Table III).

The PHQ thus has sufficiently high competitive validity. For the same sample that was used for PHQ standardisation ($N = 425$), significant correlations were obtained between the general level of professional hardiness and the following scales:

- the Personal Orientation Inventory ($r = 0.17$ – 0.45 ; $p < 0.001$);
- the General Self-Efficacy Scale ($r = 0.31$; $p < 0.001$);
- motivation for professional activities ('internal motivation'; $r = 0.26$; $p < 0.001$);
- the questionnaire identifying satisfaction with a profession and a job ($r = 0.36$; $p < 0.001$);
- the Maslach Burnout Inventory ($r = -0.18$ – -0.30 ; $p < 0.001$); and
- the Professional Self-Fulfilment Questionnaire ($r = 0.22$ – 0.34 ; $p < 0.001$).

DISCUSSION

The important task of strengthening modern specialists' professional hardiness and maintaining their mental health [13, 29] undoubtedly necessitates the development of specific and informative professional tools examining professional hardiness. The PHQ was developed on the basis of three well-known interrelated components of hardiness: commitment, control and challenge [1, 19]. For each of these, we highlighted four additional aspects: emotional, motivational, social and namely professional. Through this progressive approach, the 24-item PHQ identifies eight indicators of professional hardiness. The number of questions in the PHQ fully corresponds to the modern trend of significant reductions in the amount of questions, from 50–100 in the first measures examining hardiness to 15–25 in more recent measures [23–26].

The English-language version of the PHQ was standardised according to the generally accepted procedure, and normative data were defined. The testing results

showed that the quantitative impact of professional commitment as a component of professional hardiness is somewhat less than that of professional control and challenge. As for the four aspects of professional hardiness, the motivational aspect was the most pronounced and the social aspect the least.

PHQ testing also showed sufficiently high levels [28] of internal consistency ($\alpha = 0.76-0.90$) and competitive validity. General level of professional hardiness was correlated significantly ($r = 0.17-0.45$; $p < 0.001$) with the scales of all six additional measures used.

CONCLUSIONS

We should again emphasise the importance of professional hardiness examinations for skilled people in different professions, both to purposefully strengthen their hardiness and to prevent negative consequences of occupational stress on their mental health.

The presented normative data (see Table 3) are rather conditional and can be used only for preliminary orientation, as they may differ quite significantly for those in different professions. Accordingly, the obvious direction of further research is PHQ testing for various professional fields with the aim of clarifying the quantitative indicators for a more accurate examination of professional hardiness for skilled people in different professions.

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Conflict of interest:

The Author declare no conflict of interest.

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A – Work concept and design, **B** – Data collection and analysis, **C** – Responsibility for statistical analysis,
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ANNEX 1.The Professional Hardiness Questionnaire
(blank form)

Age ___ Sex ___ Profession _____

Instructions: Please answer the questions below by circle appropriate answers (only one, the most appropriate answer for each question).

№	Question	Answer Options				
		A	B	C	D	E
1	How often do you enjoy the process of your work?	Never	Rarely	From time to time	Often	Always
2	Do you like to be constantly aware of your work?	No	Rather not	From time to time	Rather so	Yes
3	Do you feel exalted when you solve non-standard work tasks?	Never	Rarely	From time to time	Often	Always
4	To what extent do you have a strong desire to be constantly aware of all your work?	Not at all	To a small extent	Partly	Substantially	Fully
5	Do you think clear work planning is needed?	No	Rather not	From time to time	Nearly always	Always needed
6	To what extent does an unusual work situation increase your professional responsibility?	Not at all	To a small extent	Partly	Substantially	Fully
7	How much do you enjoy interacting with colleagues when solving tasks?	Not at all	To a small extent	Partly	Substantially	Fully
8	Do you think that constant mutual control over colleagues' activities (within reasonable limits) is good for work?	No	Rather not	Perhaps	Rather so	Yes
9	In your opinion, what should a team's natural reaction be to abnormal situations?	Confusion	Complete peace	Depends on the circumstances	Mobilisation	Full mobilisation
10	How often do you return to professional work outside of your work place?	Never	Rarely	From time to time	Often	Always
11	How often do you check the compliance of the set tasks with their fulfilment?	Never	Rarely	From time to time	Often	Always
12	Do you agree that effective professional growth is impossible without the constant solution of non-standard and responsible tasks?	Disagree	Somewhat disagree	Somewhat agree	Mostly agree	Fully agree
13	How often do you come across something interesting or noteworthy in the course of your work?	Never	Rarely	From time to time	Often	Always
14	How often do you feel anxiety when, for some reason, you are not able to predict the specifics of your work in advance?	Never	Rarely	From time to time	Often	Always

TESTING IN MENTAL HEALTH RESEARCH: PROFESSIONAL HARDINESS QUESTIONNAIRE...

15	Are you in a bad mood when you have to deal with an unforeseen situation at work?	Very strong bad mood	Bad mood	To some extent	Not really	Not at all
16	How often do the circumstances of your work make you constantly focus on your work?	Very rarely	Rarely	From time to time	Often	Always
17	Do you think you need constant monitoring of (your own, colleagues', organisational) work progress?	No	Rather not	Perhaps	Rather so	Yes
18	Do you notice a decreased desire to work in the case of increased responsibility for end work results?	Always	Often	From time to time	Rarely	Never
19	Are you aware of your colleagues' work and non-work activities?	No	Rather not	From time to time	Rather so	Yes
20	How easy is it for you to work with colleagues who are not completely open about the course and results of their work or joint work?	Always easy	Rather easy	To some extent easy	Difficult	Very difficult
21	How does your interaction with colleagues change when you have to solve unusual problems?	Deteriorates	Sometimes deteriorates	Does not change	Sometimes improves	Improves
22	How easily are you distracted while working with unusual tasks?	Very easily	Easily	Sometimes	Not easily	Not dis-tracted at all
23	In your opinion, will the end result be improved if you double-check your work?	No	Rather not	Perhaps	Rather so	Yes
24	Do you agree that every employee should be able to work in conditions of uncertainty?	No	Rather not	Perhaps	Rather so	Yes