Igiene e Sanità Pubblica 2024; 93 (6): 186-203

Reliability and Validity of a Scale to Measure Public Health Nurses' Advocacy Practices in Italy. A validation study.

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ABSTRACT

Background and aim. Previous nursing studies have explored advocacy from several perspectives, including examining its definition, analyzing the concept, developing theory based on concept analysis, and developing scales to assess advocacy in practice. This study aims to determine the reliability and validity of a scale to assess the advocacy practices of public health nurses (PHNAP) working in extra-hospital and community settings in Italy.

Methods. A validation study was conducted. After the translation phase, the questionnaire was administered to a convenience sample of nurses in various municipalities in Italy. Reliability was assessed by calculating the alpha coefficient. To assess construct validity, exploratory and confirmatory factor analyses were conducted. Data was collected between November and December 2024.

Results. A total of 457 questionnaires were analyzed. The overall Cronbach's alpha coefficient was 0.926, and factors 1 through 5 were 0.911, 0.812, 0.836, 0.869, and 0.895, respectively.

Regarding the criterion-related validity results, the correlation coefficient between the total score and the score on the scale for the practical competence of PHNs in Italy exhibited a moderate correlation ($r = 0.428$; $p < 0.01$).

The scale comprised 27 items divided into five factors: "Raising awareness of the challenging situation faced by disadvantaged individuals," "Empowering disadvantaged individuals to improve their situation autonomously," "Establishing a foundation in local governments and community groups of disadvantaged individuals for advocacy initiatives," "Working toward policy changes," and "Collaborating with stakeholders and

Igiene e Sanità Pubblica 2024; 93 (6): 186-203

organizations to enhance the effectiveness of activities." In the confirmatory factor analysis; that the chi-square degree of freedom ratio (χ2 /df), the goodness-of-fit index (GFI), the root mean square of approximate error (RMSEA), the value-added fitting index (IFI) and the comparative fitting index (CFI) were determined to be 2.765, 0.849, 0.065, 0.819 and 0.824, respectively.

Conclusion. The scale designed in this study is valid and reliable for use in the Italian context and it is applicable in various contexts where PHNs also support disadvantaged populations.

Introduction

The concept of advocacy holds ethical significance and is deemed morally and professionally imperative within nursing (1) and public health nurses (PHNs) consider advocacy as a crucial aspect of their role (1). Advocacy is emphasized in the competencies for PHNs established by the Quad Council Coalition (2) and in the Standards of Practice for Community Nurses in Canada (3). Moreover, within the Public Health Nursing Interventions Wheel model, advocacy is one of the 17 public health nursing interventions (4) and with recent escalating health inequities, the role of nurses in advocacy has gained paramount importance.

Therefore, advocacy is considered one of the fundamental activities of nurses, although previous studies have emphasized challenges in understanding and practicing advocacy (5).

The role of nurses as patient advocates is well recognised by healthcare professionals, yet the processes and practices involved in patient advocacy are not clearly understood (6-9). A suboptimal level of advocacy is often apparent from literature, it provides insights into how nurses practise patient advocacy in healthcare settings and how they may develop this role further, through formal education, workplace learning, role modelling by expert nurses and promoting an organisational culture conducive to patient advocacy (9).

A Japanese study on advocacy practices, showed that nurses decided to intervene when (a) the opinions of those around them hindered the safety of patients, (b) the policies of health workers hindered the decision-making of patients, (c) their violent behaviors hindered the treatment and social services for patients, (d) their or their families' poor acceptance of the disease hindered the patients' self-realization, (e) inappropriate treatment or care hindered the patients' freedom, and (f) their families abused the patients' property (10). These interventions were recognized as advocacy interventions in defense of people's rights.

In Italy, advocacy remains a term predominantly confined to the specialized field of law and is not commonly utilized in everyday discourse. Although advocacy is recognized as one of the three health promotion strategies in the Ottawa Charter (World Health Organization [WHO], 1986), limited attention has been placed on advocacy in public health nursing (11). This may be owing to unfamiliarity and difficulty in understanding the term. Advocacy activities for groups and communities, which are characteristics of PHN activities, remain unclear. Therefore, to recognize the significance of advocacy, PHNs should deepen their understanding of it.

Understanding the concept of advocacy is also important to define its relationship with ethical dimensions.

Igiene e Sanità Pubblica 2024; 93 (6): 186-203

In Italy, the term "advocacy" can be translated as "protection of the rights of vulnerable population groups". An Italian study on the analysis of the concept of advocacy conducted on 40 nurses has highlighted the personal and professional experience, identity and skills possessed by the nurse as essential preconditions for advocacy (12). The central attributes of the concept are represented by acting as a figure of interconnection, representing interests and enhancing the patient's self-determination. This attitude improves the therapeutic relationship, the decision-making process and satisfaction with care (12-14).

Although patients should not be considered fragile as such, they may encounter difficulties in freely expressing their opinions and choices, due to the fragility linked to the state of illness, hospitalization and/or a life of dependence on health workers (5).

Precisely because of what patients and caregivers perceive, there is a need to identify someone who supports them in the decision-making process related to their health status and who promotes their self-determination (6, 9).

Advocacy means representing the interests of the patient, with reference to two bioethical principles that guide nursing action: the principle of beneficence and that of non-maleficence. The nurse ensures that the treatments performed are dictated by criteria of clinical appropriateness, with a particular focus on the merits of end-of-life treatments, and implements actions aimed at protecting the safety of the patient and defending its physical integrity (8-10).

Previous nursing studies have explored advocacy from several perspectives, including examining its definition, analyzing the concept, developing theory based on concept analysis, and developing scales to assess advocacy in practice (5).

The Scale to Measure Public Health Nurses' Advocacy Practices (PHNAP) is a recently created new scale to explore nurses' advocacy practice, and to help nurses understand their current shortcomings in patients' advocacy (5). Furthermore, based on the scale's specific score, nurses can evaluate their lack of understanding about advocacy practice, advance research into this area, and enhance their capacity to control verbal support or arguments in favor of a cause. The scale is currently available only in English and in Japanese (5).

Based on the above premises, this study aims to determine the reliability and validity of a scale to assess the advocacy practices of public health nurses (PHNAP) in Italy.

Methods

Design

This study presents the results of a methodological research that tested the psychometric properties and validation of the PHNAP scale. The COnsensus-based Standards for the selection of health Measurement INstruments (COSMIN) reporting guidelines were used for the study reporting (15).

Procedure

We conducted a two-step procedure for the development. The first step was a content and linguistic validation from English to Italian. The second step was a construct and reliability validation using a test-retest procedure.

Igiene e Sanità Pubblica 2024; 93 (6): 186-203

Setting and sample

A cross-sectional design was used in which a convenience sample of nurses was enrolled from 21 hospital and university centers in the provinces of Bergamo, Caltanissetta, Catania, Como, Cosenza, Grosseto, Florence, Matera, Mantova, Messina, Milano, Monza, Palermo, Potenza, Reggio Calabria, Rome, Siena, Taranto, Varese and Vicenza.

Convenience sampling was based on the availability of nurses who spontaneously decided to participate in the study. The authors of the study sent the questionnaires to colleagues who worked in their own organizations.

Instruments

The questionnaire is made up of individual and multiple choice questions and is structured in two sections (a total of 32 items).

The first section concerned the collection of the nurses' general characteristics and was surveyed using a self-administered questionnaire covering age, sex, level of education, nursing specialty (Family and Community Health Nurse or Home health nursing) and work experience (5 items).

The second section concerned the administration of the Scale to Measure Public Health Nurses' Advocacy Practices (27 items) (PHNAP) (5). The PHNAP is designed to assess public health nurses' (PHNs') advocacy practices in groups and communities. The scale comprised 27 items/statements divided into five factors: "Raising awareness of the challenging situation faced by disadvantaged individuals," "Empowering disadvantaged individuals to improve their situation autonomously," "Establishing a foundation in local governments and community groups of disadvantaged individuals for advocacy initiatives," "Working toward policy changes," and "Collaborating with stakeholders and organizations to enhance the effectiveness of activities."
For each of the 27 statements there is the possibility of giving an answer/score from 1 to 5. Where 1 means that the statement is not supported while 5 is fully supported (1: absolutely disagree, 2: disagree; 3: neither agree nor disagree; 4: agree; 5: absolutely agree).

The scale ranges from a minimum score of 27 to a maximum of 135. The Cronbach's alpha coefficient for this scale was 0.945. Model fit indices included a comparative fit index of 0.907, a goodness-of-fit index of 0.840, an adjusted goodness-of-fit index of 0.806, and a root mean square approximation of 0.067 (5).

Regarding the criterion-related validity results, the correlation coefficient between the total score and the score on the scale for the practical competence of PHN in Japan exhibited a moderate

correlation at $r= 0.317$ ($p < 0.01$) (5). The scores of PHNs in the management term were the highest and were significantly higher than those in the new and early mid-career term.

Linguistic Validity and Adaptation Back Translation Method

The translation and linguistic validation process followed the principles of good practice for translation and cultural adaptation contained in the International Society for Outcomes Research (ISPOR) guidelines (16), which contain a ten-step approach, from preparation to final reporting, which we have adhered to and described below (16). Figure 1 contains a flowchart of the translation and validation process.

Igiene e Sanità Pubblica 2024; 93 (6): 186-203

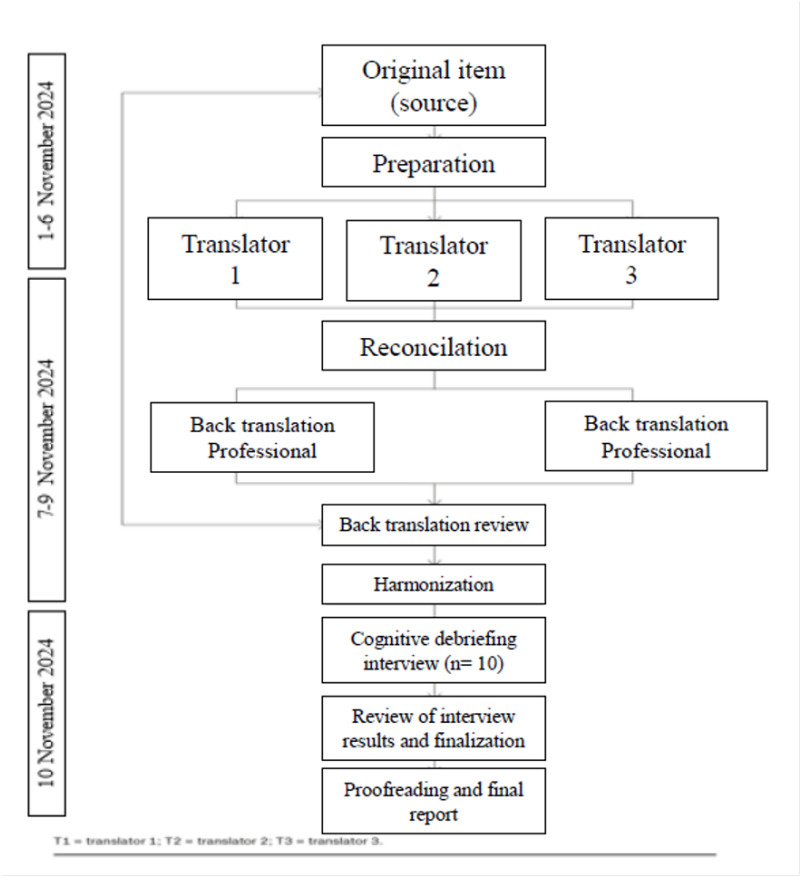

Figure 1. Flow chart summarising the translation and validation process according to ISPOR Task Force for Translation and Cultural Adaptation model 2005.

Step 1: Preparation

Before starting the translation of the questionnaire, permission was sought from the main author. The entire study group had read the draft and was in line with the translation and validation process.

The translation and validation process was supervised by a group of clinical experts composed of 7 critical care nurses; 1 palliative care nurse; 1 expert nurse in pain and palliative care and 1 nurse with a PhD in Nursing Science and Public Health.

Step 2: Translation

The PHNAP scale was first translated into Italian by VD, GD and LM. The three authors translated the scale independently. They then made an appointment via an online platform to discuss whether the three translations of the questionnaire coincided or not.

Step 3: Reconciliation

The expert group discussed the three translations and agreed on a reconciled version. A step-by-step process for each point was performed involving discussion of any discrepancies, words and phrases until agreement was reached on the most suitable translation. Each translated statement of the scale had to be approved by at least 2/3 of the authors involved. After conducting a review of the translated forms, a single version of

Igiene e Sanità Pubblica 2024; 93 (6): 186-203

the questionnaire was developed and adapted to the nurses' advocacy practices.

Steps 4 and 5: Back Translation and Back Translation Review

Two additional professional translators, native English speakers and bilingual in Italian, conducted the back translation (Italian into English) of the reconciled version. The translators aimed to create a conceptual rather than literal translation. The original English version of the PHNAP scale was hidden from the two translators. The expert panel then discussed the back translations into Italian and compared them to the original version to examine any discrepancies.

Ultimately, no conceptual differences emerged between the Italian and English translations.

Step 6: Harmonization

The translations from Italian to English were compared again by the entire research team involved to highlight discrepancies between the original and its various translations and to obtain a consistent approach to any translation problem. After discussion and revision, the expert group reached a consensus on the Italian version to be used in the cognitive debriefing interviews.

Phase 7: Cognitive Debriefing

The first two authors, experienced in qualitative research, conducted the cognitive debriefing interviews with the 10 experts and subsequently took notes to document their reflections. Participants were informed about the purpose of the project. Participants were introduced to the think-aloud procedure at the beginning of the interview and were encouraged to express their thoughts and considerations when responding to the items. A small structured interview guide was prepared to ensure that the interviewers facilitated the cognitive debriefing systematically and as identically as possible. The two interviewers asked participants questions to determine if they had difficulty understanding the questionnaire and checked their interpretation of each item, as well as the instructions and time frame.

Phases 8, 9 and 10: Review of cognitive debriefing results, proofreading and final report

To review the results of the cognitive debriefing interviews, the expert panel compared and discussed the interpretations of the entire team involved in the Italian translation with the original English version to highlight and amend discrepancies. There was discussion about whether introductions and explanations should be added as minor adjustments, but these were not included in the final version to ensure consistency with the original version. Two participants conducted the final review to ensure that the translation was suitable and typographically and grammatically correct. Finalisation resulted in minor grammatical changes, producing the final Italian version that was linguistically validated and equivalent to the PHNAP scale (see questionnaire).

Data collection

After defining the final version of the Italian questionnaire, we tested the instrument on Italian nurses.

Igiene e Sanità Pubblica 2024; 93 (6): 186-203

Data collection was conducted from November 15th to December 30th, 2024 and was conducted by seven nurses through the administration of an online questionnaire via Google Form (17) as explained below.

These nurses received training on the aims and protocol of the study and were trained by the first author to collect data using an excel dataset.

The first author was always available by telephone during data collection and met every 2 weeks via Google Meet (18) with data collectors to monitor study progress.

With permission from the hospital administration, the research team distributed questionnaires via computerized software (Google Form) (18) already used for previous studies (19, 20). The authors provided the department group an electronic questionnaire with a link.

A short letter which explained the project and a link to click to access the compilation of the questionnaire was sent. The letter was presented by the five main authors. The information is then collected and automatically connected to a spreadsheet. The spreadsheet is populated with the survey and quiz answers. The editors were V.D. and L.M. Participants responded to the survey on a voluntary basis. The answer to the survey was considered a written consent participant.

Data analysis

A descriptive analysis was used to study the frequency distribution of all variables of interest. For normally distributed data, mean and standard deviation (SD) were applied.

Descriptive statistics were calculated to summarize quantitative data. The internal consistency reliability was identified using Cronbach's alpha (α). Exploratory factor analysis with principal component analysis and varimax rotation was used to investigate the construct validity of the PHNAP.

Pearson correlation coefficient was calculated by the critical ratio method and correlation coefficient method for item analysis, and the scale reliability was described by Cronbach's α coefficient.

Item level content validity index (I-CVI) and Scale level content validity index (S-CVI) in the expert evaluation were adopted. S-CVI evaluated the content validity of the scale and evaluated the structural validity of the scale through exploratory factor analysis and confirmatory factor analysis. The test level is $\alpha = 0.05$.

The factorial structure of the scale was examined using confirmatory factor analysis (CFA) for each separate PHNAP scale, a crucial step in construct validity testing. Testing of the theoretical assumptions began with an examination of the factor structure of the Italian version of the PHNAP (5).

Reliabilities for each factor and each scale derived from the CFA were estimated using factor score determinacy coefficients (5, 21). These coefficients represent an estimate of the internal consistency of the solution, the certainty with which factor axes are fixed in the variable space (5).

They represent the squared multiple correlations (SMCs) of factor scores predicted from scores on observed variables (22).

In a good solution, SMCs range between 0 and 1; the larger the SMCs, the more stable the factors. A high SMC (say, .70 or better) means that the observed variables account for

Igiene e Sanità Pubblica 2024; 93 (6): 186-203

substantial variance in the factor scores. A low SMC means the factors are poorly defined by the observed variables.

Additionally, exploratory factor analysis of the study was performed using the KMO test and the $\chi 2$ value of Bartlett's spheroid test to examine the strength of the partial correlation (how the factors explain each other) between the variable and for measures sampling adequacy for each variable in the model and the complete model.

The P value was fixed at .05. Statistical analysis was performed using SPSS 21.0 software package (23), except for the CFA, which was performed with Mplus 6.1 (24) as already used for another validation study (25).

Ethical considerations

Nurses who showed interest in the study were recruited and asked to sign the informed consent prior to participating in the study and completing the questionnaires.

Recruitment of nurses began immediately after the lead author's approval of the creation of the PHNAP scale. The approval email was sent to us on November 10th, 2024 by Doctor Hatono Yoko.

The study questionnaire was introduced to each participant, and for each participant was asked to answer the questions. The study protocol was in line with the Declaration of Helsinki, as revised in 2013 (26).

The nurses belonging to the different geographical areas completed the survey and were offered the possibility to remain anonymous. Data were collected in completely anonymous form. Therefore, the approval of an Ethics Committee was not necessary and the GDPR EU 2016/678 in force in Italy since 2018 does not apply for our study design (27).

Results

Sample

A total of 457 nurses responded to the entire advocacy questionnaire (valid response rate of 38.1%). The sample was predominantly female (71.8%), the average age was 45 years and 41% had a Bachelor's Degree in Nursing. Work experience was approximately 27 years (Table 1).

Variable	Results
Age (year)	
Mean, SD	44.7 (± 10.6)
Range, n, %	
25-29	49 (10.7)
30-39	121 (26.5)
40-49	164 (35.9)
50-60	123 (26.9)
Sex n, %	
Male	129 (28.2)
Female	328 (71.8)
Level of Education n, %	
Diploma in Nursing	277 (60.6)
Bachelor's Degree in Nursing	188 (41.1)
Master's Degree in Nursing Science	59 (12.9)
1st level Master degree	45 (9.8)
Work experience (year)*	
Mean (SD)	26.6 (+ 16.3)
Range n, %	
2-4	52 (11.5)
5-10	135 (29.5)
11-19	188 (41.1)
20-30	82 (17.9)

** years of experience as a Public Health Nurse (Family and Community Health Nurse or Home health nursing). N=number; SD=standard deviation.*

Table 1. General Characteristics of Italian nurses sample (N= 457).

Igiene e Sanità Pubblica 2024; 93 (6): 186-203

Reliability and validity

The scale PHNAP ranges from a minimum score of 27 to a maximum of 135. The average score of the respondents was 82.9 (+ 16.2).

A principal factor with Promax rotation was conducted, identifying five factors based on the screen plot criteria. Subsequently, 27 items were allocated across these factors. The initial factor was designated as "Raising awareness of the challenging situation faced by disadvantaged individuals," the second factor as "Empowering disadvantaged individuals to improve their situation autonomously," the third factor as "Establishing a foundation within local governments and disadvantaged community organizations for advocacy initiatives," the fourth factor as "Working toward policy changes," and the fifth factor as "Collaborating with stakeholders and organizations to enhance the effectiveness of activities."

The overall Cronbach's alpha coefficient was 0.926, and factors 1 through 5 were 0.911, 0.812, 0.836, 0.869, and 0.895, respectively (Table 2).

Regarding the criterion-related validity results, the correlation coefficient between the total score and the score on the scale for the practical competence of PHNs in Italy exhibited a moderate correlation ($r = 0.428$; $p < 0.01$). The findings of the known group method are presented in Table 3. The results of the known group method are presented in Table 3. PHNs' scores on the level of agreement with the statements on advocacy increase with increasing work experience (Table 3).

Table 2. Scale of public health nurses' advocacy practice in group and community setting.

	Factor				
Cronbach's alpha total = 0.926	**1**	**2**	**3**	**4**	**5**
Factor 1: Raising awareness of the challenging situation faced by disadvantaged individuals ($\alpha = 0.911$).					
1. Set symbols (icons, colors, slogans, etc.) to raise public awareness about the challenging situation of disadvantaged individuals.	**0.856**	0.058	−0.139	0.029	−0.019
2. Disseminate information on the challenging situation of disadvantaged individuals through media, which can be used by the local government.	**0.820**	−0.041	0.132	−0.147	0.019
3. Encourage media to cover the challenging situation of the disadvantaged individuals.	**0.774**	0.013	−0.142	0.149	−0.039
4. Invite lawmakers and local government officials to a scene in which they can recognize the challenging situation of disadvantaged individuals (e.g., lectures).	**0.830**	−0.072	0.211	0.038	−0.069
5. Implement lectures to provide information on the challenging situation of the disadvantaged individuals	**0.721**	−0.019	0.196	−0.088	0.081
6. Create and publicize a report on the challenging situation of disadvantaged individuals.	**0.568**	0.086	−0.138	0.156	0.175
Factor 2: Empowering disadvantaged individuals to improve their situation autonomously ($\alpha = 0.812$).					
7. Ask disadvantaged individuals their thoughts on the current situation and what they would like to become.	0.036	**0.882**	0.025	0.018	−0.136
8. Provide information to help disadvantaged individuals utilize the services and systems that can be used to improve their challenging situation.	0.028	**0.975**	−0.054	−0.026	0.013
9.Work with disadvantaged individuals on ways to improve their challenging situation.	0.182	**0.798**	−0.044	0.098	0.018
10. Provide information to make disadvantaged individuals aware of their challenging situation.	-0.079	**0.539**	-0.012	−0.054	0.014
11. Consider the measures to reduce or eliminate barriers to health and quality of life that should be guaranteed for disadvantaged individuals.	−0.093	**0.531**	0.159	−0.055	0.203
12. Identify factors contributing to the barriers in health and quality of life that should be guaranteed for disadvantaged individuals (awareness/behavior, resources, systems, policies, etc.).	−0.015	**0.432**	0.312	−0.116	0.118

Igiene e Sanità Pubblica 2024; 93 (6): 186-203

Factor 3: Establishing a foundation within local governments and disadvantaged community organizations for advocacy initiatives (α = 0.836).					
13. Communicate the challenging situation of disadvantaged individuals to the stakeholders inside and outside the local government using materials.	−0.012	−0.027	**0.745**	0.052	0.002
14. Communicate the challenging situation of disadvantaged individuals to relevant organizations using materials.	0.011	−0.041	**0.745**	0.047	0.041
15. Determine the number of disadvantaged individuals' awareness/behavior in the entire community.	−0.016	0.052	**0.657**	−0.035	0.036
16. Assist disadvantaged individuals in organizing to improve their situation.	0.015	0.156	**0.508**	0.194	0.027
17.Work with disadvantaged individuals' organizations on ways to remedy the challenging situation.	−0.090	0.246	**0.501**	0.138	−0.016
18. Find evidence (findings and studies) on barriers to health and quality of life that should be guaranteed for disadvantaged individuals	0.218	−0.018	**0.519**	−0.097	-0.081

Table 2 (Continued). Scale of public health nurses' advocacy practice in group and community setting.

	Factor				
Cronbach's alpha total = 0.926	**1**	**2**	**3**	**4**	**5**
Factor 4: Working toward policy changes (α = 0.869)					
19. Inform decision makers (chiefs / legislators) about the mechanisms, measures, and policies necessary for improving the challenging situation of disadvantaged individuals.	0.011	−0.019	0.058	**0.858**	0.000
20. Advise residents on how to propose (changes in) measures and policies necessary for improving the challenging situation of disadvantaged individuals to decision makers (chiefs / legislators) and local government officials.	0.015	−0.022	0.031	**0.784**	−0.036
21. Communicate the policy formulation being promoted within the local government to higher organizations, such as the national government and prefectures.	0.159	−0.038	0.036	**0.651**	-0.042
22. Change the measures and policies for improving the challenging situation of disadvantaged individuals by following the procedure of the local government.	−0.062	0.015	0.018	**0.684**	0.156
Factor 5: Collaborating with stakeholders and organizations to enhance effectiveness of activities (α = 0.895).					
23. Inform decision makers about the systems and policies necessary for improving the challenging situation of disadvantaged individuals.	0.115	−0.014	0.028	0.058	**0.857**
24. Advise residents on how to propose the systems and policies needed to improve the challenging situation of disadvantaged individuals to decision makers.	-0.025	0.159	0.002	−0.042	**0.609**
25. Communicate with the national and prefectural governments regarding policy formation for disadvantaged individuals being promoted within the local government.	0.138	-0.072	−0.067	0.019	**0.622**
26. Change the systems and policies for disadvantaged individuals by following the local government's procedure.	−0.015	0.082	0.059	0.312	**0.598**
27. Obtain advice on advocacy efforts for disadvantaged individuals from academics and experts.	0.312	−0.042	0.002	0.118	**0.512**
Cronbach's alpha	0.911	0.812	0.836	0.869	0.895
Eigenvalues	6.452	2.678	1.312	1.025	1.013
Percentage of variance (%)	22.516	18.041	17.254	13.402	10.006
Cumulative percentage of variance (%)	22.516	40.557	57.811	71.212	81.218

Bold values indicated factor loadings.

Table 3. Multiple comparison of total scores of developed scale by years of Experience.

Years of experience	n	Total scores mean (SD)
2-4	62	71.7 ± 16.2
5-10	138	76.2 ± 18.8
11-19	191	93.6 ± 16.8
20-30	66	88.7 ± 16.3

Igiene e Sanità Pubblica 2024; 93 (6): 186-203

Scale Validity Analysis

Ten experts in all were contacted for this study; the experts were chosen from a broad range of backgrounds, including scientific researchers, instructional personnel, and clinical workers.

The item content validity index (I-CVI) of this scale was 0.788- 1.000, and the S-CVI value was 0.873, based on the results of the expert consultation. Additionally, the study's exploratory factor analysis revealed that the KMO test value was 0.786 and the Bartlett's spheroid test $\chi 2$ value was 2192.164 ($p < .001$), meeting the requirements for the analysis. The factors were extracted using principal component analysis, then the maximum variance method was utilized to rotate the factors. They extracted common components with eigenvalue > 1 and factor load value > 0.400. Four common factors in all were extracted, according to the results, and no items were removed. The cumulative variance contribution rate was found to be 81.218%, and the factor load value of the 27 items in their dimensions ranged from 0.812 to 0.911, which was consistent with the original scale (Table 2).

Scale Item Analysis

The critical ratio method was used to rank the scale scores from low to high. The first 25% of samples were classified as high group, and the last 25% of samples were classified as low group. Independent sample T-test was conducted on their data to test the average difference between the scores of each item in the two groups. When the entry critical ratio (t-value) is greater than 3.000, it indicates that the entry has good discrimination and can be retained. The results showed that the t-values of each item ranged from 3.722 to 18.412 ($p < .05$ for all values), indicating high discrimination among the items. In addition, Pearson's correlation coefficient between the scores of each item and the total score of the scale was 0.397-0.742 ($p < .05$ for all values). The items of the Italian version of the Scale to Measure Public Health Nurses' Advocacy Practices were reserved (Table 2).

Confirmatory factor analysis

Figure 2 presents the goodness-of-fit assessment results by confirmatory factor analysis. All the latent variable path diagrams of the five factors concerning each item were significant.

The maximum likelihood method was used to conduct confirmatory factor analysis to verify the stability of the substructure and the model fit. The results showed that the chi-square degree of freedom ratio ($\chi 2$ /df) was 2.765, the goodness-of-fit index (GFI) was 0.849, the root mean square of approximate error (RMSEA) was 0.065, the value-added fitting index (IFI) was 0.819, the comparative fitting index (CFI) was 0.824 (Table 4). The Tuck-Lewis index (TLI) was 0.871, indicating a good degree of model fitting and the Italian version of the scale had a high agreement with the original scale (Table 4).

Igiene e Sanità Pubblica 2024; 93 (6): 186-203

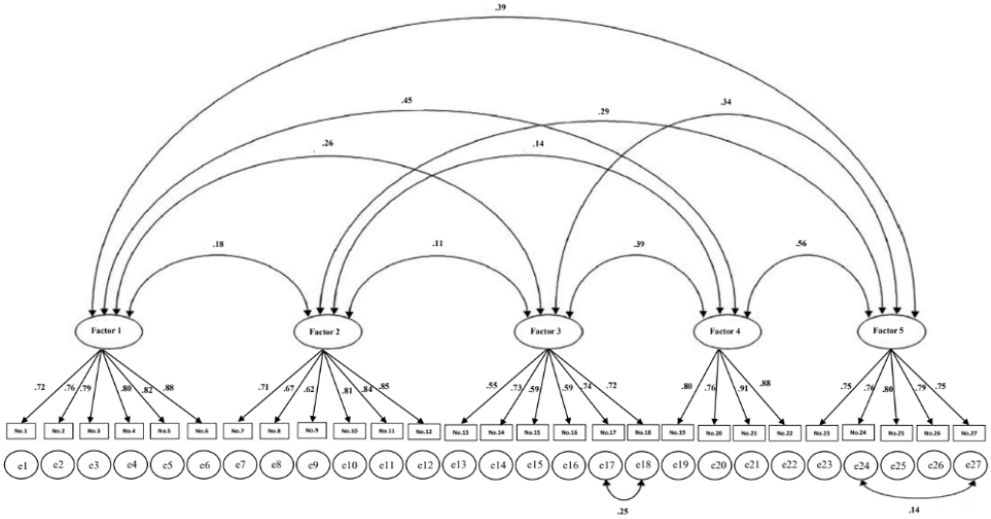

FIGURE 2 Confirmatory factor analysis of the public health nurses' advocacy practice scale in group and community settings.

***Table 4**. Maximum likelihood method was used to conduct confirmatory factor analysis to verify the stability of the substructure and the model fit.*

Index	Acceptable Value	Normal Value	Values Found
X^2/SD	< 5	< 2	2.765
GFI	> 0.90	> 0.95	0.849
RMSEA	< 0.08	< 0.05	0.065
IFI	> 0.90	< 1.0	0.819
CFI	> 0.90	> 0.95	0.824
TLI	< 1	> 0.90	0.871

X2/SD, chi-square degree of freedom ratio;
GFI, goodness of fit index; RMSEA, root mean
square error of approximation; IFI, value-added fitting index;
CFI, comparative fit index; TLI, Tuck-Lewis index.

Discussion

This study aimed to elucidate the advocacy practice of PHNs within local governments in Italy toward groups and communities and to validate a scale for measuring these practices.

This endeavor will increase PHNs' awareness of their unique advocacy practices and facilitate evaluation through scaling, thereby clarifying areas requiring reinforcement. This effort is anticipated to promote advocacy within the public health nursing context.

The total score on this scale exhibited a moderate correlation with the total score on the criteria scale, demonstrating criterion related validity. By utilizing the known group method, differences

by year of experience as a PHN were examined, and PHNs with more years of experience scored higher, therefore supporting the hypothesis. Additionally, the results of the confirmatory factor

Igiene e Sanità Pubblica 2024; 93 (6): 186-203

analysis indicated that the GFI was slightly lower than the recommended values; however, CFI and RMSEA were acceptable, and the model presented in this study met certain criteria. Regarding reliability, the Cronbach's alpha coefficient for all items and each subscale was >0.80, confirming the reliability of the scale.

The critical ratio of every item in the Italian version of the scale to measure public health nurses' advocacy practices was more than three and $p < .05$, according to item analysis, showing a high degree of item difference. Furthermore, there was a significant degree of homogeneity and connection among the scale's items, as seen by the correlation coefficients (all $p < .05$), between the scores of each item and the scale's overall score. Furthermore, item analysis revealed that there was a high degree of differentiation among the items in the Italian version of the scale to measure public health nurses' advocacy practices, with each item's critical ratio being greater than 3 and $p < .05$.

The initial factor entailed utilizing various media channels or directly informing residents and stakeholders about the plight of disadvantaged individuals. Advocacy refers to speaking on behalf of those unable to advocate for themselves (28). Bafandeh Zendeh and colleagues in 2022 emphasized advocacy as a means to lend a voice to clients lacking self-advocacy capabilities, therefore rendering it a pivotal element in advocacy endeavors (29).

The second factor encompassed actions directly supporting disadvantaged individuals by furnishing them with information and collaborating on strategies to alter their circumstances as partners. This approach fosters empowerment, a concept intricately linked with promoting independence. Various previous literature described empowerment as a key facet of nursing advocacy (30-32). Even though PHNs may not always advocate for patients, this is considered a common act of advocacy in the nursing profession.

The third factor was to gain an understanding of advocacy activities within the local government to which the PHNs belonged and to connect disadvantaged individuals with others experiencing

similar challenges. Shilton (2008) noted advocacy within an organization as an advocacy strategy.

Supporting disadvantaged individuals in forming groups is a distinctive approach supporting PHNs, which differs from that of nurses in hospital settings (33). The organization of disadvantaged individuals clarified that their challenges were not solely the problems of a single individual. Additionally, group decision-making is suggested to be more robust than individual decision-making (33) because it enhances advocacy efforts.

The fourth factor was the forming of policies within local governments. In the WHO's explanation of advocacy in health promotion, policies are mentioned as one of the targets for influencing change through advocacy (34). Policies change individual behavior and awareness (35, 36), and is a powerful action that influences changes in the barriers to the lives of disadvantaged individuals.

The fifth factor indicated collaboration between various individuals and institutions. Hatono (2024) stated that limits exist regarding what an individual can do when promoting public health and that team activities are necessary (5). By promoting advocacy as a team, multiple strategies can be utilized to leverage the strengths of each individual or organization.

Ten experts in all were contacted for this study; the experts were chosen from a broad

Igiene e Sanità Pubblica 2024; 93 (6):186-203

range of backgrounds, including scientific researchers, instructional personnel, and clinical workers. This study's I-CVI ranges from 0.788- 1.000, and the S-CVI value was 0.873 suggesting that the scale's content validity was good and that nurses' advocacy practices can be accurately measured using the Italian version of PHNAP. Exploratory factor analysis yielded five dimensions, and the cumulative variance rate was 81.218%, suggesting structural stability for the Italian version of the PHNAP. In addition, when the goodness of fit of the data and the model is tested by confirmatory factor analysis, all the indicators in this study can reach the standard.

Limit

The first and most important limitation is the convenience and non-random sampling model, which makes the results influenced by the strict selection of cases. Random sampling would have allowed the instrument to be validated in a more heterogeneous nursing group.

This may have influenced the averages that emerged in the responses, as it is likely that the respondents were the greatest number of nurses motivated by advocacy practice and therefore offered the best responses.

Being the first study in Italy that tried to evaluate Public Health Nurses' Advocacy Practices, we had difficulty comparing our results and we do not know how generalizable they are.

It is currently not possible to perform the criterion control verification of the local version of the scale, nor are there any other relevant instruments or translated versions available to assess the advocacy among nursing personnel in Italy. We should broaden the sample size and geographical reach of nurses in the future, add to the validation analysis, and investigate the use of this scale in Italy.

Conclusion

Advocacy communication action should be combined with solid scientific background, programmatic documents, effective communication, monitoring and evaluation and absence of competing interests (37). Using these scale items can facilitate discussions when guiding younger nurses or students to consider supportive actions for disadvantaged individuals. Additionally, it is a valuable resource for PHNs who recognize the importance of advocacy but need guidance on specific methods to implement meaningful change.

This work aims to act as a starting point for the realization of greater in-depth analysis on the topic, starting from the investigation of the perceptions, experiences and descriptions provided by the patients and exploring areas not touched by the investigation such as, for example, the realities intrahospital.

In the era of the debate on the specialist skills of the nurse, these results can provide elements for reflection on the need to equip training and organizational institutions with some useful tools to help the nurse professional acquire skills that are oriented towards strengthening the advocacy function.

Inexperienced nurses, often assigned to home care, may lack high-level assessment and critical thinking skills, especially in resource-limited settings. This lack of experience, knowledge and skills can have a significant impact on patient care (38). Often, limited knowledge and experience do not promote personalized interventions, managed by

Igiene e Sanità Pubblica 2024; 93 (6):186-203

multidisciplinary teams, in order to improve the safety of elderly and chronically ill people (39).

In conclusion, it is hoped that this study can provide food for thought for the national and international nursing and healthcare community and for all health professionals in daily practice in order to achieve full awareness of the importance that the role of guarantor assumes within taking care.

Data availability

The datasets used during the study are available upon reasonable request from the corresponding author.

The questionnaire translated into Italian is available upon request to the main author: VD.

Conflict of Interest

The authors declare that they have no conflicts of interest.

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Igiene e Sanità Pubblica 2024; 93 (6): 186-203

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Igiene e Sanità Pubblica 2024; 93 (6): 186-203

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