Acob, J. R.U. (2020). *Belitung Nursing Journal. 6(3), 77-84*
https://belitungraya.org/BRP/index.php/bnj/index

BNJ BELITUNG NURSING JOURNAL

ORIGINAL RESEARCH:
RESEARCH METHOGOLOGY PAPER

VALIDATION OF ELDERLY ABUSE ASSESSMENT TOOL

Joel Rey U. Acob*

Faculty of Nursing, Visayas State University, Philippines

***Correspondence:**
Dr. Joel Rey U. Acob
Faculty of Nursing, Visayas State University. Visca, City of Baybay, Leyte Philippines 6521-A. Email: joel.acob@vsu.edu.ph
Cell: +63 9569161146

Article Info:
Received: 10 March 2020
Revised: 25 March 2020
Accepted: 18 April 2020

DOI:
https://doi.org/10.33546/bnj.1096

Abstract

Background: Several screening tools for elderly abuse have been developed but they have rarely been validated properly for wider use. The multiplicity of the tools available revealed the need to develop through collaborative research, a simple and reliable tool that can be adapted and used in different geographical and cultural settings. As the cases of abuse increase, nurses are in a position to rescue this vulnerable population through equipping knowledge and be knowledgeable on using elderly assessment tool for abuse cases.

Objective: To validate the developed Filipino-based elderly abuse assessment tool.

Methods: The study utilized descriptive confirmatory method design and underwent validation and reliability process. Five experts conducted the scrutiny during validation and 220 elderly clients subjected the tool for reliability tests. Data are analyzed using SPSS version 23, while frequency and percentage were used for continuous variable.

Results: The Elderly Abuse Assessment Tool is valid and reliable. The tool is clear in terms of the word composition, the texts are understood easily, comprehensive, and relevant based on expert reviews. It has I-CVI of 0.84 (44 items) and increases value in its second version to 0.87 (42 items). On one hand, the tool obtained a very high degree of reliability with Cronbach's Alpha of 0.974 during the second version. Regardless of item numbers are retained, the value remains high. Constructs identified from the validated tool. Kaiser's criterion or the Eigenvalue result of the second version of the developed tool revealed six factors that can be extracted. However, in the Scree test or plot, only two factors located above the inflection points. This means that two factors or constructs can be named. The researcher decided to choose the lesser number for easier naming of factors. The tool was classified into two constructs, namely physico-sexual and psycho-financial factors, respectively.

Conclusion: The Elderly Abuse Assessment Tool (EAAT) is valid and has a very high degree of reliability. Physico-sexual and Psycho-financial are the two major constructs of the tool. Filipino nurses can now articulate their expression of unending caring through the utility of the validated Elderly Abuse Assessment Tool (EAAT).

KEYWORDS
elderly; elderly abuse assessment tool; caring; tool validation; reliability; nursing

ISSN: 2477-4073

BACKGROUND

Older people are the fastest growing segment of the population worldwide. Globally, the number of persons aged 60 years or over is expected to almost triple within decades from now. With the communities rapidly aging, there is always a clear need for greater knowledge on how to serve the elders. In 2005, the World Health Organization estimated 672 million counts of elderly and is expected to reach as high as 1.9 billion by 2050. Nonetheless, the very old population aged 80 and over are likely to be vulnerable or at risk of being abused. Nonetheless, such people will increase even faster (WHO, 2005). Professionals must be able to recognize cases of abuse and neglect and provide appropriate follow up services. The problem of elderly abuse and neglect is present and is an increasing threat in today's society while accompanying exponential growth in older adult population. However, elderly abuse is not a new phenomenon; the speed of ageing population worldwide is likely to lead to an increase in its incidence and prevalence. It becomes a social and a health problem not just in the country but also even in a large-scaled populace. It is just as great as the problem of child abuse, yet in society as a whole, there is only little interest in helping older adults. Elderly abuse, like other types of interpersonal violence, remained hidden and is even considered taboo throughout history. Older people do not stimulate the protective instincts of the populace in the same way as what they do for children. Although like children, they are in many cases unable to help themselves and are defenseless in the face of the abuser.

However, abuse against older people is not easily recognized. The abused person is afraid and ashamed to admit they are. They often rely on the person who is abusing them for support in various acts of daily

living, and may fear that without them they will not survive (Acob, 2018).

Assessment is difficult due to efforts to conceal the perpetration by both the perpetrators and the abused. Professionals must know what questions to ask as well as what visible signs of abuse to look for in a brief time. The lack of recognition of elderly abuse is due to poor education and the scarcely effective assessment tools. The misinterpretation of data as signs of many chronic medical conditions associated with aging and of findings as normal age-related changes is also rampant. The need to develop an elderly abuse-screening tool is vital to protect the elderly from forms of abuse and to recognize local community partners in the implementation to early detection of the abused cases. In macro lens, many literatures mentioned the need to develop screening tools of abuse for the elderly. Foreign authors developed elderly abuse screening instruments; however, they are only specific to one type of abuse.

Several screening detections tools have been developed, but they have rarely been validated for wider use. The multiplicity of the tools available and the need to develop through collaborative research, a reliable and simple tool that can be adapted and used in different geographical and cultural settings to help maximize the full understanding of the problem. Nonetheless, screening tools have several limitations. For instance, some tools have low efficiency in clinical settings and the sensitivity and specificity rate of some were not fully addressed. The aim of the study is to identify the validity and reliability of the developed tool. Constructs of the tool was also determined and the scoring scheme in utilizing the tool.

METHODS

Study Design

The study utilized descriptive confirmatory methodological design (Creswell, 2014). This design followed specific steps. First, was to state the premise concepts that were used to develop the tool frequently based from either an existing theory or product from qualitative studies. Second was the collection of data that were used to test and confirm the premise. In this study, the process of validation and reliability to test the developed tool was made. Lastly, the researcher decided to accept or reject the premise through results of reliability of the scale (Cronbach's alpha) based on the data.

Participants

For the face and content validity of the tool, the researcher identified five expert participants to review and gave comments based on their fields of expertise. Experts were all females, with at least five years of continuous experience on their concerned field of specialization. The expert reviewed the tool contents, and comments were then consolidated and incorporated. The group of panels of experts included a nurse practitioner, a registered social worker, a nurse gerontologist, a nurse educator, and a psychologist. Moreover, for the test of reliability, there were 220 elderly clients aging 70 to 82 years old, male and female who constituted the study. They were able to give permission to be part of the study and were living in the community with sufficient cognitive ability to accomplish the assessment tool. Trained research assistants also facilitated the tool accomplishments to those who were unable to read texts following old age. To ensure that elderly participants have the same mind conditioning prior to answering the tool, socialization activities were executed in a common area to ensure all were ready for the activity.

Instrument

Themes derived from the qualitative study constituted the developed Elderly Abuse Assessment Tool (EAAT). The first version had fifty (50) declarative statements that measured and detected abuse among elderly population. Each statement was scored with a 3-point Likert scale, such as (1) never, (2) once and (3) more than once. The tool underwent both face and content validity of the experts. The panel of experts on the other hand conducted the critiquing and careful analyses of the proposed EAAT. Recommendations and comments were incorporated in the tool prior to the validation process. After careful critic and review process of the experts, only 44 items left which constituted the second version of the elderly abuse assessment tool. Factor validity was identified through factor analysis, while reliability value was established through purposively identifying 220 respondents of the study.

Data Collection

The researcher presented the proposal to the Dissertation Panel Committee for approval of the study. After which, the proposal was then submitted for endorsement to the Ethics and Review Committee for the issuance of Ethics Clearance and for other administrative concerns. The tool had undergone the process of validation. The first version (50 items) of the tool underwent layers of validation process through (a) convergence of the expert panel members for tool analyzing, and (b) revising the tool based from expert's comments. For the face and content validity aspect of the tool, the researcher took form and created a group of five panel experts to comment on the first version of the developed tool. The poll of experts composed of a nurse practitioner, a registered social worker, a nurse gerontologist, a nurse educator, and a psychologist. Experts reviewed the items found in the first version of the proposed instrument. Experts were given ample time to critique, gave comments and set the correction. Their ability to explore beliefs, behaviors, and attitudes in the target population were essential to the enhancement of the instrument. Further, members of the expert team were asked through guide questions that sought to seek and express their insights for the enhancement of the proposed tool statements and to determine whether they were appropriate and relevant. Initially, items were reduced by removal of entries that were repetitive or not relevant to the subject matter; items generated were modified according to the comments from the experts. Later, the items were modified according to information from the pooled experts. Summation score were completed in every item as follows: (1) not relevant, (2) relevant, (3) very relevant.

The second version of the tool with 44 items underwent pilot testing. Then, the revision of the tool according to pilot tests results followed. Later on, the results were tested using factorial analysis. In all cases, confidentiality and anonymity of the key informants were assured through completed informed consent procedures, which included the main order about the study. To determine the reliability and for factorial analysis of the second version of the tool, the recruitment of potential research participants occurred after the primary investigator explained the aim of the study. The primary investigator with the help of the community leaders, each respondent was informed about the study purpose, including his/her rights, confidentiality, and anonymity. The tool was pilot tested using a sample as described by Nunnally (1978)

suggesting that 5 participants/cases for each item is adequate in most cases. The 44-item developed tool will need 220 respondents. The preliminary tool was applied to those population concerned and further item reduction and modifications of weight age were carried out according to the results of the pilot study.

Data Analysis

All statistics were carried out using SPSS software version 23.0. Initially, descriptive statistics were calculated for the characteristics of the sample: frequency, and percentages for categorical data and mean, standard deviation and range for continuous variables. The face validity was the ability of an instrument to be understood and relevant for the targeted population. It concerns the critical review of an instrument after it had been constructed and generally includes a pilot testing (Hossain et al., 2016). Face validity was assessed to the elderly who became participants during the pilot testing phase were asked about the clarity of each item. They were encouraged to ask questions and clarifications encountered during the answering of the tool. If the participants did not express any difficulty in understanding any words or items found in the tool, it clearly demonstrates face validity. On one hand, a group of five experts established appropriate coverage of the subject matter discussed the content validity. Experts were asked to comment on the face structure, organization of the instrument. Further, they considered if the statements described abusive situations clearly, without using the word abuse, thus avoiding cueing the participants.

The content validity index was used to compute for the extent of content validity of the elder abuse assessment tool. Content validity index have considered in terms of the content validity index of the items (I-CVI) and also content validity index of the scale (S-CVI). Anywhere I-CVI is computed as the number of experts giving a rating of 2 or 3 in the items, divided by the total number of experts. However, S-CVI computing as the average of the I-CVI value (Hove, Fålun, & Fridlund, 2016). S-CVI outcome that have been used in the study. The experts were asked to evaluate each item of the instrument for content equivalence (content-related validity [relevance]) using the following scale: 1 = not relevant; 2 = relevant; 3 = very relevant Items classified as 1 (not relevant) were eliminated. Content validity index at the item level (I-CVI) and at the scale level (S-CVI) were calculated. Items that did not achieve the minimum acceptable indices were revised and re-evaluated. New content validity indices were calculated. The process continued until acceptable indices of content-related validity or content equivalence were achieved. It had also recommended that the kappa coefficient of agreement were determined to increase confidence in the content validity of the instrument.

The Kaiser-Meyer- Olkin test (KMO) and the Barlett's test of sphericity were also utilized to evaluate the adequacy of the sample. The KMO test ranges from 0 to 10 and is acceptable if it is higher than 0.5; if the Barlett's test has a very low significance ($p < .05$), the factorial model is considered adequate. Hardy, Rönnerman, and Edwards-Groves (2018), mentioned that the reliability of the items in a questionnaire is usually determined during the data collection phase and needs to be noted in the research report. If a scale is used to collect data, the Cronbach alpha procedure needs to be applied to the scale items to determine the reliability of the scale. If the Cronbach alpha coefficient is unacceptably low (<0.80), the researcher must decide whether to analyze the data collected by the instrument. A value of 0.80 is considered acceptable, especially for newly developed scales. Following this, Cronbach's alpha coefficient and split- half correlations were conducted to examine the reliability of the tool. An exploratory factor analysis was performed with the use of principal component analysis as the estimation method to analyze the factor structure of the tool.

Ethical Consideration

The study had been approved by the Ethics and Review Committee of St. Paul University Philippines, Tuguegarao city, Cagayan Valley Philippines dated November 23, 2018, with approval protocol code of 2018-01-DNS-12. The proponent assured that the participants, stakeholders have obtained appropriate informed consent.

RESULTS

Validity Attributes of Elderly Abuse Assessment Tool

Face validity

The 50-item (first version) proposed the Elderly Abuse Assessment Tool (EAAT) was reduced to 44 following comments from the five experts. Revisions were made based from the recommendation of the expert members. However, there is no solely objective method to measure content validity of an instrument (Polit & Beck, 2004). Nonetheless, using experts in the field has become a common method to evaluate and document contents of a new instrument. The experts identified that the words used were clear, precise, and easily understood. Statements were relevant in the topic being surveyed were retained. The experts also determined whether the tool is simple, straightforward to read and the styles and format were consistent.

Table 1 Presentation of Expert's Comments (First Version)

Items	Comments	Retained /Deleted	Changes
1-43	No comment	Retained	None
44, 45	Redundant	Rephrased and retained	I am all alone and left most of the time
46	Not a sign of abuse	Deleted	
47	Not a sign of abuse	Deleted	
48	Though a sign of abuse, however, we cannot assure as to why deprivation happened. Maybe the elderly is allergic to it (food and medication), or just hardheaded following very old age.	Deleted	
49	Does not fit in the tool	Deleted	
50	Not a form of abuse	Deleted	

The expert members, on the other hand, commented on the overall appearance of the tool. The wordings and statements were clearly declared and do not cause any problem in comprehending them at all. The accounts did not need to be rephrased since the wordings were clear and precise. The tool was relevant and comprehensive. Statements were generally addressing both sexes since abuse may happen regardless of status and gender (see **Table 1**).

Content Validity

Table 2 shows that out of the total 44 items in the second version of the developed tool, 20 or 45.45% of the items had been rated by all five (5) content experts as relevant, 16 or 36.36% of the items had been rated by 80% of the content experts as relevant, 6 or 13.64% of the items had been rated by 60% of the content experts as relevant and 2 or 4.55% of the items had been rated by 40% of the content experts as relevant. The findings imply that two items, specifically, items 15 and 44 need to be discarded in the 2nd version of the developed tool since these items had been rated only by 40% (2 out of 5) of the content experts. The table further reveals that if all 44 items are retained, its overall scale content validity index (S-CVI) is 0.84.

Table 2 Item-Content Validity Index (I-CVI) and Scale-Content Validity Index (S-CVI) of the Developed Tool Version 1

Content Validity Index		Item Number	Frequency	Percentage
Item Content Validity Index (I-CVI)	1.00	1, 2, 3, 4, 5, 18, 19, 21, 24, 26, 28, 29, 30, 31, 32, 38, 39, 40, 41, 42	20	45.45
	0.80	7, 8, 9, 10, 17, 20, 22, 23, 35, 27, 33, 34, 35, 36, 37, 43	16	36.36
	0.60	6, 11, 12, 13, 14, 16	6	13.64
	0.40	15, 44	2	4.55
	TOTAL		44	100.00
Scale Content Validity Index (S-CVI)	0.84			

Individual items were revised for clarity or with CVI below 0.80; whereas, items with CVI scores of less than or equal to 0.50 implied unacceptability and were omitted (Thomas & Magilvy, 2011). With thorough deliberation from the panel experts (Content and Face validities), of the Elderly abuse Assessment Tool, the proponent made revision of the items. The second draft of the tool was identified having over-all CVI score (S-CVI) of 0.87. Upon careful analysis of the content validity index, the Elderly Abuse Assessment Tool 2nd version with 42 items finalized and was found to be very relevant and clearly stated (See **Table 3**).

Table 3 Item-Content Validity Index (I-CVI) and Scale- Content Validity Index (S-CVI) of the Developed Tool Version 2

Content Validity Index		Item Number	Frequency	Percentage
Item Content Validity Index (I-CVI)	1.00	1, 2, 3, 4, 5, 18, 19, 21, 24, 26, 28, 29, 30, 31, 32, 38, 39, 40, 41, 42	20	47.62
	0.80	7, 8, 9, 10, 17, 20, 22, 23, 35, 27, 33, 34, 35, 36, 37, 43	16	38.10
	0.60	6, 11, 12, 13, 14, 16	6	14.28
	TOTAL		42	100.00
Scale Content Validity Index (S-CVI)	0.87			

Exploratory Factor Analysis

Step 1: Assessment of the Suitability of the Data for Factor Analysis

The first step in performing factor analysis is the assessment of the suitability of the data for factor analysis. There are two main issues to consider in determining whether a particular data set is suitable for factor analysis: sample size, and the strength of the relationship among the variables (or items). While there is little agreement among authors concerning how large a sample should be, their recommendation generally is: the larger, the better. Tabachnick and Fidell (2011) reviewed this issue and suggested that 'it is comforting to have at least 300 cases for factor analysis. However, they do concede that a smaller sample size (e.g.150 cases) should be sufficient if solutions have several high loading marker variables (above.80). Some authors suggest that it is not the overall sample size that is of concern—rather the ratio of subjects to items. Nunnally (1978) recommends a 10 to 1 ratio: that is, 10 cases for each item to be factor analyzed. Others suggest that five cases for each item would be adequate in most cases. In this study, the researcher involved a total of two hundred and twenty (220) participants which is more than adequate as sample size following the five cases is to one item rule. Since the second version of the developed tool involved 42 items, it then supposedly requires only 210 participants. The sample size for this study had 10 cases in excess of the sample size requirement for factor analytic procedures to proceed.

Step 2: Determining the Strength of the Inter-Correlations among the Items

Tabachnick and Fidell (2011) recommended an inspection of the correlation matrix for evidence of coefficients greater than 0.3. If few correlations above this level are found, then factor analysis may not be appropriate. Two statistical measures are generated by SPSS to help assess the factorability of the data: Bartlett's test of sphericity (Bartlett, 1954), and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (Kaiser, 1974). The Bartlett's test of sphericity should be significant ($p < 0.05$) for the factor analysis to be considered

appropriate. The KMO index ranges from 0 to 1, with 0.6 suggested as the minimum value for a good factor analysis (Tabachnick & Fidell, 2011).

Table 4 KMO Measure of Sampling Adequacy and Bartlett's Test Results for the 2nd Version of the Developed Tool

Kaiser-Meyer - Olkin Measure of Sampling Adequacy		0.930
Bartlett's Test of Sphericity	Approx. Chi-Square	10673.344
	Df	0.861
	Sig.	Less than 0.001

Table 4 presents the obtained results of the Kaiser-Meyer - Olkin Measure of Sampling Adequacy as well as the Bartlett's Test of Sphericity. The obtained KMO value from the data collected from 220 participants is 0.93. This value implies that the developed 2nd version of the tool exceeded the minimum requirement of at least 0.6 as suggested by Tabachnick and Fidell (2011) for a good factor analysis. Furthermore, the table also shows that the P-value for the instrument's result with respect to the Bartlett's Test of Sphericity is less than 0.001, which implies that the instrument is compliant to the 2nd requirement, that is, the Bartlett's Test of Sphericity should be significant ($p < 0.05$) for the factor analysis to be considered appropriate.

Step 3: Factor Extraction

Factor extraction involves determining the smallest number of factors that can be used to best represent the interrelations among the set of variables. There are varieties of approaches that can be used to identify (extract) the number of underlying factors or dimensions. Some of the most commonly available extraction techniques include the following: principal components; principal factors; image factoring; maximum likelihood factoring; alpha factoring; unweighted least squares; and generalized least squares. The most commonly used approach is principal components analysis.

It is up to any researcher to determine the number of factors that he/she considers best that describes the underlying relationship among the variables. This involves balancing two conflicting needs: the need to find a simple solution with as few factors as possible; and the need to explain as much of the variance in the original data set as possible. Tabachnick and Fidell (2011) recommend that researchers adopt an exploratory approach, experimenting with different number of factors until a satisfactory solution is found. There are a number of techniques that can be used to assist in the decision concerning the number of factors to retain. Kaiser's criterion and Scree test. One of the most commonly used techniques is known as Kaiser's criterion, or the eigenvalue rule. Using this rule, only factors with an eigenvalue of 1.0 or more are retained for further investigation. The eigenvalue of a factor represents the amount of the total variance explained by that factor. Another approach that can be used is Catell's scree test. This involves plotting each of the eigenvalues of the factors and inspecting the plot to find a point at which the shape of the curve changes direction and becomes horizontal. Catell recommends retaining all factors above the elbow, or break in the plot, as these factors contribute the most to the explanation of the variance in the data set.

Table 5 Kaiser's Criterion or the Eigenvalue Result of the 2nd Version of the Developed Tool

Total Variance Explained						
Component	**Initial Eigenvalues**			**Extraction Sums of Squared Loadings**		
	Total	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**
1	21.598	51.425	51.425	21.598	51.425	51.425
2	3.550	8.453	59.878	3.550	8.453	59.878
3	2.193	5.222	65.099	2.193	5.222	65.099
4	2.029	4.831	69.930	2.029	4.831	69.930
5	1.571	3.740	73.671	1.571	3.740	73.671
6	1.038	2.472	76.143	1.038	2.472	76.143
7	0.941	2.240	78.383			

The data results contained in Table 5 reveals that there are six (6) components that have eigenvalues greater than or equal to 1.00. This implies that at most six components or factors may be extracted from the 2nd version of the developed tool. When the six factors are extracted, the factors can explain 76.143% of the tool's total variance. However, to finally decide on how many factors to extract, the result of the Scree Test or Plot is needed. Figure 3 presents this concern.

Figure 1 shows that there are two points located above the inflection point of the Scree plot. This means that only two factors or components can be extracted from the developed tool. It is to be noted that in Table 6 that there are six components with eigenvalues greater than 1 indicating that six factors may be extracted. However, between the choices of two or six factors to be extracted, it is better to choose a lesser number so less number of factors will be given a name later.

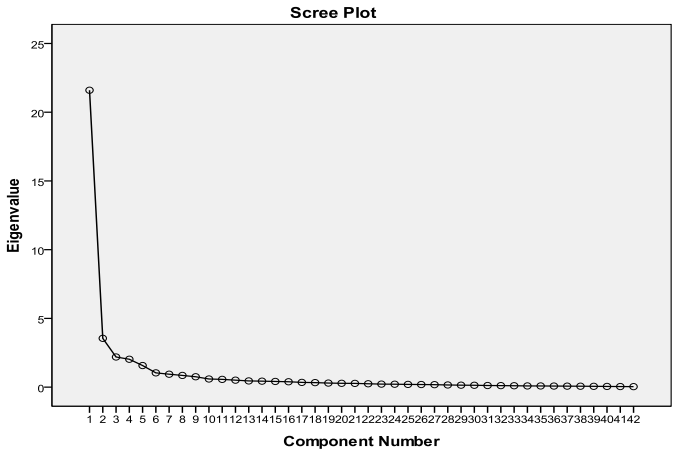

Figure 1 Scree Test or Plot of the 2nd Version of the Developed Tool

Step 4: Factor Rotation and Interpretation

Once the number of factors has been determined, the next step is to try to interpret them. To assist in this process the factors are 'rotated'. This does not change the underlying solution - rather, it presents the pattern of loadings in a manner that is easier to interpret. There are two main approaches to rotation, resulting in either orthogonal (uncorrelated) or oblique (correlated) factor solutions. According to Tabachnick and Fidell (2011), orthogonal rotation results in solutions that are easier to interpret and to report; however, they do require the researcher to assume that the underlying constructs are independent (not correlated). Oblique approaches allow the factors to be correlated, but they are more difficult to interpret, describe, and report. In practice, the two approaches (orthogonal and oblique) often result in very similar solutions, particularly when the pattern of correlations among the items is clear. Many researchers conduct both orthogonal and oblique rotations and then report the clearest and easiest to interpret. Within the two broad categories of rotational approaches there are a number of different rotational techniques provided by SPSS (orthogonal: Varimax, Quartimax, Equamax; oblique: Direct Oblimin, Promax). The most commonly used orthogonal approach is the Varimax method, which attempts to minimize the number of variables that have high loadings on each factor.

Reliability of the Elderly Abuse Assessment Tool

The data in Table 6 shows that if all 42 items of the 2nd Version of the developed tool are retained, its reliability coefficient reported as Cronbach's Alpha coefficient is 0.974 described as having a very high degree of reliability. The tool's reliability coefficient decreases to 0.973 if item number 8 is removed or increases to 0.975 if either item number 6, 12, 13, 16 or 44 is deleted. Since the tool will not have any significant increase on its reliability coefficient, the researcher decided to retain all 42 items for the next phase of the tool development, which involved the use of factor analytic approaches.

Table 6 Cronbach's Alpha Reliability Coefficient of the 2nd Version of the Developed Tool

Any one of the following item numbers is deleted	Cronbach's Alpha if Item is Deleted
6, 12, 13, 16, 44	0.975
1, 2, 3, 4, 5, 7, 9, 10, 11, 17, 18, 19, 20, 21, 22, 23 – 43	0.974
8	0.973
-	0.974

Constructs Identified of the Developed Elderly Abuse Assessment Tool

Table 7 shows the results of the rotated factors using varimax factor rotation. The results reveal that when only two factors are extracted, the same items in the developed tool would consistently fall on the same factor. Items 1 to 18 except item number 15 fall under the 1st factor while items 19 to 43 fall on the 2nd factor. Looking at the said items, the items clustered under factor 1 would be named physico-sexual while items falling under factor 2 can be named as psycho-financial factor.

Proposed Scoring Scheme of the Validated Tool

The validated tool having 42 items proposes the use of the scoring scheme to determine the extent of abuse among the elderly population. The researcher suggests that the following scoring scheme and interpretation based on factors.

Table 7 Factor Analysis using the Varimax Factor Rotation

Method of Factor Rotation	Factor Extracted	Items Falling Under Each Factor	No of items	Name of Factor
Varimax Factor Rotation	1	1,2,3,4,5,6,7,8, 9,10,11,12,13,14,16,17,18	17	Physico-sexual factor
	2	19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 ,37,38,39,40,41,42,43	25	Psycho-financial factor

The table 8 shows the proposed scoring scheme to be used to interpret abuse incidence utilizing the tool. The elderly may experience one of the many-types of maltreatment in the light of the tool, therefore be treated appropriately. The greater the score means the severely the patient is abused, thus tailored-fit intervention is demanded.

Table 8 Proposed Scoring Scheme of the Validated Elderly Abuse Assessment Tool

Physico-sexual Factor	Pyscho-financial Factor	Elderly Abuse Assessment Tool	Adjectival Rating
17-28	25-42	42-69	Prone for abuse
29-40	43-58	70-97	Moderately abused
41-51	59-75	98-126	Severely abused

Table 9 The Validated Elderly Abuse Assessment Tool (42 items with 3-Point Likert Scale)

Statements	3	2	1
1. I was forced to work against my will			
2. Objects were thrown on me			
3. I was slapped and scratched			
4. My hair was pulled			
5. I was wept with a stick or hard objects			
6. I was punched and kicked			
7. I was hurt at home			
8. My undergarments were intentionally torn			
9. I was maliciously touched without my consent			
10. I was made to do things I did not want to			
11. I was sexually harassed			
12. I was forced to perform sexual intercourse			
13. I was threatened to hurt people important to me if I refuse to have sexual activities			
14. I was forced to replicate sexual behavior from pornographic films and pictures			
15. I was maliciously accused of sexual engagement with another man/ woman			
16. I was shouted sadistically.			
17. I was threatened to get killed			
18. Someone caused me emotionally traumatized			
19. Somebody hurt my feelings that made me cry			
20. Somebody taunted me about my health status			
21. I was upset because somebody talked in a way that made me feel shamed and threatened			
22. I was excessively insulted and screamed in front of other people/ in public places or in social networking site			
23. I felt sad/ shamed/anxious/unhappy that left me upset for long time			
24. Somebody made me feel down and helpless			
25. Somebody intentionally ignored by not talking and avoiding me			
26. Somebody accused me for the things I did not do			
27. Somebody spread false rumors about me			
28. Many times I feel I was going to get crazy			
29. I was threatened to be placed in isolation			
30. I was asked by somebody to pay for their debts			
31. Somebody constantly asked money from me			
32. Somebody did not pay their debts on me			
33. I was asked to include their names in my bank account			
34. I was asked to sign documents I hardly understand			
35. I noticed that my valuables and possessions disappeared			
36. Somebody took away things without my knowledge or not asking permission			
37. I was bothered by something which lead me to sleeplessness			
38. I experienced sleeping at night without taking any meal			
39. Nobody asked me about my condition			
40. Nobody asked me if I am okay			
41. I am left all alone most of the time			
42. I am alone most of the time			

3- more than once 2- once 1- never

CONCLUSION

Elderly abuse and neglect as serious and prevalent problem are actions that can result into mistreatment. The issue of underreporting due to the "dearth" of appropriate screening instrument is now answered. The limitation of no scoring system and weak specificity, now resolved. From the findings of this study, the Elderly Abuse Assessment Tool (EAAT) is valid and has a very high degree of reliability. Physico-sexual and Psycho-financial are the two major constructs or factors that are associated in the tool. The degree or extent of abuse is determined using the scoring scheme designed for interpretation. Filipino nurses can now articulate their expression of unending caring through the utility of the validated Elderly Abuse Assessment Tool (EAAT). The instrument is intended for use among nurses and health workers and is an appropriate instrument to detect abuse cases to the vulnerable population.

Declaration of Conflicting Interest

There is no conflict of interest to be declared.

Acknowledgment

The author wishes to express gratitude to the Visayas State University administration for the support given in the conduct of data collection. More so, to the VSU scholarship committee for the financial assistance granted for the success of this endeavor.

ORCID
Joel Rey U. Acob https://orcid.org/0000-0002-3829-322X

References

Acob, Joel Rey U. (2018). Lived experiences of the abused elderly. *Public Health of Indonesia, 4*(1), 1-8. https://doi.org/10.36685/phi.v4i1.172

Bartlett, Maurice S. (1954). A note on the multiplying factors for various χ 2 approximations. *Journal of the Royal Statistical Society. Series B (Methodological)*, 296-298. https://doi.org/10.1111/j.2517-6161.1954.tb00174.x

Creswell, J.W. (2014). *Research design: qualitative, quantitative and mixed methods approaches* (4th ed.). Thousand Oak, CA: SAGE.

Hardy, Ian, Rönnerman, Karin, & Edwards-Groves, Christine. (2018). Transforming professional learning: Educational action research in practice. *European Educational Research Journal, 17*(3), 421-441. https://doi.org/10.1177/1474904117690409

Hossain, Md Arafat, Yu, Zhikang, Canning, John, Ast, Sandra, Wong, Joseph, Rutledge, Peter, . . . Jamalipour, Abbas. (2016). *Temperature controlled portable smartphone fluorimeter*. Paper presented at the Asia Pacific Optical Sensors Conference, Shanghai China.

Hove, Randi, Fålun, Nina, & Fridlund, Bengt. (2016). Nurses' experiences of using the Liverpool Care Pathway Plan in hospitalized patients with heart failure in the end-of-life stage: A qualitative content analysis. *Open Journal of Nursing, 6*(8), 591-599. https://doi.org/10.4236/ojn.2016.68063

Kaiser, Henry F. (1974). An index of factorial simplicity. *Psychometrika, 39*(1), 31-36. https://doi.org/10.1007/bf02291575

Nunnally, J. C. . (1978). *Psychometric evaluation* (3rd ed.). New York: McGraw-Hill Inc.

Polit, D. , & Beck, C. . (2004). *Nursing research: principles and methods* (7th ed.). Philadelphia: Lippincott Williams & Wilkins.

Tabachnick, B., & Fidell, L. S. . (2011). *Using multivariate statistics* (6th ed.). Northridge: Pearson Publishing.

Thomas, Eileen, & Magilvy, Joan Kathy. (2011). Qualitative rigor or research validity in qualitative research. *Journal for Specialists in Pediatric Nursing, 16*(2), 151-155. https://doi.org/10.1111/j.1744-6155.2011.00283.x

WHO. (2005). *Abuse of the elderly*. Retrieved from http://www.who.int/violenceinjuryprevention/violence/worldreport/factsheets/en/elderabusefacts,pdf

Cite this article as: Acob, J. R. U. (2020). Validation of elderly abuse assessment tool. *Belitung Nursing Journal*. *6*(3), 77-84. https://doi.org/10.33546/ bnj.1096