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

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

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 (Acoch, 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
commens. 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
place 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 Nunally (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 proponents 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 | Rephrazed 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 |

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 |

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

| 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.

![Scree Plot](image)
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 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 | Psycho-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.
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](https://doi.org/10.36685/phi.v4i1.172)

Bartlett, Maurice S. (1954). A note on the multiplying factors for various \( \chi^2 \) approximations. *Journal of the Royal Statistical Society. Series B (Methodological),* 296-298. [https://doi.org/10.1111/j.2517-6161.1954.tb0174.x](https://doi.org/10.1111/j.2517-6161.1954.tb0174.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](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, Fälhn, 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](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](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](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](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](https://doi.org/10.33546/bnj.1096)