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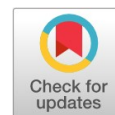
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Published online: 16 March 2016



To cite this article: M. J. De Leon, E. L. Urgel, P. Ed. G. Cuevas and E. Jr. Dasalla, “Adaptation of lawton instrumental activities of daily living (IADL) for filipino older persons,” *International Journal of Health and Medical Sciences*, vol. 2, no. 1, pp. 1-6, 2016. DOI: <https://dx.doi.org/10.20469/ijhms.2.30001-1>

To link to this article: <http://kkgpublications.com/wp-content/uploads/2016/2/Volume2/IJHMS-30001-1.pdf>

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ADAPTATION OF LAWTON INSTRUMENTAL ACTIVITIES OF DAILY LIVING (IADL) FOR FILIPINO OLDER PERSONS

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Keywords:

Adaptation
Lawton Instrumental Activities
Filipino Older Persons

Received: 10 December 2015

Accepted: 18 February 2016

Published: 16 March 2016

Abstract. The study aims to adapt the IADL for Philippine use and determine its psychometric validity when used among older Filipino persons. The study utilized a cross-sectional design to validate the Lawton Instrumental Activities of Daily Living (IADL) for Filipino older persons. Seventeen (17) older persons were recruited from the Senior Citizen Registry of San Francisco Del Monte Quezon City, The original version of IADL was translated to Filipino by a certified translator and back-translated to English. The final version was pre-tested by cognitively intact older persons. Internal consistency and Exploratory Factor Analysis (EFA) of the Fil- IADL was computed by Cronbachs α . The construct validity was studied by Exploratory Factor Analysis (EFA), Item convergent and discriminant validity was examined by Interclass Correlation Coefficient (ICC) for scores at baseline and 2 weeks and the correlation of the IADL scale with Nottingham ADL Scale and Frenchay Activities Index (FAI) using Spearman correlation coefficient. A p-value of less than 0.05 was considered statistically significant for all the analyses. The tool has an internal consistency of .80, which indicates that the tool is sufficiently reliable to use. Test re-test reliability was done at a mean of 14 days apart. The mean Fil- IADL mean scores were 5.47 (SD= 2.12) and 5.35 (SD= 2.17) for baseline and follow-up, respectively, with a mean change of 1.46 $p=.163 >.05$ and a correlation of .988 $p=.000 <.05$. Exploratory Factor Analysis (EFA) results of the eight items in Fil-IADL found factor loading of .52 to .88 and item communalities of .55 to .88 which indicates that the factor loadings and commonalities are acceptable and is above .40. This result indicates that the eight items on the questionnaire represent a single factor and they are related. Item scale correlations revealed a correlation of the following: “ability to use telephone” (.81 $\leq .05$); “ability to do shopping” (1.0 $\leq .05$); “food preparation capacity” (1.0 $\leq .05$); “independence for transportation” (.64 $\leq .05$); and “ability to handle finances” (1.0 $\leq .05$). Correlations of the Fil-IADL to Nottingham ADL Scale and Frenchay Activities Index (FAI) shows a correlation of the following: “ability to use telephone” (.75 $\leq .05$) to Nottingham but no correlation to FAI; “food preparation capacity” (.53-.56 $\leq .05$) to FAI and Nottingham and; and “independence for transportation” (.30-.66 $\leq .05$) to FAI and Nottingham. The Fil-IADL is a reliable tool to measure the functional status of older persons but cannot be used to measure the frequency of activities. It is also recommended that measurements of functions related to housekeeping and laundering must be administered to female respondents only. Further study is recommended to prove that the 8 items of the FIL-ADL will be reliable to be use in male and female Filipino older persons.

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INTRODUCTION

Normal aging changes, acute illness, worsening chronic illness and hospitalization can contribute to a decline in the ability to perform task necessary to live independently in the community [1]. Generated data from a functional status scale will give insights to individual older persons’ needs. Thus planning for interventions and rehabilitations can be made possible. Nursing home care services are derived from the older persons’ functional needs such as in meal preparations, nursing and personal care, home-maker services, financial and medication management, and/or continuous supervision. The functional status scale will also guide practitioners to focus on the older person’s baseline capabilities, facilitating early recognition of changes that may signify a need either for additional

resources or for a medical work-up [2].

The Lawton Instrumental Activities of Daily Living Scale (IADL) is an appropriate instrument to assess independent living skills [3]. The said skills are more complicated than the basic activities of daily living that are measured by the Katz Index of ADL’s tool. The IADL is most useful in identifying how an older person is functioning in the current time and for determining improvement or deterioration over a period of time. There are eight domains of function measured with the Lawton IADL scale. Older persons are scored according to their highest level of functioning in categories and a summary score range from low function or dependent to high function or independent. The IADL is most importantly used as a baseline assessment tool and to compare baseline function of older persons to periodic assessments.

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Although the IADL is widely used both in research and clinical practice, few studies have been performed to test its psychometric properties [1]. The present study is interested in its use to show the functional capabilities or impairments among Filipino older persons. In line with this, specific deficits among Filipino older persons that can be identified by the adaptation of this scale can assist nurses and other disciplines in planning for the growing population of older persons in the Philippines.

METHOD

Study Design

This was a cross sectional study design conducted at selected community setting in barangay San Antonio, San Francisco Del Monte Quezon City, Philippines, Ethics approval to conduct the study was approved by Centro Escolar University (CEU) Institutional Ethics Review Committee.

Study Population

The study participants for the pre-test was recruited from selected community setting in barangay San Antonio, San Francisco Del Monte Quezon City. The pre-testing participants were older persons coming from the three (3) groups; The Old (65- 74 years old), Young Old (75-84 years old) and the Old (85 years old and above). Seventeen (17) older persons were recruited from the Senior citizen registry of San Francisco Del Monte Quezon City. All study participants provided informed consent before any testing was done.

Instruments

The Lawton IADL Scale is composed of 8 items and assesses a person's ability to perform tasks such as using a telephone or handling finances. Responses to each of the eight items in the scale are coded as 0 (unable or partially able) or 1 (able), and the responses are summed. The summary score ranges from 0 (low function, dependent) to 8 (high function, independent). Permission to adapt the Lawton Instrumental Activities of Daily Living (IADL) was obtained from The Hartford Institute for Geriatric Nursing, New York University College of Nursing.

The Nottingham Extended ADL scale is a record of everyday activities that has been actually done in the last few weeks [4]. The questionnaire is a record of activity rather than capability. It include mobility, kitchen, domestic and leisure. Responses measure the frequency of engaging in an activity on a 0 to 1 ordinal scale. Total score are derived by summing the score from each item and range from 0 (not at all) to 22 (greater independence).

The Frenchay. Activities Index (FAI) assesses frequency

of doing Instrumental Activities of Daily Living (IADL); the index includes items which reflect the patients behavior in the areas of domestic chores, leisure/work, and outdoor activities [5]. It include washing up; preparing main meals; washing clothes; driving car/bus travel; light housework; heavy housework; local shopping; social occasions; actively pursuing hobby; gainful work; travel outings/car rides; gardening; and household/car maintenance.

Responses measure the frequency of engaging in an activity on a 2 and 3 point ordinal scale. Four items (washing up, washing clothes, driving a car/bus travel, and gainful work) are scored on a 2-point scale. The 9 other items are scored on a 3-point scale. Total score are derived by summing the score from each item and range from 0 (no activity) to 22 (most frequently doing the activities).

Procedure

The original version of IADL was translated to Filipino by certified translator from the University of the Philippines (UP), Manila Sentro ng Wikang Filipino. Translator(s) is briefed on socio-demographic characteristics of target population, mode of administration of the survey instrument, and where the survey will be administered.

Since the intended users, are nurses and are English-literate, the guideline for the test administrators was retained in English, and only the test instructions that would be read to the participants were translated into Filipino. Back translation from target-language into English by professional certified translators from Centro Escolar University (CEU) was done. The Filipino and back translations of the instruments was reviewed.

Based on the original English-language instrument by the researchers with the help of professional translators from Centro Escolar University English Department. The critique and comments from the translations was discussed by all members. The result was the final version of the Fil- IADL.

The final version was tested by cognitively intact older persons. Assessment on absence of history of functional disability was done based on interview process to the older persons. The participants were re-tested after two (2) weeks to assess consistency and conformity of measurements using Interclass Correlation Coefficient (ICC).

Cronbachs' alpha was used to assess reliability, exploratory factor analysis (EFA) for the construct validity. Convergent and discriminant validity were examined by the correlation of the IADL Scale with Nottingham ADL Scale and Frenchay Activities Index.

TABLE 1
THE LAWTON INSTRUMENTAL ACTIVITIES

Ability to Use Telephone	
1. Operates telephone on own initiative; looks up and dials numbers	1
2. Dials a few well-known numbers	1
3. Answers telephone, but does not dial	1
4. Does not use telephone at all	0
Laundry	
1. Does personal laundry completely	1
2. Launders small items, rinses socks, stockings, etc.	1
3. All laundry must be done by others	0
Shopping	
1. Takes care of all shopping needs independently	1
2. Shops independently for small purchases	0
3. Needs to be accompanied on any shopping trip	0
4. Completely unable to shop	0
5. Does not travel at all	0
Mode of Transportation	
1. Travels independently on public transportation or Drives own car	1
2. Arranges own travel via taxi, but does not otherwise Use public transportation	1
3. Travels on public transportation when assisted or Accompanied by another	1
4. Travel limited to taxi or automobile with assistance Of another	0
Food Preparation	
1. Plans, prepares, and serves adequate meals Independently	1
2. Prepares adequate meals if supplied with ingredients	0
3. Heats and serves prepared meals or prepares meals But does not maintain adequate diet	0
4. Needs to have meals prepared and served	0
Responsibility for Own Medications	
1. Is responsible for taking medication in correct Dosages at correct time	1
2. Takes responsibility if medication is prepared in Advance in separate dosages	0
Is not capable of dispensing own medication	0
Housekeeping	
1. Maintains house alone with occasion assistance (Heavy work)	1
2. Performs light daily tasks such as dishwashing, Bed making	1
3. Performs light daily tasks, but cannot maintain Acceptable level of cleanliness	1
4. Needs help with all home maintenance tasks	1
5. Does not participate in any housekeeping tasks	0
Ability to Handle Finances	
1. Manages financial matters independently (budgets, writes checks, pays rent and bills, goes to bank); collects and Keeps track of income	1
2. Manages day-to-day purchases, but needs help with Banking, major purchases, etc	1
3. Incapable of handling money	0

Statistical Analysis

The internal consistency of the Lawton IADL Scale was assessed using Cronbachs' alpha coefficient, with a value of >0.70 being considered acceptable.

The construct validity was studied by exploratory factor analysis (EFA) to test the hypothesis that the eight items on the questionnaire represent a single factor. Items with factor loadings and communalities ≥ 0.40 were considered acceptable.

Item convergent and discriminant validity was examined by means of item-scale correlations and by correlation with the other scales (Nottingham ADL scale scores and Frenchay Activities Index scores) by means of the Spearman correlation coefficient.

Item convergent validity was satisfied if the item-own scale correlation corrected for overlap was ≥ 0.40 , while item discriminant validity was satisfied if an item correlated signif-

icantly more strongly with the scale it represented than with other scales.

Test-retest reliability was assessed using Interclass Correlation Coefficients (ICC) for scores at baseline and at 2 weeks. All statistical data were treated using Statistical Package for Social Science (SPSS) version 20. A p value of less than 0.05 was considered statistically significant for all the analyses.

RESULTS

Demographic Profile of the Participants

The respondents were categorized into three (3) groups namely Young Age group 7 (41.2), Old group 5 (29.4) and Old Old group 5 (29.4). Majority of the respondents are Female 13 (76.5) and Elementary Graduate 7 (41.2). Majority of the respondents' cultural origin are Tagalog 4 (23.5), Bisaya 4 (23.5) and Bicolano 4 (23.5).

TABLE 2
DEMOGRAPHIC PROFILE OF PARTICIPANTS (n=17)

Variables	Frequency and Percentage
Age	
Young Old Group	7 (41.2)
Old Group	5 (29.4)
Old Old Group	5 (29.4)
Gender	
Male	4 (23.5)
Female	13 (76.5)
Educational Attainment	
Elementary graduate	7 (41.2)
High School graduate	5 (29.4)
College graduate	5 (29.4)
Ethnicity	
Tagalog	4 (23.5)
Bisaya	4 (23.5)
Bicolano	4 (23.5)
Capangpangan	2 (11.8)
Ilocano	2 (11.8)
Ibanag	2 (11.8)
Fil-Chinese	1 (5.9)

Validity and Reliability Results

The Fil-IADL yielded a high level of internal consistency (Cronbachs' $\alpha = .80$). The tool has an internal consistency of greater than .70 which indicates that the tool is sufficiently reliable to use. Test Re-test reliability was done at a mean

of 14 days apart, The mean Fil-IADL mean scores were 5.47 (SD= 2.12) and 5.35 (SD= 2.17) for baseline and follow-up, respectively, with a mean change of 1.46 $p=.163 \leq .05$ and a correlation of .988 $p=.000 \leq .05$.

TABLE 3
RESULTS OF THE EXPLORATORY AND ITEM CONVERGENT AND DISCRIMINANT VALIDITY (n=17)

Item	Item Description	Exploratory Factor analysis		Item scale correlations	Correlations with Other scales
		Factor	Loading Communalities	r^*	Range of r
Item 1	Ability to use telephone	.86	.777	.81*	0 – .75*
Item 2	Ability to do shopping	.52	.553	1.0*	.33-.45
Item 3	Food preparation capacity	.88	.883	1.0*	.53 – .56*
Item 4	Housekeeping ability	.78	.739	.45	.25-.30
Item 5	Capacity to do laundry	.71	.543	.28	-.04- .05
Item 6	Independence for transportation	.82	.785	.64*	.30 – .66*
Item 7	Ability to manage self-medication	.58	.609	-.27	0
Item 8	Ability to handle finances	.82	.727	1.0*	0-.30

r: Spearman correlation coefficient.

*significant at $\leq .05$ level

Exploratory Factor Analysis (EFA) results of the eight items in Fil-IADL found factor loading of .52 to .88 and item communalities of .55 to .88 (Table 2). The results indicates that the factor loadings and communalities are acceptable and

is above .40 which also indicates that the eight items on the questionnaire represent a single factor and they are related.

Item Scale correlations revealed a correlation of the following: item # 1 ability to use telephone (.81 $\leq .05$); Item

#2 ability to do shopping ($1.0 \leq .05$); item # 3 food preparation capacity ($1.0 \leq .05$); item # 6 independence for transportation ($.64 \leq .05$); and item # 8 ability to handle finances ($1.0 \leq .05$). The results indicate that the items are consistent with each other when re tested. Item # 4 house-keeping ability, item # 5 capacity to do laundry and item # 7 manage self-medications are not correlated but not significant to consider. Correlations of the Fil-IADL to Nottingham ADL Scale and FAI Activities Index shows correlation of the following: Item # 1 “ability to use telephone” ($.75 \leq .05$) to Nottingham but no correlation to FAI; Item # 3 “Food preparation capacity” ($.53-.56 \leq .05$) to FAI and Nottingham and; item # 6 “Independence for transportation” ($.30-.66 \leq .05$) to FAI and Nottingham. Other items are found to be no correlation to Nottingham and FAI but not considered significant.

DISCUSSION

The validation of the Fil-IADL was administered to the respondents without difficulty. Although age group and cultural origin or ethnicity is considered majority of the respondents can communicate using the Filipino dialect with the exception to some respondents who came from the province. A translator was needed to obtain some of the pertinent information in answering the validated tool. Test components of the Fil-IADL tool was found to be consistent and reliable to be used for older persons. It also shows that the eight items on the questionnaire represent a single factor and they are related.

The IADL was validated in different studies around the world. The Hongkong Chinese version of the IADL [6] was validated for institutionalized older persons. Results showed that Interclass Correlation Coefficient (ICC) of the inter-rater reliability was 0.99. In test-retest reliability, ICC was 0.9 and Pearson's correlation coefficient was 0.91. The Cronbach's alpha of the internal consistency was 0.86. The Spanish version of IADL [7] in older persons showed the Cronbach alpha coefficient of 0.94. In the EFA, factor loadings ranged from 0.67 to 0.90, and CFA confirmed the homogeneity of the construct. The Amsterdam IADL [8] results suggest that it is a reliable and valid instrument in the evaluation of dementia. [9] validated the tool for dementia screening for older persons. Results shows that the tool is a reliable, sensitive and responsive scale of functional abilities useful in dementia screening in a socio culturally heterogeneous population. The Greek version of IADL [10] was validated with reliability test result of Cronbach alpha of .84, while validity was assessed by correlation of .77 with the Mini-Mental State Examination. A community based validation was done in Tanzania [11] the internal consistency was 0.959. Performance was not biased with regard to age, gender or education level.

The physical and cognitive domains of the IADL was also validated in multiethnic population of Asian older persons [12]. Results showed that IADL with age, gender, education, self-reported health status, hospitalization, physical comorbidities, dementia and depression, and Mini-Mental.

State Examination (MMSE) Scores

When tested for consistency and conformity using inter-class correlation the Fil-IADL are consistent at items that included: “using telephone,” “shopping,” “food preparation” and “transportation”. While it is not correlated to “housekeeping”, “laundrying” and “self-medication” functions. Housekeeping and laundrying functions are generally rated to women and men are not scored in this items. It is consistent with the results of the study of [1] were male older persons are recommended not to be assessed on housekeeping and laundrying functions. Although this is not significant to consider, caution in administering this test items to male Filipino older persons should be considered. Self-medication functions was considered common to both male and female respondents but this shows no consistency when re tested. This item must also be consider to be tested for Filipino older persons.

When the tool was compared to Nottingham Extended ADL the Fil-IADL was found correlated to “use of telephone,” “food preparation” and “transportation”. The Nottingham tool compared to Fil-IADL was a tool to measure record of activity than capability. Conversely, the Fil-IADL is aimed to measure ability of older persons to perform task. The correlation signifies that the FIL-IADL maybe use to measure record of activity in older persons' use of telephone, food preparation and “transportation” but cannot be used to measure capability.

The Fil-IADL when compared with Frenchay yielded a low significant correlation ($.30 \geq .50$) in “food preparation” and “transportation” functions. The Frenchay Activities Index (FAI) the same with Nottingham Extended ADL was a tool to measure frequency of activities rather than the capability of the older persons. The low significant correlation with FAI shows that the Fil-IADL cannot be used to measure frequencies of activities of older persons.

CONCLUSION

The Fil-IADL is a reliable tool to measure functional status of older persons but cannot be used to measure frequency of activities. It is also recommended that measurements of functions related to housekeeping and laundrying must be administered to female respondents only.

Further study is recommended to prove that the 8 items of the Fil-IADL will be reliable to be use in male and female Filipino older persons.

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