

# Validation and Reliability of the Tagalog Version of Mini Nutritional Assessment-Short Form among Elderly Filipino Admitted in a Tertiary Hospital

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**Abstract Background:** According to World health organization, 1 in 6 people worldwide will be aged 60 or older. The prevalence of malnutrition in the Filipino elderly population varies with different study population. Effective screening tools are essential for identifying the malnutrition and to those at risk. **Objective:** The study aimed to determine the validity of the Tagalog Version of Mini Nutritional Assessment–Short Form (MNA-SF) among Filipino elderly patient admitted in a tertiary medical center. **Methods:** This is a prospective, cross-sectional study among elderly Filipino patients aged 60 years and above. Tagalog version of MNA-SF and Long form (LF) scale were conducted. The diagnostic validity and reliability were determined using Cronbach’s alpha. **Results:** There are one hundred fifty-seven (157) respondents aged >60 years old included in the study. 91/157 (58%) and 94/157 (60%) were diagnosed with malnutrition using the MNA-SF and MNA-LF respectively. The prevalence of malnutrition is correlated with increasing age, lowest in the age group 60-69 years old using the MNA-SF & LF, with prevalence of 46% (37/80) and 44% (35/80) respectively, while age group of >80 years old has a prevalence of 96% (22/23) and 91% (21/23) respectively. MNA-SF garnered a Cronbach’s Alpha value of 0.933, interpreted as excellent or having a very reliable internal consistency. For the test of single measures between the MNA-SF and MNA-LF, it had a value of 0.874 which indicates almost perfect agreement. The test of average measures, also indicates almost perfect agreement with a value of 0.933. **Conclusion:** The prevalence of malnutrition among our elderly Filipino in acute care setting is high and the Tagalog version of MNA-SF is a validated screening tool for malnutrition in older Filipino adults. It can be easily implemented across various healthcare settings and those who tests positive for the condition should also receive individualized nutrition support.

**Keywords:** Nutritional Assessment, elderly, malnutrition

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## 1. Introduction

According to World health organization (WHO), 1 in 6 people worldwide will be aged 60 or older. The elderly population is projected to increase from 1 billion to 1.4 billion by 2030 and 2.1 billion by 2050. (WHO 2022) [1]. In the Philippines, people aged 60 years or older accounted for 8.5% or 9.22 million of the household population in 2020. The increase in the global elderly population is a result of lower fertility rates and longer life expectancy. This demographic shift presents challenges related to nutrient needs, physical ability, comorbid conditions, psychosocial factors, and cognitive function that are common among elderly [2].

Proper nutrition is a major determinant in successful aging. Malnutrition in the elderly is a pressing and complex issue with significant implications for the health and well-being of this vulnerable population. Age-related

physiological changes such as decreased appetite, impaired nutrient absorption, and altered metabolism, can contribute to inadequate nutrient intake. Additionally, older adults often face unique challenges, including chronic diseases, medication use, dental problems, and functional limitations, all of which can further impact their nutritional status. Moreover, limited access to nutritious food, financial constraints, and difficulties with meal preparation and cooking can hinder the ability of older adults to maintain a balance and healthy diet [3].

The prevalence of malnutrition in the Filipino elderly population varies with different study population. Majority of the Filipino elderly had a normal nutritional status. However, both the prevalence of underweight and overweight are still alarming with 20.19% and 24.83% rate respectively (Navarro et al. 2020). Malnutrition remains to be common, and is largely unrecognized and untreated problem in most hospitals with global prevalence of 40-50% although in the Philippines, data on prevalence and impact of hospital malnutrition is lacking

[4]. In another study done by Griffin et al (2022), malnourished patients were more prone to hospital readmission, reduced quality of life and functional decline at 30-days follow up compared to patients who have normal nutritional status [5].

Effective screening tools are essential for identifying malnutrition risk and determining the need for intervention among elderly individuals. Several questionnaire-based screening tools have been developed for this purpose, including the Mini Nutritional Assessment long form (MNA-LF). This comprehensive tool, originally consisting of 18 questions, has been validated in various countries as a reliable assessment tool for nutritional status. However, to streamline the screening process, Rubenstein et al. (2001) introduced a shortened version known as the Mini Nutritional Assessment Short Form (MNA-SF). The MNA-SF is comprised of six questions and can be completed in just three minutes, making it a practical and efficient tool for identifying individuals at risk of malnutrition [6].

There are various assessment tools developed however no single tool have been used as a gold standard. There are several published journals about assessment tools in elderly admitted patients mostly in western countries. MNA has been recognized as one of the sensitive and specific screening tests for diagnosis of malnutrition among our elderly population. MNA has been translated to different languages for the ease of screening patients with malnutrition and several validation studies has been conducted base on the language translated. In this study, we aim to validate the Tagalog version of MNA-SF against the MNA-LF among elderly Filipino admitted in a tertiary hospital for a quick and easy identification of Filipino admitted patients who are at risk for malnutrition.

We also aim to determine the prevalence of malnutrition in elderly patients admitted using the Tagalog version of MNA-SF and LF.

## 2. Methodology

### 2.1. Study Design

This is a prospective, cross-sectional study among elderly Filipino patients admitted at Quirino Memorial Medical Center, a tertiary hospital in Quezon City in the month of October 2023.

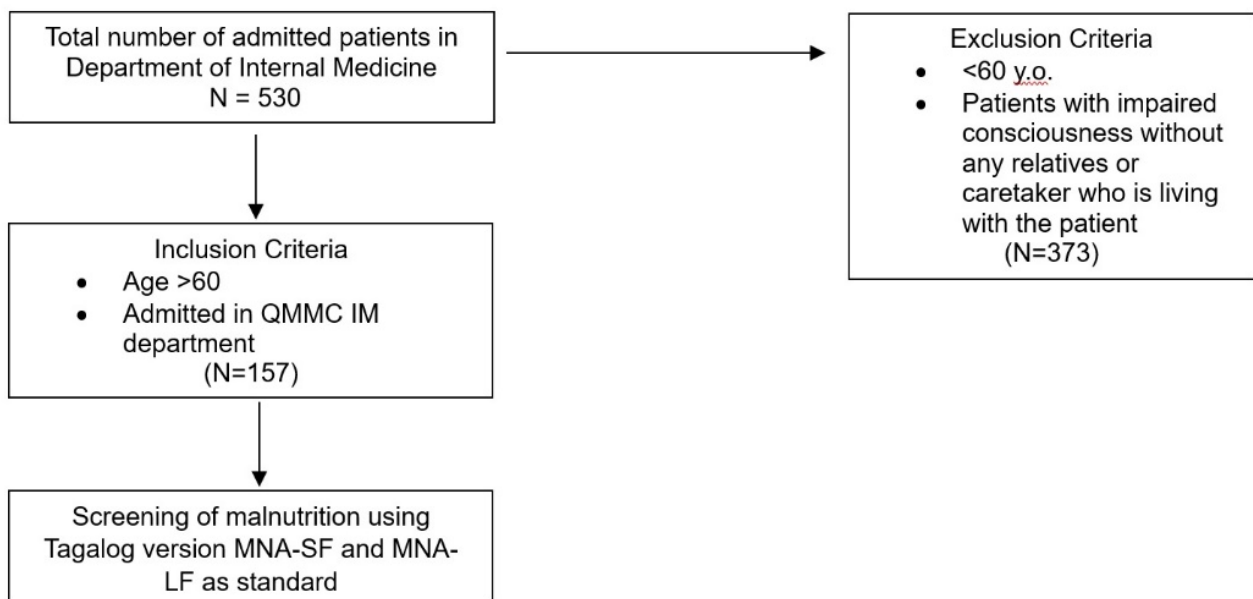
### 2.2. Inclusion & Exclusion Criteria

**Inclusion criteria:** Admitted patients under Internal Medicine department in 1 month duration, ages 60 and above regardless of co-morbidities.

**Exclusion criteria:** Elderly patients ages 60 and above who are not able to read and write, incoherent, or unresponsive and no relative or caregiver around.

### 2.3. Sampling Method

The sample size for the cross-sectional study was computed using the rate of admission in elderly population (60 years old and above) in Internal Medicine department with an average population size of 180 per month. The sample size computation yielded a requirement of 123 participants for a 95% confidence interval, confidence limits set at +/- 5%, and a design effect (DEFF) of 1.0. This computation was done using the open-source sample size calculator Open Epi, Version 3.



**Figure 1.** Flowchart of inclusion and exclusion criteria

## 2.4. Study Procedure

Approval was obtained from the Internal Medicine department and Professional Education Training and Research Office. The researcher informed the research adviser, chairman, department head, consultants, and co-residents about the research procedures. Patients who meet the inclusion criteria were screened for malnutrition using the MNA short and long forms. Forms were also be given to representative such as a family member who is currently living with the patient and is assisting the patient in his/her activities of daily living. The primary investigator conducted the interview test to the patient themselves or to the relatives or caregivers. The primary investigator also did the anthropometric measurements to the admitted elderly patients.

The MNA full form questionnaire consists of 18 items, covering aspects such as food intake decline, stress, weight loss, mobility, neuropsychiatric symptoms, body mass index, living status, pressure sores, prescription drug intake, meal frequency, protein and fruit/vegetable consumption, fluid intake, feeding method, self-assessment of health and nutritional status, mid-arm circumference, and calf circumference done by the researcher. The maximum score achievable is 30. A score below 17 indicates "malnutrition," a score of 17-23.5 indicates "at risk of malnutrition," and a score of 24 or higher indicates "normal" nutritional status. (Appendix A)

The MNA short form consists of 6 items, focusing on food intake decline, weight loss, mobility, neuropsychological problems, and body mass index or calf circumference done by the researcher. The maximum score achievable is 14. A score of 12-14 indicates normal nutritional status, a score of 8-11 indicates "at risk of malnutrition," and a score below 8 indicates "malnutrition." (Appendix B)

## 2.5. Data Analysis

Categorical variables were analyzed using cross tabulation using chi-square of the age and sex in relation to the MNA short form and MNA long form. The data collected for the prevalence per age bracket were presented in a form of percentage by examining those who were malnourished in comparison using the Tagalog version of MNA-SF and MNA-LF.

The diagnostic validity and reliability of the Tagalog version of MNA-SF and MNA-LF was determined using Cronbach's alpha and interclass correlation coefficient comparing the average measures or each item in the Tagalog version of MNA-SF and MNA-LF and single measures or overall correlation of Tagalog version of MNA-SF and MNA-LF.

## 2.6. Ethical Considerations

Data collection process was conducted without any form of coercion, manipulation, or inducement. Strict measures were taken to maintain patient confidentiality, and no personally identifiable information, such as names, contact numbers, or complete addresses, was included in the collected data. The handling of data fully complied with the provisions of the Data Privacy Act of 2012 and

its implementing rules and regulations from 2016, unless otherwise required by law. To protect the privacy of participants, each individual included in the study were assigned to a unique code. There are no conflicts of interest regarding financial, familial, or proprietary considerations for the primary investigator or the study site. All study outcomes were promptly reported to the hospital administration.

## 3. Results

This research is based on the data collected from one hundred fifty-seven (157) respondents aged 60 years and above who were admitted at Quirino Memorial Medical Center in 1 month duration.

**Table 1. Age – Demographic Variable of Respondents as to their Classification on Mini Nutritional Assessment Short and Long Form**

Age	MNA – Short form	MNA – Long form
60-69 (N=80)		
Normal nutrition	12	11
At risk	31	34
Malnourished	37	35
70-79 (N=54)		
Normal nutrition	3	2
At risk	16	17
Malnourished	35	35
>80 (N=23)		
Normal nutrition	0	0
At risk	1	2
Malnourished	22	21
Total	157	157

Table 1 depicts data regarding the age variable of the respondents to their classification on Mini Nutritional Assessment Short and Long Form. MNA Short Form: For the age group of 60-69, twelve (12) were classified to have normal nutrition, thirty-one (31) were at risk of nutritional imbalance, and thirty-seven (37) were considered malnourished. For the age group of 70-79 years old, three (3) were classified under normal nutrition, sixteen (16) were categorized as at risk, and thirty-five (35) were malnourished. Lastly, for the respondents aged 80 years old and above, one (1) was at risk for malnourishment and twenty-two (22) were classified under malnourished. MNA Full Form: For the age group of 60-69, eleven (11) were classified to have normal nutrition, thirty-four (34) were at risk of nutritional imbalance, and thirty-five (35) were considered malnourished. For the age group of 70-79 years old, two (2) were classified under normal nutrition, seventeen (17) were categorized as at risk, and thirty-five (35) were malnourished. Lastly, for the respondents aged 80 years old and above, two (2) was at risk for malnourishment and twenty-one (21) were classified under malnourished.

Table 2 shows data regarding the sex variable of the respondents to their classification on Mini Nutritional Assessment Short and Long Form. MNA Short Form: For male, ten (10) were classified to have normal nutrition, twenty-four (24) were at risk of nutritional imbalance, and thirty-seven (37) were malnourished. For female respondents, five (5) were classified to have normal

nutrition, twenty-four (24) were at risk of nutritional imbalance, and fifty-seven (57) were malnourished. MNA Full Form: For male, seven (7) were classified to have normal nutrition, twenty-six (26) were at risk of nutritional imbalance, and thirty-eight (38) were malnourished. For female respondents, six (6) were classified to have normal nutrition, twenty-seven (27) were at risk of nutritional imbalance, and fifty-three (53) were malnourished.

**Table 2. Sex – Demographic Variable of Respondents as to their Classification on Mini Nutritional Assessment Short and Full Form**

Sex	MNA – Short form	MNA – Long form
Male		
Normal nutrition	10	7
At risk	24	26
Malnourished	37	38
Female		
Normal nutrition	5	6
At risk	24	27
Malnourished	57	53
Total	157	157

Table 3 shows the value of Cronbach's Alpha of the MNA Short Form – Tagalog Version as a test for reliability. Result of the test showed that it garnered a value of 0.933 which can be interpreted as excellent or having a very reliable internal consistency.

Test for interclass correlation coefficient between the Tagalog version of MNA SF and LF is being displayed on Table 4 above. For the test of single measures, it had a value of 0.874 which has an interpretation of almost perfect agreement. For the test of average measures, it had a value of 0.933 which has an interpretation of almost perfect agreement.

**Table 3. Reliability Test of Mini Nutritional Assessment Short Form – Tagalog Version**

	Cronbach's Alpha	Internal Consistency
MNA Short Form – Tagalog Version	0.933	Excellent / Very Reliable

**Table 4. Interclass Correlation Coefficient of Mini Nutritional Assessment Short and Full Form**

Measure	Intraclass Correlation	95% Confidence Interval		Agreement
		Lower Bound	Upper Bound	
Single Measures	0.874	0.832	0.907	Almost Perfect Agreement
Average Measures	0.933	0.908	0.951	Almost Perfect Agreement

**Table 5. Prevalence of malnutrition in admitted patients using MNA-SF and MNA-LF**

Age	MNA-Short Form	MNA-Long Form
60-69	37/80 (46%)	35/80(44%)
70-79	35/54 (64%)	35/54 (64%)
>80	22/23 (96%)	21/23 (91%)
Total	94/157 (60%)	91/157 (58%)

Table 5 shows the total prevalence of malnutrition among our admitted elderly patients is 58-60%. Prevalence of malnutrition was also seen to be increasing as one ages with a prevalence rate of 91-96% among elderly patient ages >80 years old.

Table 6 and 7 shows cross tabulation done in short form and long form using frequencies and proportion in correlation with age, sex, and prevalence of malnutrition. It shows that the prevalence of malnutrition increases with age at p-value of 0.00 and there was no significant difference among elderly patients based on sex.

**Table 6. Cross tabulation of age, sex, prevalence of malnutrition using MNA-SF**

	MNA – Short Form						Chi-square	p-value
	Normal		At Risk		Malnourished			
Age	Frequency	Percent	Frequency	Percent	Frequency	Percent		
60-69	12	80.0	31	64.58	37	39.36	24.425	0.000
70-79	3	20.0	16	33.33	35	37.23		
>80	0	0.0	1	2.08	22	23.40		
Total	15	100	48	100	94	100	Significant	
Sex	5	33.33	24	50	57	60.64	4.53	0.1038
F	10	66.67	24	50	37	39.36	No correlation	
M	15	100	48	100	94	100		

**Table 7. Crosstabulation of age, sex, prevalence of malnutrition using MNA-LF**

	MNA – Long Form						Chi-square	p-value
	Normal		At Risk		Malnourished			
Age	Frequency	Percent	Frequency	Percent	Frequency	Percent		
60-69	11	84.62	34	64.15	35	38.46	23.017	0.000
70-79	2	15.38	17	32.08	35	38.46		
>80	0	0.0	2	3.77	21	23.08		
Total	13	100	53	100	91	100	Significant	
Sex	6	46.15	27	50.94	53	58.24		
F	7	53.85	26	49.06	38	41.76	No correlation	
M	13	100	53	100	91	100		

## 4. Discussion

The study shows the prevalence of malnutrition in our admitted elderly patients is 58-60%. In a cross-sectional survey done in community among older adults in a Barangay at Pasay City, Metro Manila showed 8.2-14.8% rate of malnutrition and 39.3-42.6% at risk of malnutrition using the MNA SF & LF [7]. And in another study, Tagalog version of MNA-LF was validated in one prospective study done in Veterans Memorial Medical Center, Quezon City, Philippines from December 1999 to 2000 wherein 202 elderly seen in the outpatient department. It showed that the prevalence of malnutrition in an out-patient setting was 11% and 44% at risk of malnutrition [8]. Base in these 2 studies, it shows that the prevalence of malnutrition is almost the same in an out-patient and community setting in the Philippines and higher in an acute care setting.

According to research conducted by Angeles-Agdeppa et al., there is significant nutrient inadequacies within the adult population, particularly among older adults, females, and individuals from lower socioeconomic status. The study suggests that the lack of dietary variety and nutritional quality may explain the substantial gaps in nutrient intake observed. The findings of the study provide valuable insights for the development of targeted interventions aimed at improving the nutritional status, particularly among individuals who are more vulnerable to dietary inadequacies [9]. Data from the 8th National Nutrition Survey (NNS) in the Philippines were analyzed and results showed a high prevalence of malnutrition among Filipino elderly, with 20.2% being underweight. Different influencing factors were seen in estimating an elderly's odds of being underweight, and these were: elderly's age group, presence of co-morbidities such as hypertension, presence of anemia, and adequacy of vitamin A intake [10].

Due to the cumulative effects of aging and malnutrition, many older individuals experience compromised cell-mediated immune responses, rendering them highly susceptible to infections. Nutritional therapy plays a crucial role in enhancing immune responses in elderly patients with protein-energy malnutrition. Supplementation with vitamins and minerals may prove beneficial in improving immune responses among independent older individuals residing at home. Therefore, addressing nutritional deficiencies is vital within the elderly population to enhance immune function and mitigate the risk of infections [11].

It is well known that malnutrition in the elderly poses a serious health risk. It is linked to higher rates of death and morbidity as well as physical deterioration, which can have a severe impact on everyday activities and overall quality of life. However, the environment, underlying or concomitant illnesses, screening and assessment techniques, and other factors all have a significant impact on the prevalence of malnutrition. The prevalence of malnutrition in hospital and nursing home settings has been the subject of numerous studies. These findings show that the percentage of malnourished individuals in acute and subacute care settings is higher than in community settings and higher prevalence rates in older populations [12].

The impact of malnutrition on clinical outcomes is

significant among hospitalized patients. It is more prevalent in older populations, particularly those with co-morbidities and requiring intensive care, affecting up to 90% of such individuals. To address this, various screening tools have been developed to categorize patients based on their risk of malnutrition [13].

MNA has been recognized as one of the sensitive and specific screening tests for diagnosis of malnutrition among our elderly population. It has been translated to different languages for the ease of screening patients with malnutrition and several validation studies has been conducted base on the language translated. In our study, the Tagalog version of MNA-SF is reliable and valid to be use in our local setting.

Several validation studies have been done in other countries. In a study done to evaluate the validity and reliability of the MNA-SF compared to the MNA-LF in Ethiopian elderly individuals by Urgessa (2021). The MNA questionnaires were translated into Afan Oromo and Amharic languages, and anthropometric measurements were taken. The results show that both versions of the MNA-SF and MNA-LF were also found to be valid screening tools for assessing malnutrition among Ethiopian elderly individuals when compared to the MNA-LF [14]. Another cross-sectional study was done in South India by Krishnamoorthy et al. (2021) in which they evaluated the validity and reliability of the MNA-SF questionnaire among the elderly in Puducherry. Results were found to be valid for assessing the nutritional status of the elderly and can be recommended for use in their primary care settings [15].

Another cross-sectional study done by Lozoya et al. (2017) aimed to evaluate the predictive ability of the MNA-SF against the MN-LF scale in elderly individuals in the province of Valencia, Spain. Versions of the MNA-SF presented useful predictive ability against the full MNA [16]. And lastly, a study done by Machado, regarding the validity of Portuguese version of MNA to Brazilian elderly patients demonstrated significant results and sufficient exploratory psychometric properties that supported its validity. It seems to be valid tool to access nutritional status of Brazilian elderly [17].

Malnutrition in older adults has profound physiological and psychological consequences, leading to a diminished quality of life, adverse disease outcomes, and prolonged hospital stays. Timely recognition and intervention are crucial in addressing malnutrition. The MNA-SF is a commonly used and validated screening tool for malnutrition in older adults. It is a brief assessment that can be easily implemented across various healthcare settings [18]. With the help of these translated screening tools, nutritional needs of elderly population may be addressed.

## 5. Conclusion

In conclusion, the prevalence of malnutrition among elderly admitted acute care patients is 58-60%. The prevalence of malnutrition among admitted elderly patients also increases with age, with >90% among the oldest old (>80 years old). Tagalog version of MNA-SF is valid and reliable and can be used as an alternate to the MNA-LF in screening of malnutrition among our elderly population.


## Appendix A

## Questionnaire

## (Mini Nutritional Assessment Long Form Tagalog Version)

## Mini Nutritional Assessment

### MNA<sup>®</sup>



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Huling Pangalan: \_\_\_\_\_ Unang Pangalan: \_\_\_\_\_

Kasarian: \_\_\_\_\_ Edad: \_\_\_\_\_ Timbang, kg: \_\_\_\_\_ Taas, cm: \_\_\_\_\_ Petsa: \_\_\_\_\_

Kumpletuhin ang Iskrin sa pamamagitan ng pagpuno sa mga nasa kahon ng mga naaangkop na numero. Idagdag ang numero para sa Iskrin. Kapag ang Iskor ay 11 o mababa, ipagpatuloy ang pagtatatasa upang maabot ang Iskor ng Palatandaan sa Mainutrisyon.

Iskrining	
<b>A</b> Humina ba ang pagkain sa loob ng nakaraang 3 buwan dahil sa kawalan ng gana, mga problema sa pagtunaw ng pagkain, mga hirap sa pagnguya o paglunok? 0 = Malalang pagbawas ng pagkain 1 = Katamtamang pagbawas ng pagkain 2 = Walang pagbawas ng pagkain	<input type="checkbox"/>
<b>B</b> Pagbaba ng timbang sa nakaraang 3 buwan? 0 = Pagbaba ng timbang higit sa 3 kg (6.6 libra) 1 = Hindi alam 2 = Pagbaba ng timbang sa pagitan ng 1 at 3 kg (2.2 at 6.6 libras) 3 = Walang pagbaba ng timbang	<input type="checkbox"/>
<b>C</b> Kadalang Kumilos? 0 = Nakaratay sa kama o upuan 1 = Nakakaalis sa kama/upuan, pero di lumalabas 2 = Lumalabas	<input type="checkbox"/>
<b>D</b> Nagdurusa ba sa stress sikolohikal o malubhang karamdaman sa nakaraang 3 buwan? 0 = oo    2 = Hindi	<input type="checkbox"/>
<b>E</b> Mga problemang neurosikolohikal 0 = Malalang dementia o depresyon 1 = Banayad na dementia 2 = Walang problemang sikolohikal	<input type="checkbox"/>
<b>F</b> Body Mass Index (BMI) = (bigat sa kg) / (taas sa m) <sup>2</sup> 0 = BMI bawas kaysa 19 1 = BMI 19 hanggang bawas kaysa 21 2 = BMI 21 hanggang bawas kaysa 23 3 = BMI 23 o higit pa	<input type="checkbox"/>
<b>Iskor ng Iskrining (Subtotal max. 14 puntos)</b>	<input type="checkbox"/> <input type="checkbox"/>
12-14 puntos: Normal na kalagayang pangnutrisyon <input type="checkbox"/> 8-11 puntos: May panganib ng mainutrisyon <input type="checkbox"/> 0-7 puntos: Maling nutrisyon <input type="checkbox"/> Para sa mas malalim na pagtatasa, magpatuloy sa mga tanong G-R.	<input type="checkbox"/> <input type="checkbox"/>
Pagtataya	
<b>G</b> Namumuhay nang mag-isa (hindi sa alagaang tahanan o ospital) 1 = oo    0 = hindi	<input type="checkbox"/>
<b>H</b> Gumagamit ng higit sa 3 resetang gamot bawat araw 0 = oo    1 = hindi	<input type="checkbox"/>
<b>I</b> Mga sugat sa pagkaratay o ulser sa balat 0 = oo    1 = hindi	<input type="checkbox"/>
<b>J</b> Ilang ganap na pagkain ang nakakain ng pasyente araw-araw? 0 = 1 pagkain 1 = 2 pagkain 2 = 3 pagkain	<input type="checkbox"/>
<b>K</b> Mga piling consumption markers ng pagkain ng protina • Kahit isang bahagi ng mga produktong pagawaan ng gatas (gatas, keso, yoghurt) bawat araw oo <input type="checkbox"/> hindi <input type="checkbox"/> • Dalawa o higit pang bahagi ng mga butong-gulay o litog bawat linggo oo <input type="checkbox"/> hindi <input type="checkbox"/> • Kame, isda o poultry bawat araw 0.0 = kung 0 o 1 oo 0.5 = kung 2 oo 1.0 = kung 3 oo	<input type="checkbox"/> <input type="checkbox"/>
<b>L</b> Kumukunsumo ng dalawa o higit pang bahagi ng prutas o mga gulay bawat araw 0 = hindi    1 = oo	<input type="checkbox"/>
<b>M</b> Gaano karaming likido (tubig, katas, kape, tsaa, gatas...) ang kinukunsumo bawat araw? 0.0 = wala pang 3 tasa 0.5 = 3 hanggang 5 tasa 1.0 = higit sa 5 tasa	<input type="checkbox"/> <input type="checkbox"/>
<b>N</b> Pamaraan ng pagpakain 0 = di makakain nang walang tulong 1 = nakakakain sa sarili nang may kaunting hirap 2 = nakakakain sa sarili nang walang anumang problema	<input type="checkbox"/>
<b>O</b> Sariling-pagtingin sa kalagayang pangnutrisyon 0 = tintingan ang sarili bilang may kakulangan sa nutrisyon 1 = ay di-tyak sa kalagayang pangnutrisyon 2 = tintingan ang sarili nang walang problemang pangnutrisyon	<input type="checkbox"/>
<b>P</b> Sa paghahambing sa iba pang tao na may parehong edad, paano itinuturing ng pasyente ang kanyang kalagayang pangkalusugan? 0.0 = di kasimbuti 0.5 = Hindi alam 1.0 = Kasimbuti 2.0 = mas mabuti	<input type="checkbox"/> <input type="checkbox"/>
<b>Q</b> Sirkumperensya ng gitnang braso (mid-arm circumference MAC) sa cm 0.0 = MAC wala pang 21 0.5 = MAC 21 hanggang 22 1.0 = MAC higit sa 22	<input type="checkbox"/> <input type="checkbox"/>
<b>R</b> Sirkumperensya ng ilkod ng binti (calf circumference CC) sa cm 0 = CC wala pang 31 1 = CC 31 o higit pa	<input type="checkbox"/>
<b>Pagtatasa (max. 16 puntos)</b>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>Iskor ng Iskrining</b>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>Buong Pagtatasa (MAX 30 puntos)</b>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>Iskor ng Palatandaan sa Maling Nutrisyon</b> 24 hanggang 30 puntos <input type="checkbox"/> Kalagayan ng karaniwang pangnutrisyon 17 hanggang 23.5 puntos <input type="checkbox"/> May panganib ng mainutrisyon Wala pang 17 puntos <input type="checkbox"/> Maling nutrisyon	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

**Mga Reperensya**  
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Para sa higit pang impormasyon, pumunta sa [www.mna-elderly.com](http://www.mna-elderly.com)


I-save
I-print
I-reset

## Appendix B

### Mini Nutritional Assessment Short Form Tagalog

# Mini Nutritional Assessment

## MNA<sup>®</sup>



Apelyido:  Pangalan:   
 Kasarian:  Edad:  Timbang, kg:  Taas, cm:  Petsa:

Kumpletuhin ang screen sa pamamagitan ng pagpuno sa mga kahon na may naaangkop na mga numero. Sumahin ang mga numero para sa pangwakas na iskor ng pagsasala.

**Pagsasala**

**A. Bumaba ba ang pagkain sa nakalipas na 3 buwan dahil sa pagkawala ng gana sa pagkain, mga problema sa panunaw, o mga paghihirap sa pagnguya o paglulon?**

0 = Malubhang pagbaba ng pagkain  
 1 = Katamtaman ang pagbaba ng pagkain  
 2 = Walang pagbaba sa dami ng pagkain

**B. Pagbaba ng timbang sa loob ng nakalipas na 3 buwan?**

0 = Pagbaba ng timbang ng mas mataas sa 3 kg (6.6 libra)  
 1 = Hindi alam  
 2 = Pagbaba ng timbang sa pagitan ng 1 at 3 kg (2.2 at 6.6 libra)  
 3 = Walang pagbaba ng timbang

**C. Pagkilos o Paggalaw?**

0 = Nakapirmi sa kama o upuan  
 1 = Nakakaalis sa kama/upuan, ngunit hindi lumalabas  
 2 = Lumalabas

**D. Nagdusa ng sikolohikal na stress o grabeng sakit sa nakalipas na 3 buwan?**

0 = Oo  
 2 = Hindi

**E. Mga problema na neuropsychological**

0 = Grabeng dementia o depresyon  
 1 = Banayad na dementia  
 2 = Walang mga sikolohikal na mga problema

**F1. Body Mass Index (BMI) = (timbang sa kg) / (taas sa m)<sup>2</sup>**

0 = BMI mas mababa sa 19  
 1 = BMI 19 hanggang sa mas mababa sa 21  
 2 = BMI 21 hanggang sa mas mababa sa 23  
 3 = BMI 23 o mas mataas

KUNG BMI AY HINDI MAGAGAMIT, PALITAN ANG TANONG F1 NG TANONG F2.  
 HUWAG SAGUTIN ANG TANONG F2 KUNG ANG TANONG F1 AY NAKUMPLETO NA.

**F2. Sirkumpirensya ng tiyan ng binti (CC) sa cm**

0 = CC na mas mababa sa 31  
 3 = CC 31 o mas higit pa

**Iskor sa Pagsasala (Max. 14 puntos)**

12 – 14 puntos: Karaniwang estado ngnutrisyon  I-save  
 8 – 11 puntos: Nasa panganib ng malnutrisyon  I-print  
 0 – 7 puntos: Malnourished  I-reset

**Mga Paganays**

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