The Use of Self-MNA (Mini Nutritional Assessment) for Nutritional Status Measurement of Elderly Females in a Community-based Health Care

Apriningsih Apriningsih,[1] Syahbuddin Syahbuddin[2] and Yessi Crosita Octaria[3]

[1]*Health Sciences Faculty, University of Pembangunan Nasional Veteran Jakarta, Indonesia*
[2]*Stikes Jabal Ghafur Sigli, Pidie, Aceh, Indonesia*
[3]*Saraswati Study Center for Gender Disability and Social Inclusion, UPN Veteran, Jakarta, Indonesia*

ABSTRACT

Objective. This study aimed to evaluate the use of Indonesian Self-MNA (Mini Nutritional Assessment) as a modest and simple tool to screen the risk of malnutrition in the elderly in the community-based care setting.

Methods. This formative study involved 20 females, aged 60 and above, who were chosen from a local community health post-elderly program in Depok-West Java, Indonesia. Self-MNA was administered by a health cadre and compared to Full MNA administered by a trained nutritionist as the gold standard.

Results. All respondents were female, the mean age was 65.35 years (SD = 4.71), the mean BMI was 24.34 (SD = 2.87), and the mean, median, and mode of the Self-MNA score were 11.6, 12, and 13, respectively. While for the Full MNA, the mean, median, and mode score were 25.35, 25.50, and 22.50, respectively. The sensitivity of Self-MNA compared to Full MNA was 100%, while the specificity was 78.9%. Linear regression test between Self-MNA and MNA showed the r value was 0.675 showing a moderate correlation between Self-MNA and full MNA. The total Healthy Eating Index (HEI) of the respondents was 62.25 or included in the category that needed improvement.

Conclusion. Self-MNA is a simple tool that can be administered independently by health cadre or family members, and has shown high level of inter tools reliability and validity compared to the full MNA as a standard. Thus, further development of app-based Self-MNA for elderly nutritional status monitoring maybe feasible.

Keywords: elderly, MNA, nutritional status, self-MNA

INTRODUCTION

The number of elderly over 65 years old in Indonesia continues to increase as life expectancy increases. Based on the National Development Planning Agency (*Bappenas*) data, the proportion of elderly in Indonesia will increase 2-fold in a 25-year period from about 5% in 2010 to 10.6% in 2035, or about 32 million people.[1] Many studies show that the elderly are prone to malnutrition, due to health problems or decreased digestive function due to anatomical changes such as reduced number of teeth, and physiology such as decreased saliva production or decreased peristaltic function of the gastrointestinal tract. Thus, the prevalence of undernutrition among elderlies is quite high, ranging from 24.5% to 58% in various parts of the world.[2] Variation in the proportion of the number of elderly who experience malnutrition can be caused by the variety of measuring instruments used to assess the nutritional status of the elderly.[3]

eISSN 2094-9278 (Online)
Published: June 30, 2026
https://doi.org/10.47895/amp.v60i12.4588

Corresponding author: Yessi Crosita Octaria, MIH
Saraswati Study Center for Gender Disability and Social Inclusion,
UPN Veteran, Jakarta, Indonesia
Email: yessicrosita2@gmail.com
ORCiD: https://orcid.org/0000-0002-7471-137X

Despite the availability of validated screening tools for malnutrition, awareness of malnutrition is still limited. Lack of time for nutritional examination by overworked medical staff problem in the elderly, particularly in hospitals and nursing homes, and even among older people living independently, the incidence is not insignificant (5-10 percent). One reason for the inadequate awareness of malnutrition may be the overworked healthcare professionals, notably general practitioners (GPs), who lack time for nutritional examination. Therefore, a self-administered tool might be helpful in alerting the GPs of the presence of malnutrition and enabling the provision of early intervention.[4]

Research show that the Mini Nutritional Assessment (MNA) is a valid a reliable tool for screening the risk of malnutrition.[5] It was developed through a collaboration between Toulouse University Hospital (France), the Medical School of New Mexico (A.S), and Nestle Research Centre (Switzerland). This MNA was then validated by three studies involving 600 patients.[6] MNA is a simple screening tool designed to assist health workers to monitor patients in hospitals or in care homes. The scale in the MNA or also called the Full MNA is divided into 18 questions with 4 domain questions related to anthropometric measure-ments, global risk of malnutrition, subjective assessment of self and food intake.[7] MNA with adjustment is assessed as a valid measuring tool to assess nutritional status in elderly patients in Asia.[8] In addition MNA only takes 10-15 minutes in its application.[7]

The MNA is simple and easy to use for trained health workers in health care facilities. However, it is a challenge for non-trained health workers at a community-based care or at home because it requires skills and longer time to administer. This is due to a large number of questions, and it involves four anthropometric measurements, namely Height and Weight to assess Body Mass Index as well as Upper Arm Circumference and Calf Circumference. Therefore, another tool was developed, the "Self-MNA" which was a modification of the MNA. It is designed for use by patients or family members. The Self-MNA was developed from the MNA SF or the screening part of the Full MNA. This section focuses more on the global risk of malnutrition and uses only one anthropometric indicator, the BMI table or calf circumference for elderlies who are unable to stand up.[5,9]

Another challenge for its use in Indonesian context was that the available tool for screening the risk of malnutrition among elderly is in English language. To be able to use it in other context, it will need translation and validation. Against this backdrop, this study aimed to translate the Full MNA and the Self-MNA into Bahasa Indonesia and validate the Self-MNA using the Full MNA as a gold standard in real life setting to screen risk of malnutrition in elderly in community-based health care in Indonesia. Further, amidst the COVID-19 pandemic, the need for independent health risk screening is pressing for elderlies.[10] Therefore, results of this study will provide insight on the development of easy and simple to use nutritional status screening for elderly at home or community-based health care setting as well as its further adaptation into app-based tool.

METHODS

Study Design, Location and Participants

This was a cross-sectional study. Data collection was conducted from July 10 to December 11 2017 in Limo, Depok City, as it is one of the supported areas by the university, with a high population of the elderly. This study has been granted ethical approval by the health research ethics committee (B/740/VII/2016/KEPK). The study respondents for tool validation were 20 elderly females aged over 60 years who were members of *Posbindu Dahlia Senja*, Limo, Depok City, who were willing to participate in the study. Sample selected used purposive technique sampling. Inclusion criteria were elderly (aged older than 60 years old) and able to stand up. Those who were bed ridden or not able to attend the community health post were excluded.

Data Collection and Analysis

A cadre or the elderly companion assisted the elderly to fill in the Self-MNA since most of them were unable to read or write. The elderly was then assessed for risk of malnutrition using the full MNA by the researchers who are trained nutritionists. Height and weight were measured using microtois (stadiometer) and calibrated digital scale, respectively. Upper arm circumference and calf circumference were measured using a commercial measuring tape. Food consumption data was taken using the 24-hour food recall method to measure the Healthy Eating Index (HEI). It was collected to provide insight into the elderly's diet to help explain their nutritional status as well as to identify potential problems related to their eating habits. We also conducted in-depth interviews with the cadres and elderly companions who helped the elderly in utilizing the Self-MNA to gather insight on their experiences.

The MNA and Self-MNA tools were translated into Indonesian by two independent translators. Any differences in translation were resolved through a group discussion with the research team. Before the tools were used in the field, they were first tested among lay people (two adults with low education background) to identify unclear questions or potential misunderstandings. After simple testing to lay people, the tool was then revised to its final form. The translated version of the tools is found in Appendices 1 and 2.

Data in this manuscript were presented descriptively. Diagnostic accuracy method (sensitivity and specificity) was used to validate the Self-MNA against the full MNA as the gold standard. Data analysis was conducted using SPSS version 23. Data on food consumption was analyzed using the Healthy Eating Index (HEI). Qualitative data interpretation based on the in-depth interviews were presented in narrative form in the discussion section.

The MNA and Self-MNA

The MNA score ranged from 0-30, categorized into three groups - "low risk of malnutrition" (24 – 30), "at risk of malnutrition" (17 - 23.5), or "malnourished" (<17). The assessment was conducted in two steps. The first was to fill out the MNA Short Form (MNA SF) which was the screening section. If the score has a value of below 12 then further assessment is carried out with a full form MNA, which is the assessment section.[6] The Self-MNA uses the adaptation of questions in the screening section or the S section MNA and replaces IMT-related questions with IMT tables or Calf Circumference measurements. The translated Self-MNA questionnaire is attached in Appendix 2.[11] Self-MNA assessment scores ranged from (0 – 14. A score of 12 - 14 is categorized to have normal nutritional status, 8-11as having a risk of malnutrition, and 0-7 is categorized as malnutrition.

RESULTS

Respondent Characteristics (Self-MNA, MNA and BMI)

All respondents were female, with the youngest being 60 years old and the oldest being 79 years old. The average age of the respondent is 65.35 years old (SD 4.71). The average BMI is 24.34 kg/m^2 (SD = 2.87). Based on BMI, 5% of respondents were categorized as underweight, 50% have normal weight, and 45% were overweight (Table 1).

Self-MNA and MNA

There were 25% of the elderly who were detected at risk of malnutrition using MNA and 45% with Self-MNA. This figure is in accordance with research findings in various parts of the world that the number of elderly who experience undernutrition ranges from 24.5% to 58%.[2] The fact that the Self-MNA showing higher prevalence, highlighted its sensitivity as a community-based screening tool. The results of the Pearson linear regression test showed that the r value between Self-MNA and MNA was 0.675 which was higher than that of MNA and BMI, which was 0.545 (Table 2). No respondent was identified as malnourished based on Self-MNA and MNA scores. There were nine respondents identified at risk of malnutrition based on Self-MNA compared to only five based on MNA. All respondents identified at risk of malnutrition with independent MNA were also identified at risk with MNA. True Positive = 5, False Positive = 4, True Negative = 15, False Negative = 0. Hence, the sensitivity of the Self-MNA was 100% while the specificity was 78.9%.

The Elderly Eating Habit

Evaluation of the nutritional status of the elderly can be confirmed by assessing their diet, therefore in this preliminary study, data on consumption patterns were also taken using the 24-hour recall method. This method is not the strongest method but is considered adequate as an initial attempt to help identify their dietary pattern and problem. This data was then converted into the Indonesian Healthy Eating Index or HEI (Table 3). The total HEI of the respondents was 62.25 or included in the category that needed improvement. This justified the finding from the Self-MNA screening, which indicated high proportion of the elderly were actually identified as having risk of malnutrition. The diet or eating pattern that arises from the HEI analysis was mainly related to the need to increase consumption of vegetables, fruit, PUFA, and vegetable protein.[12] In addition, it is necessary to reduce the consumption of fatty foods and coconut milk. On the other hand, the elderly in this study have realized the importance of controlling salt, sugar, and cholesterol intake.

DISCUSSION

Results showed that the mean BMI of the elderly was 24.34 kg/m2 (SD = 2.87) or most elderly were categorized as having normal BMI but based on the Asian cut off of 23 kg/m2, they were considered overweight. The diet according to the HEI analysis which showed high intake of fatty food and coconut milk might offer an answer to the high proportion of the elderly who are overweight in this study. This finding is

Table 1. Respondent Characteristics

	Mean	Median	SD
Age (y.o)	65.35	65.00	4.71
MNA	25.35	25.50	2.22
Self MNA	11.60	12.00	1.50
BMI (kg/m^2)	24.34	24.22	2.87
N		20	

MNA – Mini Nutrition Assessment, BMI – Body Mass Index

Table 2. Correlation between MNA Score and Self MNA Score

	Self MNA
MNA	0.675
BMI	0.545
Se	100%
Sp	78.9%
N	20

MNA – Mini Nutrition Assessment, BMI – Body Mass Index, Se – Sensitivity, Sp – Specificity

Table 3. Healthy Eating Index of Respondents

Food item	Mean	Standard deviation	N
Vegetable	3.50	3.67	20
Fruit	2.75	4.43	20
Staple food	9.75	1.12	20
Plant protein	5.25	4.72	20
Animal protein	8.50	2.86	20
Cholesterol	8.00	4.11	20
Sodium	9.75	1.12	20
Sugar	10.00	0.00	20
PUFA	47500	4.13	20
Trans fat	0.00	0.00	20
Total	62.25	13.91	20

PUFA – Polyunsaturated Fatty Acids

similar to the study in Sri Lanka which found that the main source of fat was obtained from coconut milk oil which is high in saturated fatty acid. This needs attention because of the risk of obesity and coronary heart disease.[13]

The sensitivity (Se) of Self-MNA compared to Full MNA was 100%, while the specificity (Sp) was 78.9%. Both measure for Self-MNA showed high diagnostic accuracy compared to the Full MNA. Study shows the use of Self-MNA is more recommended in screening for the risk of malnutrition than measuring BMI alone, because Self-MNA can detect the risk of malnutrition before anthropometric changes occur at a later stage to the presence of early undernourishment.[6]

This can be seen from the results of the study where most of the low scores in the MNA and independent MNA came from the screening domain or questions about the global risk of undernutrition, namely questions related to decreased appetite, weight loss, and mild senility, which is in line with the findings in the previous study in the United States.[11] Although objectively the elderly concerned can have a normal BMI and even be overweight, the risk of malnutrition cannot be ignored.[14]

Regarding the technical use of Self-MNA, some of the elderly who can read and write were able to fill out forms without the help of the health cadres. The elderly who cannot read were assisted by cadres or their companions (children or grandchildren). Both cadres, elderly and assistants have had difficulty reading and interpreting the BMI table that accompanies the Self-MNA form, so most of them chose to use the calf circumference measurement instead of the BMI.

For the calf circumference measurement, it was done by health cadres or the elderly companion. For the development of Self-MNA and MNA in Indonesia, it is recommended to use local cut off values available. In this study, the value of 31 cm is still used according to general advice. In Indonesia, a multi-site study has been conducted to determine the anthropometric cut-off value for the elderly. For calf circumference, it is suggested that a value of 34 cm for elderly men and 32.5 cm for elderly women is recommended compared to 31 cm used in this study.[15] At first, the time needed to fill out the form/interview until the calf circumference measurement was 5 – 10 minutes which then became shorter after the cadres/companions got used to filling it out. This time length is shorter than the time needed to measure risk of malnutrition using the full MNA by trained health care workers in Iran which was 10-15 minutes.[16]

Preliminary study on the application of a risk screening tool for undernutrition for elderly in community-based or home-based setting in this study has shown promising results. It can be used as a reference in developing similar studies on a larger scale to feed the development of app-based tool for self-screening. So far, the health cards for elderly to monitor their health in community-based health post or the *Kartu Menuju Sehat (KMS)* for elderly has not covered malnutrition risk screening other than using BMI. In the midst of COVID-19 pandemic, where the elderly health care service is disrupted, a home-based, simple and easy to use health screening tool is important. Thus, the results of this study could provide insight for future development of remote health monitoring tool for elderly. However, this study also has some limitations. The small sample size and all female respondents make the results of this study unable to be generalized to other elderly populations thus the need for larger scale studies.

CONCLUSION

Elderly Self-MNA is a screening tool that is easy and simple to use by cadres or elderly companion in screening the risk of malnutrition in active elderly in community-based health care setting or at home. It has also shown high compliance with Full MNA as the standard used. Hence, it is a potential tool for further development for adoption such as the elderly health monitoring card as well as an adaptation to an app-based nutrition risk assessment for elderly.

Statement of Authorship

All authors certified fulfillment of ICMJE authorship criteria.

Author Disclosure

All authors declared no conflicts of interest.

Funding Source

The study was funded by the authors.

REFERENCES

1. Badan Pusat Statistik Indonesia. Proyeksi Penduduk Indonesia - Indonesia Population Projection 2010-2035. 2013.
2. Chern CJH, Lee SD. Malnutrition in hospitalized Asian seniors: an issue that calls for action. J Clin Gerontol Geriatr. 2015;6(3):73-7. doi: 10.1016/j.jcgg.2015.02.007.
3. Porter Starr KN, McDonald SR, Bales CW. Nutritional Vulnerability in Older Adults: A Continuum of Concerns. Curr Nutr Rep. 2015 Jun;4(2):176-184. doi: 10.1007/s13668-015-0118-6. PMID: 26042189; PMCID: PMC4445877.
4. Donini LM, Marrocco W, Marocco C, Lenzi A. Validity of the Self-Mini Nutritional Assessment (Self-MNA) for the evaluation of nutritional risk. A cross-sectional study conducted in general practice. J Nutr Health Aging. 2018;22(1):44-52. doi:10.1007/s12603-017-0919-y.
5. Söderhamn U, Dale B, Sundsli K, Söderhamn O. Nutritional screening of older home-dwelling Norwegians: A comparison between two instruments. Clin Interv Aging. 2012;7:383-91. doi: 10.2147/CIA.S35986.
6. Vellas B, Villars H, Abellan G, Soto ME, Rolland Y, Guigoz Y, et al. Overview of the MNA--Its history and challenges. J Nutr Health Aging. 2006 Nov-Dec;10(6):456-63; discussion 463-5. PMID: 17183418.
7. Compan B, di Castri A, Plaze JM, Arnaud-Battandier F. Epidemiological study of malnutrition in elderly patients in acute, sub-acute and long-term care using the MNA. J Nutr Health Aging. 1999;3(3):146-51. PMID: 10823981.

8. Shum NC, Hui WW, Chu FC, Chai J, Chow TW. Prevalence of malnutrition and risk factors in geriatric patients of a convalescent and rehabilitation hospital. Hong Kong Med J. 2005 Aug;11(4):234-42. PMID: 16085939.
9. Moloney L, Jarrett B. Nutrition assessment and interventions for the prevention and treatment of malnutrition in older adults: an evidence analysis center scoping review. J Acad Nutr Diet. 2021;121(10): 2108-40.e6. doi: 10.1016/j.jand.2020.09.026.
10. Krishnamoorthy Y, Nagarajan R, Saya GK, Menon V. Prevalence of psychological morbidities among general population, healthcare workers and COVID-19 patients amidst the COVID-19 pandemic: a systematic review and meta-analysis. Psychiatry Res. 2020;293: 113382. doi: 10.1016/j.psychres.2020.113382.
11. Huhmann MB, Perez V, Alexander DD, Thomas DR. A self-completed nutrition screening tool for community-dwelling older adults with high reliability: A comparison study. J Nutr Heal Aging. 2013;17(4): 339-44. doi:10.1007/s12603-013-0015-x.
12. Kennedy ET, Ohls J, Carlson S, Fleming K. The Healthy Eating Index: design and applications. J Am Diet Assoc. 1995 Oct;95(10): 1103-8. doi: 10.1016/S0002-8223(95)00300-2. PMID: 7560680.
13. Jayawardena R, Thennakoon S, Byrne N, Soares M, Katulanda P, Hills A. Energy and nutrient intakes among Sri Lankan adults. Int Arch Med. 2014;7(1):34. doi:10.1186/1755-7682-7-34.
14. Ranhoff AH, Gjøen AU, Mowé M. Screening for malnutrition in elderly acute medical patients: the usefulness of MNA-SF. J Nutr Health Aging. 2005 Jul-Aug;9(4):221-5. PMID: 15980922.
15. Setiati S, Istanti R, Andayani R, Kuswardhani RA, Aryana IG, Putu ID, et al. Cut-off of anthropometry measurement and nutritional status among elderly outpatient in Indonesia: multi-centre study. Acta Med Indones. 2010 Oct;42(4):224-30. PMID: 21063044.
16. Fereshtehnejad SM, Ghazi L, Sadeghi M, Khaefpanah D, Shahidi GA, Delbari A, et al. Prevalence of malnutrition in patients with Parkinson's disease: a comparative study with healthy controls using Mini Nutritional Assessment (MNA) questionnaire. J Parkinsons Dis. 2014;4(3):473-81. doi: 10.3233/JPD-130323. PMID: 24718272.

APPENDICES

Mini Nutritional Assessment **MNA®**

INDONESIA

Nama:

L/P : | Umur: | Berat,Kg : | Tinggi, cm: | Tanggal:

Lengkapi formulir ini dengan mengisi kotak yang tersedia dengan angka yang sesuai.
Jika nilai yang diperoleh sama atau dibawah 11, maka lanjutkan dengan pertanyaan kajian untuk memperoleh Skor Indikator Malnutrisi.

Penapisan

A. Mengalami penurunan asupan makanan dalam 3 bulan terakhir karena berkurangnya nafsu makan, masalah pencernaan, kesulitan mengunyah atau menelan?
0: mengalami penuruan asupan makanan yang parah
1: mengalami penuruan asupan makanan yang sedang
2: tidak mengalami penuruan asupan makanan ☐

B.Penurunan berat badan dalam 3 bulan terakhir
0: mengalami penurunan berat badan lebih dari 3 kg
1: tidak tahu
2: kehilangan berat badan antara 1 sampai 3 kg
3: tidak kehilangan berat badan ☐

C.Mobilitas
0: hanya ditempat tidur atau kursi roda
1: dapat turun dari tempat tidur tetapi tidak dapat keluar/berjalan-jalan
2: dapat pergi keluar/ jalan-jalan ☐

D.Mengalami tekanan psikologis atau penyakit akut dalam 3 bulan terakhir?
0: ya
1: tidak ☐

E.Masalah Neuropsikologi
0: demensia atau depresi berat
1: demensia ringan
2: tidak mengalami masalah neuropsikologi ☐

F.Index Masa Tubuh (IMT)
Berat dalam kg/tinggi dalam m²
0: IMT kurang dari 19
1: IMT antara 19-21
2: IMT antara 21-23
3: IMT lebih dari 23 ☐

Nilai screening (Total nilai maks 14) ☐

12-14 poin: ☐ **Status nutrisi normal**
8-11 poin : ☐ **Beresiko malnutrisi**
0-7 poin : ☐ **Malnutrisi**

Untuk pengkajian lebih lanjut, teruskan dengan pertanyaan G-R

Pengkajian

G.Hidup secara mandiri (tidak di rumah perawatan, panti, atau rumah sakit) ☐
0: tidak 1: ya

H.Minum obat lebih dari 3 jenis obat per hari ☐
0: ya 1: tidak

I.Luka tekan (dekubitus) atau ulser kulit ☐
0: ya 1: tidak

J. Berapa kali pasien makan dalam sehari? ☐
0: 1 kali dalam sehari
1: 2 kali dalam sehari
2: 3 kali dalam sehari

K.Pilihlah salah satu jenis asupan protein yang biasa dikonsumsi
Setidaknya salah satu produk dari susu (susu, keju, yoghurt per hari) ☐
Dua porsi atau lebih kacang-kacangan/telur perminggu ☐
Daging, ikan atau unggas setiap hari ☐
0,0: jika tidak ada atau hanya 1 jawaban ya
0,5: jika 2 jawaban ya ☐
1,0: jika semua jawaban ya

L.Apakah anda mengkonsumsi sayur atau buah 2 kali atau lebih setiap hari? ☐
0: tidak 1: ya

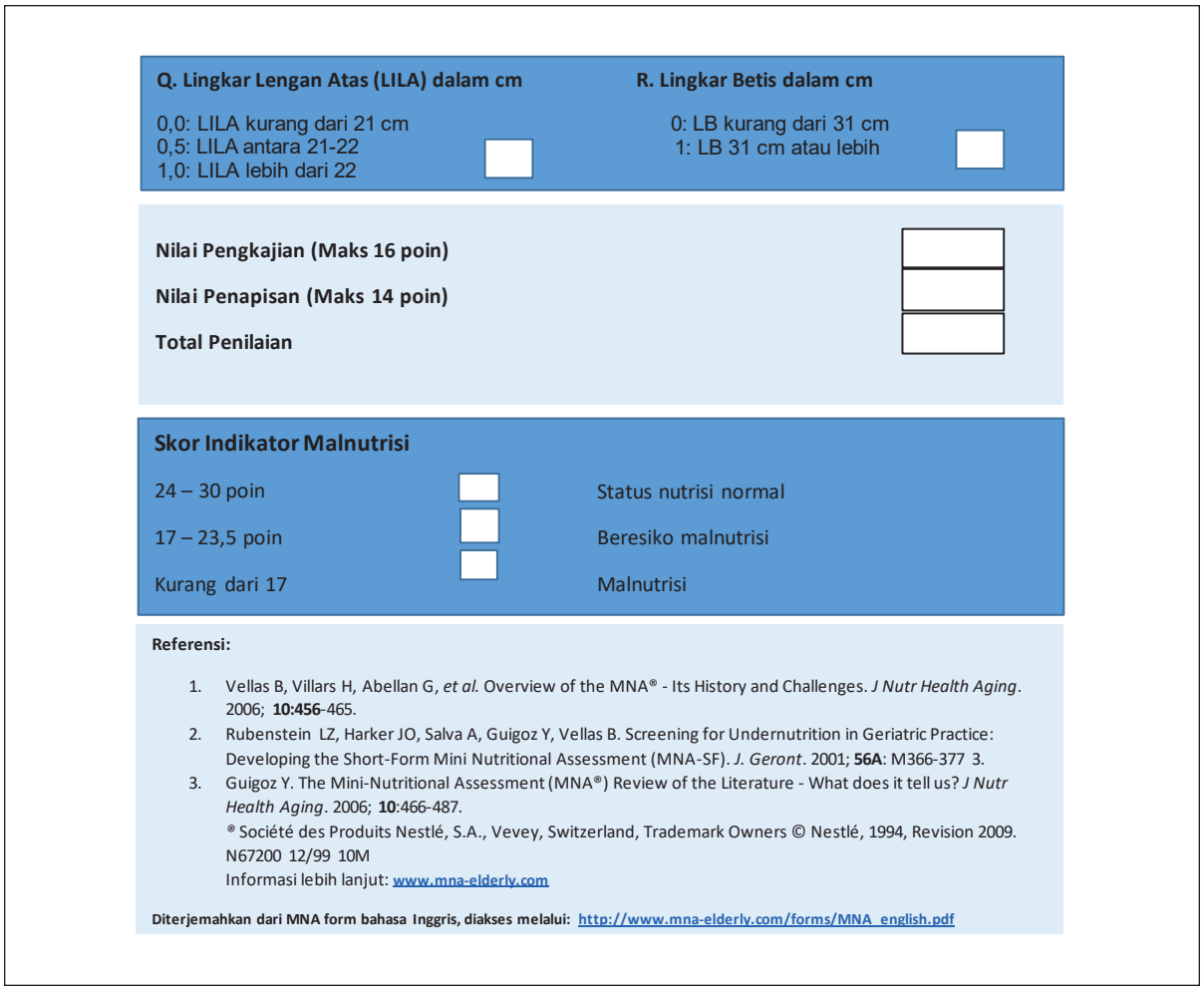
M.Jumlah cairan yang diminum setiap hari? (susu, teh, kopi, air putih, dll)
0,0: kurang dari 3 gelas
0,5: 3-5 gelas ☐
1,0: lebih dari 5 gelas

N. Cara makan
0:Tidak dapat makan sendiri tanpa bantuan
1:Makan sendiri tapi kesulitan ☐
2.Makan sendiri tanpa masalah

O.Pendapat tentang status gizi sendiri ☐
0: Menilai diri sendiri malnutrisi
1:Tidak yakin dengan status gizinya
2: Menilai diri sendiri tidak punya masalah gizi

P.Jika dibandingkan dengan orang lain, bagaimana pendapat pasien tentang status kesehatannya?
0: tidak lebih baik dari orang lain
1: tidak tahu
2: sama baiknya dengan orang lain ☐
3: lebih baik dari orang lain

Appendix 1. Indonesian Mini Nutritional Assessment (MNA®)



Q. Lingkar Lengan Atas (LILA) dalam cm

0,0: LILA kurang dari 21 cm
0,5: LILA antara 21-22
1,0: LILA lebih dari 22

R. Lingkar Betis dalam cm

0: LB kurang dari 31 cm
1: LB 31 cm atau lebih

Nilai Pengkajian (Maks 16 poin)

Nilai Penapisan (Maks 14 poin)

Total Penilaian

Skor Indikator Malnutrisi

24 – 30 poin	Status nutrisi normal
17 – 23,5 poin	Beresiko malnutrisi
Kurang dari 17	Malnutrisi

Referensi:

1. Vellas B, Villars H, Abellan G, *et al.* Overview of the MNA® - Its History and Challenges. *J Nutr Health Aging*. 2006; **10:456**-465.
2. Rubenstein LZ, Harker JO, Salva A, Guigoz Y, Vellas B. Screening for Undernutrition in Geriatric Practice: Developing the Short-Form Mini Nutritional Assessment (MNA-SF). *J. Geront*. 2001; **56A**: M366-377 3.
3. Guigoz Y. The Mini-Nutritional Assessment (MNA®) Review of the Literature - What does it tell us? *J Nutr Health Aging*. 2006; **10**:466-487.

Informasi lebih lanjut: www.mna-elderly.com

Diterjemahkan dari MNA form bahasa Inggris, diakses melalui: http://www.mna-elderly.com/forms/MNA_english.pdf

Appendix 1. Indonesian Mini Nutritional Assessment (MNA®) *(continued)*

Self-MNA®

Mini Nutritional Assessment

MNA mandiri

Nama :

Tanggal : **Umur :**

Mini Nutritional Assessment untuk lansia usia 65 tahun keatas

Lengkapi formulir dengan mengisi kotak yang tersedia dengan angka yang sesuai.

Jumlahkan total angka untuk nilai akhir penapisan

Penapisan

A.Apakah asupan makanan anda berkurang dalam 3 bulan terakhir? **[Pilih satu angka]** *Isi dengan angka yang paling sesuai (0, 1, or 2) pada kotak di kanan.*	0: mengalami penuruan asupan makanan yang parah 1: mengalami penuruan asupan makanan yang sedang 2: tidak mengalami penuruan asupan makanan
B. Seberapa besar penurunan berat badan yang dialami selama 3 bulan terakhir? **[Pilih satu angka]** *Isi dengan angka yang paling sesuai (0, 1,2 atau 3) pada kotak di kanan.*	0: mengalami penurunan berat badan lebih dari 3 kg 1: tidak tahu 2: kehilangan berat badan antara 1 sampai 3 kg 3: tidak kehilangan berat badan atau turun dibawah 1 kg
C. Bagaimana anda menggambarkan mobilitas (pergerakan) anda sekarang? **[Pilih satu angka]** *Isi dengan angka yang paling sesuai (0, 1 atau 2) pada kotak di kanan.*	0: tidak dapat meninggalkan tempat tidur, kursi atau kursi roda tanpa bantuan orang lain 1: dapat turun dari tempat tidur atau kursi tetapi tidak dapat keluar rumah/berjalan-jalan 2: dapat pergi keluar rumah/ jalan-jalan
D Apakah anda pernah mengalami stress atau sakit parah dalam 3 bulan terakhir? *Isi dengan angka yang paling sesuai (0 atau 2) pada kotak di kanan.*	0: ya 1: tidak
E.Apakah anda saat ini mengalami demensia (pikun) dan/ atau mengalami rasa sedih yang dalam dan berkepanjangan? **[Pilih satu angka]** *Isi dengan angka yang paling sesuai (0, 1, or 2) pada kotak di kanan.*	0: ya, demensia berat atau kesedihan yang mendalam dan berkepanjangan. 1: ya, demensia ringan saja, tidak ada rasa sedih berat 2: tidak ada demensia maupun rasa sedih mendalam
Jumlahkan angka yang anda isikan ke dalam kotak untuk pertanyaan A – E dan tuliskan hasilnya disini	

Appendix 2. Indonesian Self-Mini Nutritional Assessment (Self-MNA®)

Sekarang, pilih SATU dari dua pertanyaan yang tersedia berikut F1 atau F2 untuk dijawab

Pertanyaan F1

Tinggi	Berat Badan			
147.5	Kurang dari 41,1	41.1 – 45,3	45.4 – 49.6	Lebih dari 49,7
150	Kurang dari 42,8	42.8 – 47.2	47.3 – 51.7	Lebih dari 51,8
152.5	Kurang dari 44,2	44.2 – 48.7	48.8 – 53.4	Lebih dari 53,5
155	Kurang dari 45,6	45.6 – 50.4	50.5 – 55.2	Lebih dari 55,3
157.5	Kurang dari 47,1	47.1 – 52.0	52,1 – 57,0	Lebih dari 57,1
160	Kurang dari 48,6	48.6 – 53.7	53.8 – 58.8	Lebih dari 58,9
162.5	Kurang dari 50,2	50.2 – 55.4	55.5 – 60.6	Lebih dari 60,7
165	Kurang dari 51,7	51.7 – 57.1	57.2 – 62.5	Lebih dari 62,6
167.5	Kurang dari 53,3	53.3 – 58.8	58.9 – 64.4	Lebih dari 64,5
170	Kurang dari 54,9	54.9 – 60.6	60.7 – 66.4	Lebih dari 66,5
172.5	Kurang dari 56,5	56.5 – 62.4	62.5 – 68.3	Lebih dari 68,4
175	Kurang dari 58,2	58.2 – 64.2	64.3 – 70.3	Lebih dari 70,4
177.5	Kurang dari 59,9	59.9 – 66.1	66.2 – 72.4	Lebih dari 72,5
180	Kurang dari 61,6	61.6 – 67.9	68.0 – 74.4	Lebih dari 74,5
182.5	Kurang dari 63,3	63.3 – 69.8	69.9 – 76.5	Lebih dari 76,6
185	Kurang dari 65,0	65.0 – 71.8	71.9 – 78.6	Lebih dari 78,7
187.5	Kurang dari 66,8	66.8 – 73.7	73.8 – 80.8	Lebih dari 80,9
190	Kurang dari 68,6	68.6 – 75.7	75.8 – 82.9	Lebih dari 83,0
192.5	Kurang dari 70,4	70.4 – 77.7	77,8 – 85,1	Lebih dari 85,2
Grup	**0**	**1**	**2**	**3**

Lihat tabel disamping dan ikuti intruksi berikut:

1. Cari tinggi badan anda pada baris di kolom paling kiri
2. Lalu geser jari anda sepanjang baris tersebut ke kanan untuk menemukan berat badan anda
3. Lihat dibaris paling bawah untuk mengetahui anda berada pada grup mana (0,1,2 atau 3)

Tulis grup anda (0,1,2 atau 3) ☐

Tulis hasil penjumlahan jawaban anda untuk pertanyaan A-E ☐

Jumlahkan hasil jawaban pertanyaan A – E dengan angka grup anda.Ini adalah skor anda ☐

Pertanyaan F2 – tidak perlu dijawab jika anda telah menjawab F1

Ukur lingkar BETIS KIRI anda sesuai petunjuk berikut

1. Lingkarkan pita pengukur pada betis kiri anda untuk memperoleh ukurannya ☐
2. Catatlah hasilnya

Jika kurang dari 31 cm, tulis angka 0 di kotak

Jika sama atau lebih dari 31 cm, tulis angka 3 di kotak

Tulis hasil penjumlahan jawaban anda untuk pertanyaan A-E ☐

Jumlahkan hasil jawaban pertanyaan A – E dengan angka skor lingkar betis anda ☐

Ini adalah skor anda

Skor Penapisan (Maks 14 poin)

12 – 14 poin : Status nutrisi normal

8 – 11 poin : Beresiko malnutrisi

0 – 7 poin : Malnutrisi

Diterjemahkan dariSelf MNA – Metric

http://www.mna-elderly.com/forms/Self_MNA_English_Metric.pdf

Jika skor anda antara 0 – 11, bawalah formulir ini kepada petugas kesehatan untuk konsultasi

Appendix 2. Indonesian Self-Mini Nutritional Assessment (Self-MNA®) *(continued)*