

# Analysis of the factors affecting the nutritional status and health of the elderly during the covid-19 pandemic

Anita<sup>1\*</sup>, Nurlaili Ramli<sup>2</sup>

<sup>1,2</sup>Department of Midwifery, Politeknik Kesehatan Kementerian Kesehatan, Aceh, Indonesia

## ARTICLE INFO

### Article history:

Received Aug 7, 2022

Revised Sep 1, 2022

Accepted Sep 28, 2022

### Keywords:

Nutritional Status  
Health of the Elderly Covid-19  
Pandemic

## ABSTRACT

Nutritional problems are problems that may occur in the elderly which are closely related to food intake and body metabolism and the factors that influence them. Malnutrition represents a potential threat to the health of the elderly. This systematic review wants to learn more about the factors that affect the nutritional status of the elderly and the health of the elderly during the covid pandemic. This study is a systematic review using online databases, namely Scholar, ScienceDirect, ProQuest, and EBSCO. The keywords used are Nutritional Status, Health Elderly, and Covid-19 Pandemic. The selection process used the PRISMA protocol so that 15 articles were obtained that met the inclusion criteria. From the results of a review of several articles, it is known There are associations between emotional support, self-esteem support, appetite, carbohydrate intake, and health and nutritional status in older adults. There is a relationship between factors affecting nutritional needs and nutritional status in older adults, including physical activity, depression and mental status, medication, disease, and biological decline. The indirect causes of nutritional problems in the elderly are environmental factors, income and the availability of information, while the quality of living environment includes information related to living environment, income and nutritional status of the elderly and the quality of living environment. Factors that influence the nutritional status of older adults are food intake and disease, but are also influenced by physical activity and exercise habits.

This is an open access article under the [CC BY-NC](https://creativecommons.org/licenses/by-nc/4.0/) license.



### Corresponding Author:

Anita,

Department of Midwifery,

Politeknik Kesehatan Kementerian Kesehatan,

G85R+5WR, Jl. Soekarno - Hatta, Lagang, Kec. Darul Imarah, Kabupaten Aceh Besar, Aceh 23231

Email: [anita@poltekkesaceh.ac.id](mailto:anita@poltekkesaceh.ac.id)

## INTRODUCTION

Globally, by 2020, there will be 727 million people aged 65 or older<sup>1,2</sup>. By 2050<sup>3</sup>, that number is expected to double to 1.5 billion. Over the past five decades, the proportion of Indonesia's elderly population has risen from 4.5% in 1971 to around 10.7% in 2020<sup>4,5</sup>. This figure is expected to increase further to 19.9% by 2045. The COVID-19 pandemic is one of the challenges facing older adults<sup>6,7,8</sup>. According to WHO, the elderly are the group most at risk of contracting and even dying from COVID-19. Vulnerability in older adults is due to weakened immune function and the

presence of degenerative diseases such as heart disease, hypertension, and diabetes<sup>9,10,11</sup>.

According to WHO data, more than 95% of COVID-19 deaths in Europe occur in people aged 60 and over, and more than 50% in residents aged 80 and over<sup>12,13,14</sup>. In Indonesia, according to October 2021 data, the percentage of deaths from COVID-19 among the elderly population was 46.8%. Compared to other age groups, this number is the highest. In this state, older people need protection and access to nutritious food, basic necessities, medicines and social care. Families also play an important role in protecting and caring for older adults during a pandemic, such as following hygiene protocols to prevent the spread of COVID-19 and ensuring that older adults' daily health needs are met.

The increase in the number of elderly people in Indonesia calls for more attention to the elderly population, one of which is related to nutritional issues. The roles and functions of public or private entities caring for older people are urgently needed so that together they can help governments address societal issues that affect the improvement of nutrition and health in older people. Malnutrition poses a potential health threat to the entire elderly population<sup>15</sup>. There are some physical and mental changes as we age, nutritional status is good, and seniors are expected to stay healthy, fresh and enthusiastic about their work. Good nutrition increases their productive age so that they can still participate in development<sup>16</sup>.

There are two immediate causes of nutritional status, namely food intake and infectious diseases. In addition, genetic factors and physical activity are other factors that influence nutritional status. In addition to nutritional status, factors such as food intake, physical activity, and genetic factors can also affect health status. Food intake is necessary for performing various functions related to metabolism in the body and for exercising outside the body. Consuming very low amounts of energy and nutrients can lead to weight loss without realizing it<sup>17</sup>. The higher the level of physical activity, the greater the need for energy and nutrients. Eating enough food and regular physical activity can improve health. Excessive food intake, along with less physical activity, can negatively impact nutrition and health outcomes. This study wants to learn more about the factors that affect the nutritional status of the elderly and the health of the elderly during the covid pandemic.

## METHODS

Database searches include Google Scholar, Science Direct, and Proquest with the keywords Nutritional Status and Health of the Elderly in the Covid-19 Pandemic Period. The next stage is to select articles according to the criteria, which are published in 2015-2022 with full text, in the preparation of Preferred Reporting Items for Systematic Reviews and Meta Analysis (PRISMA) the articles that have been found are then synthesized and analyzed according to the inclusion and exclusion criteria. The inclusion criteria in this systematic review are the Nutritional Status and Health of the Elderly in the Covid-19 Pandemic Period, research can provide information about the nutritional status of the elderly including the role of social support from nursing homes or social institutions, especially related to increasing the productivity of the elderly which affects nutritional and health status, elderly. While the exclusion criteria in this systematic review are (1): articles that do not describe the nutritional status of the elderly. The search for articles began in February 2021 with keywords that had been determined by the researcher. The articles found by researchers were selected according to inclusion and exclusion criteria, with the keywords Nutritional Status and Health of the Elderly in the Covid-19 Pandemic Period. The researcher deletes the published articles, examines the articles that meet the criteria and groups them according to the research results to proceed to the discussion

## RESULTS AND DISCUSSION

An initial literature search found 43 articles (Google Scholar 19 articles, Pubmed 16 Science Direct

5 articles, Proquest 3 articles) 28 articles issued were not in sync with the topic of discussion and did not discuss the Nutritional Status and Health of the Elderly in the Covid-19 Pandemic Period, while 15 full text articles meet the criteria as listed in Figure 1.

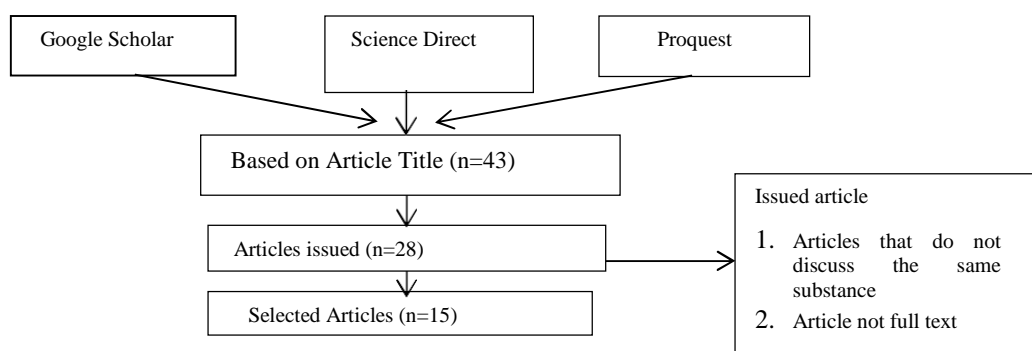


Figure 1. Flow diagram and article selection

The results of 15 articles showed that the Nutritional Status and Health of the Elderly in the Covid-19 Pandemic Period was obtained by analysis of research articles regarding the Factors Affecting the Nutritional Status and Health of the Elderly in the Covid-19 Pandemic Period.

Table 1. Factors Affecting the Nutritional Status and Health of the Elderly During the Covid-19 Pandemic

No	Title, author, year	Results
1	Relationship between nutritional status and incidence of dementia in the elderly at the Ciptomulyo Public Health Center, Malang City <sup>18</sup>  Princess, Indah Alfiyana (2022)	The results showed that there was no relationship between nutritional status and dementia because the results showed a value of (0,53), while the results of the research at the ciptomulyo health center showed that the elderly had moderate dementia. The analyze of connectivity between nutrition and dementia of public health center Malang in 2021 by using chi square shows that there's no relate between nutrition and dementia with (0,53). Keywords: Dementia in the elderly, nutritional status
2	Measurement of the Nutritional Status of the Elderly during the Covid-19 Pandemic <sup>19</sup>  H Pratiwi, M Rochma. 2022	However during the Covid-19 pandemic most of elderly were less active utilizing of Posyandu Lansia servoces. So that their nutritional status was not monitored. The aim of this community service was to assess nutritional status by weighing weight and height as well as providing nutrition education in the working area of Puskesmas (Public Health Center) Wara Utara Palopo City. Measurements were conducted for two days from door to door with health protocols to prevent crowds. The result was that 25 elderly can find out their nutritional status and upgrade their knowledge related to nutrition during the Covid-19 pandemic
3	Increasing Knowledge of Nutrition for the Elderly Through Counseling and Assistance at the Mandalika Social Institution for the Elderly Social Service of the Province of NTB <sup>20</sup> Haerani, 2022	The results of the activity showed an increase in the knowledge of the elderly about the importance of nutrition in old age. Through this community service activity, it is hoped that the elderly's nutritional knowledge will increase so that the quality of life of the elderly will improve
4	The Relationship Between Nutritional Status and Quality of Life in the Elderly in Kedaton Village <sup>21</sup>  Pratiwi, 2022	Analysis of research results using the chi-square seen in the Pearson Chi-Square with <0.05. The results of this study obtained the results of nutritional status, namely 50 respondents with poor nutrition (48%) and good nutritional status, namely 54 respondents (52%). %) while the quality of life is low as many as 51 respondents (49%). This shows that there is a relationship between nutritional status and quality of life of the elderly with p value = 0.018. The results of this study are expected to be input to pay more attention to the condition

of the elderly regarding nutritional intake and quality of life.

5	Relationship of Care Giver to Nutritional Status and Quality of Life of the Elderly <sup>22</sup>  Halimah Tusya Diah Harahap, 2022	The results showed that most of the elderly were no longer working, and were being cared for by their life partners (husband/wife). Physical activity has no significant effect on nutritional status and quality of life, the care giver group also does not have a positive effect on the nutritional status of the elderly, but the care giver has a positive influence on the quality of life (physical domain).
6	Relationship between nutritional status and sleep quality with quality of life in the elderly <sup>23</sup>  Hermawan, 2019	There was no relationship between nutritional status and quality of life ( $r = 0.251$ ; $p = 0.101$ ) and there was no relationship between sleep quality and quality of life ( $r = 0.027$ ; $p = 0.862$ ).
7	The Relationship between Nutritional Status and Quality of Life of the Elderly in Madising Na Mario Community Health Center, Parepare City <sup>24</sup>  Pratiwi, 2019	The results showed that there was a relationship between physical health ( $0.009 < 0.05$ ), there was no relationship between psychological health ( $0.450 > 0.05$ ), there was a relationship between social conditions ( $0.014 < 0.05$ ), and there was no relationship between environmental conditions ( $0.241 > 0.05$ ) with the nutritional status of the elderly in the Madising Na Mario Community Health Center Work Area, Parepar
8	Nutrition Counseling on Improving the Quality of Life in the Elderly Through the Implementation of a Healthy Lifestyle <sup>25</sup>  Harley, 2022	The results of the evaluation of this service indicate that there is an increase in the knowledge of respondents or the elderly about balanced nutrition patterns after counseling. Therefore, it is important to carry out the same activities in the future by focusing on other aspects.
9	Factors Related to Nutritional Status of the Elderly in the Work Area of the Kampar Health Center <sup>26</sup>  Nurhapipa Nurhapipa, Winda Septiani, Siska Nasastra PM2022	The results of bivariate analysis obtained there is a significant relationship between the diet ( $p = 0.031 = 0.05$ ), knowledge ( $p = 0.022 = 0.05$ ), physical activity ( $p = 0.009 = 0.05$ ), and the role of the health officer ( $p = 0.004 = 0.05$ ) with elderly nutritional status. Can be deduced ability, diet, knowledge, physical activity, the role of health workers with the status of elderly nutrition. Based on the results of the study, the advice for Kampar community health care is expected to conduct an outreach program related to healthy eating, counseling about the necessary food that must be restricted to be consumed by the elderly, and Reduce physical activity in its work do not weigh and affect its health.
10	Counseling and Implementation of Health Checks for the Elderly in Pangaribuan Village, Angkola Muaratais District <sup>27</sup>  Aripan, 2022	The results showed that there has been an increase in the quality of clean and healthy life, being able to do healthy without bothering family members. And can improve the understanding and ability of the elderly in overcoming health complaints. With this service, the elderly will better understand the benefits of implementing counseling so that it can be applied in everyday life. It is hoped that the Village Midwife will activate programs related to the implementation of health checks in the elderly.
11	Analysis of the Nutritional Status of the Elderly Based on Body Mass Index (BMI) and Mini Nutritional Assessment (Mna) <sup>28</sup>  Asniar, 2018.	The results showed that the nutritional status based on Body Mass Index (BMI) was 67.5% of the elderly had normal nutritional status, 17.5% of the elderly had poor nutritional status and 15% had more nutritional status. Nutritional status using the Mini Nutritional Assessment (MNA) data showed that 42.5% of the elderly had a risk of malnutrition and 57.5% experienced good nutrition. There is a significant relationship between nutritional status assessment based on BMI and MNA.
12	Nutritional Status and Quality of Life for the Elderly in the Dungaliyo Health Center Work Area, Gorontalo Regency in 2020 <sup>29</sup> Hanfi, 2020	For the higher nutritional status of the elderly, the distribution of normal nutritional status is 158 people (49%) and the lowest is the lowest nutritional status of 35 people (10%). The highest quality of life of the elderly is distributed in the medium category, which is 313 people (96.9%) while the lowest is in the low quality of life, which is 0 people (0%).

13	The Relationship between Nutritional Status and the Occurrence of Degenerative Diseases in the Elderly in Wanggar District, Nabire Regency <sup>30</sup>	The results showed that statistical tests using the Chi Square Test obtained results of 0.000 where $P = <0.05$ then the hypothesis was accepted, there was a relationship between the nutritional status of the elderly as measured by anthropometric measurements on the incidence of degenerative diseases in Wanggar district, nabire district in 2020. There is a significant relationship between nutritional status and the incidence of degenerative diseases in the elderly, where $p$ -value $<0.005$ . Thus the nutritional status of the elderly is related to the incidence of PTM in the elderly in the Wanggar sub-district.
	Sukatemin, 2022	
14	Overview of the Characteristics and Nutritional Status of the Elderly at Putri Ayu Health Center Jambi City in November 2021 <sup>31</sup>	The results showed that most of the nutritional status based on BMI was 38% of normal nutrition and a small portion of 5.2% of malnutrition. Based on the characteristics of elderly age as much as 88.7% and old as much as 11.3%, female sex as much as 66% and male as much as 34%, then the most marital status is married 67% and the least is 2.1% unmarried, employment status the most IRT is 50.5% and the least is 3.1% farmers, then the most history of disease is hypertension 25.6% and the least is vertigo 1.1%. Conclusion: The nutritional status of the elderly at Putri Ayu Health Center, Jambi City, was mostly included in the normal nutrition category, namely 38 people, 38% and at least 5 people were undernourished, namely 5.2%.
	Princess utami, 2021	
15	Social Determinants of Health (Social Risk) and Nutritional Status Among Community-Dwelling Older Adults Living in a Rural Setting: The Atahualpa Project <sup>32</sup>	A total of 295 individuals (mean age: $72.1 \pm 7.6$ years; 58% women) were enrolled. There was an inverse association between the total Gijon's SFES and nutritional status (OR: 0.75; 95% CI: 0.65-0.86; $P < .001$ ). Three of five components of the Gijon's SFES (family situation, social relationships, and support networks) were inversely associated with nutritional status in multivariate logistic regression models.

## Discussion

The results of a systematic analysis of the results of multiple studies showed that a number of factors were associated with the nutritional status of older adults, including emotional support, self-esteem support, appetite, carbohydrate intake and the relationship between health and nutritional status. condition of the elderly. Older people living in the community are vulnerable to nutritional risks because factors that influence food intake<sup>33,34</sup> lead to worsening health outcomes and increased mortality<sup>35,36,37</sup>. The high prevalence of nutritional risk in older adults is dominated by individual characteristics, environment, and lifestyle, such as female gender, living alone, old age, low self-assessed health, cognitive impairment, functional impairment, depression, dementia, loss of appetite, eating difficulties, oral disease, Dysphagia, frequent morbidity, and low social activity<sup>38,39,40</sup>.

Nutritional status affects the quality of life indirectly through decreased physical functioning in older adults<sup>41</sup>. Lack of or better nutritional status can lead to limited mobility in older adults, so this is related to the quality of life in older adults in terms of physical health and social relationships<sup>42</sup>. Indirect nutrition problems The reasons are environmental factors, income and availability of information, while the quality of living environment includes living environment, income, and information, so the nutritional status of the elderly is related to the quality of living environment<sup>43</sup>. Factors affecting the nutritional status of older adults are food intake and diet. disease, but it is also affected by physical activity and exercise habits. Poor nutritional status occurs when the body is deficient or excessive in one or more nutrients<sup>44,45</sup>. Nutritional problems in the elderly need special attention because they can affect health status, mortality and decrease quality of life. Undernutrition and overnutrition in late adulthood can worsen functional conditions and physical health<sup>46</sup>.

The health status (infectious diseases) of older adults has many factors in addition to the type of institution, parental age, level of depression, life satisfaction, social support, physical

activity, appetite, energy, and nutritious diet. Disease is also related to other factors. Others like personal hygiene and hygiene, immunity or body resistance, etc.

Changing demographics, physical, and social environments can put older adults at risk and contribute to depressive symptoms in older adults. Depression level correlates with psychosocial status, and the lower the depression level, the better the psychosocial status of the elderly<sup>47</sup>. Depression affects appetite, food intake, weight, and overall health<sup>48</sup>. In addition, psychosocial conditions are also correlated with the level of life satisfaction, where the higher the level of life satisfaction, the better the psychosocial condition of the elderly.

The life satisfaction of the elderly is related to the feeling of happiness experienced by the elderly which is closely related to the role or social support from the family, community and government. During Covid, the nutritional status of the elderly needs to be considered. the elderly group is often associated with groups that are susceptible to various diseases. Most deaths occur in people with COVID-19 who are 80 years old. WHO and CDC report that in the pre-elderly age (50-59 years) the mortality rate is almost 2%, aged 60-69 years continues to rise to 8 to 15% at the age above 70 years. Most deaths occurred in COVID-19 sufferers aged 80 years and over, with a percentage reaching 21.9%

## CONCLUSION

There are associations between emotional support, self-esteem support, appetite, carbohydrate intake, and health and nutritional status in older adults. There is a relationship between factors affecting nutritional needs and nutritional status in older adults, including physical activity, depression and mental status, medication, disease, and biological decline. The indirect causes of nutritional problems in the elderly are environmental factors, income and the availability of information, while the quality of living environment includes information related to living environment, income and nutritional status of the elderly and the quality of living environment. Factors that influence the nutritional status of older adults are food intake and disease, but are also influenced by physical activity and exercise habits

## References

1. Vogel, D., Gewald, H., & Bozan, K. (2021, January). Introduction to the Minitrack on Seniors' Use of Digital Resources. In Proceedings of the 54th Hawaii International Conference on System Sciences (p. 3891).
2. Purushottam, N. (2022). Consumer Ageism Towards the Older Population: Exploring Avenues for Sustainability Marketing. In Critical Perspectives on Diversity, Equity, and Inclusion in Marketing (pp. 238-250). IGI Global.
3. Purushottam, N. (2022). Consumer Ageism Towards the Older Population: Exploring Avenues for Sustainability Marketing. In Critical Perspectives on Diversity, Equity, and Inclusion in Marketing (pp. 238-250). IGI Global.
4. Sutikno, AN (2020). Demographic Bonus in Indonesia. VISIONER: Journal of Regional Government in Indonesia, 12(2), 421-439.
5. Arini, GA, Daeng, A., & Putri, IA (2022). Long-Term Equilibrium Analysis of the Effect of Demographic Transition on Indonesia's Economic Growth. Elasticity-Journal of Development Economics, 4(1), 41-58.
6. Philip, J., & Cherian, V. (2020). Impact of COVID-19 on mental health of the elderly. int. J. Community Med. Public Health, 7, 2435.
7. Zhang, Q., & Song, W. (2020). The challenges of the COVID-19 pandemic: Approaches for the elderly and those with Alzheimer's disease. MedComm, 1(1), 69-73.
8. Radwan, E., Radwan, A., & Radwan, W. (2020). Challenges facing older adults during the COVID-19 outbreak. European Journal of Environment and Public Health, 5(1), em0059.
9. Farshbafnadi, M., Zonouzi, SK, Sabahi, M., Dolatshahi, M., & Aarabi, MH (2021). Aging & COVID-19 susceptibility, disease severity, and clinical outcomes: The role of entangled risk factors. Experimental

- gerontology, 154, 111507.
10. Holuka, C., Merz, MP, Fernandes, SB, Charalambous, EG, Seal, SV, Grova, N., & Turner, JD (2020). The COVID-19 pandemic: does our early life environment, life trajectory and Socioeconomic status determine disease susceptibility and severity?. *International Journal of Molecular Sciences*, 21(14), 5094.
  11. Bonanad, C., García-Blas, S., Tarazona-Santabalbina, F., Sanchis, J., Bertomeu-González, V., Facila, L., ... & Cordero, A. (2020). The effect of age on mortality in patients with COVID-19: a meta-analysis with 611,583 subjects. *Journal of the American Medical Directors Association*, 21(7), 915-918.
  12. Goujon, A., Natale, F., Ghio, D., Conte, A., & Dijkstra, L. (2020). Age, gender, and territory of COVID-19 infections and fatalities (p. 26). Luxembourg: Publications Office of the European Union.
  13. Sharkey, PF, Hozack, WJ, Rothman, RH, Shastri, S., & Jacoby, SM (2002). Why are total knee arthroplasties failing today?. *Clinical Orthopedics and Related Research*®, 404, 7-13.
  14. Dorrucchi, M., Minelli, G., Boros, S., Manno, V., Prati, S., Battaglini, M., ... & Bella, A. (2021). Excess mortality in Italy during the COVID-19 pandemic: assessing the differences between the first and the second wave, year 2020. *Frontiers in public health*, 927.
  15. Sharkey, PF, Hozack, WJ, Rothman, RH, Shastri, S., & Jacoby, SM (2002). Why are total knee arthroplasties failing today?. *Clinical Orthopedics and Related Research*®, 404, 7-13.
  16. Ningsih, ES, Aisyah, S., Rohmah, EN, & Sandana, KNS (2022). INCREASING THE ROLE OF cadres in the ELDERLY POSYANDU. *Humantech: Indonesian Multidisciplinary Scientific Journal*, 2 (Special Issues 1), 191-197.
  17. Alibhai, SM, Greenwood, C., & Payette, H. (2005). An approach to the management of unintentional weight loss in elderly people. *Cmaj*, 172(6), 773-780.
  18. Putri, IA (2022). Relationship between nutritional status and incidence of dementia in the elderly at Ciptomulyo Public Health Center, Malang City (Doctoral dissertation, University of Muhammadiyah Malang).
  19. Pratiwi, H., Rochma, M., & Maulidiyah, NH (2022). Measurement of the Nutritional Status of the Elderly in the Covid-19 Pandemic Period. *Pyramid: Journal of Community Service*, 1(2), 64-70.
  20. Haerani, Y., Sulaiman, L., & Sismulyanto, S. (2022). Increasing Knowledge on Nutrition for the Elderly Through Counseling and Assistance at the Mandalika Social Institution for the Social Service of the Province of NTB. *Journal of Community Service Creativity (PKM)*, 5(7), 2021-2029.
  21. Pratiwi, DWI, & Supratman, SKM (2022). Relationship Between Nutritional Status and Quality of Life in the Elderly in Kedaton Village (Doctoral dissertation, University of Muhammadiyah Surakarta).
  22. Harahap, HTD (2022). Relationship of Care Giver to Nutritional Status and Quality of Life of the Elderly. *Journal of Gentle Birth*, 5(1), 33-42.
  23. Hermawan, F., Widyastuti, N., Tsani, AFA, & Fitranti, DY (2019). Relationship between nutritional status and sleep quality with quality of life in the elderly. *Journal of Nutrition College*, 8(4), 274-279.
  24. Pratiwi, I. (2019). The Relationship between Nutritional Status and Quality of Life of the Elderly in Madising Na Mario Community Health Center, Parepare City. *Scientific Journal of Humans and Health*, 2(1), 128-140.
  25. Harleli, H., Fithria, F., & Zainuddin, A. (2022). Nutrition Counseling About Improving the Quality of Life in the Elderly Through the Implementation of a Healthy Lifestyle. *Meambo's Journal of Devotion*, 1(1), 22-27.
  26. Nurhapipa, N., Septiani, W., & PM, SN (2022). Factors Related to Nutritional Status of the Elderly in the Work Area of the Kampar Health Center. *Encyclopedia Social Review*, 4(2), 113-118.
  27. Appripan, R. (2022). Counseling and Implementation of Health Checks for the Elderly in Pangaribuan Village, Angkola Muaratais District in 2022. *Aufa Community Service Journal (JPMA)*, 4(1), 39-45.
  28. Asnaniar, WS, & Asfar, A. (2018). Analysis of the Nutritional Status of the Elderly Based on Body Mass Index (BMI) and Mini Nutritional Assessment (MNA). *Scientific Journal of Health Diagnosis*, 12(3), 285-290.
  29. Hanapi, S., Sandalayuk, M., Hafid, W., & Dilapanga, F. (2022). Nutritional Status and Quality of Life for the Elderly in the Dungaliyo Health Center Work Area, Gorontalo Regency in 2020. *Indonesian Health Promotion Publication Media (MPPKI)*, 5(2), 152-155.
  30. Sukatemin, S., Lasmadasari, N., & Ester, E. (2022). The Relationship between Nutritional Status and the Incidence of Degenerative Diseases in the Elderly in Wanggar District, Nabire Regency. *Journal of Nursing and Public Health*, 10(1), 148-156.
  31. Putri Utami, ST (2022). Description of the Characteristics and Nutritional Status of the Elderly at Putri Ayu Health Center Jambi City in November 2021 (Doctoral dissertation, Medicine).

32. Del Brutto, OH, Rumbea, DA, Mera, RM, Recalde, BY, & Sedler, MJ (2022). Social determinants of health (social risk) and nutritional status among community-dwelling older adults living in a rural setting: the Atahualpa project. *Journal of Primary Care & Community Health*, 13, 21501319221087866.
33. Wirahana, GY, Mangalik, G., & Ranimpi, YY (2021). Psychological conditions and eating behavior in determining the nutritional status of the elderly. *Ecopsy*, 8(1), 20-33.
34. Azzolino, D., Saporiti, E., Proietti, M., & Cesari, M. (2020). Nutritional considerations in frail older patients with COVID-19. *The journal of nutrition, health & aging*, 24(7), 696-698.
35. Rohmawati, N. (2013). Anxiety, food intake, and nutritional status in the elderly in Jember Regency.
36. Sudargo, T., Aristasari, T., Prameswari, AA, Ratri, FA, & Putri, SR (2021). Nutritional Care for the Elderly. UGM PRESS.
37. de Araújo Morais, AH, de Souza Aquino, J., da Silva-Maia, JK, de Lima Vale, SH, Maciel, BLL, & Passos, TS (2021). Nutritional status, diet and viral respiratory infections: perspectives for severe acute respiratory syndrome coronavirus 2. *British Journal of Nutrition*, 125(8), 851-862.
38. Mehta, S. (2020). Nutritional status and COVID-19: an opportunity for lasting change?. *Clinical Medicine*, 20(3), 270.
39. Fahim, SM, Hossain, MS, Sen, S., Das, S., Hosssain, M., Ahmed, T., ... & Alam, S. (2021). Nutrition and Food Security in Bangladesh: Achievements, Challenges, and Impact of the COVID-19 Pandemic. *The Journal of Infectious Diseases*, 224(Supplement\_7), S901-S909.
40. Nicklett, EJ, Johnson, KE, Troy, LM, Vartak, M., & Reiter, A. (2021). Food access, diet quality, and nutritional status of older adults during COVID-19: A scoping review. *Frontiers in Public Health*, 9.
41. Sari, NK, & Pramono, A. (2014). Nutritional status, chronic disease, and drug consumption on the quality of life in the physical health dimension of the elderly (Doctoral dissertation, Diponegoro University).
42. Aristawati, Nanda Dewani; Febriyanto, Krishna. The Relationship of Nutritional Status (BMI) With The Level Of Quality Of Life In Fishers. *Borneo Student Research (BSR)*, 2021, 2.2:1181-1187.
43. Machón Sobrado, M., Mateo-Abad, M., Vrotsou, K., & Vergara, I. (2021). Health status and lifestyle habits of vulnerable, community-dwelling older people during the COVID-19 lockdown. *The Journal of Frailty & Aging*, 10(3), 286-289.
44. Cousson, PY, Bessadet, M., Nicolas, E., Veyrone, JL, Lesourd, B., & Lassauzay, C. (2012). Nutritional status, dietary intake and oral quality of life in elderly complete denture wearers. *Gerodontology*, 29(2), e685-e692.
45. Sheiham, A., & Steele, J. (2001). Does the condition of the mouth and teeth affect the ability to eat certain foods, nutrient and dietary intake and nutritional status amongst older people?. *Public health nutrition*, 4(3), 797-803.
46. McNaughton, SA, Crawford, D., Ball, K., & Salmon, J. (2012). Understanding determinants of nutrition, physical activity and quality of life among older adults: the Wellbeing, Eating and Exercise for a Long Life (WELL) study. *Health and quality of life outcomes*, 10(1), 1-7.
47. Utami, RS, Rusilanti, R., & Artanti, GD (2014). Healthy Lifestyle and Physical Health Status of the Elderly. *JKKP (Journal of Family Welfare and Education)*, 1(2), 60-69.
48. Bintanah, S. (2021).. Relationship of Depression Level with Energy and Protein Intake.