Nutritional Status, Resilience and Life Expectancy of Older Adults With Diabetes in the COVID-19 Pandemic

Estado Nutricional, Resiliência e Esperança de Vida de Idosos com Diabetes na Pandemia da COVID-19

Estado Nutricional, Resiliencia y Esperanza de Vida de los Adultos Mayores con Diabetes en la Pandemia de COVID-19

RESUMO

OBJETIVO: avaliar a associação da resiliência e esperança de vida com o estado nutricional de pessoas idosas com diabetes tipo 2 na pandemia da COVID-19. **MÉTODO:** estudo seccional, analítico, quantitativo, com 98 indivíduos com idade igual ou superior a 60 anos, com diagnóstico de Diabetes Mellitus tipo 2, assistidos em um hospital público na cidade do Recife. Foram investigadas variáveis sociodemográficas, clínicas e as escalas de esperança de vida de Herth e de resiliência de Connor-Davidson. **RESULTADOS:** a obesidade esteve presente em 41.8% da amostra. Aqueles que apresentavam peso adequado, pontuaram maior resiliência. As pessoas idosas com obesidade apresentaram baixa resiliência. A análise multivariada mostrou um risco 51% maior nos indivíduos obesos (1,36 – 1,69) e 42% maior em sobrepeso (1,08 – 1,88) em apresentar baixa resiliência e baixa esperança de vida. **CONCLUSÃO:** faz-se necessária a inclusão dos aspectos psicológicos que afetam o tratamento e sua interferência na manutenção do peso adequado.

DESCRITORES: Resiliência; Esperança de vida; Estado nutricional.

ABSTRACT

OBJECTIVE: evaluate the association of resilience and life expectancy with the nutritional status of elderly people with type 2 diabetes in the COVID-19 pandemic. **METHOD:** sectional, analytical, quantitative study, with 98 individuals aged 60 years or over, diagnosed with type 2 Diabetes Mellitus, treated at a public hospital in the city of Recife. Sociodemographic and clinical variables and the Herth life expectancy and Connor-Davidson resilience scales were investigated. **RESULTS:** obesity was present in 41.8% of the sample. Those who had adequate weight had greater resilience. Older people with obesity had low resilience. The multivariate analysis showed a 51% higher risk in obese individuals (1.36 – 1.69) and a 42% higher risk in overweight individuals (1.08 – 1.88) of having low resilience and low life expectancy. **CONCLUSION:** it is necessary to include psychological aspects that affect treatment and their interference in maintaining adequate weight.

DESCRIPTORS: Resilience; Life Expectancy; Nutritional Status.

RESUMEN

OBJETIVO: Evaluar la asociación de la resiliencia y la esperanza de vida con el estado nutricional de personas mayores con diabetes tipo 2 en la pandemia de COVID-19. **MÉTODO:** estudio seccional, analítico, cuantitativo, con 98 personas, con edad igual o superior a 60 años, diagnosticadas con Diabetes Mellitus tipo 2, atendidas en un hospital público de la ciudad de Recife. Se investigaron variables sociodemográficas y clínicas y las escalas de esperanza de vida de Herth y de resiliencia de Connor-Davidson**. RESULTADOS:** la obesidad estuvo presente en el 41,8% de la muestra. Aquellos que tenían un peso adecuado tuvieron mayor resiliencia. Las personas mayores con obesidad tenían baja resiliencia. El análisis multivariado mostró un riesgo 51% mayor en personas obesas (1,36 – 1,69) y un riesgo 42% mayor en personas con sobrepeso (1,08 – 1,88) de tener baja resiliencia y baja esperanza de vida. **CONCLUSIÓN:** es necesario incluir aspectos psicológicos que inciden en el tratamiento y su interferencia en el mantenimiento del peso adecuado.

DESCRIPTORES: Resiliencia; Esperanza de vida; Estado nutricional.

RECEIVED: 04/24/2025 **APPROVED:** 05/10/2025

How to cite this article: Cronemberger IF, Borba AKOT, Marques APO, Alves YC, Lucena TM. Nutritional Status, Resilience and Life Expectancy of Older Adults With Diabetes in the COVID-19 Pandemic. Saúde Coletiva (Edição Brasileira) [Internet]. 2025 [acesso ano mês dia];15(97):16248-16265. Disponível em: DOI: 10.36489/saudecoletiva.2025v15i97p16248-16265

Ítala Farias Cronemberger
Mestre em gerontologia, Universidade Federal de Pernambuco.
ORCID: https://orcid.org/0000-0001-9732-2687

Anna Karla de Oliveira Tito Borba
Doutora em nutrição, Universidade Federal de Pernambuco.
ORCID: https://orcid.org/0000-0002-9385-6806

Ana Paula de Oliveira Marques
Pós-doutora em enfermagem, Universidade Federal de Pernambuco.
ORCID: https://orcid.org/0000-0003-0731-8065

Yasmin Cunha Alves
Bacharel em enfermagem, Universidade Federal de Pernambuco.
ORCID: https://orcid.org/0000-0003-2384-9739

Thais Monteiro de Lucena
Bacharel em enfermagem, Universidade Federal de Pernambuco.
ORCID: https://orcid.org/0009-0000-1642-5255

INTRODUCTION

Coronavirus Disease (COVID-19), caused by the SARS-Cov virus, can affect people of any age. The disease is usually accompanied by a set of flu-like symptoms, but can include Severe Respiratory Distress Syndrome (SARS) and lead to multiple organ failure[1].

Some risk factors have been identified and related to COVID, including the presence of diabetes mellitus (DM), which can affect the functional capacity of elderly people, reflecting on their autonomy and independence. Although many elderly people face the adversities imposed by illness on a daily basis, it can be seen that some individuals have an ability to overcome them, which may be associated with resilience, which can act as a protective factor in relation to psychological disorders, leading to increased self-esteem, self-efficacy, problem-solving skills, acting as a moderator of the negative effects of stress[2].

The quarantine imposed as a preventative measure against COVID-19 has led to a change in the population's daily activities. The total home restriction can clearly have an impact on the population's lifestyle, especially in terms of diet and physical activity. Especially in individuals with type 2 diabetes mellitus (DM2), exercise and diet play an important role in controlling the disease, and any disruptive changes can result in major health effects and worsening metabolic control of diabetes[3].

In this sense, it becomes valid to maintain hope in the face of any adverse situation, as it is known that hope affects the health/disease binomial in a positive way, helping the individual to face the uncertainties of the future more effectively and with a satisfactory outcome3. The challenges posed by chronic illness are not always dealt with appropriately and can lead to difficulties in managing the disease, generating stress and suffering[4].

Along with type 2 diabetes, obesity is another risk factor for developing the most severe forms of COVID-19. Emotions influence eating behavior; feelings of loneliness, anger and pleasure have been associated with eating habits. Excess weight and increased visceral adiposity are associated with metabolic changes, such as increased insulin resistance, hypertension, as well as dysregulation of the immune system[5].

In addition to being a serious health problem, the COVID-19 pandemic has also had negative implications for the mental health of the population, especially the elderly. Given this scenario, it is necessary to deepen our understanding of the psychological factors that are related to overweight and obesity. The aim of this study was to assess the association between resilience and life expectancy and the nutritional status of older people with type 2 diabetes during the COVID-19 pandemic.

METHODOLOGY

This is a cross-sectional, analytical study with a quantitative approach, carried out at the Endocrinology Outpatient Clinic of a public hospital in the city of Recife, Pernambuco.

The study included individuals aged 60 or over diagnosed with type 2 diabetes mellitus. To determine the sample size, the sample calculation equation for a proportion study in a finite population was used. Considering the significance level of 95%, the margin of error in the estimate of 5%, the expected prevalence of 50% for elderly people with diabetes and overweight or obesity and a total number of 104 elderly people with diabetes seen in 4 months at the service during the COVID-19 pandemic, a total of 82 individuals were defined to make up the sample. Considering a percentage of 20% for possible losses, the necessary sample size was 98 individuals.

The sample was collected by convenience, and included all elderly people with diabetes seen between January and March 2022 who agreed

DOI: 10.36489/saudecoletiva.2025v15i97p16248-16265

to take part in the study. The inclusion criteria were: being aged 60 or over, of both sexes, and having been diagnosed with DM2 for more than a year.

The exclusion criteria were: presence of cognitive impairment, assessed by 3 questions contained in the 4th edition of the health booklet for the elderly (item 2.7, page 44)[6]. These questions indicate possible memory lapses and the presence of cognitive incapacity[7], having terminal chronic renal failure (on dialysis); having chronic obstructive pulmonary disease and a diagnosis of cancer,

The sociodemographic variables assessed were: gender, age, race/color, schooling, family income, having a partner, living arrangement. The clinical variables were: time since diagnosis of diabetes, presence of complications/comorbidities, smoking, alcohol abuse, glycated hemoglobin, self-perceived health and health compared to people of the same age.

Nutritional status was assessed by measuring the Body Mass Index. Weight was obtained according to the Lohman criteria[8]. BMI was calculated by dividing weight in kilograms (kg) by height in meters (m) squared. The result was expressed in kg/m². BMI was assessed according to the following recommendations: underweight (≤ 23 kg/m²); adequate weight[9].

Life expectancy was assessed using the Herth Hope Scale, an instrument adapted and validated for the Portuguese language and applied to individuals with chronic diseases. The instrument consists of 12 items written in affirmative form and the items are graded using a 4-point Likert scale. The total score ranges from 12 to 48 and the higher the score, the higher the level of hope [10,11]

Resilience was assessed using the Connor-Davidson Resilience Scale (RISC-Br), adapted and validated for Portuguese. It has 25 items described in a positive way with a Likert-type response, with the following response options: not at all true (zero); rarely true (one); sometimes true (two); often true (three), almost always true (four). Total scores can range from zero to 100 points, values close to 100 indicate better resilience[12, 13].

Due to the lack of specific cut-off points for these scales, in this study the results were divided into tertiles, with individuals in the 1st tertile group being considered to have low resilience and those in the 3rd tertile group being considered to have high resilience.

The database was compiled and stored in the Microsoft Office Excel program and then imported into the Statistical Package for the Social Sciences version 13.0 and Stata version 14 software for statistical analysis.

The quantitative variables were tested for normal distribution using the Kolmogorov-Smirnov test and, as they were normally distributed, they were expressed as means and standard deviations. The association analysis was carried out using the Chi-square test for trend and the adjusted association analysis was carried out using Poisson regression with robust variance adjustment. In this multivariate analysis, the variables with a p-value < 0.20 were included in the model, and the backward method was applied and the variables with a p-value < 0.05 remained in the final model. In all the analyses, statistical significance was considered when the p-value was < 0.05 (5% significance level).

The study was approved by the Human Research Ethics Committee of the Federal University of Pernambuco. All interviewees were previously informed of the objectives of the study and the methods to be adopted. Once the elderly had given their consent, they signed or thumbprinted the Informed Consent Form. This study was approved by the Ethics and Research Committee of the Health Sciences Center of the Federal University of Pernambuco (CEP/CCS/UFPE), under the number 51778221.40000.5208.

RESULT

With regard to sociodemographic characteristics, of the 98 elderly people interviewed, the majority were female (71.4%), had an average age of 67.7 years (SD 5.82), were brown or brunette (58.2%), had up to 8 years of schooling (70.4%), had a family income of one to two minimum wages (77.5%), had a partner (51%) and also lived with children and other family members (55.1%).

Ophthalmic complications were most prevalent, followed by cardiovascular diseases. Hypertension was reported by 84.4% of the elderly. Only 3 participants declared themselves smokers and the majority had never smoked (55.1%). With regard to alcohol abuse, the men consumed 5 or more doses on the same occasion, while the women did not report this practice. With regard to diabetes control, glycated hemoglobin data was collected from 71 participants who had tests in the last 6 months, the results of which indicated worse glycemic control. Self-perceived health was mostly considered to be fair, while health compared to people of the same age was considered to be good/very good (Table 1).

DOI: 10.36489/saudecoletiva.2025v15i97p16248-16265

Table 1 - Clinical characterization of elderly people with diabetes receiving outpatient care. Recife-PE, Brazil, 2022.

Variables	N	%	$IC_{95\%}$
Time since diagnosis of diabetes (years)	16,6±9,0*	-	-
Complications of diabetes			
Yes	53	54,1	43,7 – 64,2
No	45	45,9	35,8 – 56,3
Cardiovascular Diseases*			
Yes	19	32,2	20,6 – 45,6
No	40	67,8	54,4 – 79,4
Kidney Disease*			
Yes	10	16,9	08,4 – 29,0
No	49	83,1	71,0 – 91,6
Ophthalmic*			
Yes	33	55,9	42,4 – 68,8
No	26	44,1	31,2 – 57,6
Neuropathy*			
Yes	03	05,1	01,1 – 14,1
No	56	94,9	85,9 – 98,9
Diabetic foot*			
Yes	07	11,9	04,9 – 22,9
No	52	88,1	77,1 – 95,1
Hypertension			
Yes	84	85,7	77,2 – 92,0
No	14	14,3	08,0 – 22,8
Dyslipidemia			
Yes	62	63,3	52,9 – 72,8
No	36	36,7	27,2 – 47,1
Smoking			
Smoker	3	03,1	00,6 – 08,7
Former smoker (6 months or more)	41	41,8	31,9 – 52,2
Never smoked	54	55,1	44,7 – 65,2
Glycated Hemoglobin	9 (±4,44)**	-	-
Consumption of 5 doses or more			
Yes	05	83,3	35,9 – 99,6
No	01	16,7	00,4 – 64,1

DOI: 10.36489/saudecoletiva.2025v15i97p16248-16265

Consumption of 4 doses or more			
Yes	00	00,0	-
No	05	100	100 – 100
Self-perceived health			
Good/Very good	27	27,6	19,0 – 37,5
Regular	53	54,1	43,7 – 64,2
Bad/Very Bad	18	18,4	11,3 – 27,5
Health compared to people of the same age			
Good/Very good	47	48,0	37,8 – 58,3
Regular	32	32,6	23,5 – 42,9
Bad/Very Bad	19	19,4	12,1 – 28,6
COVID-19 diagnosis (exam or health professional)			
Yes	19	19,4	12,1 – 28,6
No	79	80,6	71,4 – 87,9

$CI_{95\%}$ - 95% confidence interval; *Only older people who self-reported the presence of a complication are included. **Only values obtained in the last six months prior to data collection are included.

Only 19.4% were diagnosed with COVID-19 by examination or health professional, and of these, only 3 required hospitalization. Two participants required ventilator support. With regard to vaccination against COVID-19, 90.6% completed the vaccination schedule, including the first booster dose. Nutritional status was verified using BMI, where the average found was 29 Kg/m(2) (SD=4.75) and most of the elderly were diagnosed with obesity. Only 11.2% were classified as underweight (Table 2).

With regard to nutritional status and resilience, those who were of adequate weight scored higher on resilience. Elderly people with obesity showed low resilience (P=0.001) (Table 2). The average resilience score of the population studied was 77.8 (SD=15.3), and was included in the third tertile, which corresponds to high resilience. The average life expectancy was 37.6, also included in the third tertile corresponding to high life expectancy (SD=4.94).

Table 2 - Association between nutritional status and resilience in elderly people with diabetes. Recife-PE, Brazil, 2022.

Nutritional status	n	Resilience Low		Resilience High		P-value
		N (%)	$CI_{95\%}$	N (%)	$CI_{95\%}$	
						0,001*
Low weight	11	00 (00,0)	00,0 – 28,5	06 (54,5)	23,4 – 83,3	
Appropriate weight	37	08 (21,6)	09,8 – 38,2	15 (40,5)	24,8 – 57,9	
Overweight	09	03 (33,3)	07,5 – 70,1	04 (44,4)	13,7 – 78,8	
Obesity	41	21 (51,2)	35,1 – 67,1	09 (22,0)	10,6 – 37,6	

CI95%-$_{95\%}$ confidence interval;
*Chi-square test for trend.

DOI: 10.36489/saudecoletiva.2025v15i97p16248-16265

When comparing nutritional status with life expectancy, overweight elderly people had lower life expectancy, although this was not significant (p=0.09) (Table 3).

Table 3 - Association between nutritional status and life expectancy in elderly people with diabetes. Recife-PE, Brazil, 2022.

Nutritional status	n	%	Life expectancy Low		Life expectancy High		P-value
			N (%)	$CI_{95\%}$	N (%)	$CI_{95\%}$	
							0,001*
Low weight	11	11,2	01 (09,1)	00,2 – 41,3	04 (36,4)	10,9 – 69,2	
Appropriate weight	37	37,8	13 (35,1)	20,2 – 52,5	18 (48,6)	31,9 – 65,6	
Overweight	09	09,2	05 (55,6)	21,2 – 86,3	01 (11,1)	00,3 – 48,2	
Obesity	41	41,8	13 (31,7)	18,1 – 48,1	09 (22,0)	10,6 – 37,6	

$CI_{95\%}$ - 95% confidence interval;
*Chi-square test for trend.

Multivariate analysis indicated that low resilience was 51% higher among older people with obesity (PR 1.51 CI-1.36-1.69) and (p=0.000), 34% and 22% higher for overweight and adequate weight respectively, for both anthropometric conditions (PR 1.34 CI 1.10-1.64) (p <0.004) and (PR 1.22 CI 1.07-1.40) (Table 4).

Table 4 - Adjusted analysis (multivariate) of the association between nutritional status and resilience in elderly people with diabetes. Recife-PE, Brazil, 2022.

Nutritional status	Resilience Low			Resilience High		
	PR	$CI_{95\%}$	P-value*	PR	$CI_{95\%}$	P-value*
Low weight	1	-	-	1	-	-
Appropriate weight	1,22	1,07 – 1,40	0,004†	0,91	0,74 – 1,11	0,347‡
Overweight	1,34	1,10 – 1,64	0,004†	0,92	0,70 – 1,21	0,566‡
Obesity	1,51	1,36 – 1,69	0,000†	0,77	0,63 – 0,94	0,010‡

PR - prevalence ratio; CI95%- 95% confidence interval; Ref. - reference category;
*Poisson regression with robust variance adjustment;
†Analysis adjusted for the variables 'family income', 'dyslipidemia' and 'COVID-19';
‡Analysis adjusted for the variables 'Has a partner' and 'Skin color'.

For life expectancy, in Table 5, it can be seen from the multivariate analysis that it was 42 times higher among overweight people, (PR 1.42 CI 1.08-1.88) (p=0.013), for those with adequate weight, life expectancy was 23% higher, (PR 1.23 PR 1.00-1.51) (p < 0.047).

DOI: 10.36489/saudecoletiva.2025v15i97p16248-16265

Tabela 5 - Análise ajustada (multivariada) da associação do estado nutricional com a esperança de vida em idosos com diabetes. Recife-PE, Brasil, 2022.

Nutritional status	Resilience Low			Resilience High		
	RP	$CI_{95\%}$	P-value*	RP	$CI_{95\%}$	P-value*
Low weight	1	-	-	1	-	-
Appropriate weight	1,23	1,00 – 1,51	0,047†	0,96	0,77 – 1,20	0,744‡
Overweight	1,42	1,08 – 1,88	0,013†	0,70	0,54 – 0,92	0,010‡
Obesity	1,22	0,98 – 1,50	0,069†	0,82	0,66 – 1,01	0,057‡

PR - prevalence ratio; CI95%- 95% confidence interval; Ref. - reference category;
*Poisson regression with robust variance adjustment;
†Analysis adjusted for the variables 'Schooling', 'Color' and 'smoking';
‡Analysis adjusted by the variables 'COVID' and 'Dyslipidemia'.

DISCUSSION

The aging process brings with it major biological, psychological and social changes, as well as the onset of chronic diseases, which increase from the age of 60, especially diabetes mellitus. In this sense, it is important to maintain good levels of physical and psychological functioning and well-being in the face of economic, social and health conditions, helping the individual to face the uncertainties of the future more effectively and with a satisfactory outcome[3].

A study of 300 adults and elderly people carried out in Paraíba using the Connor-Davidson Resilience Scale showed that the high level of resilience was higher in participants aged under 60, those with more than eight years of schooling, people earning three or more minimum wages and white individuals, and was also higher in people who did not have comorbidities and complications, and in those who consumed alcohol[14].

Schooling is an important determinant of health conditions and elderly people with low schooling have a higher prevalence of hypertension and DM, implying poor health and living conditions. A systematic review found that a low level of schooling increased the chances of multimorbidity by 64% (OR: 1.64, 95%CI 1.41-1.91), with this association being stronger in older populations than in younger ones. This may reflect greater difficulty in recognizing their health needs and adhering to treatment, as well as difficulties in accessing health services[15].

Studies show that even older people (85 and over) can have high levels of resilience, which can be even higher than in younger people. These levels of resilience in old age characterize a phenomenon close to the concept of the "paradox of subjective well-being", which states that levels of psychological well-being remain stable throughout old age, despite the losses associated with aging[16].

According to the study by Azizah (2021)[17], individuals with diabetes have high resilience, indicating that they have the insight to adapt their lifestyle in order to manage the adverse effects of diabetes. This resilience would motivate patients to take care of themselves, further increasing their resilience.

A randomized clinical trial was carried out with 3,199 older people (72.2 ± 6.2 years) diagnosed with DM2, comparing an intensive lifestyle intervention for weight loss to diabetes education and support. The participants were followed up observationally after a 10-year intervention. Resilience was measured using the Brief Resilience Scale and the mean BMI was 34.2 (± 8.2 kg/m2) . As a result, it was observed that greater resilience was associated with lower BMI[18].

Risk factors for negative psychological consequences during quarantine included: fear of infection, frustration, boredom, lack of access to supplies, inadequate information about the pandemic situation and financial losses. A few months after the COVID-19 outbreak, a review of eight studies, including 687 individuals, describing the psychological effects of quarantine was published. This review showed the development of anxiety in 35.1%, depression in 16.9%, loneliness in 5.7% and despair in 0.9%[19].

A meta-analysis involving 33 studies carried out in different countries examined the association between resilience and psychological distress in health professionals, the general population and sick people during the COVID-19 pandemic. Of these studies, only three evaluated people with chronic illnesses and cancer. A moderately significant negative relationship was found between general resilience and psychological distress (pooled r = -0.43; 95% CI: -0.52 to -0.33; p < 0.001). People living with chronic illnesses develop an adaptive capacity over time in response to the stressful events and difficulties of coping with chronic illnesses. For this reason, they tend to have greater resilience because, in dealing with their illness over the long term, they have time to adapt to their illness[20].

With regard to hope, a study carried out in Italy between April and May 2020 analyzed the physical and psychological conditions of Italians during the pandemic. Some participants showed low levels of anxiety and depression, especially those with high levels of optimism and hope. These people have a positive vision of the future and confidence that their actions

DOI: 10.36489/saudecoletiva.2025v15i97p16248-16265

can improve the negative situation and alleviate their psychological suffering[21].

A pilot study carried out in the United States aimed to evaluate the impact of a self-management education and support group on well-being outcomes in adults with severe mental illness. Seventy-nine adult women participated in the study and had at least one chronic illness. As a result after a 3-month follow-up, there was no difference in the hope score, but there was a positive impact on sleep quality, healthy eating and exercise, showing that longer interventions are more associated with behavioral changes that impact on lifestyle[22].

Data from a community survey carried out in North Carolina evaluated the relationships between hope and body mass index and hope and self-rated health among 434 adult and elderly women. The average BMI was 29.6 (range 16.2 to 77.9) and the correlation between hope and BMI was negative (r = -0.164), suggesting that women with higher hope had lower BMI. In addition, the correlation between hope and self-rated health was positive (r = 0.35), suggesting that women with greater hope had higher self-rated health[23].

This is due to the fact that individuals with greater hope are more likely to set appropriate goals and find ways to achieve these goals, as well as being motivated to take care of their health, avoiding overweight and obesity[22]. The sociodemographic characteristics of the participants are similar to those of other DM studies, which point to a predominance of females, married people, those with low levels of education and those earning less than 3 minimum wages[4].

The average BMI found in the study was 29 (±4.75), similar to that found in a study carried out in Piauí with elderly members of a diabetic association (27.4±4.06), and most of the participants were diagnosed as overweight (BMI above 27kg/m^2)[24]. As in this study, where the majority of the population was overweight and obese.

This study had the limitation of being a cross-sectional study, as it was not possible to conclude the nature of the relationship between exposure and event in these situations. Despite this limitation, this study provides useful results on the relationship between resilience and the nutritional status of elderly people with diabetes, given that research in this area is limited.

CONCLUSION

A large part of the population studied has lived with diabetes for a long time, and complications and comorbidities are common. In terms of nutritional status, most of the elderly were obese, which was reflected in their lower level of resilience. Those who were overweight also scored lower in terms of hope.

In view of the above, it is necessary to include psychological aspects in the treatment of elderly people with diabetes. In addition, the creation of social programs focused on the prevention and control of the disease and thus prevent or delay the onset of acute and chronic complications, promoting a better quality of life.

REFERENCES

1. LIU T, ZHANG Y, GONG C, WANG J, LIU B, SHI L, DUAN J. Prevalence of malnutrition and analysis of related factors in elderly patients with COVID-19 in Wuhan, China. Eur. J. Clin. Nutr. 2020.

2. FRAZÃO MCLO, PIMENTA CJL, SILVA CRR, VICENTE MC, COSTA TF, COSTA KNFM. Resiliência e capacidade funcional de pessoas idosas com diabetes mellitus. 2018; 19.

3. OLIVEIRA LM, SILVA SM, LIMA EFA. A esperança de vida dos idosos: avaliação pelo perfil e a Escala de Herth. Rev. Pesqui. 2018; 10(1): 167-172.

4. BÖELL JEW, SILVA DMGV, HEGADOREN KM. Fatores sociodemográficos e condicionantes de saúde associados à resiliência de pessoas com doenças crônicas: um estudo transversal. Ver. Lat. Am. Enfermagem. 2016; 24.

5. PETRILLI MC, SIMON AJ, YANG J, RAJAGOPALAN H, O'DONNELL L, CHERNYAK Y, TOBIN KA, CERFOLIO RJ et all. Factors associated with hospitalization and critical illness among 4,103 patients with Covid-19 disease in New York City Running title: Covid-19. Medrxiv, 2020.

6. BRASIL. Protocolos do Sistema de Vigilância Alimentar e Nutricional – SISVAN na assistência à saúde. Departamento de Atenção Básica, 2008.

7. BRASIL. Ministério da saúde. Secretaria de atenção à saúde departamento de atenção especializada e temática. Caderneta de saúde da pessoa ido-

DOI: 10.36489/saudecoletiva.2025v15i97p16248-16265

sa. 3ª ed. Brasília; 2017.

8. LOHMAN TG. Advances in body composition assessment. Monograph Number 3. Champaign: Human kinetics. 1992.

9. Organización Panamericana de la Salud. División de Promoción y Protección de la Salud (HPP). Encuesta Multicentrica salud beinestar y envejecimiento (SABE) em América Latina el Caribe: Informe Preliminar. Kingston: Jamaica; 2002.

10. SARTORE AC, GROSSI SAA. Escala de Esperança de Herth - Instrumento adaptado e validado para a língua portuguesa. Rev Esc Enferm USP. 2008; 42(2):227-32.

11. HERT, K. Abbreviated instrument to measure hope: development and psychometric evaluation. J. Adv. Nurs. 1992;17:1251-1259.

12. SOLANO JPC, BRACHER ESB, FAISAL-CURY A, ASHMAWI HA, CARMONA MJC, LOTUFO-NETO F, VIEIRA JE. Factor structure and psychometric properties of the Connor-Davidson resilience scale among Brazilian adult patients. Medeni. Medical J. 2016;5(134):400-6.

13. CONNOR KM, DAVIDSON JRT. Development of a new resilience scale: the connor-davidson resilience scale (cd-risc). Depress. Anxiety. 2003;18:76–82.

14. LUCENA JGS, AZEVEDO TF, MATIAZ LDM, NUNES WB, COSTA MML, ANDRADE LL. Fatores associados à resiliência de pessoas com diabetes no distanciamento social da pandemia da covid-19. Texto e Contexto Enferm. 2022; 31.

15. SILVA DSM. ASSUMPÇÃO D, FRANCISCO PMSB, SANCHES M, NERI YAL, BORIM FSA. Doenças crônicas não transmissíveis considerando determinantes sociodemográficos em coorte de idosos. Ver. Bras. Geriatt. Gerontol. 2022;5(25).

16. MAJNARIC LT, BOSNIĆ Z, GULJAŠ S, VUČIĆ D, KUREVIJA T, VOLARIĆ M, MARTINOVIĆ I, WITTLINGER T. Low psychological resilience in older individuals: an association with increased inflammation, oxidative stress and the presence of chronic medical conditions. Int. J. Mol. Sci. 2021;22.

17. AZIZAH PN, WIDIANA HS. URBAYATUN S. Depression among diabetes mellitus patients: A study of the protective factors. Int. J. Publ. Health Sci. 2021;10(4):850-855.

18. OLSON KL, HOWARD M, MCCAFFERY JM, DUTTON GR, ESPELAND MA, SIMPSON FR, JOHNSON KC, Psychological resilience in older adults with type 2 diabetes from the Look AHEAD Trial. J. Am. Geriatr. Soc. 2022.

19. BURNATOWSKA E, SURMA S, OLSZANECKA-GLINIANOWICZ M. Relationship between mental health and emotional eating during the covid-19 pandemic: a systematic review. Nutrients. 2022;4.

20. JEAMJITVIBOOL T, DUANGCHAN C, MOUSA A, MAHIKUL E. The association between resilience and psychological distress during the COVID-19 Pandemic: a systematic review and meta-analysis. Int. J. Environ. 2022;19(22).

21. TOMMASI M, TORO F, ARNÒ S, CARRIERI A, CONTE MM, DEVASTATO MD, PICCONI L, SERGI MR. Physical and psychological impact of the phase one lockdown for covid-19 on italians. Front. Psychol. 2020;11.

22. SCHMUTTE T, DAVIDSON L, O'CONNELL M. Improved sleep, diet, and exercise in adults with serious mental illness: results from a pilot self-management intervention. Psychiatr Q. 2018;89:61-71.

23. KELSEY KS, DEVELLIS BM, GIZLICE Z, RIES A, BARNES K, CAMPBELL MK. Obesity, hope, and health: findings from the hope works community survey. J. Community Health. 2011;36:919–924.

24.

25. SILVA LCC; OLIVEIRA LMN. Avaliação do estado nutricional e qualidade de vida de idosos portadores de diabetes mellitus tipo 2. Estud. interdiscip. Envelhec. 2019;24(3):62-80.

DOI: 10.36489/saudecoletiva.2025v15i97p16248-16265