Difference between Anorexia-related Weight Loss and Selected Socio-demographic Characteristics among Residents of Governmental Geriatric Care Homes: A multi-governorates Study

الاختلاف بين فقدان الوزن المرتبط بفقدان الشهية وبعض الخصائص الاجتماعية الديموغرافية المختارة بين نزلاء دور رعاية المسنين الحكومية: دراسة متعددة المحافظات

Abbas Sabah AL-Dhibhawiu*
Dr. Sadeq AL-Fayyadh**

الخلاصة:

خلفية البحث: تشير الشهية إلى الدافع الفطري لتناول الطعام، والتي تقل مع تقدم العمر. هذا الحالة تدعى فقدان الشهية للشيخوخة. يمكن أن يؤدي انخفاض الشهية إلى سوء التغذية، مما يؤدي إلى انخفاض مؤشر كتلة الجسم.

الاهداف: تهدف هذه الدراسة إلى تقييم الفرق بين فقران الوزن المرتبط بفقدان الشهية وبعض الخصائص الاجتماعية الديموغرافية المختارة بين كبار السن المقيمين في دور رعاية المسنين الحكومية.

المنهجية: تم تنفيذ تصميم وصفي مقطعي في دور رعاية المسنين الحكومية في محافظات الفرات الأوسط في العراق. بدأت هذه الدراسة للفترة من 1 / تشرين الأول / 2020 إلى 27 / حزيران / 2021، حيث تم اختيار عينة غير احتمالية (هادفة) للحصول على بيانات تمثيلية ودقيقة من (100) مسنا من الذين يعيشون في دور رعاية المسنين الحكومية، وتم جمع البيانات من خلال كل من: نهج التقرير الذاتي والمقابلات. إلى جانب استبيان الشهية الخاص بمجلس التغذية (CNAQ)، حيث تم تضمين متغيرات الخصائص الاجتماعية والديموغرافية والسريرية في أداة الدراسة وتم إجراء تحليل البيانات الإحصائية باستخدام حزمة IBM الإحصائية للعلوم الاجتماعية (SPSS) لنظام التشغيل Windows، الإصدار 24.

النتائج: اشتملت الدراسة على 136 مشاركًا، أكثر من نصف عينة الدراسة (65٪) من الذكور و (35٪) من الإناث بمتوسط عمر (72) عامًا. تشير نتائج الدراسة إلى وجود فرق ذات دلالة احصائية بين فقدان الشهية المرتبط بالشيخوخة والعمر، الحالة الاجتماعية، مؤشر كتلة الجسم و التدخين. لا يوجد فرق ذات دلالة احصائية بين فقدان الشهية المرتبط بالشيخوخة والمستوى التعليمي.

الاستنتاج: تم استنتاج ان كبار السن المقيمين هم أكثر عرضة لخطر فقدان الشهية المرتبط بالشيخوخة من الأقل عمرا، لذلك، هم أكثر عرضة للمعاناة من سوء التغذية وفقدان الوزن غير المقصود، كذلك أن أكبر نسبة من كبار السن المعرضين لخطر فقدان الشهية من الشيخوخة كانوا غير متزوجين.

التوصيات: أوصت الدراسة بزيادة الاهتمام والمتابعة المستمرة لحالة التغذية للمسنين الاكبر وكذلك كبار السن من غير المتزوجين والمدخنين.

الكلمات المفتاحية: الاختلافات، فقدان الوزن المرتبط بفقدان الشهية، دور رعاية المسنين.

ABSTRACT:

Background: Appetite refers to the innate drive to eat food, which declines with aging. This condition is called anorexia of aging. Reduced appetite can result in malnutrition, which is associated with a lower body mass index (BMI).

Aims of the study: To assess the differences between the anorexia of aging and selecting socio-demographic data among the elderly those residents in governmental geriatric care homes.

Methodology: A descriptive, cross-sectional design has been carried out in the governmental geriatric care homes in Iraq Middle Euphrates governorates. The period of the study started from (1 October 2020 to 27June 2021). A non- probability (purposive) sample was selected to obtain representative and accurate data for the (100) elderly individuals, living in geriatric care homes. Data were collected through both self-report and interviews approaches. Beside the Council of Nutrition Appetite Questionnaire (CNAQ), the socio-demographic and clinical characteristics sheets were included in the study tool and Statistical data analysis was performed using the IBM-Statistical Package of Social Science (SPSS) for Windows, version 24.

Results: The study included 100 participants, more than half (65.0 %) of the study sample were males and (35%) were female with mean age (72) years old. the study findings indicate there are differences between anorexia of aging and age, marital status, BMI and smoking history. on differences between anorexia of aging and educational level.

Conclusion: It has been concluded that older residents are at higher risk of anorexia associated with aging than the younger age, so they are more likely to suffer from malnutrition and unintentional weight loss.

Recommendations: The study recommended increasing interest and continuous follow-up to the nutritional status of the elderly, as well as the unmarried and smoker's elderly.

Keywords: Differences, Anorexia related weight loss, Geriatric care homes.

* MSc., Student / Community Health Nursing Department / College of Nursing / University of Baghdad / Iraq.
Email: abbas.sabbah1206a@conursing.uobaghdad.edu.iq.

** Assist., Prof. PhD / Adult Nursing Department / College of Nursing / University of Baghdad / Iraq.
Email: s.al-fayyadh@conursing.uobaghdad.edu.iq.

INTRODUCTION

Nutrition is the process of consumption of food that is necessary for all human body biological functions, especially growth and maintaining optimum health. The value and importance of food intake increases in chronic conditions, especially those affected by inflammatory diseases and impaired metabolism that may contribute to malnutrition in the elderly [1, 2]. Consequently, this may cause enormous and multi-faceted treatment needs due to managing the resulted health problems, reduced functional capability, reduced quality of life, prolonged hospital stays and poor survival rates [3, 4].

Older adults, aged 65 years, appear to be more vulnerable to nutritional deficiencies from others, because the developmental changes, diseases, and impairments that may accompany aging. Including: cognitive and physical deterioration, symptoms of depression, emotional variations, and impaired oral health; alongside with other socioeconomic changes. The balance of dietary requirements and consumption will directly affect all of these aspects [5, 6].

The elderly are considered an important group in any society, and they do not benefit their families only, but the society as a whole. Achieving ideal health during the aging phase is important, and everyone must practice a good nutritional approach in order to achieve this. Moreover, it helps in developing and maintaining the functional ability to enhance well-being in old age [7].

In the Middle East and Northern Africa (MENA), the proportion of the population over the age of 65 years is predicted to be 4.7 % (of a total population of 336 million) the percentage ranges from less than 2% in the United Arab Emirates (UAE) to 10% in Lebanon [8]. In Iraq, the elderly population (65 years and above) represented about 3.1% of the total population, which reached in the latest census of (40 million) in 2020 [9].

Body structure changes, that arise with dysfunctional aging, are commonly considered unwanted and are associated with reduction of skeletal muscle mass, fat mass, or both [10, 11]. Weight loss can in turn be associated with the loss of lean and fat tissue. Such involuntary loss of weight has been called cachexia [12].

One of the most common problems in the elderly is involuntary weight loss. Weight loss can be caused by a variety of factors; such as, malignant (19-36%) or nonmalignant lesions of the gastrointestinal disease (9-19%) and psychiatric conditions such depression and dementia (9-24%) [13]. Used of the drugs and polypharmacy can interact with taste and cause nausea. Social factors may lead to unexpected loss of body weight. While the frequency of unknown causes is about (6-28%), non-malignant diseases are more common in weight loss in general than malignant tumors. Weight loss can lead to weakness, falls vulnerability, and bone disorder [14].

Appetite refers to the innate drive to eat food, which declines with aging. This condition is called anorexia of aging. Anorexia of aging is caused by reduced chemosensory processes, diminished psychological abilities, changes in the environment and decreased production of appetite-regulating hormones [15]. It is a multiple causal syndrome that may further influence dietary habits and nutritional status, leading to weight loss and starvation. This serious condition is attributed to infections, polypharmacy, and physiological factors inherent to aging itself, as well as social, psychological, environmental and lifestyle factors [16]. It is now understandable that the consumption of food is decreased with advancing age [17]. This aging physiological transition is called the "Anorexia of Aging" [18]. Physiological anorexia increases the risk of weight loss, malnutrition and diminished quality of life for the elderly people [19, 20].

AIMS OF THE STUDY

To assess the differences between the anorexia of aging and selecting socio demographic data among the elderly that residents in governmental geriatric care homes.

METHODOLOGY

A descriptive, cross-sectional design has been carried out in the governmental geriatric care homes in Iraq Middle Euphrates governorates which included (Al- Qadisiyah, Babylon, Al-Najaf Al-Ashraf and Holy Karbala). The period of the study started from (1 October 2020 to 27June 2021). A non- probability (purposive) sample was selected to obtain representative and accurate data for the 100 elderly individuals, living in geriatric care homes. Data were collected through both self-report and interviews approaches. And Statistical data analysis was performed using the IBM-Statistical Package of Social Science (SPSS) for Windows, version 24.

- **Study Instrument**

The study instrument includes the participants' socio-demographic and clinical characteristics sheet and the Council of Nutrition Appetite Questionnaire (CNAQ) Scale. Detailed presentation of both sections is as follow:

Part I: Socio-demographic and clinical Data

The participants' socio-demographic and clinical characteristics included gender, age, marital status, educational level, economic status (monthly income in Iraqi Dinar), family visit record an individual's visit to his/her family record, Body Mass Index (BMI) Scale, Having dentures, Doing exercises, exercises duration, smoke tobacco history.

Part II: The Council of Nutrition Appetite Questionnaire (CNAQ) Scale

The original version of the CNAQ was developed by Wilson et al, (2005) [21]. The CNAQ was used on an international level to assess appetite in elderly individuals in the community as well as geriatric care homes residents. It consists of eight items used to clinically predict significant weight loss. A 5-point scale ranging from 1 to 5 was used in the aforementioned tool. The total score range from 8 to 40. Scores between 29 and 40 indicate good appetite; those between 8 and 28 indicate poor appetite. The scores are divided as follows:

- 8-16 the participant is at risk for anorexia and needs nutrition counseling.
- 17-28 the participant needs frequent reassessment for the nutritional status.
- >28 the participant is not at risk of the anorexia at this time.

To determine the reliability of the study instrument, a pilot study was conducted on (13) elderly people who were living in governmental geriatric care homes. The pilot study sample was excluded from the original sample of the study. The pilot study was conducted (January 20th, - February 4th, 2021). The result of the reliability test shows that the person correlation coefficient is (r = 0.92) which is considered statistically excellent matching with the lower bound of reliability coefficient.

RESULTS:

Table (1): Frequencies and percentages of socio-demographic characteristics

Variable	Categories	F	%
Gender	Male	65	**<u>65.0</u>**
	Female	35	35.0
Age	65 - 74 Years old (Young Old)	65	**<u>65.0</u>**
	75 - 84 Years old (Old)	29	29.0
	85 and older (Oldest- old)	6	6.0
	Single	19	19.0

Marital status	Married	31	**<u>31.0</u>**
	Divorce	27	27.0
	Widow	23	23.0
Educational level	Doesn't Read & Write	23	23.0
	Read and Write	29	**<u>29.0</u>**
	Primary Education	14	14.0
	Intermediate Education	18	18.0
	High School Education	7	7.0
	Higher Education	9	9.0
Monthly income	Enough	14	14.0
	Enough to some extent	21	21.0
	Not Enough	65	**<u>65.0</u>**
	Total	**100**	**100.0**

F=Frequencies, %= Percentages

In table 1, the underlined numbers, represent the highest percentages of the selected variables. In which, more than half (65.0 %) of the study sample were males. Almost three quarters (65.0%) of the study sample were classified as (young old) within age range of (65 – 74) years. Furthermore, more than quarters (31.0 %) of the study sample were married. (29.0%) of the study sample were able to read and write. Of equal importance, (65.0%) of the study sample reported that their monthly income is (not enough).

Table (2): Frequencies and percentages of the clinical and other related characteristics

Variable	Categories	F	%
Does your family visit you in geriatric home	Yes	32	32.0
	No	68	**<u>68.0</u>**
Are you visiting your family	Yes	42	42.0
	No	58	**<u>58.0</u>**
Body Mass Index (BMI)	Underweight (<18.5)	4	4.0
	Normal weight (18.5- 25)	59	**<u>59.0</u>**
	Overweight (25 - 30)	21	21.0
	Obesity (> 30)	16	16.0
Having dentures or not	Normal teeth	22	22.0
	Artificial Teeth	78	**<u>78.0</u>**
Doing walking exercises	Yes	43	43.0
	No	57	**<u>57.0</u>**
Duration of exercise / Week	No exercise	57	57.0
	1 – 2 Hours	7	7.0
	3 hours	2	2.0
	4 Hours	13	**<u>13.0</u>**
	5 Hours	6	6.0
	6 Hours	7	7.0
	7 Hours	8	8.0
Smoking history(tobacco, electronic or hookah cigarettes)	Yes	34	34.0
	No	66	**<u>66.0</u>**
Years of smoking	1 - 10 Years	4	4.0
	11 - 20 Years	3	3.0
	21 - 30 Years	3	3.0

	31 - 40 Years	11	**11.0**
	41 - 50 Years	9	9.0
	51 - 60 Years	2	2.0
	61 - 70 Years	2	2.0
No. of Cigarettes (per day)	1 - 10 cigarettes	6	6.0
	11 - 20 Cigarettes	17	**17.0**
	21 - 30 Cigarettes	11	11.0
	Total	**100**	**100.0**

F=Frequencies, %= Percentages

The underlined numbers in table (2), represent the highest percentages of the selected variables. In which, about three quarters of the study sample (68%) were those whose families do not visit in geriatric care homes and more than half (58%) of the study sample do not visit their families. Of equal importance, (59.0%) of the study sample have normal Body Mass Index (BMI) (18.5- 25). Furthermore, most of the study samples (78.0%) were using artificial teeth. (13.0%) of the study sample reported walking (4 hours/week), as their selected type of physical exercise. Almost three quarters of the study sample (66.0%) reported no smoking history. For those who smoke, 11.0% of the study sample were chronic smokers, who smoke11- 20 cigarettes/day for about 40 years.

Table (3): Differences in the anorexia of aging risk level and subject's age, marital status, educational level and Body Mass Index (BMI)

	Characteristics	Sum of Squares	Mean Square	df	F	Sig.
Anorexia of aging age group	Between Groups	9.757	4.879	2	6.718	.002
	Within Groups	70.445	.726	97		
	Total	**80.203**		**99**		
Anorexia of aging marital status	Between Groups	8.254	3	2.751	3.671	.015
	Within Groups	71.949	96	.749		
	Total	**80.203**	**99**			
Anorexia of aging educational level	Between Groups	3.910	.782	5	.964	.444
	Within Groups	76.292	.812	94		
	Total	**80.203**		**99**		
Anorexia of aging body mass index	Between Groups	7.619	2.540	3	3.359	.022
	Within Groups	72.583	.756	96		
	Total	**80.203**		**99**		

DF= degree of freedom, F=one way ANOVA calculated value, Sig= Significant

Table 3 shows ANOVA test indicates that there is a statistically significant difference of anorexia of aging and subject's age (mean=4.879, F=6.718, Sig=.002); there is statistically significant difference of anorexia of aging risk level and subject's marital status (X=2.751, F=3.671, Sig=0.015); there is no a statistically significant difference of anorexia of aging and subject's educational level (mean=.782, F=.964, Sig=.444) and there is a statistically significant difference of anorexia of aging and subject's body mass index (BMI) (mean=2.540, F=3.359, Sig=.022).

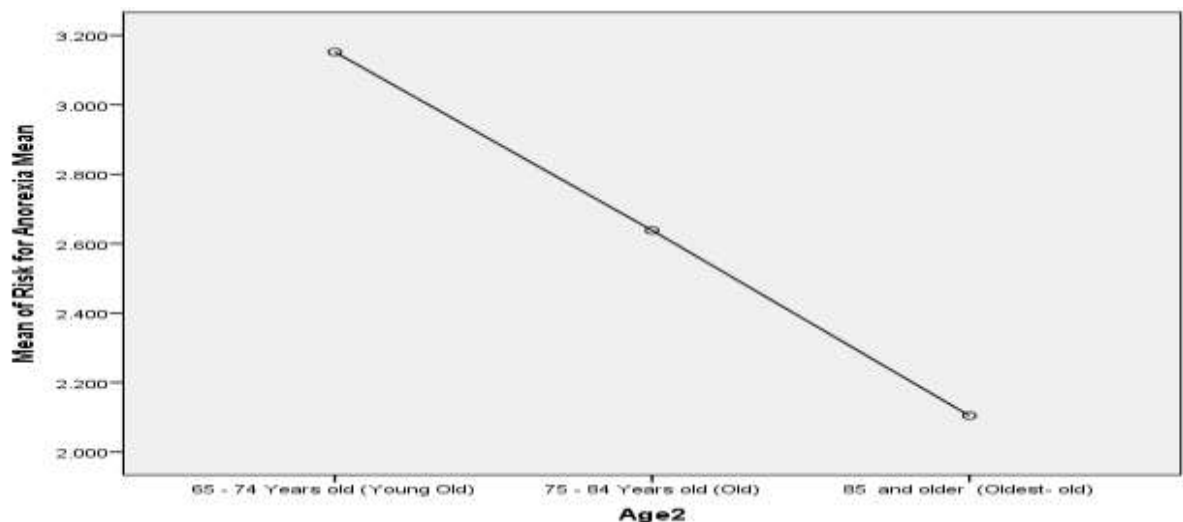**Figure (1):** difference between anorexia of aging risk level and subject's age

Table (4): Differences in the anorexia of aging risk level and subject's smoking history, number and years of smoking

	Characteristics	Mean Difference	df	F	Sig.
Anorexia of aging * smoking tobacco, electronic or hookah cigarettes	Equal variances assumed	-.427139	98	3.689	.024
	Equal variances not assumed	-.427139	59.975		.031
Anorexia of aging * Number of smoking	Between Groups	3	2.850	3.818	.012
	Within Groups	96	.746		
	Total	**99**			
Anorexia of aging * years of smoking	Between Groups	7	2.325	3.347	.003
	Within Groups	92	.695		
	Total	**99**			

DF= degree of freedom, F=one way ANOVA calculated value, Sig= Significant

The results in table 4 shows T-test indicates that there is a statistically significant difference of anorexia of aging and subject's smoking history (mean=-.427139, Sig=.031) and ANOVA test indicates that there is a statistically significant difference of anorexia of aging and subject's number of smoking (mean=2.850, F=3.818, Sig=.012) and years of smoking (mean=2.325, F=3.347, Sig=.003).

Figure (2): difference between anorexia of aging risk level and subject's years of smoking
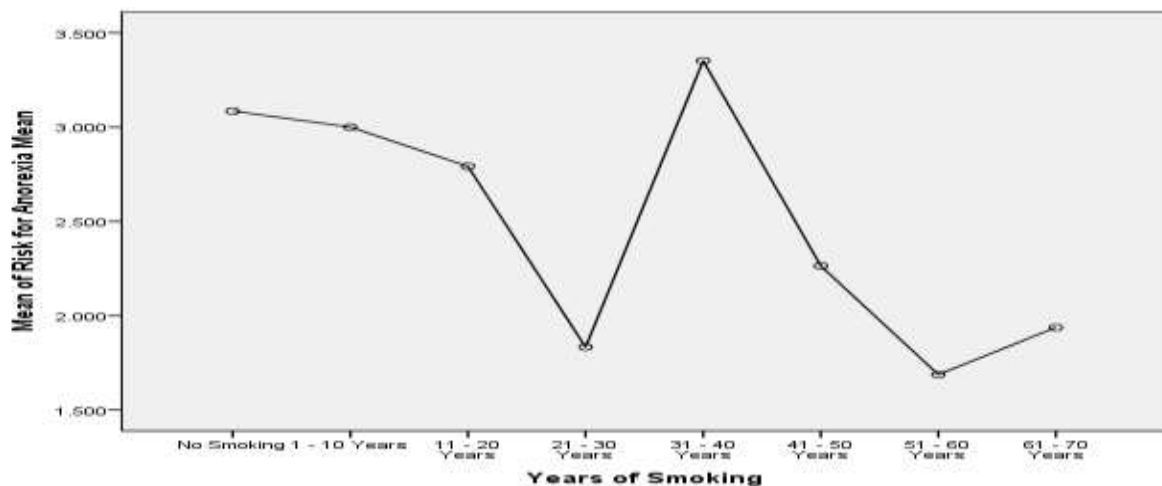
DISCUSSION

As presented in table (1), more than half of the study samples were males this result was expected due to the cultural norms of the Iraqi society which severely judge families that let their female-gender relatives to be institutionalized in the governmental homes. More than a quarter of the study samples reported that they were married. The study results shows that (29.0%) of the study sample were able read and write. Most of the study sample reported that their monthly incomes were not enough. These results were also expected because increased poverty level in Iraq. According to Ministry of Planning (2020) that indicates the poverty rate in Iraq has increased to 31.7% in 2020, compared with 20% that record in 2018 [22].

As presented in table (2), the results of the study manifested that more than half of the study sample were not visitation their families' home or their family members visiting them in geriatric homes. This result was not expected and surprising due to the strength of the family relationship and social links between people in these regions [23]. The largest proportion of study participants regarding BMI was of normal weight (18.5- 25). This finding was expected due to weight and height from the factors that determine the nutritional status of the elderly. Therefore, weight tends to decrease in the elderly, usually due to age and decreased muscle mass. Most of the study samples (78.0%) were using artificial teeth. This result was not expected due to the fact that such governmental home should be closely monitored by the ministry of health by providing the basic health care services.

As presented in table (3) there were statistically significant difference among the anorexia of aging and age group. This finding could be explained by the fact that the risk of anorexia of aging increases as the person ages. These results are consistence with studies conducted [24, 25], where the results of the studies pointed that the rate of malnutrition and poor appetite gradually increases with increasing age. In another study [26] concluded that those with anorexia of ageing were significantly older. There were a statistically significant difference of anorexia of aging and subject's marital status. Highest level of anorexia was detected among the unmarried participants, while the lowest level was detected among married. These results supported by a study [27] that indicated the highest rate of malnutrition and poor appetite was detected among those who were not married, while few number of married subjects were malnourished.

There was no statistically significant difference among the anorexia risk level and educational level. Despite that the highest percentage of the study sample were low in their educational level, there is no statistically significant difference between the elderly who have

higher or lower education regarding the nutritional status for the elderly. No consistent results were detected when searching the databases; because this study does not have a similar study nationally or even at the Arabic countries level. There were a statistically significant difference between the anorexia of aging risk level and BMI. This finding could be explained by that the risk of anorexia of aging increases when the BMI decreased that where it was more prevalent in elderly who have underweight. These result supported by a study conducted [26] that found the prevalence of anorexia of aging was more with elderly who had a lower BMI.

As presented in table (4) there were statistically significant differences between anorexia of aging and smoking cigarettes history, number of smoking cigarettes, years of smoking. This result can be explained by the fact that the risk for anorexia is more among the elderly who were having smoking history than others who have not smoked and the risk for anorexia of aging in the elderly increased when the number of smoking cigarettes increased in the day. Moreover, the number of smoking years has effect on the anorexia of aging. It was found that the more years of smoking, the greater the risk for anorexia of aging. These results were supported by a study [28] that indicated the high prevalence of anorexia of aging in the elderly smokers. The decreased nutritional status in smokers is associated with the amount of nicotine in cigarettes; the more cigarettes consumed, the more amount of nicotine enters the body. This can inhibit the rate of metabolism and suppress hunger. In addition the number of smoking years found the effect of the risk for anorexia of aging.

CONCLUSION

It can be concluded from the results of the differences among elderly that oldest residents are more likely to be risky for anorexia of aging more than least old. Therefore, more likely to suffered from malnutrition and unintentional weight loss. The results of the statistical difference also indicated that the largest proportion of the elderly who are at risk of anorexia of aging were unmarried.

RECOMMENDATIONS

The study recommended increasing interest and continuous follow-up to the nutritional status of the elderly, as well as the unmarried and smoker's elderly, because they are at greater risk of malnutrition than others, through early detection of loss of appetite or unexpected weight loss.

The study recommended increasing attention for the elderly who have a low level of education through continuous educational programs which aims to increase knowledge about the high risks of malnutrition and lack of interest to diet in proportion to the body's daily need.

- ETHICAL CONSIDERATIONS

The Institutional Review Board (IRB) at the University of Baghdad, College of Nursing approved the study to be conducted. The study protocol meets both the global & the Committee on Publication Ethics (COPE) standards of respecting humans' subjects' rights.

REFERENCES:

1. Rahman, A., Jafry, S., Jeejeebhoy, K., Nagpal, A. D., Pisani, B., & Agarwala, R. (2016). Malnutrition and cachexia in heart failure. *Journal of parenteral and enteral nutrition*, 40(4), 475-486. https://doi.org/10.1177/0148607114566854.
2. Arends, J., Bachmann, P., Baracos, V., Barthelemy, N., Bertz, H., Bozzetti, F., & Preiser, J. C. (2017). *ESPEN guidelines on nutrition in cancer patients. Clinical nutrition*, 36(1), 11-48. https://doi.org/10.1016/j.clnu.2016.07.015.
3. Pilgrim, A., Robinson, S., Sayer, A. A., & Roberts, H. (2015). An overview of appetite decline in older people. *Nursing older people*, 27(5). 10.7748/nop.27.5.29.e697.

4. Rossignol, P., Masson, S., Barlera, S., Girerd, N., Castelnovo, A., Zannad, F., & Anker, S. D. (2015). Loss in body weight is an independent prognostic factor for mortality in chronic heart failure: insights from the GISSI-HF and Val-HeFT trials. *European Journal of Heart Failure*, 17(4), 424-433. https://doi.org/10.1002/ejhf.240.

5. De Morais, C., Oliveira, B., Afonso, C., Lumbers, M., Raats, M., & De Almeida, M. D. V. (2013). Nutritional risk of European elderly. *European journal of clinical nutrition*, 67(11), 1215-1219. https://doi.org/10.1038/ejcn.2013.175.

6. Mann, T., Heuberger, R., & Wong, H. (2013). The association between chewing and swallowing difficulties and nutritional status in older adults. *Australian dental journal*, 58(2), 200-206. https://doi.org/10.1111/adj.12064.

7. Nilsson, H., Bülow, P. H., & Kazemi, A. (2015). Mindful sustainable aging: Advancing a comprehensive approach to the challenges and opportunities of old age. *Europe's journal of psychology*, 11(3), 494. 10.5964/ejop.v11i3.949.

8. Hajjar, R. R., Atli, T., Al-Mandhari, Z., Oudrhiri, M., Balducci, L., & Silbermann, M. (2013). Prevalence of aging population in the Middle East and its implications on cancer incidence and care. *Annals of oncology*, 24, vii11-vii24. https://doi.org/10.1093/annonc/mdt268.

9. Central Statistical Organization (2020). General population census. Retrieved from: http://www.cosit.gov.iq/en/component/search/?searchword=General%20population%20censu s&searchphrase=all&Itemid=101.

10. Von Haehling, S., & Anker, S. D. (2013). Cachexia vs. obesity: where is the real unmet clinical need? *Journal of Cachexia, Sarcopenia and Muscle*, 4(4), 245-246. https://doi.org/10.1007/s13539-013-0124-8.

11. Vaughan, V. C., Martin, P., & Lewandowski, P. A. (2013). Cancer cachexia: impact, mechanisms and emerging treatments. *Journal of cachexia, sarcopenia and muscle*, 4(2), 95-109. https://doi.org/10.1007/s13539-012-0087-1.

12. Von Haehling, S., & Anker, S. D. (2010). Cachexia as a major underestimated and unmet medical need: facts and numbers. https://doi.org/10.1007/s13539-010-0002-6.

13. Adeleke, R. O., Adebowale, T. O., & Oyinlola, O. (2017). Profile of elderly patients presented with psychosocial problems in Ibadan. MOJ Gerontol Ger, 1(1), 26-36. https://10.15406/mojgg.2017.01.00006.

14. Gaddey, H. L., & Holder, K. (2014). Unintentional weight loss in older adults. American family physician, 89(9), 718-722. Retrieved from: https://www.aafp.org/afp/2014/0501/afp20140501p718.pdf.

15. Di Francesco, V., Pellizzari, L., Corrà, L., & Fontana, G. (2018). The anorexia of aging: impact on health and quality of life. Geriatric Care, 4(2). https://doi.org/10.4081/gc.2018.7324.

16. Malafarina, V., Uriz-Otano, F., Gil-Guerrero, L., & Iniesta, R. (2013). The anorexia of ageing: physiopathology, prevalence, associated comorbidity and mortality. A systematic review. Maturitas, 74(4), 293-302. https://doi.org/10.1016/j.maturitas.2013.01.016.

17. Jadczak, A. D., & Visvanathan, R. (2019). Anorexia of aging-an updated short review. *The journal of nutrition, health & aging*, 23(3), 306-309. https://doi.org/10.1007/s12603-019-1159-0.

18. Morley, J. E. (2017). Anorexia of ageing: a key component in the pathogenesis of both sarcopenia and cachexia. *Journal of cachexia, sarcopenia and muscle*, 8(4), 523-526. https://doi.org/10.1002/jcsm.12192.

19. Cederholm, T., Jensen, G. L., Correia, M. I. T. D., Gonzalez, M. C., Fukushima, R., Higashiguchi, T., & Crivelli, A. N. (2019). GLIM criteria for the diagnosis of malnutrition–a

consensus report from the global clinical nutrition community. *Journal of cachexia, sarcopenia and muscle*, 10(1), 207. https://doi.org/10.1002/jcsm.12383.

20. Hanisah, R., Shahar, S., & Lee, F. S. (2012). Validation of screening tools to assess appetite among geriatric patients. *The journal of nutrition, health & aging*, 16(7), 660-665. https://doi.org/10.1007/s12603-012-0056-6.

21. Wilson, M. M. G., Thomas, D. R., Rubenstein, L. Z., Chibnall, J. T., Anderson, S., Baxi, A., & Morley, J. E. (2005). Appetite assessment: simple appetite questionnaire predicts weight loss in community-dwelling adults and nursing home residents. *The American journal of clinical nutrition*, 82(5), 1074-1081. https://doi.org/10.1093/ajcn/82.5.1074.

22. Ministry of planning (2020). The high rate of poverty in Iraq. Retrieved from: https://mop.gov.iq/activities_minister/view/details?id=1216.

23. Walid Abdel Gabr. (2017). Managing cultural diversity and sustainable development in transitional societies: Iraq as a model, a socio-analytical study. *Al-Adab Journal (ISSN: 1994473X)*, 1(119), 225-274. https://doi.org/10.31973/aj.v1i119.319.

24. Nass, S. M. A., Al Shahrani, F., & Rahman, S. (2016). Nutritional status of elderly patients visiting outpatient clinics. *Journal of Health Science*, 4, 177-191. 10.17265/2328-7136/2016.04.002.

25. Boulos, C., Salameh, P., & Barberger-Gateau, P. (2013). The AMEL study, a cross sectional population-based survey on aging and malnutrition in 1200 elderly Lebanese living in rural settings: protocol and sample characteristics. *BMC Public Health*, 13(1), 1-13. https://doi.org/10.1186/1471-2458-13-573.

26. Tsutsumimoto, K., Doi, T., Makizako, H., Hotta, R., Nakakubo, S., Makino, K., & Shimada, H. (2018). Aging-related anorexia and its association with disability and frailty. *Journal of cachexia, sarcopenia and muscle*, 9(5), 834-843. https://doi.org/10.1002/jcsm.12330.

27. Jamil, N. F., Salih, A. A., Sadiq, M. A., & Shaker, S. H. (2021). Assessment of Nutritional Status of Elderly People in Baghdad. *Annals of the Romanian Society for Cell Biology*, 4457-4465. Retrieved from: https://www.annalsofrscb.ro/index.php/journal/article/view/586.

28. David Royyifi Arifin, A., Suradi, S., & Hanim, D. (2019). Correlation between Appetite Disorders, Nutritional Status and Smoking Habits in Elderly. *International Journal of Nutrition Sciences*, 4(4), 192-196. 10.30476/IJNS.2019.83495.1036.