Frailty and Malnutrition among Community Dwelling Older Adults

Doaa Mohamed Zein El-Abdeen Mohamed 1, Sageda Magdy Ali 2, Soad Hassan Abd Elhameed 3

1 Demonstrator in Gerontological Nursing Department, Faculty of Nursing - Mansoura University
2 Lecturer of Gerontological Nursing, Faculty of Nursing - Mansoura University
3 Assistant Professor of Gerontological Nursing Department, Faculty of Nursing - Mansoura University
E-mail of corresponding author: doaamh2018@gmail.com

1.ABSTRACT

Background: Ageing population is increasing rapidly worldwide, leading to significant outcomes for those population, and also lead growing prevalence of frailty which affects up to 51% of the geriatric population in developing countries. Frailty and malnutrition share common pathophysiology, and screenings tools include overlapping items, such as weight loss and impaired physical function, but they are different entities. **Aim**: Assess frailty and malnutrition among community-dwelling older adults. **Method**: Cross-sectional study design used throughout this study. A cluster sampling technique was utilized on 300 community-dwelling older adults in 3 urban and 3 rural areas affiliated to Dakahlia governorate. Data was collected using 3 tools, demographic and health-related data structured interview schedule, survey of health, aging, and retirement in Europe of the frailty indicator, and mini nutritional assessment questionnaire. Results: It was observed that 64.7% of the studied older adults were frail, 64.2% were malnutrition. It was noticed that, age, current work, number of diseases, and malnutrition were significant independent predictors for frailty as well as for malnutrition (p<0.001). **Conclusion**: it concluded that frailty and malnutrition were highly prevalent in community-dwellers in Egypt and that there was a relationship between frailty and malnutrition. **Recommendation**: Educational program for older adults with both conditions, and implementation of an intervention program is especially important for primary health care providers mainly for nurses especially during both Covid-19 pandemic and at an earlier stage of the conditions, regarding problems faced nurses when caring for frail and malnourished patients.

Keywords: Frailty, Malnutrition, Community-Dwelling, Older Adults.

2.Introduction:

Ageing Population is increasing rapidly worldwide, it is estimated to be 2 billion people by 2050 (**Naeem, Mostafa, & El-Said, 2020**). This trend led to significant outcomes for those elderly population, and also lead the growing prevalence of frailty among older adults (**Delbari, Zanjari, Momtaz, Rahim, & Saeidimehr, 2021**). Frailty has been defined as a vulnerable state to stressors resulting from age-related declines in function and reserve across multiple physiological systems that compromise the ability to maintain homeostasis. Frailty also affects up to 51% of the geriatric population in developing countries (**Tawfik, Desouki, Singab, Hamza, & El Said, 2021**).

The core of frailty cycle is considered to be malnutrition, which can cause a harsh cycle of appetite loss owing to muscle loss, muscle weakness, fatigue, and decreased energy expenditure (**Nishida, Yamabe, & Honda, 2021**). The European Society for Clinical Nutrition and Metabolism (ESPEN) defines malnutrition as a state resulting from lack of uptake or intake of nutrition causing altered body composition (decreased fat free mass and body cell mass), leading to diminished physical and mental function and impaired outcome from disease (**Rodríguez-Mañas et al., 2021**). Adequate nutritional intake is essential for older adults to maintain good health. Malnutrition among the elderly is a warning sign and a multidimensional phenomenon which encompasses psychological and physical elements triggered by dependency, loss, chronic illness, and loneliness (**Hweidi et al., 2021**)

Malnutrition and frailty share common pathophysiology, and screenings tools, but they are different entities (**Rodríguez-Mañas et al., 2021**). Malnutrition is associated with increased risks of frailty, sarcopenia, morbidity, high hospitalization, readmission rates and mortality. Accordingly, comprehensive assessment and management of oral function among older adults may be important for preventing malnutrition (**Iwasaki et al., 2021**).

Nutritional intervention consisting of adequate calorie consumption with a higher protein intake was associated with a lower prevalence of frailty. Additionally, micronutrient supplementation may play an essential role in preventing frailty (**Huang et al., 2021**). Interventions that were multifactorial in nature and included aspects such as exercise, psychological

intervention, social skills or reduction of polypharmacy were more effective than nutrition interventions for improving frailty and physical performance in community-dwelling older adults **(Khor, Vearing, & Charlton, 2021)**. Reducing the number of frail persons is, therefore, vital both to extend the healthy life span of older adults and to reduce medical and long-term care (LTC) costs, and thus, the establishment of appropriate types of care to prevent frailty is important **(Watanabe et al., 2021)**. There is an urgent need for an international research agenda to guide frailty research. Through refocus our lens, from focusing mostly on current knowledge, and instead turn our strength and focus into the gaps of frailty science. The study aimed to shed light on the relationship of frailty and malnutrition in community dwelling older adults.

Aim of the study

The aim of this study was to assess frailty and malnutrition among community-dwelling older adults.

Research questions:

- What is the level of frailty and malnutrition among community-dwelling older adults?

- What are the risk factors of frailty and malnutrition among community-dwelling older adults?

- What is the type of relationship between frailty and malnutrition among community-dwelling older adults?

3. Method

Study Design:

Adescriptive cross-sectional research design was used throughout this study.

Setting:

This study was targeted 3 urban and 3 rural areas affiliated to Dakahlia governorate to produce nationally representative samples; urban areas; representing 3 out of 18 centers of Dakahlia namely Mansoura, Dekernes, and, Mitt-Salsil, while rural areas representing 3 villages selecting with the highest population from each urban; namely El-Baramoun, Ashmon, and, Al-Eitihad.

Subjects:

Sample technique:

A cluster sampling technique (multiple-stage cluster sampling) was utilized in this study; community-dwelling older adults have lived in Dakahlia governorate and had been selected from each 3 urban and 3 rural areas. Clusters divided based on regions/buildings. Firstly, randomly pick

clusters by standing in a central landmark in the areas of Mansoura, Dekernes, Mitt-Salsil, El-Baramoun, Ashmon, and Al-Eitihad, then choosing one direction to follow and to start with (i.e., by spinning a bottle). Next ,the number of buildings in that direction is then counted, and one house was simply randomly chosen by giving each building of the houses a numerical label of the same length, another direction taken from a central starting point was chosen as described above and the houses were contacted in the next chosen direction until the required information was gathered from the whole the direction (cluster). Through house to house to reach the target population which fulfilling the following criteria:

1. Aged 60 years and more.

2. Able to communicate and willing to participating in the study voluntarily.

3. Available at the time of data collection.

Tools of data collection:

Three tools were used to collect data pertinent to the study:

Tool I: Demographic and Health-Related Data Structured Interview Schedule:

It was developed after a review of relevant literature and divided into two parts: **Part (1)**: Demographic characteristics of the elderly such as age, gender, marital status, level of education, occupation before retirement, income, and living condition. **Part (2):** Health-related data such as a medical history of chronic diseases, intake of medications, previous hospitalization, previous surgery, dietary intake of nutrients, consumption pattern of different foods, and unhealthy behavioral lifestyle such as smoking consumption and caffeine intake.

Tool II: Survey of Health, Aging, and Retirement in Europe of the Frailty Indicator (SHARE FI): This tool was originally developed by **Alcser & Benson, (2005)** to evaluate frailty through four self-report questions (exhaustion, weight loss, slowness, and low physical activity) and one objective measurement for weakness by handgrip strength (HGS) in Kg using a dynamometer. **Scoring system**: from *0-5. A score* 0 is assigned for those who are *non- frail, a score* ranges from 1 to 2 is assigned for those who are *pre-frail, a score* range from 3 to 5 is assigned for those who are *frail.*

Tool III: **Mini Nutritional Assessment Questionnaire (MNA®):** This questionnaire was developed in France by **Guigoz & Vellas, (1999)**, it was used to identify malnourished or at risk of

malnutrition among elderly people. This tool consists of a two-steps process: **Step 1:** The MNA®-SF was developed and recently revised in 2009 by **Nestlé Nutrition Institute - MNA® Elderly - MNA® Forms, (2020)**. **Scoring system:** From 0-14. *A score* (12-14); indicate satisfactory nutritional status and require no further screening, *a score* (8-11) points: considered at risk for malnutrition, *a score* (0-7) points: considered malnourished. **Step 2:** The full MNA must be completed if the scores are <12. **Scoring system:** Combining the scores of the MNA-SF® provide the full MNA score. *a score* >24 points indicate satisfactory nutritional status and considered normal nutritional status, *a score* between 17 to 23.5 points considered at risk of malnutrition, *a score* less than 17 points considered malnourished.

Data collection process:

Phase I: Preparatory phase included administrative stage: An official approval was issued from the dean of Faculty of Nursing-Mansoura University to be used in the selected setting in order to obtain the approval and to permit for the researcher to carry out the study. **Literature review;** reviewing national and international literatures on the various aspects of older adults, frailty, and malnutrition, were proposed from scientific published articles, internet searches, and textbooks. This review was a guide for developing the study tools. **Developing the study tools** of data collection, tool I Demographic and Health-Related Data Structured Interview Schedule, and then tool II (SHARE-FI) and Tool III (MNA®) have been translated into the Arabic language by the researcher, and the validity of the translation were checked by an expert of English language from the Faculty of Education. To ensure the validity of the translation, a backup translation technique had been used in this study.

Content validity; the study tools (tool I, tool II, tool III) were tested for content validity by a jury of five experts in the related fields of Gerontological Nursing and occupational health in Community Medicine. Accordingly, their recommended modifications had been done and the final forms were used for data collection. Then, the interview schedule had been put in its final form. *Face validity;* it was carried out by conducting **a pilot study** on 10% of the study subjects (30) older adults. The time needed to fill the interview schedule was 40-45 min. *The reliability*; tool II (SHARE-FI) and tool III (MNA®) had been tested by means of the Cronbach Alpha test (α = .834, and, α = .831, respectively).

Ethical considerations approval was obtained from the Research Scientific Ethical Committee of Faculty of Nursing, Mansoura University, verbal consent was obtained from each study subjects enrolled in the study, after clarification of the purpose of the study, the researcher highlighted that the collected data was treated confidentially and only used for the study, safety, anonymity, and privacy, had been assured throughout the whole study.

Phase II: Operational phase; This phase extended over a period of 5 months; started from the beginning of March 2020 and ended in July 2020. This phase consisted of the following steps: The researcher used to go to the previously selected setting 6 hours/ day, 3 days/week, Study subjects who match sample criteria and accept to participate in the study were interviewed individually; starting by the researcher introduced herself and given an explanation of the purpose of the study to collect the necessary data using all study tools, Assessing demographic, health-relevant data, and functional status through the interview using tool I (part 1, 2, and 3), frailty via tool II (SHARE-FI), and nutritional status via tool III (MNA®).

- Multimorbidity; defined as the coexistence of two or more chronic conditions **(Foley et al., 2021)**. While polypharmacy $\geq$ 5 drug use were accepted as polypharmacy includes over-the-counter, prescription and/or traditional and complementary medicines **(Pazan, & Wehling, 2021)**.

- **Hand Grip Strength** (HGS). The researcher was used a Futaba Professional Hand Grip Dynamometer; capacity (CAP); 0-130Kg, older adults asked to squeeze the dynamometer with maximal effort for two trials on each hand. The highest recorded HGS on each hand through two consecutive measurements between each attempt, they took break of 1 min, the highest of the four had been selected **(Endo, Sato, Kakisaka, & Takikawa, 2021)**. **Weight;** so, it was measured using a Granzia Ultra-slim Digital Standing Bathroom Scale, Elega EB9380 - CAP up to 180 kg; with and accuracy of 0.1 kg. **Height;** was measured using a measuring tape; EMVANV - A UK Brand CAP 0-150 cm. **Body mass index (BMI);** was then calculated using the following equation: $\frac{weight\ (in\ kg)}{height\ (m2)}$ **(Undiyaundeye, Ekeng, & Ubi, 2021). The mid-arm circumference (MAC);** was measured with a tape measure to the nearest

0.1 cm, midway between the lateral projection of the acromion process of the scapula on the shoulder blade **Calf circumference (CC);** take the measurements of the calf to the nearest 0.1 cm at its widest point **(Endo, et al., 2021).**

4. Results:

Table 1 shows the distribution of studied older adults according to their demographic characteristics. The age of the studied older adults ranged from 61 to 93 years, with a mean age of 67.99 ± 6.32 years. Study subjects aged from 60 to less than 65 years constituted 35.7% of the studied elders. Males were more prevalent in the studied older adults compared to studied female. They constituted 57.3 % of the studied older adults, 64% of the studied older adults were married. Illiteracy constituted 50.3% of the studied older adults, 40.7% were housewives, and 30 % were still work after retirement, 51% of studied older adults reported that their monthly family income was not enough, and 86 % of studied older adults were living with their spouse.

Table2: shows the distribution of the studied older adults according to frailty criterion. It was observed that 86.3% of the studied older adults were self-reported of being exhausted past week or one month earlier. Shrinking represented 67.3%, slowness, and low grip strength than cutoff value,

both represent 64.3%, 54.7% were rarely or never engage into physical activity. Based on the total score 64.7% were frail.

Table 3: shows the distribution of the studied older adults according to malnutrition; starting from step I: screening; it is observed that more than half (50.3%), were malnourished and only 11.7% were well-nourished. According to step II: assessment; nearly two third (64.2%) were malnourished, and only 3.8% were well-nourished.

Table 4: represents relationship between frailty, malnutrition, demographic characteristics, and health-related data of the studied older adults. The table show that, there was statistically highly significant relationship found between age, sex, marital status, level of education, number of diseases, number of medications, with frailty and malnutrition (p< 0.001) for all. But there is no statistically significant relationship found between place of residence with frailty and malnutrition (p=.746), & (p=.740) respectively.

Figure 1 shows the correlation between frailty criterion and malnutrition of the studied older adults. The figure shows strong negative correlation between frailty and malnutrition (p < 0.001)

Table 1: Distribution of studied older adults according to their demographic characteristics

Demographic Characteristics	N= 300	100%
Age (years)		
≥ 60	107	35.7
≥ 65	104	34.7
≥ 70	89	29.6
Min - Max	61 - 93	
Mean ± SD	67.99 ± 6.32	
Sex		
Male	172	57.3
Female	128	42.7
Marital status		
Single	10	3.3
Married	192	64.0
Widow	77	25.7
Divorced	21	7.0
Place of residence		
Rural	150	50.0
Urban	150	50.0
Educational level		
Illiterate	151	50.3
Read and write	75	25.1
Primary schools	22	7.3
Preparatory schools	4	1.3
Secondary schools	22	7.3

Higher education	26	8.7
Work before retirement		
Employed	72	24.0
Farmer	51	17.0
Occupational workers	55	18.3
House wife ᵇ	122	40.7
Current work		
Yes	90	30.0
No	210	70.0
Monthly family income		
Not enough	153	51.0
Enough	147	49.0
Living arrangements		
Alone	38	12.7
With spouse	258	86.0
With other (friends, and one of siblings or sons)	4	1.3

ᵇ Only 6 *females were employee and the rest were housewives*

Table 2: Distribution of the studied older adults according to frailty criterion

Frailty criterion	N=300	%100
I. self-reported exhaustion on past week or one month earlier. No Yes	 41 259	 13.7 86.3
II. Shrinking/ Loss of appetite than usual More Less	 98 202	 32.7 67.3
III. Slowness/ Functional difficulties No Yes	 107 193	 35.7 64.3
IV. Low physical activity Once to three times monthly Rarely or never	 136 164	 45.3 54.7
V. Low grip strength/ Weakness More than normal Cutoff value Less than normal Cutoff value	 107 193	 35.7 64.3
Total score **0 point no; frail/ Robust** **1-2 point; Pre-frail** **3-5 point; frail**	 16 90 194	 5.3 30.0 64.7

Table 3: Distribution of the studied older adults according to malnutrition; step I: Screening and step II: Assessment

Mini Nutritional Assessment ® MNA	N=300	%100
Step I: Screening		
Total Screening score **Well-nourished (12-14 point)** **High risk for malnutrition (8-11 point)** **Malnourished (0-7 point)**	 35 114 151	 11.7 38.0 50.3
Step II: Assessment		
Total Assessment score **Well-nourished (24- 30)** **High risk for malnutrition (17- 23.5)** **Malnourished (<17)**	 10 85 170	 3.8 32.0 64.2

Table 4: Relationship between frailty, malnutrition, demographic characteristics, and health-related data of the studied older adults

Items		Frailty			Chi-Square tests Test of significance			Nutritional Status	Chi-Square tests Test of significance
		Robust	Pre-Frail	Frail	X^2 P	Well-nourished	High risk for malnutrition	Malnourished	X^2 P
		N (%)	N (%)	N (%)		N (%)	N (%)	N (%)	
Age (years)	≥ 60	11 (10.3)	42 (39.3)	54 (50.5)	27.75	2 (2.4)	36 (42.9)	46 (54.8)	15.57 .001**
	≥ 65	5 (4.8)	34 (32.7)	65 (62.5)		7 (7.4)	31 (32.6)	57 (60.0)	
	≥ 70	0 (0.0)	14 (15.7)	75 (84.3)	< 0.001**	1 (1.2)	18 (20.9)	67 (77.9)	
sex	Male	12 (7.0)	68 (39.5)	92 (53.5)	22.05 < 0.001**	10 (6.9)	61 (42.1)	74 (51.0)	26.83 < 0.001**
	Female	4 (3.1)	22 (17.2)	102 (79.7)		0 (0.0)	24 (20.0)	96 (80.0)	
Marital status	Single	0 (0.0)	2 (20.0)	8 (80.0)	33.40 < 0.001**	0 (0.0)	2 (20.0)	8 (80.0)	31.20 < 0.001**
	Married	16 (8.3)	74 (38.5)	102 (53.1)		9 (5.6)	68 (42.0)	85 (52.5)	
	Widow	0 (0.0)	10 (13.0)	67 (87.0)		1 (1.4)	7 (9.7)	64 (88.9)	
	Divorced	0 (0.0)	4 (19.0)	17 (81.0)		0 (0.0)	8 (38.1)	13 (61.9)	
Place of Residence	Rural	8 (5.3)	48 (32.0)	94 (62.7)	.586 .746	5 (3.6)	47 (34.3)	85 (62.0)	.648 .740
	Urban	8 (5.3)	42 (28.0)	100 (66.7)		5 (3.9)	38 (29.7)	85 (66.4)	
Educational level	Illiterate	2 (1.3)	26 (17.2)	123 (81.5)	61.57 < 0.001**	3 (2.0)	39 (26.5)	105 (71.4)	43.64 < 0.001**
	Read &write	9 (12.0)	23 (30.7)	43 (57.3)		5 (8.3)	15 (25.0)	40 (66.7)	
	Primary	0 (0.0)	9 (40.9)	13 (59.1)		0 (0.0)	3 (16.7)	15 (83.3)	
	Secondary	1 (4.5)	14 (63.6)	7 (31.8)		0 (0.0)	15 (78.9)	4 (21.1)	
	University	4 (15.4)	15 (57.7)	7 (26.9)		2 (11.8)	10 (58.8)	5 (29.4)	
Number of diseases	No diseases	5 (29.4)	12 (70.6)	0 (0.0)	95.03 < 0.001**	2 (25.0)	6 (75.0)	0 (0.0)	27.55 < 0.001*
	One disease	7 (26.9)	16 (61.5)	3(11.5)		1 (9.1)	7 (63.6)	3 (27.3)	
	More than one disease	4 (1.6)	62 (24.1)	191(74.3)		7 (2.8)	72 (29.3)	167 (67.9)	
Number of medications	No medications	3 (7.9)	25 (65.8)	10 (26.3)	88.80 < 0.001**	3 (11.1)	14 (51.9)	10 (37.0)	18.33 < 0.001*
	>5 medications	13 (21.3)	25 (41.0)	23 (37.7)		1 (2.5)	19 (47.5)	20 (50.0)	
	< 5 medications	0 (0.0)	40 (19.9)	161 (80.1)		6 (3.0)	52 (26.3)	140 (70.7)	

X²: Chi-Square tests different categories   **p-value** for the association between

*: Statistically significant at p ≤ 0.05   ****:** Statistically highly significant at p ≤ 0.01
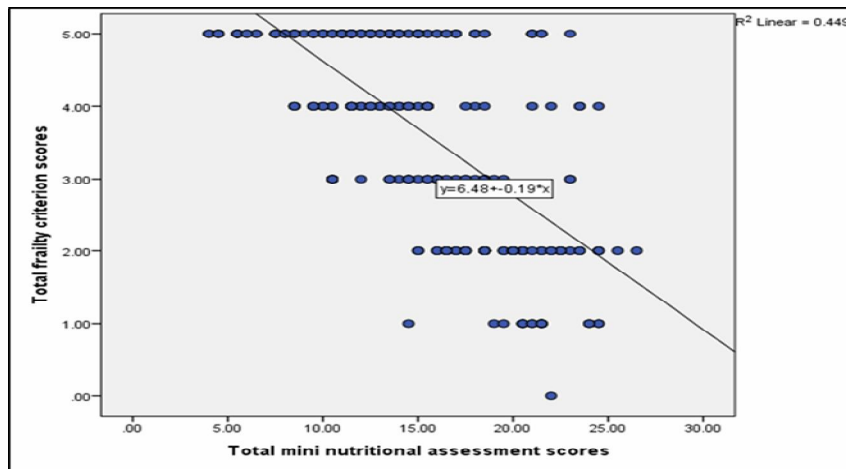

Figure 1: Correlation between frailty criterion and malnutrition of the studied older adults

5. Discussion

Frailty is considered to be a serious public health concerns that can be difficult to differentiate from normal ageing processes. Frailty is a fragile state of old age syndrome characterized by functional decline and decreased physiological reserves **(Lyu, Wang, Jiang, Wang, & Cui, 2021)**. Frailty and malnutrition share similar symptoms **(Khor et al., 2021).** Poor nutritional status accelerates the transition to frailty and dependency. It is unclear whether malnutrition contributes to frailty or vice versa, or if both disorders co-occur in the same older adults independently of one another. Because of this overlap and gap, the current study was conducted to identify older adults with frailty and malnutrition and to investigate whether if there is a relationship between both conditions in community dwelling older adults.

When studying frailty and nutritional status, a strong association between frailty and malnutrition was found. Thus, among frail studied older adults, the majority had poor nutritional status, also the majority of those who were prefrail, were also at high risk for malnutrition, and when correlate frailty with malnutrition in the current study, a strong negative correlation was found. Further studies were in the line with the present results, studies done in Egypt by **Shokry, Hamza, Fouad, Mohammed, & Aly, (2021),** and in China by **Zhang et al., (2020)**, their analysis showed that, older adults who at risk of malnutrition or malnourished, were significantly association with frailty. Similarly, study done in Netherlands by **Benraad, (2021)**, found negative correlation of frailty with nutritional status.

Similarly, study done in Ireland, by **O'Connell, Coppinger, & McCarthy, (2021)**, found that, older adults who at risk of malnutrition were more likely to be frail than those with no risk. Similar finding was published in UK, by **Kelaiditi, Vidal, & Myrissa, (2020)**, found that being frail was significant predictors of malnutrition. This finding points toward the fact that malnutrition usually occurs due to inability to regulate nutritional needs, or poor absorption of nutrients, and then lead to sever weight loss, state of easy fatiguability, tired, exhausted, increased vulnerability and lack power or energy that end by increased vulnerability or frailty and vice versa. Besides the significant association of poor oral health with frailty that found by **(Bassim et al., 2020).**

Separately, beginning with studying frailty; the current study found that the most studied older adults were frail, and the least were robust. Conversely to the current results, study done in Brazil, by **Oliveira et al., (2021),** alongside study done in Taiwan by **Li et al., (2021)**, found that those who were robust were higher than those who were frail. This result may be attributed to the association between frailty with environmental and personal behaviors that differ between countries (e. g physical inactivity or exercising, calorie diet, poor dietary intake), and differences in assessment tools to measure frailty.

Then turning toward malnutrition; malnourished studied older adults considered the highest percentage, followed by those who were high risk, and then the lowest were well-nourished. like studies done in Nigeria by **Adetunbi, (2021),** and in Egypt by **Abd Allah, Gad, & Abdel-Aziz, (2020)**, found that those who were well-nourished represents the least. Another study done in China by **Li et al., (2020)**, found the majority were malnourished, but Unlike to other studies done in Spain by **Abadía Otero et al., (2021)**, and in Egypt by **Aly, Abd Elhameed, Hassan Abd-Elfatah, & Abd El-aty, (2020),** found that, older adults who were at risk of malnutrition, were the most prevalent. This result are somehow different from present study, these findings suggest that this variance might originate from two sources, characteristics of the studied older adults/setting and considered malnutrition measures.

The present study revealed that frailty as well as malnutrition were encountered more among the oldest older adults with significant association was found. This result in agreement with the studies done in Korea by **Kim, Yang, & Kim, (2021),** and in Latin America by **Da Mata et al., (2021),** that showed a higher frequency of frailty in more aged older adults. Too, malnutrition was found highly among the oldest older adults. This may be due to physiological changes that occurs along body systems that accompanied aging, resulting in some of different nutritional disorders, that may decrease food intake than usual and may reversely reduce energy and cause lack in power, resulting finally to frailty and malnutrition.

There are many common conditions that are more common in males or females or equal in both sexes. In this study, susceptibility to frailty is generally higher in female than male with statistically highly significant relation. Supporting the present result, studies done in United States by **Denfeld et al., (2021)**, in China by **Zhang et al.,**

(2020), noticed that male sex was a protective factor against frailty. But in contrary to the present result, study done in Korea by **Kim et al., (2021)**, found no association for frailty and sex despite of the higher percentage of frailty in female than in male. Regarding malnutrition, commonness of malnutrition was higher in females with statistically highly significant relation was found. In agreement with the current result, studies done in Nepal by **Chataut, Jonche, Ghimire, Tamrakar, & Bhandari, (2021),** and in Belgium by **Lengelé, Bruyère, Beaudart, Reginster, & Locquet, (2021),** found the occurrence of malnutrition among females was higher compared to males.

6. Conclusion:

Based on findings of the present study, it can be concluded that poor nutritional status and physical frailty were highly prevalent in community-dwellers in Dakahlia governorate, Egypt urban and rural regions, moreover poor nutritional status was found to be significantly associated with increased likelihoods of frailty.

7. Recommendations:

Based on the finding of the study, the following recommendations are suggested:

- Develop standardized care for older adults with frailty, in acute care and primary care settings. Since there are no specific guidelines for providing care to frail, such standard care may include for example; assessment, continuous monitoring educational programs, and orientation to available resources and cost-effective services.

- Designing an educational program about both conditions (frailty and malnutrition), how to manage associated symptoms and locate resources that may decrease its progress to mitigate negative consequences and provide older adults with clear educational materials regarding primary, secondary, and tertiary prevention.

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