

## Effect of Comorbidities on Physical Function and Psychological Wellbeing among Elderly at Qena City

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### Abstract

**Background:** The prevalence and the number of comorbidities increase with age, variety of physical health conditions common to aging may increase the development of mental health problems in the older adult population. **The study aimed to** assess the effect of comorbidities on physical function and psychological well-being among the elderly. **Design:** cross sectional descriptive design was utilized. **Setting:** This study was conducted at the elderly club of Qena city and the outpatient clinic of Qena general hospital. **Sample:** The total sample size was 350 elderly who were selected by simple random sample. **Tools:** Four tools were used, **(I):** It includes socio-demographic data as, age, sex., etc. **(II):** Charlson Comorbidity Index. **III:** The function component of the late life function and disability instrument. **(IV):** The WHO-5 Well-Being Index. **Results:** Showed that studied elderly ranged from 60 to more than 70 years, most of the studied elderly were female and married, (35%) received university education. Most of the studied elderly have hypertension (84%) and diabetes (81%), and (61.4%) from the elderly have moderate limitation in functional activities while, (38.3%) have slight limitation and (60.6%) from the elderly have poor psychological well-being. **Conclusion:** Most of the studied sample had DM & hypertension, more than half of them had three diseases & above, they have moderate limitations in functional activities and poor psychological well-being. **Recommendation:** Improve awareness and psychological wellbeing for the elderly and health caregivers through providing health education programs regarding comorbidities and psychological wellbeing.

**Keywords:** *Comorbidities, Elderly, Physical function & Psychological Wellbeing.*

### Introduction:

Aging is a normal, time-related process of change that begins at birth and continues throughout life (Jecker, 2021). Conceptually, aging is associated with declining health, physical, mental impairment and psychosocial changes (Lisko et al., 2021).

The world's population is rapidly ageing. Between 2015 and 2050, the proportion of the world's population over the age of 60 will almost double, from 12% to 22%. From 2015 to 2030, the global population of people aged 60 and over is expected to grow by 56%, from 901 million to 1.4 billion, and by 2050, the global elderly population is expected to be more than double in 2015 to nearly 2.1 billion (Saha et al., 2021).

In Egypt, the absolute and relative numbers of older persons have gradually increased in recent decades. Older people (defined as 60 years or older) make up 94.8 million of Egypt's total population, older people (60 years and older) make up 7% of Egypt's total population and are expected to reach 12% by 2030 (Central Agency for Public Mobilization & Statistics, 2019).

As people grow older, people are more likely to develop a chronic disease at the age of 65, with 75% having at least one chronic disease, rising to 95% by the age of 85 year. Multi-morbidity was also more common among 65-year-olds and 85-year-olds with 3 chronic diseases, 25% and 50%, respectively (Jürisson et al., 2017).

Independence is lost with age due to reduced mobility, frailty, and functional adaptation and cognitive decline (Boyer et al., 2022). The consequence of the growing geriatric population is an increase in the incidence of age-related diseases such as diabetes, osteoporosis and dementia, which will further weaken an overburdened healthcare system. In this regard, 88% of adults over the age of 65 have been found to have at least one chronic disease (Dai et al., 2019).

Physical function is an important predictor of health in older adults. The ability to perform basic bodily functions is a core aspect of health-related quality of life (Sivaramakrishnan et al., 2019). Both physical function (PF) and physical activity (PA) decline with adult age longitudinal changes in physical function and physical activity in older adults (Mendonça et al., 2018).

Psychological wellbeing is closely related to health, and this link may become more important as we grow older, as the prevalence of chronic diseases increases with age (Sun et al., 2022). In addition to increasing comorbidities associated with aging, older adults are known to be at risk for depression and anxiety. Various physical health problems associated with aging can increase the development of mental health problems in older adults (Zaninotto, et al. 2017).

#### Role of gerontological nurse:

An overall goal for gerontological and geriatric nursing is to provide humanistic healthcare to older adults and their families by paying careful attention to individual circumstances, needs and goals. Preventing impairment, restoring function and maintaining an enduring state of health and wellbeing are embedded in these goals. (Kiran, et al., 2022).

#### Significance of the study:

Aging, progressive physiological changes in an organism that lead to senescence, or a decline of biological functions and of the organism's ability to adapt to metabolic stress. (Goldberg., 2022) The presence of comorbidities increases significantly with age, in large part because the prevalence of individual chronic diseases increases with age. Comorbidity is the presence of two or more medically diagnosed diseases in the same person. Comorbidities also affect a range of health outcomes (Nelis et al. 2018).

Chronic diseases, including cardiovascular disease, diabetes, cancer and chronic respiratory diseases, are currently the leading national killers in Egypt. Chronic diseases are estimated to account for 82% of all deaths in Egypt and 67% of premature deaths (WHO, 2018a).

People of all ages, regions and countries are affected by chronic diseases. These conditions are often associated with older age groups; older adults are all vulnerable to risk factors for chronic diseases, whether it be an unhealthy diet, physical inactivity, smoking or harmful alcohol consumption (WHO, 2018b). On average, patients with multiple chronic diseases had higher rates of morbidity, poorer physical functioning and quality of life, greater likelihood of persistent depression, and lower levels of social well-being. Such patients are at increased risk of adverse drug reactions and death (Jain & Shakya 2021).

There is little or no baseline information in Egypt about the effect of these diseases (comorbidities) on physical function and psychological wellbeing of the elderly. Therefore, this study will be conducted to assess the effect of comorbidities on elderly physical function and psychological wellbeing.

#### Aim of the study:

To assess the effect of comorbidities on physical function and psychological well-being among the elderly.

#### Research questions:

1. Is there an effect of comorbidities on physical function among the elderly?
2. Is there an effect of comorbidities on psychological well-being among the elderly?

#### Subjects and Method:

**Research design:** descriptive design was used in this research.

**Setting:** The study was conducted at the elderly club of Qena city and outpatient clinics of Qena general hospital.

#### Sampling:

**Distribution of the study subjects according to the setting of data collection:**

Place	No	Total No	Total %
		N = 350	100
1-Outpatient clinics			
- Medical clinic	112	200	57.1
-Hypertension and diabetes (Follow up) clinic	61		
- Surgical clinic	27		
2-Elderly club of Qena city		150	42.9 %

**Measurement of Sample size** was calculated through using Epi/Info version 3.3 with 95% confidence interval (CI) according to the prevalence rate during one year (2018) the total number of elderlies was 3882, the final estimated sample was 350 elderlies selected by purposive sample. The interviewer selected patients aged 60 years and more who fulfilled the criteria.

#### Inclusion criteria:

1. Have two or more of chronic diseases.
2. Alert and able to communicate and agree to participate.

#### Study tools: data collected using tools:

**Tool (I):** A structured questionnaire sheet developed by the researchers for collecting the needed data. It consisted of two parts:

**Part (1):** It includes socio-demographic data as, age, sex, residence, marital status, income, occupation, and level of education. Was adapted from (Abdel-Tawab, 2012).

**Part (2):** previous history, medical history and using of hearing and vision aids.

#### Tool (II): Charlson Comorbidity Index (CCI):

The Charlson comorbidity index (CCI) is among the best-known and widely used indexes of comorbidity developed by. The Charlson Comorbidity Index is a method of categorizing comorbidities of patients

based on the International Classification of Diseases (ICD) diagnosis codes. found in administrative data, such as hospital abstracts data (Stavem, et al.,2017). The tool includes questions such as Does the patient have hypertension, does the patient have diabetes and does the patient have peripheral vascular disease, does the patient have peptic ulcer? The answer to these questions by yes or no. The tool is used to identify comorbidities for each elderly of the studied sample and percent of the total number of comorbidities or diseases among the studied sample.

### **Tool (III): The late life function and disability instrument (LLFDI)**

The late life function and disability instrument was developed by (Jette, et al 2002). The tool is composed of two primary components, but the function component only was used.

#### **The function component:**

Includes (32 items) that rate to assess task difficulty. This component is directed to **upper extremity function** (7 items) such as holding full glass of water in one hand, unscrewing the lid off a previously unopened jar without using any devices, going up & down a flight of stairs inside, using a handrail, putting on and taking off long pants (including managing fasteners) and running ½ mile or more. **basic lower extremity function** (14 items) such as Going up & down a flight of stairs outside, without using a handrail, running a short distance, such as to catch a bus, putting on and taking off a coat or jacket, Getting into and out of a car/taxi. and **advanced lower extremity function** (11 items) such as hiking a couple of miles on uneven surfaces, including hills & get up from floor. Making a bed, including spreading and tucking in bed sheets, carrying something in both arms while climbing a flight of stairs (e.g., laundry basket), Bending over from a standing position to pick up a piece of clothing from the floor and getting up from the floor (as if you were lying on the ground).

#### **Function Component-Difficult**

- 5 None: You have no difficulty doing the activity.
- 4 A little: You can do it alone with a bit of difficulty.
- 3 Some: You can do it, but you have a moderate amount of difficulty doing it alone.
- 2 Quite a lot: You can manage without help, but you have quite a lot of difficulty doing it.
- 1 Cannot do: It is so difficult that you cannot do it unless you have help.

#### **Score system of the function component from LLFDI:**

Scores approaching 100 signifying high levels in the ability to perform actions and scores approaching 0 indicating lower levels in the ability to perform action. The scaled scores of LLFDI have been operationally classified into 4 statistically different

subgroups of older adults for clinical interpretation: severe, moderate, slight, and no limitation.

A Likert scale of 1 to 5 is used for the function component which contained 32 items is applied to a sample of the elderly, then the summing up of the final score will range from a minimum of 32 to a maximum of 160 if an elderly gets the minimum score 32, then their raw percent score would be  $\frac{32 \times 100}{160} = 20\%$ ; i.e., there will never be any

percentages from 0% to 19%. Therefore, a certain formula is used to adjust the percentages to their proper range from 0% to 100% .

The response was categorized in the following 4 levels of limitation from the component scaled (0-100)

Number	Percent	Category
0<40	0% < 25%	Severe limitation
40<80	25% < 50 %	Moderate limitation
80<120	50%< 75%	Mild limitation
120≤160	75% < 100%	No limitation

#### **Tool (IV): The WHO-5 Well-Being Index**

The WHO-5 Well-Being Index is a self-assessment instrument consisting of five multiple choice questions such as (I have felt cheerful in good spirits, I have felt calm and relaxed, I have felt active and vigorous, I woke up feeling fresh and rested and my daily life has been filled with things that interest me), the questions were designed to measure the level of psychological well-being.. It was developed for the WHO Collaboration Centre for Mental Health, and is a useful tool for assessment of the psychological well-being status among the elderly subjects and has been used in several studies (Topp, et al., 2015).

#### **Score system of the WHO-5 Well-Being Index:**

The maximum possible score is 100 points. A higher score indicates a higher level of psychological well-being. Each of the five items is rated on a 6-point Likert scale from 0 to 5. The theoretical raw score ranges from 0 to 25 and is transformed into a scale from 0 (worst thinkable well-being) to 100 (best thinkable well-being). If the raw score is below 13 or the respondent has answered 0 to 1 to any of the five items, it indicates poor well- being (Topp, et al., 2015).

#### **Validity and reliability of tools:**

Tools were tested for their content validity by a group of three experts in gerontological nursing and psychiatric mental health nursing to required modifications were done. Internal consistency was assessed by using Alpha Cronbach's test and it reached (Cronbach's  $\alpha = (0.95, 0.96$  and  $0.91)$ , for the CCI, function component from LLFDI, and WHO-5 Well-Being Index respectively).

**Method**

**Administrative phase:** An official letter of approval was obtained from the dean of the faculty of nursing to the director of Qena general hospital. And to the director of the elderly club of Qena City to carry out the study. The letter included a permission to carry out the study and explained the purpose and nature of the study.

**Ethical considerations:**

Research proposal was approved from ethical committee in the faculty of nursing Assiut University, there was no risk for study subject during application of the research. The study was following common ethical principles in clinical research.

Written consent was obtained from director of each place and oral from the patients that are willing to participate in the study, after explaining the nature and purpose of the study. Study subject had the right to refuse to participate or withdraw from the study without any rational any time, Confidentiality and anonymity were assured.

Study subject privacy was considered during collection of data.

**Pilot study:**

Pilot study was carried out before the starting of data collection on 10 % of the elderly patients who fulfilled the inclusion criteria to test the clarity (35 elderly), feasibility of the interview questionnaire and to estimate the time needed to fill it. They were excluded from the total sample. The necessary modifications were done in data collection.

**Data Collection:****Field work**

Data collection was carried out from 1<sup>st</sup> of December 2019 and ended on the 30<sup>th</sup> of July 2020; the data were collected from the previously mentioned setting for 8 months. The researchers collected data three days per week. (Saturday and Sunday) at Qena general hospital outpatient clinics from 10 am to 1 pm., and the average number was 3-4 elderly patients were interviewed per day. (Wednesday) at the elderly club of Qena City. The average number was 4-5 elderly patients were interviewed per day from 6 pm to 9 pm. The interviewer selected patients who fulfilled the criteria. The purpose and nature of the study were explained to each patient who agreed to participate in the study. An oral informed consent was obtained from participants and they were assured about confidentiality and privacy that the information will be used only for the purpose of research Each patient was individually interviewed and the researcher recorded the answer in the Questionnaire sheet. The approximate time spent during the filling of sheet was around 30-40minutes for each

participant. The Questionnaire was modified orally according to patient gender.

**Statistical analysis:**

Data entry and data analysis were done using SPSS version 22 (Statistical Package for Social Science). data were presented as number, percentage, mean and standard deviation. Pearson correlation was done to measure the correlation between quantitative variables. simple linear regression, multiple linear regression analysis was done to rank the different effects. P-value was considered statistically significant when  $P < 0.05$ .

**Results:****Table (1): Distribution of studied elderly regarding to their socio demographic characteristics.**

Socio demographic characteristics.	No. (350)	%
<b>Place:</b>		
Qena General Hospital	200	57.1
the elderly club of Qena city	150	42.9
<b>Elderly age:</b>		
60 <70	172	49.1
≥ 70	178	50.9
Mean ± SD (Range)	71.21 ± 6.00 (61.0-89.0)	
<b>Sex:</b>		
Male	169	48.3
Female	181	51.7
<b>Marital status:</b>		
Single	17	4.9
Married	180	51.4
Widow	121	34.6
Divorced	32	9.1
<b>Level of education:</b>		
Illiterate	28	8.0
Read and write	33	9.4
Primary & Preparatory	29	8.2
Secondary	106	30.3
University	124	35.4
Postgraduate studies	30	8.6
<b>Occupation before retirement:</b>		
Employee	127	36.3
Worker	30	8.6
Free business	85	24.3
Crafts man	18	5.1
Housewife	75	21.4
Farmer	15	4.3
<b>Residence:</b>		
Urban	164	46.9
Rural	186	53.1
<b>Live alone:</b>		
Yes	25	7.1
No	325	92.9
<b>Socioeconomical level</b>		
Low	121	34.6
Middle	132	37.7
High	97	27.7

**Table (2): Distribution of studied elderly according to (CCI)**

Charlson comorbidity index (CCI).	Yes		No	
	No.	%	No.	%
Has the patient had a myocardial infraction?	25	7.1%	325	92.9%
Does the patient have peripheral vascular disease?	70	20.0%	280	80.0%
Has the patient had a CVA or transient ischemic disease?	78	22.3%	272	77.7%
Does the patient have asthma chronic lung disease chronic bronchitis or emphysema?	104	29.7%	246	70.3%
Does the patient have Diabetes that requires treatment?	284	81.1%	66	18.9%
Does the patient have a chronic liver disease?	32	9.1%	318	90.9%
Has the patient had gastric or peptic ulcers?	57	16.3%	293	83.7%
Does the patient have hypertension?	294	84.0%	56	16.0%
Total CCI score Mean ± SD (Range)	3.20 ± 1.38 (2.0-7.0)			

Table (3): Distribution of studied elderly according to number of diseases

Number of diseases	No. (350)	%
Two	168	48.0
Three	55	15.7
Four	71	20.3
Five	46	13.1
Six	10	2.9

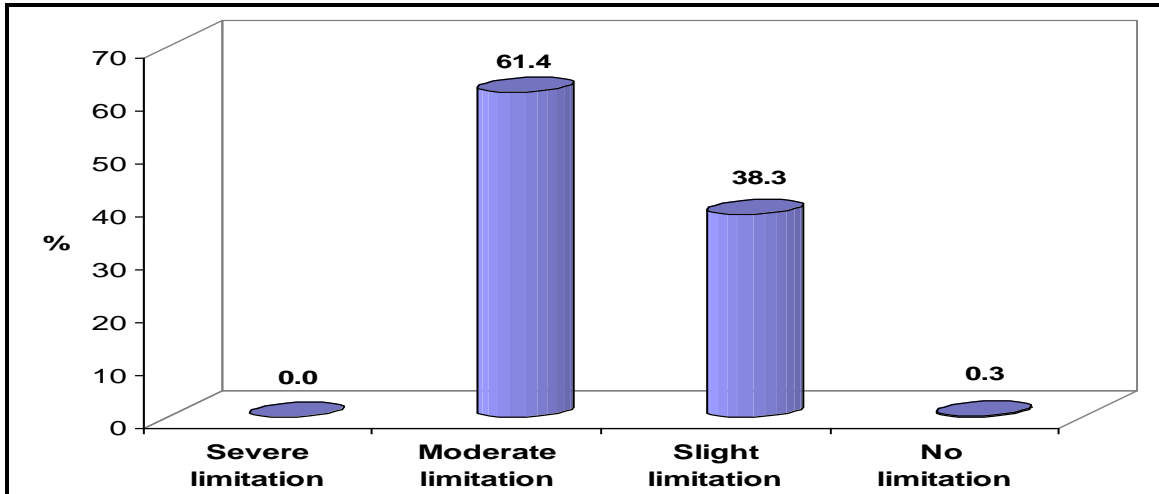


Fig. (1): Distribution of studied elderly according to their Levels of function by using the late life function and disability instrument (LLFDI)

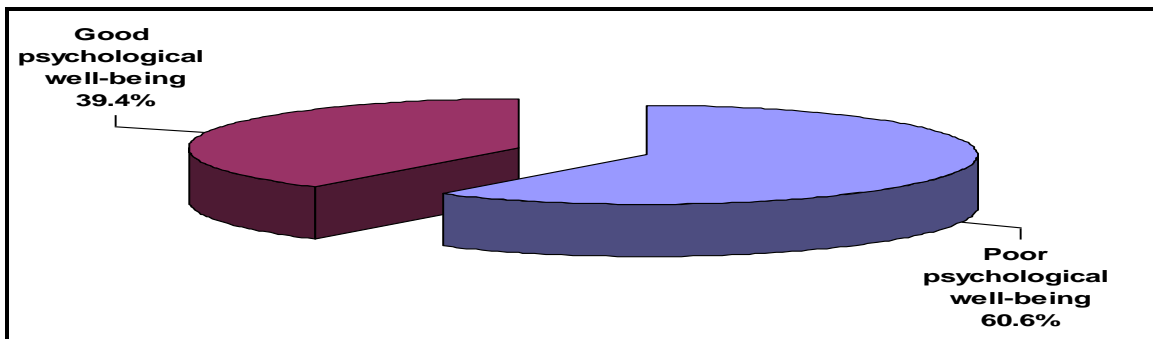


Fig. (2): Distribution of studied elderly according total score of the WHO-5 Well- Being Index

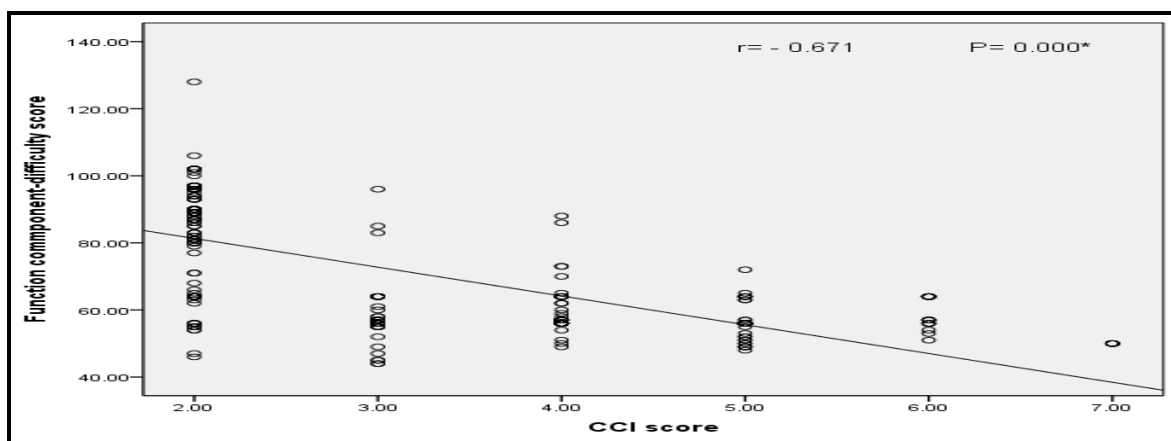
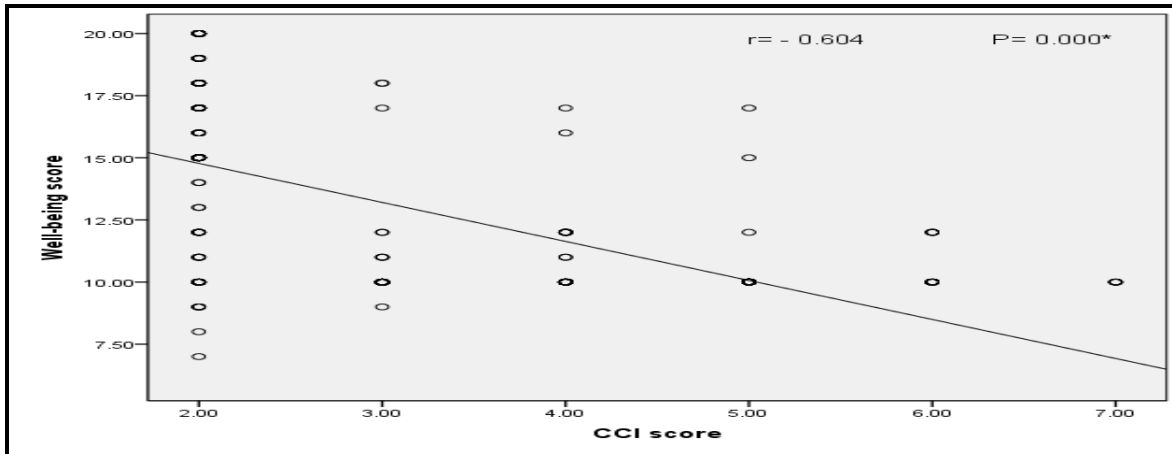


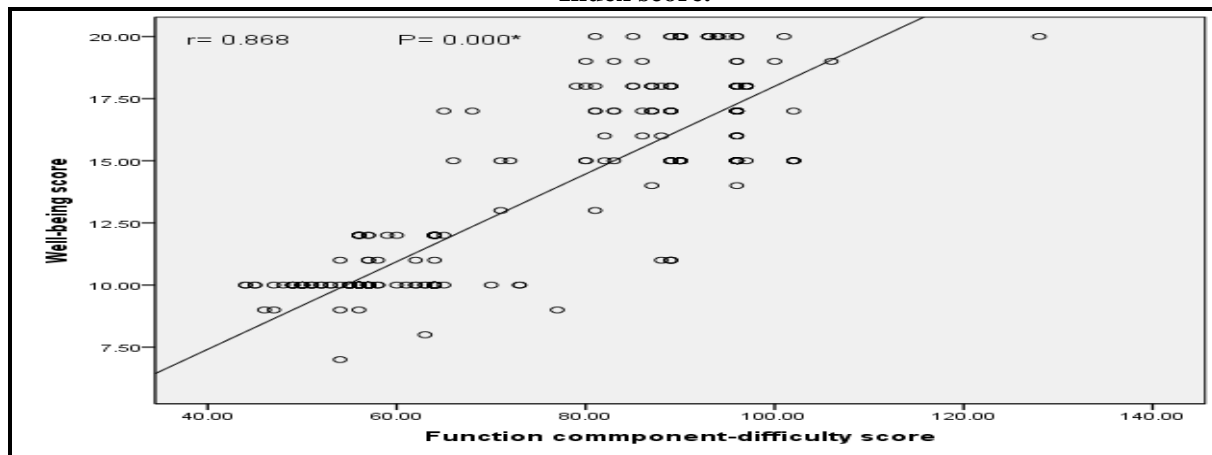
Fig. (3): Correlation between Charlson Comorbidity Index (CCI) score and function component score of the late life function and disability instrument (LLFDI)





Spearman correlation

Fig. (4): Correlation between Charlson Comorbidity Index (CCI) score and the WHO-5 Well-Being Index score.



Pearson correlation

Fig. (5): Correlation between function component score of the late life function and disability instrument (LLFDI) and the WHO-5 Well-Being Index score.

Table (4): Multiple linear regression analysis for effect of the function component of the late life function and disability instrument (LLFDI) and Charlson Comorbidity Index (CCI) score on the WHO-5 Well-Being Index score.

	Unstandardized Coefficients		Standardized coefficients	T-test	P-value	95.0% CI for B	
	B	SE	Beta			Lower	Upper
(Constant)	1.078	0.756		1.43	0.155	-0.408	2.564
CCI score	-0.104	0.093	-0.040	-1.11	0.266	-0.287	0.079
Function component-difficulty score	0.171	0.007	0.842	<b>23.50</b>	<b>0.000*</b>	0.157	0.185

Multiple linear regression

Table (5): Simple linear regression analysis for the effect of Charlson Comorbidity Index score (CCI) on the function component score of the late life function and disability instrument (LLFDI).

	Unstandardized Coefficients		Standardized Coefficients	T-test	P-value	95.0% CI for B	
	B	SE	Beta			Lower	Upper
(Constant)	98.485	1.771		55.60	0.000	95.001	101.969
CCI score	-8.577-	.509	-.671-	<b>-16.86</b>	<b>0.000*</b>	-9.577	-7.577

Simple linear regression

**Table (1):** Shows the socio-demographic characteristics of the studied elderly, more than half (50.9%) were above 70 years, females (51.7%) and married (51.4%). In relation to the elderly education, a large percentage of them (35%) received university education, followed by (30.3%) had secondary education.

As for the occupation of the elders, more than one third of them before retirement (36%) were employees followed by (24.3%) were free business. Regarding the residence, (53.1%) from the elders were from rural areas and the rest (49.9%) were from an urban. (92.9%) were living with their families while, (7.1%) were living alone.

**Table (2):** Shows the distribution of studied elderly according to Charlson comorbidity index (CCI).

**Table (3):** Shows the distribution of the studied elderly according to the number of diseases. More than half of them (52%) have three diseases and above.

**Figure (1):** Shows the distribution of the studied elderly according to the level of function component of (LLFDI), founded that more than half of the elderly have moderate limitation in functional activities (61.4%) while one third (38.3%) were slight limitation.

**Figure (2):** Regarding the distribution of the studied elderly according to total score of the WHO-5 Well-Being Index, more than half (60.6%) of the elders were having poor psychological well-being while, the rest of the percentage (39.4%) were having good psychological well-being.

**Figure (3):** Shows there is a negative relationship ( $R = -0.671$ ) ( $P=0.00$ ) between (CCI) and the function component score of (LLFDI).

**Figure (4):** Shows there is a negative relationship ( $R = -0.604$ ) ( $P=0.00$ ) between (CCI) and the WHO-5 Well-Being Index.

**Figure (5):** Shows there is a positive relationship ( $R = 0.868$ ) ( $P=0.00$ ) between the function component score of the late life function and the disability instrument (LLFDI and the WHO-5 Well-Being Index).

**Table (4):** Shows that the function component score was the main factor that affected the WHO-5 Well-Being Index score  $P$ . value (0.00\*).

**Table (5):** Revealed that the CCI score was the main factor that affected function component score on (LLFDI)  $P$ . value (0.00\*).

## Discussion

The global number of older peoples continues to grow. The number of older persons aged 60 years or over is expected to rise from 962 million to 1.4 billion in 2030 with an increasing rate of 3% per year (World population prospects, 2017). The ageing

process results from the impact of the accumulation of a wide variety of molecular and cellular damage over time (Schumacher et al., 2021).

Therefore, leads to a gradual decrease in the physical and mental capacity of the elderly in addition to a growing risk of disease, ultimately and death rates (WHO, 2019). The prevalence and the number of comorbidities increase with age, variety of physical health conditions common to aging may increase the development of mental health problems in the older adult population (Maresova et al., 2019). So, this study was conducted to assess the effect of comorbidities on the physical function and psychological well-being among the elderly.

Regarding the socio demographic characteristics, the findings of the present study revealed that the studied elderly ranged from 60 to more than 70 years, with (51.7%) of the elderly were females and the rest (49.1%) were males. This is similar to the study conducted by Verhoog et al., (2019), in which (50.7%) from the studied sample were females. but not in the same line with Sharma et al., (2022), mentioned that the mean age of participants was 68 years, with 60% males.

In the present study according to Charlson comorbidity index (CCI), most of the studied elders were having hypertension and diabetes which could be explained by as we age, the vascular system changes. This includes the heart and blood vessels. In the blood vessels, there's a reduction in elastic tissue the arteries, causing them to become stiffer and less compliant. As a result, the blood pressure increases, elderly is at high risk for the development of type 2 diabetes due to the combined effects of increasing insulin resistance and impaired pancreatic islet function with aging.

Which agree with Surowiec et al., (2022), who mentioned that the most commonly involved systems are cardiovascular, followed by endocrinological and ophthalmological systems. Hypertension was the most common diagnosis, seen in about half of the patients along with cataract and diabetes mellitus in one-quarter of them.

In the recent study according to the number of diseases, the result revealed that more than half of the studied elderly were having three diseases and above. This could clarified by Aging is a driving factor of various age-related diseases, including neurodegenerative diseases, cardiovascular diseases, cancer, immune system disorders, and musculoskeletal disorders, especially in Egypt chronic diseases (comorbidities) have high prevalence continues to increase as a result of increased prevalence of central obesity, sedentary lifestyle, change in eating habits, increased prevalence of



hepatitis C, and possibly the increased use of uncontrolled pesticides .

Which on the same line with **Turunen et al., (2022)** in their study who mentioned that the study sample were suffering at least one of the chronic diseases and a relatively high percentage (48.1%) had three or more chronic morbidities with no significant differences between those living with families and those in geriatric homes.

Regarding the distribution of subjects according to the level of function of the (LLFDI), more than half from the elders were having moderate limitation while one third were having slight limitation and only three percentage had no limitations. This Could demonstrated through aging is associated with a gradual loss of muscle mass, strength, and power in addition to reductions in maximal rate of oxygen consumption lung capacity and impairment of postural control.as a result of that ,elderly with comorbidities often need help for performing basic activities of daily living, like bathing, eating, dressing toileting or getting out of bed or chair.

Which **Omar et al., (2021)**, was reported impaired physical function was common, more than half of patients reported needing assistance with at least one of their Instrumental Activities of Daily Living, and the majority reported limitations in physical activity.

In recent the study more than half (60.6%) from the elders were poor psychological well-being while, the rest percentage (39.4%) were having good psychological well-being. which could be explained by at the biological level, ageing results a gradual decrease in physical and mental capacity, a growing risk of diseases and ultimately death. Along with new physical, social, and emotional challenges, increasing age brings changes in cognition and emotion that have a negative impacts on psychological well-being and social relationships.

Which agrees with **Tang et al., (2020)**, who concluded in their study " The association between clusters of chronic conditions and psychological well-being in younger and older people and revealed that the participants  $\geq 65$  years had poorer psychological well-being compared to younger ones.

The present study revealed that there is negative relationship ( $R = -0.671$ ) ( $P = 0.00$ ) between the Charlson Comorbidity Index (CCI) and the function component score of (LLFDI). In my opinion being physically active can improve brain health, help to manage weight, reduce the risk of disease, strengthen bones and muscles, and improve the ability to do everyday activities. Adults who sit less and do any amount of physical activity gain some health benefits on the other hand being, Low levels of physical activity are a major risk factor for ill health and mortality from all causes, increase all causes of

mortality, double the risk of cardiovascular diseases, diabetes, and obesity, and increase the risks of colon cancer, high blood pressure, osteoporosis, lipid disorders, depression and anxiety.

This agree with **Sallis et al., (2021)** who mentioned that Physical in-activity is associated with increased chronic disease risk, also **Tański et al., (2022)** who mentioned that the study has patients indicated a clear decrease in the QoL scores related to physical health with the increasing number of the accompanying diseases. Furthermore, **Almeida et al., (2021)**, who mentioned that any limiting comorbidities was associated with poorer global health/QoL, worse symptoms, and poorer functioning on all domains over 5-year follow-up.

The present study revealed that there is a negative relationship ( $R = -0.604$ ) ( $P = 0.00$ ) between the Charlson Comorbidity Index (CCI) and the WHO-5 Well-Being Index. Which could be clarified by There is a very close relation between mental and physical health. People with serious mental health conditions are at high risk of experiencing chronic physical conditions. People with chronic physical conditions are at risk of developing poor mental health, Chronic illnesses such as heart disease, hypertension, or diabetes may make you more likely to have or develop a mental health condition and poor psychological wellbeing .It is common to feel sad or discouraged after having a heart attack, or when trying to manage a chronic condition such as pain.

Which agree with **Tang et al., (2020)**, who conveyed that being represented in at least one of nine groups of chronic conditions was associated with poorer psychological well-being and self-rated health. Also, it agrees with **Heine et al., (2019)**, who studied Dual Sensory Loss, Mental Health, and Well-being of Older Adults Living in China, the impact of DSL on depression which is influenced by the presence of any chronic illness and any ADL or IADL limitation.

The present study revealed that there is a positive relationship ( $R = 0.868$ ) ( $P = 0.00$ ) between function component score (LLFDI) and WHO-5 Well-Being Index. Which could be explained by Physical activity can bring health benefits including elevated mood and reduced stress. Good physical health leaves a personal feeling better and happy and feel good about themselves which reflect positively on their psychological well-being in the long term which in the same line with **Calvo-Schimmel et al., (2022)** who mentioned that as a result of poorer physical functioning and increased problems in daily life, a higher number of comorbidities may also influence patients' psychological well-being, including symptoms of anxiety, depression, and health status.

The present study demonstrated that the function component score was the main factor that affected the WHO-5 Well-Being Index score P. value (0.00\*) in my opinion Physical activity is not only good for the body, it's also great for the mind. Being active releases chemicals in the brain that make the person feel good - boosting self-esteem and helping to concentrate as well as sleep well and feel better. Which agrees with **Trapp et al., (2022)**, who studied the physical activity, exercise, and chronic diseases and concluded that depression and anxiety symptoms are also improved with daily PA and exercises, the portions of the brain most adaptable to change (i.e., memory/ learning, emotion, etc.) are the first enhanced by PA and exercise.

The present study conveyed that, the CCI score was the main factor that affected the function component score on (LLFDI) P. value (0.00\*).it could be explained by in most cases, a chronic disease affects every aspect of a person's life. This can include physical and mental health, family, social life, finances, and employment. Chronic diseases can also shorten a person's life. This is especially true if the disease is not diagnosed and treated properly. Which agree with **Muhammad et al., (2019)**, who mentioned that, the chronic conditions have been confirmed as the main causes of disability, diseases showed a greater contribution to the prevalence of more severe disability, that is, with impairment of the basic ADL.

#### Conclusion:

Based on the results of the present study, it could be concluded that:

- Most of the studied sample had DM & hypertension, more than half of them had three diseases & above, they had moderate limitations in functional activities and poor psychological wellbeing.
- Comorbidities have an effect on the physical function and well-being among the elderly. As there is a negative relationship between Charlson Comorbidity Index (CCI) and the function component score of (LLFDI) and with WHO-5 Well-Being Index .and there is positive relationship between function component score of the (LLFDI) and the WHO-5 Well-Being Index.

#### Obstacles and limitation of the study:

Age related changes as vision and hearing problems, the data was collected during the coronavirus disease COVID- 19 pandemic that has created unique stressors for the researcher and the elderly to manage physical distance behavior that caused difficult in participation in the study and increase psychological stress.

#### Recommendations:

**Based on the findings of the present study, the following recommendations are suggested:**

##### For the elderly and health caregivers:

- Increasing awareness through providing health education programs regarding comorbidities and psychological wellbeing for the elders and elderly caregivers provided by gerontological nurses.
- Providing rehabilitation program to improve the function activities among the elderly.
- Providing psycho-education programs for elderly and elderly caregivers to improve the comorbidities, physical function and the psychological well-being.
- Providing follow-up for elderly patients with poor physical function and psychological well-being.

##### For Nursing Research:

Further research must be conducted to explore association between comorbidities, physical function and the psychological well-being.

#### Reference:

- **Abdel-Tawab A. (2012):** a measure of the level of social-economic status of families and key appreciation. Professor of Education and Dean the Faculty of Education - Assiut University.
- **Almeida D, Bezerra-Filho S, Studart-Bottó P, Léda-Rego G, Silva F, Kapczinski F & Miranda-Scippa, Â. (2021):** History of suicide attempts in patients with bipolar disorder type I n. *Nordic journal of psychiatry*, 75(4), 306-313.
- **Boyer S, Trimouillas J, Cardinaud N, Gayot C, Laubarie-Mouret C, Dumoitier N, & Tchalla A. (2022):** Frailty and functional dependence in older population: lessons from the FREEDOM Limousin–Nouvelle Aquitaine Cohort Study. *BMC geriatrics*, 22(1), 1-10.
- **Calvo-Schimmel A, Paul M., Cooper A., Harris C, Shin J, Oppegaard K, & Miaskowski, C. (2022):** Oncology outpatients with worse depression and sleep disturbance profiles are at increased risk for a higher symptom burden and poorer quality of life outcomes. *Sleep Medicine*, 95, 91-104.
- **Central agency for public mobilization statistic, (2019):** The world Fact book. Field Listing-Age Structure-Updated 8 March 2019, from "http://Publications/fact book/docs/Profileguide.Html." [www.capmas.gov.eg](http://www.capmas.gov.eg).
- **Dai L, Schurgers L, Shiels G, & Stenvinkel P. (2021):** A biomimetic natural sciences approach to understanding the mechanisms of ageing in burden of lifestyle diseases. *Clinical Science*, 135(10), 1251-1272.
- **Goldberg, M. (2022):** Ageing the Emerging Area of Bio-gerontology-A Review. *Jour Clin Med Res*, 3(1), 1-13.

- **Heine C, Honge Gong C & Browning C (2019):** Dual Sensory Loss, Mental Health, and Wellbeing of Older Adults Living in China, *Public Health*, 24 April 2019 | <https://doi.org/10.3389/fpubh.2019.00092>.
- **Jain H & Shakya SN, (2021):** A study of prevalence of comorbidity among old age patients with hypertension. *International Journal of Advanced Research in Medicine*; 3(1): 275-277.
- **Jecker S. (2021):** The time of one's life: Views of aging and age group justice. *History and Philosophy of the Life Sciences*, 43(1), 1-14.
- **Jette A., Haley S, Coster W., Kooyoomjian J., Levenson S, Heeren T., & Ashba J. (2002):** Late life function and disability instrument: I. Development and evaluation of the disability component. *J Gerontol A Biol Sci Med Sci*. 57(4): M209-16. Available at <https://www.ncbi.nlm.nih.gov/pubmed/11909885>.
- **Jürisson M, Pisarev H, Uusküla A, Lang K., Oona M, & Kalda, R. (2021):** Prevalence of chronic conditions and multimorbidity in Estonia. *BMJ open*, 11(10), e049045.
- **Kiran, R. (2022):** Mental Health Promotion and Risk Reduction Strategies for Mental Disorders in Older Persons. *Consortium Psychiatricum*, 3(1), 22-28.
- **Lisko I, Kulmala J, Annetorp M, Ngandu T, Mangialasche F & Kivipelto M. (2021):** How can dementia and disability be prevented in older adults. *Journal of internal medicine*, 289(6), 807-830.
- **Maresova P, Javanmardi E, Barakovic S , Barakovic Husic J, Tomsone S, Krejcar O, and Kuca, K. (2019):** Consequences of chronic diseases and other limitations associated with old age *BMC public health*, 19(1), 1-17.
- **Mendonça N, Hengeveld M, Visser M, Presse N, Canhão H, Simonsick M & Jagger C. (2021).** Low protein intake, physical activity, and physical function in European and North American community-dwelling older adults: a pooled analysis of four longitudinal aging cohorts. *The American journal of clinical nutrition*, 114(1), 29-41.
- **Muhammad T, Skariah E, Kumar M, & Srivastava S. (2022):** Socioeconomic and health-related inequalities in major depressive symptoms among older adults. *BMJ open*, 12(6), e054730.
- **Nelis S , Yu-Tzu Wu , Matthews F , Martyr A , Isla Rippon C, Rusted J, Thom J, Kopelman M , Hindle J, Jones R & Clare L (2018):** The impact of comorbidity on the quality of life of people with dementia. *Age and Ageing*. (0): 1-7. Available at <https://academic.oup.com/ageing/article/abstract/47/4/558/4931214>.
- **Omar A, Cumal A, Vellani S, Krassikova A, Lapenskie , Bayly, M , & McGilton S. (2021):**Health and social interventions to restore physical function of older adults post-hip fracture: a scoping review. *BMJ open*, 11(10), e053992.
- **Saha C, Thakur P, Das ,S & Das K. (2021):** Prevalence and correlates of physical disability among elderly rural population in a community development block of Purba Bardhaman District, West Bengal. *Journal of the Indian Academy of Geriatrics*, 17(1), 22.
- **Sallis R, Young R, Tartof Y, Sallis F, Sall J, Li Q & Cohen A. (2021):** Physical inactivity is associated with a higher risk for severe COVID-19 outcomes: a study in 48 440 adult patients. *British journal of sports medicine*, 55(19), 1099-1105.
- **Schumacher B, Pothof J., Vijg J., & Hoeijmakers, J. H:L. (2021):** The central role of DNA damage in the ageing process. *Nature*, 592(7856), 695-703.
- **Sharma M, Smith E, Pearce A, Shoamanesh A, Perera S, Coutts B, & Hart, G. (2022):** Frequency and Patterns of Brain Infarction in Patients With Embolic Stroke of Undetermined Source: NAVIGATE ESUS Trial. *Stroke*, 53(1), 45-52.
- **Sivaramakrishnan, D., Fitzsimons, C., Kelly, P., Ludwig, K., Mutrie, N., Saunders, D., & Baker, G (2019):** The effects of yoga compared to active and inactive controls on physical function and health related quality of life in older adults-systematic review and meta-analysis of randomized controlled trials. *International Journal of Behavioral Nutrition and Physical Activity*, 16(1), 33.
- **Stavem K , Hoe H, Skjaker S & Haagenen R.(2017):** Charlson comorbidity index derived from chart review or administrative data: agreement and prediction of mortality in intensive care patients. *Clinical Epidemiology* :(9 )311–320.
- **Sun Q, Wang Y, Lu N, & Lyu S (2022):** Intergenerational support and depressive symptoms among older adults in rural China .*BMC Geriatrics*, 22(1), 1-12.
- **Surowiec P, Matejko B, Kopka M, Filemonowicz-Skoczek A , Klupa, T, Cyganek K, & Malecki, T. (2022):** Low prevalence of diabetic retinopathy in patients with long-term type 1 diabetes and current good glycemic control-one-center retrospective assessment. *Endocrine*, 75(2), 427-436.
- **Tański W, Szalonka A & Tomasiewicz B. (2022):**Quality of Life and Depression in Rheumatoid Arthritis Patients Treated with Biologics .*Psychology Research and Behavior Management*, 15, 491.
- **Tang L, Thygesen L, Willadsen T, Jepsen R, la Cour K, Frølich A, Møller A, Jørgensen L & Søren T Skou. (2020):** The association between

clusters of chronic conditions and psychological well-being in younger and older people. A cross-sectional, population-based study from the Lolland-Falster Health Study, Denmark. *Journal of Comorbidity* Volume 10: 1–12 DOI: 10.1177/2235042X20981185  
[journals.sagepub.com/home/cob](http://journals.sagepub.com/home/cob).

- **Tański W, Szalonka A & Tomasevic B. (2022):** Quality of Life and Depression in Rheumatoid Arthritis Patients Treated with Biologics. *Psychology Research and Behavior Management*, 15, 491.
- **Topp C, Ostergaard S, & Sondergaard S. (2015):** The WHO-5 Well-Being Index: A Systematic Review of the Literature. *Psychother Psychosom* 2015; (84):167–176 DOI: 10.1159/000376585.
- **Trapp W, Heid A, Röder S, Wimmer F & Hajak, G. (2022):** Cognitive Remediation in Psychiatric Disorders: State of the Evidence, Future Perspectives, and Some Bold Ideas. *Brain Sciences*, 12(6), 683.
- **Turunen M, Kokko K, Kekäläinen T, Alén M, Hänninen T, Pynnönen K, & Sipilä S. (2022):** Associations of neuroticism with falls in older adults: do psychological factors mediate the association. *Aging & Mental Health*, 26(1), 77-85.
- **Verhoog S, Gubelmann C, Guessous I, Bano A, Franco O & Marques-Vidal P (2019):** Nutritional epidemiology, extinction or evolution? It is all about balance and moderation. *European Journal of Epidemiology* (34), 333–335.
- **(WHO) World Health Organization (2018a):** Egypt, Programme areas, Non communicable diseases. Available at <http://www.emro.who.int/egy/programmes/noncommunicable-diseases.html>.
- **(WHO) World Health Organization, (2018b):** Home/News/Fact sheets/Detail/Non communicable diseases. Available at <https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases>.
- **World Health Organization, (2019):** Measuring Quality of Life available at: <http://www.who.int/healthinfo/survey/whoqolqualityoflife/en/index4.html>.
- **World Population Prospects, (2017):** Ageing. Available at: <http://www.un.org/en/sections/issues-depth/ageing/>.
- **Zaninotto P, Iob E, Demakakos P & Steptoe A. (2022):** Immediate and longer-term changes in the mental health and well-being of older adults in

England during the COVID-19 pandemic. *JAMA psychiatry*, 79(2), 151-159.