

Health Related Quality of Life for elderly people with Common Chronic Diseases in Patients Attending Primary Health Care Centers in Makkah- Al Mokarramah, Saudi Arabia 2021

Mahmood Mohammad alqurashi¹, Abdullah Eidhah Misfer Almalki², Zayed Saad Alzhranae³, Ahmed Khalafallah Alhasani³, Reem Hamzah Alshotiri⁴, Sultan Abdrbuh Al kaabi⁵, Yousef Menwer Alsaedi⁶, Mashael MUSAAD Albarakati⁷, Fahad Homod Almjnoni⁸, Haitham Abdullah Alahmadi⁹, Mohanna Raddah Ridyan Al-Roogi¹⁰, Majed Ahmed Mohammed Asiri¹¹, Hani Bakheet Aljohani¹², Turkey Saleh Dakil Alah Almehmadi¹³, Taher Mohammad Bani Alsaadi¹³

¹General practitioner, Alzima Primary health care center, Makkah, Saudi Arabia.

²Dentist, Umm Al Rakah Health Center, Makkah, Saudi Arabia.

³Social Worker, King Abdulaziz Hospital, Makkah, Saudi Arabia.

⁴Nursing Specialist, Public health, Makkah, Saudi Arabia.

⁵Nursing technician, Umm Al Rakah Health Center, Makkah, Saudi Arabia.

⁶Nursing technician, Mobile Clinics, Makkah, Saudi Arabia.

⁷Social Service Specialist, Ibn Sina Hospital, Makkah, Saudi Arabia.

⁸Nursing technician, Hindawiya health center, Makkah, Saudi Arabia.

⁹Nursing technician, Primary Health Care Center in Jarol, Makkah, Saudi Arabia.

¹⁰X-Ray technician, Al Sharaia2 Health Center, Makkah, Saudi Arabia.

¹¹Pharmacist Technician, Medical Supply Department, Makkah, Saudi Arabia.

¹²Health administration specialist, Department of Public Health, Makkah, Saudi Arabia.

¹³Nursing Technician, Almansuor Health Center, Makkah, Saudi Arabia.

Abstract:

Background:

Although worse Health-Related Quality of Life (HRQL) among elderly people has been widely described, it remains unclear whether this is due to differential reporting patterns, or whether there is a real difference in health status. Chronic diseases can have a profound impact on the health and quality of life of elder, not to mention the financial burden that is often associated with long-term illness. But specialists in gerontology and the emerging field of anti-aging medicine are quick to point out that while the risk of disease and disability undoubtedly can increase with advancing years, poor health is not an inevitable consequence of aging, According to the Centers for Disease Control (CDC) a lot of the sickness, disability, and even death associated with chronic disease can be avoided through preventive measures Older population is expected to be increased in Arab countries including Saudi Arabia in coming decades. On the contrary, Arab countries are not paying attention to this increasing number of elderly people and most of the time; family is responsible for the increased demand of care for the elderly people. **Aim of the study:** To assess the health-Related Quality of Life for elderly people with Common Chronic Diseases in patients Attending Primary Health Care Centers in Makkah- Al Mokarramah, Saudi Arabia 2021. **Method:** This cross-sectional study was carried

out on 300 elderly people with age ≥ 60 years. Quality of life was assessed using Arabic translation of WHO Quality of Life-Brief (WHOQOL) questionnaire. Screening of cardiac diseases and depression was done using Framingham and PHQ-2 questionnaires, respectively.

Results: In our study in table 3 show, the majority of the participants those who did Framingham risk score classified as intermediate risk with constitutes of (62.0%) followed by high risk with constitutes of 31.0% while a significant were P-value=0.001and $X^2=136.86$ regarding the PHQ-2 In our study the majority of the participants Positive were(69.0%) while a significant were P-value=0.001and $X^2=42.563$, regarding the QOL the majority of the participants Good were(50.0%) while a significant were P-value=0.001and $X^2=67.92$ **Conclusion:** Improve service quality and increase clinics responsible for providing Common Chronic Diseases patients with health information.

Keywords: Health Related, Quality, Life , elderly, Common Chronic Diseases.

Introduction:

Background:

Chronic diseases are an important public health problem and contribute about 71% of mortality worldwide [1]. In the Kingdom of Saudi Arabia, a large proportion of morbidity and mortality is attributed to chronic illnesses or long-term conditions. elderly people with Common Chronic Diseases is a global issue because it is one of the main preventable causes of morbidity and mortality. Common Chronic Diseases is an illness that has a major effect on communities' health, and it is widely prevalent in the Arab Gulf region, the Middle East, and the world. It is anticipated to affect around 1.56 billion people worldwide in 2025 [2]

Chronic diseases are common, and about 50% of primary care appointments with a physician are due to chronic conditions. It is, therefore, necessary to evaluate the level of adherence to the drugs. This can help improve individuals' compliance with their medications and prevent long-term negative outcomes and attain a better quality of life [3].

Quality of life (QOL) is an overarching term for the quality of the various domains in life. It is a standard level that consists of the expectations of an individual or society for a good life. These expectations are guided by the values, goals and socio-cultural context in which an individual lives. It is a subjective, multidimensional concept that defines a standard level for emotional, physical, material and social well-being. It serves as a reference against which an individual or society can measure the different domains of one's own life. [4]The extent, to

which one's own life coincides with this desired standard level, put differently, the degree to which these domains .People suffering from long-term conditions receive therapy for a protracted period of time. Quality of life has become an essential measure of results to evaluate the efficiency of the management plan of any illness. Drug therapy alongside with lifestyle adjustments remain the effective control of chronic diseases, so compliance with the drug is the main factor contributing to attaining the desired clinical result. Non-compliance with chronic diseases drugs is the main cause of poor control of high chronic diseases elderly people [5]

Quality of life (QOL) is the general well-being, as defined by the WHO, of individuals and societies, outlining positive and negative features of life. It observes life satisfaction, including everything from physical health, environmental, social features to religious beliefs. (World Health Organization . 2016) [6]. Multi morbidity becomes more and {more} more common with age and is related to high mortality. the foremost underprivileged individuals pay double as a few years in poor health before they die than do the most affluent we want to primary treatment database to look at the distribution of aged individuals in reference to age and socioeconomic deprivation we need to primary medical care electronic database to examine the distribution of aged people in relation to age and socioeconomic deprivation. [7]

Aging is related to progressive decline in physical, cognitive, and psychosocial functioning. Because of fast increase in up quality of life and medical aid, the life span redoubled well and ageing was about jointly of the highest public ill health we tend to faced. [8] .

a growing healthcare burden on social and economic burden on both patients and their caregivers was developed [9]

Literature review:

In Saudi Arabia the prevalence of chronic diseases was increasing, i.e., 31-34.5% elderly patients (age ≥ 55) suffered from one or two chronic diseases, respectively, hypertension being the most common chronic condition[10], 25% were either hypertensive or diabetic and some studies reported that 49.9% of elderly people are suffering from mild, moderate or severe depression [11].

Saudi Arabia has been experiencing a slow however steady amendment in its human ecology with a bigger proportion of old individuals (i.e. 65+ years) within the distribution, because of a number of factors like decreasing fertility and infant-mortality rates additionally because the availability of free, modern healthcare for its citizens. old individuals were solely

three of the Saudi population in distinction, they're going to be nearly twentieth by 2050.[12] . According to[13] the Saudi Arabia, aged people increased to 7% in near future [14] Yang et al, 2019. Reported that education has a positive and direct effect on prior knowledge and health literacy [15] . One research study showed that men had limited health literacy. However, the authors explained that as result of the men who participated in their study had low education.[16]

A meta-analysis that investigated quality of life of Iranian patients showed that patients with Chronic Diseases have a moderate quality of life [17] In Bahraini study, it was reported an average knowledge of teachers[18] In a study from Turkey about knowledge and attitude of teachers toward Chronic Diseases complications, it was found that the teachers had adequate knowledge of Chronic Diseases complications [19] Mehdizadeh et al , 2019 report that the results showed the patients who were older than 40 years had lower scores in all HRQoL scales, compared with those who were forty years old or less. These findings are consistent with other studies which found that age is negatively correlated with HRQoL [21]. The findings could be interpreted accordingly, such that diabetes complications are prevalent among older diabetics, and they are determinants of poor HRQoL [22] Another study was Tabuk University showed that 55% of the students were unaware of diabetes risk factors. This study included 200 subjects; among them, 103 were males and 97 were females. Their ages ranged from 18 to 24 years, and 16.5% of them were diabetic patients [23]

Saudi Arabia has been experiencing a slow however steady amendment in its human ecology with a bigger proportion of old individuals (i.e. 65+ years) within the distribution, because of a number of factors like decreasing fertility and infant-mortality rates additionally because the availability of free, modern healthcare for its citizens. old individuals were solely three of the Saudi population in 2010; in distinction, they're going to be nearly twentieth by 2050.[24]. According to the Saudi Arabia, aged people increased to 7% in near future [25]

Rationale

The risk of having chronic diseases rises as the proportion of elderly people increases. Chronic diseases cause medical, social and psychological problems that limit the activities of elderly people in the community. The lack of baseline information on the prevalence of chronic disease in this elderly .The proportion of the population aged 60 and over, is also growing each year. By

the year 2025, the world will host 1.2 billion people aged 60 and over and rising to 1.9 billion in 2050. In Saudi Arabia, elderly account for 3.5% of the total population

Aim of study:

To assess the Health Related Quality of Life for elderly people with Common Chronic Diseases in patients Attending Primary Health Care Centers in Makkah- Al Mokarramah, Saudi Arabia 2021.

Objectives:

To assess the Health Related Quality of Life for elderly people with Common Chronic Diseases in patients Attending Primary Health Care Centers in Makkah- Al Mokarramah, Saudi Arabia 2021

Materials and Methods:**Research Design**

This cross-sectional study was conducted on 300 elderly subjects who had one of chronic diseases such as DM, HTN, CVD, Hypercholesterolemia and depression. Their age were ≥ 60 years and randomly selected from January 2021 to March 2021 from patients Attending Primary Health Care Centers in Makkah- Al Mokarramah, Saudi Arabia 2021

Setting:

The current study conducted in geriatric patients attending Primary Health Care Centers in Makkah- Al Mokarramah, Saudi Arabia 2021

Data collection

Sampling technique: We adopted systematic random sampling technique using a lottery method, which based on selecting one patient from the first five elderly patients entering the PHCC every day, the rest of the respondents were selected using systematic sampling technique with a sampling interval of three. The receptionist were trained/and informed to send every third elderly patient to the researcher for interview and assessment before going to the desired clinic.

Sample size

Sample size 300 elderly subjects. Randomly selected from January 2021 to March 2021 from outpatient sick geriatric patients attending Primary Health Care Centers in Makkah- Al Mokarramah, Saudi Arabia 2021 . Sample size was calculated form the equation, $n=Z^2 (1-\alpha) p(1-p)/d^2$, the estimated prevalence of combined chronic diseases (i.e. DM, HTN and cardiovascular disease) was 62%. Considering a confidence interval level of 95%, $Z= 1.96$,

$p=0.62$, $d=0.05$, $(1-\alpha)=0.95$ and $Z(1-\alpha)=1.96$. 300 elderly patients were required to participate in this study. Patients who had one of the above mentioned diseases were included in study. Exclusion criteria including individuals visiting emergency care for secondary objectives, cardiac patients excluded from Framingham assessment tool and depressive patients excluded from PHQ-2, as these two are just the screening tool, and other cognitive disorders that had no ability to answer the questions and took part in the interview.

Quality of life in elderly population, health-related functioning in all domains of health, was determined by Arabic translation of Persian self-reported version of WHO of Life-Brief (WHOQOL) questionnaire, which was consisted of 26 questions. The first section was two questions about the Overall Quality of Life (OQOL) and Overall Health Status (OHS). The next 24 questions constituted four domains of health including physical (7 items), psychological (6 items), social (3 items) and environmental (8 items). Scoring and calculation of each of the four domains in the questionnaire was performed as mentioned previously (WHOQOL User Manual, 1998; Khaje-Bishak et al., 2014). The values of QoL scores were categorized as ≤ 45 = poor or bad QoL; score $< 45-65$ = moderate QoL and > 65 = relatively high QoL .

All patients, except CVD patients, were subjected to Framingham assessment screening questionnaire to estimate person's 10-years risk for developing chronic cardiac disease (CHD). It mainly based on calculating patient's age, total cholesterol concentration, high-density lipoprotein cholesterol concentration, SBP, DM and smoking. Three levels of risk were defined: $<10\%$ (low risk), 10% to 20% (intermediate risk) and $>20\%$ (high risk) and were considered within a broader framework of risk assessment of CHD presence as well as its involved factors. Patients Health Questionnaire-2 (PHQ-2) was also used for screening of depression in all patients except those who already had depression. PHQ-2 scores ranged from 0 to 6, patients with scores ≥ 3 were considered susceptible for depressive disorders and must be furtherly evaluated with the higher PHQ-9 version .

Pilot study/pretesting

An exploratory sample was drawn and the stability of each was calculated reliability target value were 0.8 pilot study conducted on 10% of sample size; and modification made according to the pilot results .

Ethical considerations:

- Research committee approval.

- Written permission from Ethical Review Committee
- Individual verbal consent from all participants before data collection.
- Acknowledgments of all supervisors, advisors, helpers, facilitators and participants.

Relevance & expectations

- All collected data has be kept confidential.

Statistical analysis:

Results were expressed as mean \pm SD or number (%). Test of normality, Kolmogorov-Smirnov, was used to measure the distribution of data. Accordingly, data are normally distributed, Pearson correlation by SPSS V24.

Budget: Self-funded

Result

Table (1) Distribution of Socio-demographic data in study group (n=300)

	N	%
Age		
60-70	153	51
70-80	66	22
>80	81	27
Gender		
Male	117	39
Female	183	61
Marital Status		
Single	36	12
Married	195	65
Widow	45	15
Divorced	24	8
Education		
Illiterate	147	49
Primary school	105	35
Secondary school	30	10
High school	9	3
University	9	3
Type of disease		

HTN	78	26
DM	198	66
CVD	15	5
Hypercholesterolemia	36	12
Depression	36	12

Table (1) showed that the majority of participants (51.0%) were within the age group 60-70 years. Regarding the gender the majority of participants females were (61.0%) while Male were (39.0%) of participants. the majority of participants were married (65.0 %), while the widowed were (15.0%), More than half of the participants (49.0%) were Illiterate, while, The majority of our participants (66.0%) have been diagnosed with Diabetes mellitus (DM), 26. 0% with Hypertension (HTN).

Table (2): Distribution of Framingham risk and WHOQOL-BREF four domains classified according to incidence of QOL

	N	%	Chi-square	
Framingham risk			X ²	P-value
Low risk	21	7	136.86	<0.001*
Intermediate risk	186	62		
High risk	93	31		
PHQ-2				
Negative	93	31	42.563	<0.001*
Positive	207	69		
QOL				
Poor	36	12	67.92	<0.001*
Average	114	38		
Good	150	50		

In our study in table 2 show, the majority of the participants those who did Framingham risk score classified as intermediate risk with constitutes of (62.0%) followed by high risk with constitutes of 31.0% while a significant were P-value=0.001and X²=136.86 regarding the PHQ-2In our study the majority of the participants Positive were(69.0%) while a significant were P-value=0.001and X²=42.563, regarding the QOL the majority of the participants Good were(50.0%) while a significant were P-value=0.001and X²=67.92

Figure 1 Framingham risk and WHOQOL-BREF four domains classified according to incidence of QOL

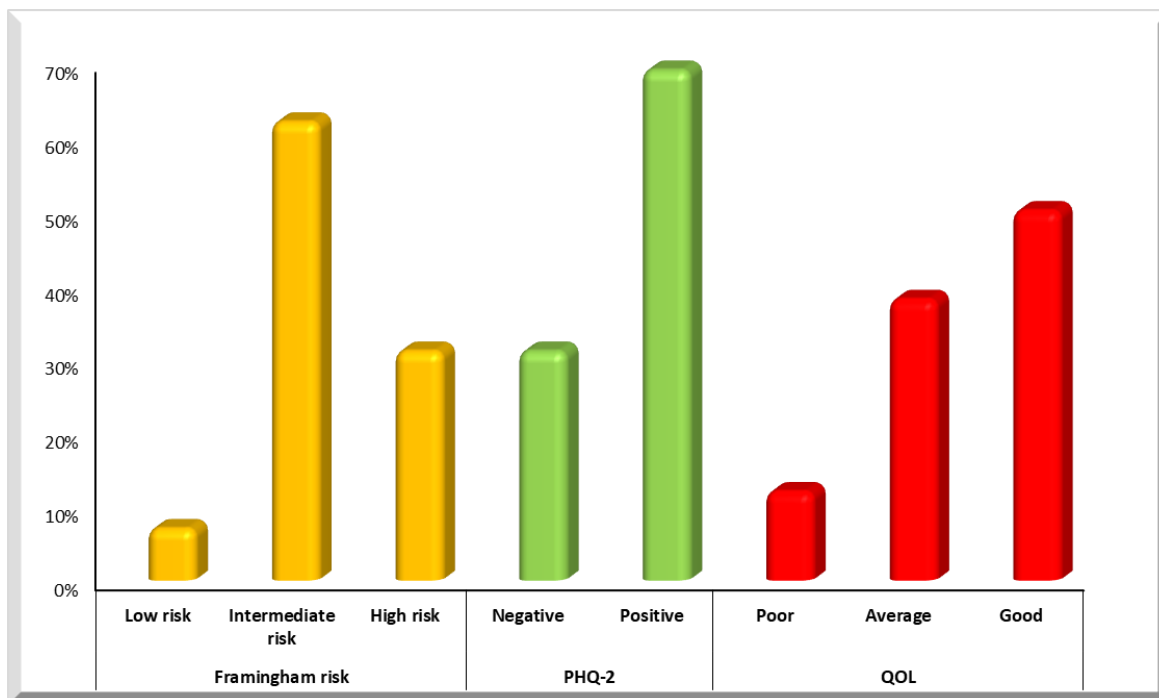
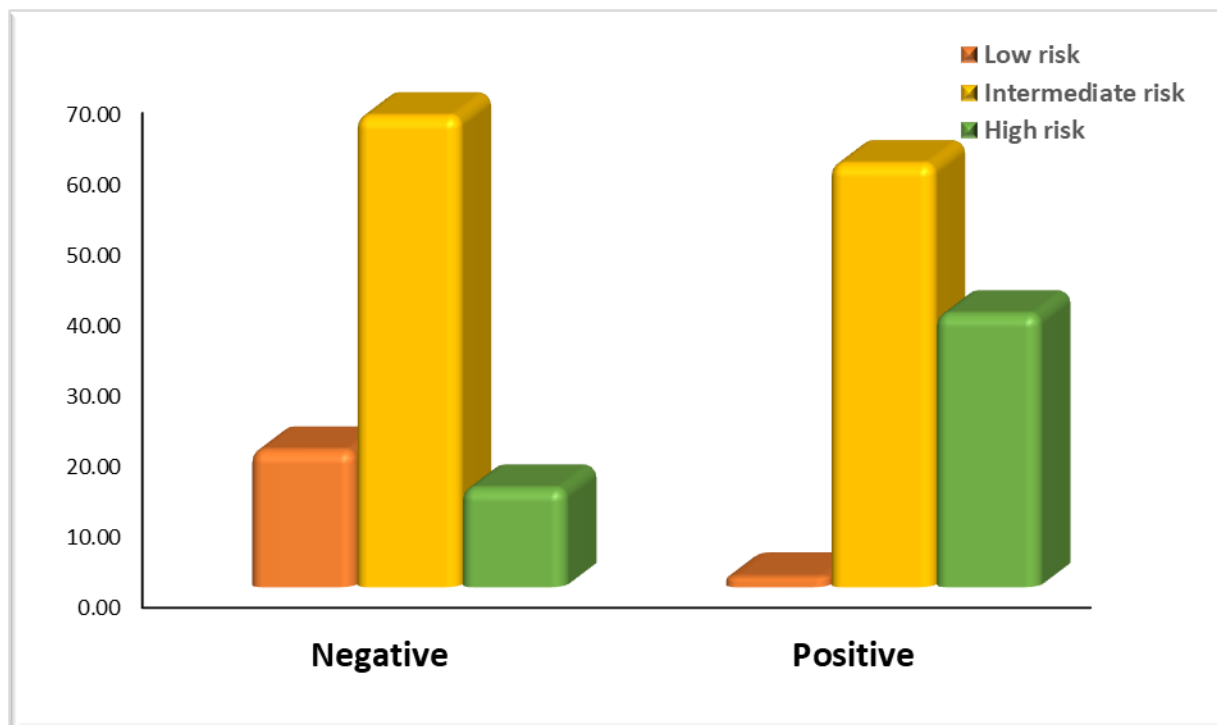


Table (3): Distribution the correlation between the Framingham risk and PHQ-2

		PHQ-2			
		Negative		Positive	
		N	%	N	%
Framingham risk	Low risk	18	19.35	3	1.45
	Intermediate risk	62	66.67	124	59.90
	High risk	13	13.98	80	38.65
Total		93	100.00	207	100.00
Chi-square	X ²	42.461			
	P-value	<0.001*			

In our study in table 3 show, the majority of the participants those who in the Framingham risk score classified as intermediate risk with Negative were (66.67%) followed by Positive of 59.0% while a significant were P-value=0.001and X²=42.461

Figure (2) Distribution the correlation between the Framingham risk and PHQ-2**Table (4): Distribution the correlation between the QOL and PHQ-2**

		PHQ-2			
		Negative		Positive	
		N	%	N	%
QOL	Poor	5	5.38	31	14.98
	Average	19	20.43	95	45.89
	Good	69	74.19	81	39.13
Total		93	100.00	207	100.00
Chi-square	X ²	31.655			
	P-value	<0.001*			

In our study in table 4 show, the majority of the participants those who in the QOL classified as Good Negative were (74.19%) while a significant relation were

P-value=0.001and X²=31.655

Figure (3) Distribution the correlation between the QOL and PHQ-2

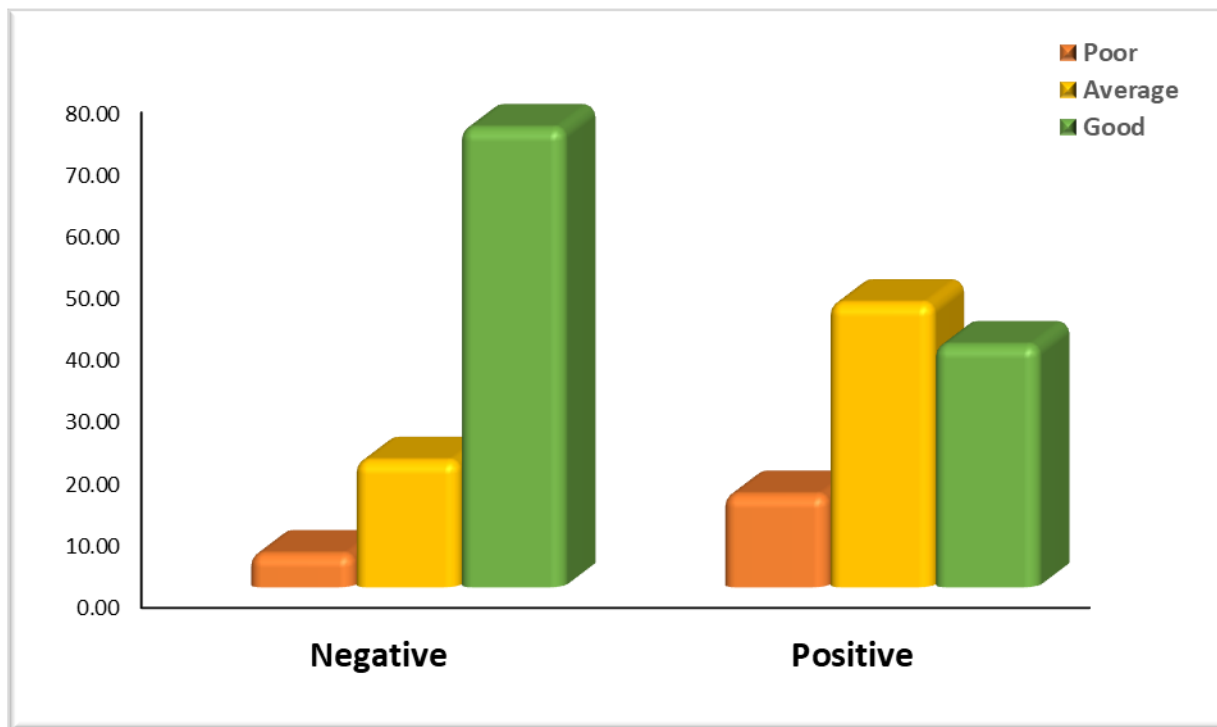
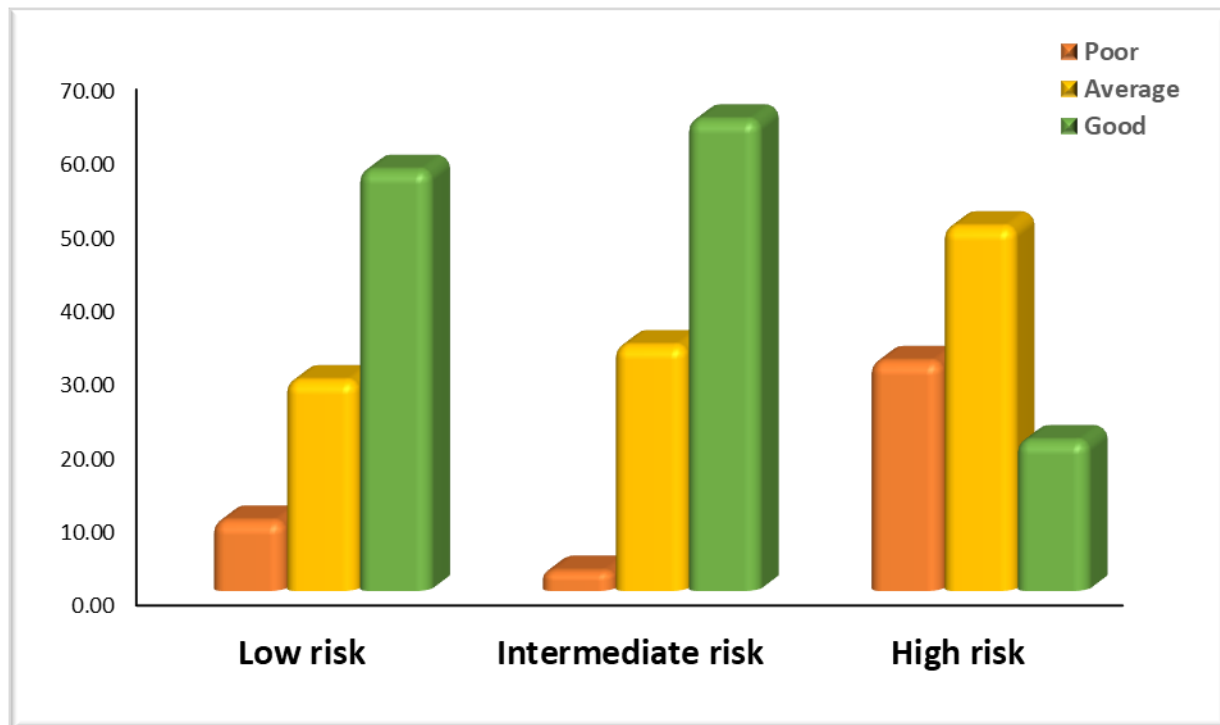


Table (5): Distribution the correlation between the QOL and Framingham risk

		Framingham risk					
		Low risk		Intermediate risk		High risk	
		N	%	N	%	N	%
QOL	Poor	2	9.52	5	2.69	29	31.18
	Average	6	28.57	62	33.33	46	49.46
	Good	12	57.14	119	63.98	19	20.43
Total		21	100.00	186	100.00	93	100.00
Chi-square	X ²	70.054					
	P-value	<0.001*					

In our study in table 5 show, the majority of the participants those who in the QOL classified as Good in the Low risk were (57.14%) and also good in Intermediate risk were (63.98%) while a significant relation were P-value=0.001and X²=70.054

Figure (4) Distribution the correlation between the QOL and Framingham risk

Discussion

Due to massive decline in all physical and clinical signs of elderly people they need a special attention and care services to maintain their QoL levels and health status. Studying QoL in elderly is important not only for them but also for their caregivers and provides useful information for health provider in order to effectively and efficiently serve the elderly population. At the same time, chronic diseases often require prolonged periods of treatment and place a significant demand on state-funded health care services . [26] Elderly population need especially care services to maintain high level of quality of life and health status.[27]

Which is higher when chronic conditions are not properly controlled . Such situations lead to incapacity and limit the independence and QoL of elderly individuals. [28] . the aim of the study is To assess the Health Related Quality of Life for elderly people with Common Chronic Diseases in patients Attending Primary Health Care Centers in Makkah- Al Mokarramah, Saudi Arabia 2021. 300 elderly people were enrolled about 100% , the majority of participants (51.0%) were within the age group 60-70 years. Regarding the gender the majority of participants females were (61.0%) while Male were (39.0%) of participants. the majority of participants were married (65.0 %), while the widowed were (15.0%), More than half of the

participants (49.0%) were Illiterate, while, The majority of our participants (66.0%) have been diagnosed with Diabetes mellitus (DM), 26. 0% with Hypertension (HTN). Shows the detailed data table (1).

In another result mean values and rang of Framingham risk and WHOQOL-BREF four domains classified according to incidence of QOL. In the Framingham risk the majority of participant Framingham risk in the intermediate followed by high risk, but PHQ-2 the majority of our study in positive were constitutes 73.20% but negative. This difference could be attributed to the influence of different socioeconomic and cultural factors. Many studies reported that there was negative association between increased depression severity and poorer QoL in elderly patients and this association was found to be stable over time [29]. In this study, QoL in elderly people suffered from one of these chronic diseases, DM, HTN, CVD, Hypercholesterolemia and depression was assessed. [30]

Conclusion

Our study showed that patients. Patients with Chronic Diseases frequently reported problems with pain/discomfort and mobility. Being older, a longer duration of Chronic Diseases , insulin use, obesity, inadequate Chronic Diseases control, and Chronic Diseases complications were significant negative predictors of Health-related quality of life . Hence, interventions to improve Health-related quality of life should focus on achieving adequate Chronic Diseases control, promoting exercise to reduce obesity, reducing pain/discomfort, and reducing Chronic Diseases related complications. The health preference-based utility value generated in this study could be used to monitor clinical outcomes and conduct economic evaluations of different healthcare interventions in patients with Chronic Diseases .

References

1. Leland, N. E., Fogelberg, D. J., Halle, A. D., & Mroz, T. M. (2017). Occupational therapy and management of multiple chronic conditions in the context of health care reform. *The American Journal of Occupational Therapy*, 71(1), 7101090010p1-7101090010p6.
2. Gidron, Y., Deschepper, R., De Couck, M., Thayer, J. F., & Velkeniers, B. (2018). The vagus nerve can predict and possibly modulate non-communicable chronic diseases: introducing a neuroimmunological paradigm to public health. *Journal of clinical medicine*, 7(10), 371.

3. Yokota, R. T. D. C., Van der Heyden, J., Nusselder, W. J., Robine, J. M., Tafforeau, J., Deboosere, P., & Van Oyen, H. (2016). Impact of chronic conditions and multimorbidity on the disability burden in the older population in Belgium. *Journals of Gerontology Series A: Biomedical Sciences and Medical Sciences*, 71(7), 903-909.
4. Chen, H. M., & Chen, C. M. (2017). Factors associated with quality of life among older adults with chronic disease in Taiwan. *International Journal of Gerontology*, 11(1), 12-15.
5. Addo, B., Sencherey, S., & Babayara, M. N. (2018). Medication noncompliance among patients with chronic diseases attending a primary health facility in a Periurban district in Ghana. *International journal of chronic diseases*, 2018.
6. World Health Organization. (2016). WHO Expert working group meeting on RSV surveillance based on the GISRS Platform, 2–3 February, 2016, Starling Hotel & Conference Center, Geneva, Switzerland (No. WHO/OHE/PED/GIP/2016.7). World Health Organization.
7. Pons-Faudoa, F. P., Ballerini, A., Sakamoto, J., & Grattoni, A. (2019). Advanced implantable drug delivery technologies: transforming the clinical landscape of therapeutics for chronic diseases. *Biomedical microdevices*, 21(2), 1-22.
8. Annaji, M., Ramesh, S., Poudel, I., Govindarajulu, M., Arnold, R. D., Dhanasekaran, M., & Babu, R. J. (2020). Application of extrusion-based 3D printed dosage forms in the treatment of chronic diseases. *Journal of Pharmaceutical Sciences*, 109(12), 3551-3568.
9. Straka, I., Minár, M., Gažová, A., Valkovič, P., & Kyselovič, J. (2018). Clinical aspects of adherence to pharmacotherapy in Parkinson disease: a PRISMA-compliant systematic review. *Medicine*, 97(23).
10. Peleg, M., Michalowski, W., Wilk, S., Parimbelli, E., Bonaccio, S., O'Sullivan, D., ... & Carrier, M. (2018). Ideating mobile health behavioral support for compliance to therapy for patients with chronic disease: a case study of atrial fibrillation management. *Journal of medical systems*, 42(11), 1-15.
11. Kourakos, M., Fradelos, E. C., Papathanasiou, I. V., Saridi, M., & Kafkia, T. (2018). Communication as the basis of care for patients with chronic diseases. *Am J Nursing*, 7(3-1), 7-12.

12. Juste, A. M., Miguel, A. G., Plou, B. P., Rubio, F. G., Pascual-Salcedo, M. M. A., Menditto, E., & Torres, A. P. (2019). Adherence to treatment of hypertension, hypercholesterolaemia and diabetes in an elderly population of a Spanish cohort. *Medicina Clínica (English Edition)*, 153(1), 1-5.
13. Pour, E. R., Aliyari, S., Farsi, Z., & Ghelich, Y. (2020). Comparing the effects of interactive and noninteractive education using short message service on treatment adherence and blood pressure among patients with hypertension. *Nursing and Midwifery Studies*, 9(2), 68.
14. Alsaghah, H. Y. A., Alkhabbaz, M. J. M., AlAithan, N. A. M., Uddin, M. M. S., Alramadan, S. A. A., Albahrani, O. A. T., ... & Almadani, S. B. J. (2019). Hypertension and associated morbidity in Saudi Arabia: a cross-sectional study. *Atherosclerosis*, 4, 4-2.
15. Yang, Y., Zhang, B., Meng, H., Liu, D., & Sun, M. (2019). Mediating effect of social support on the associations between health literacy, productive aging, and self-rated health among elderly Chinese adults in a newly urbanized community. *Medicine*, 98(16).
16. Aldhahi, A. A., Al-Suliman, H. R., Al Nahdi, A. A. S., Asiri, A. A., Asiri, I. N., Khudhayri, A. M., & Asiri, M. A. (2018). Relationship between Renal Failure and Hypertension among Patients in Riyadh, Saudi Arabia. *The Egyptian Journal of Hospital Medicine*, 73(5), 6702-6707.
17. Araya, L. T., Fenta, T. G., Sander, B., Gebremariam, G. T., & Gebretekle, G. B. (2020). Health-related quality of life and associated factors among cervical cancer patients at Tikur Anbessa specialized hospital, Addis Ababa, Ethiopia. *Health and quality of life outcomes*, 18(1), 1-9.
18. Moges, T., Deribew, M., & Mariam, D. H. (2017). Knowledge, attitude, and practice of residents in medical research and barriers: A cross-sectional survey at Tikur Anbessa Specialized Hospital. *Ethiopian Journal of Health Development*, 31(4), 259-265.
19. Mahmoud, S. S., Mahdy, M. H. E., Mahfouz, M. S., Nada, I. S., Aqeeli, A. A., Darbi, M. A. A., & Ahmed, A. E. (2018). Effects of a psychoeducational program on hemoglobin A1c level and health-related quality of life in patients with type 2 diabetes mellitus, Jazan, Saudi Arabia. *BioMed research international*, 2018.
20. Mehdizadeh, M., Martinez-Martin, P., Habibi, S. A., Fereshtehnejad, S. M., Abasi, A., Niazi Khatoun, J., ... & Taghizadeh, G. (2019). Reliability and validity of Fall Efficacy

Scale-International in people with Parkinson's disease during on-and off-drug phases. *Parkinson's Disease*, 2019.

21. Sami, W., Ansari, T., Butt, N. S., & Ab Hamid, M. R. (2017). Effect of diet on type 2 diabetes mellitus: A review. *International journal of health sciences*, 11(2), 65.
22. Alnaheelah, I. M., Awadalla, N. J., Al-Musa, K. M., Alsabaani, A. A., & Mahfouz, A. A. (2018). Influenza vaccination in type 2 diabetes patients: coverage status and its determinants in southwestern Saudi Arabia. *International Journal of Environmental Research and Public Health*, 15(7), 1381.
23. Sagor, K. H., & AlAteeq, M. A. (2018). Beliefs, attitudes and barriers associated with the uptake of the seasonal influenza vaccine among patients visiting primary healthcare clinics. *Saudi medical journal*, 39(7), 690.
24. Al Saif, A., Waly, E., & Alsenany, S. (2012). The prediction of falls among older people in Saudi Arabia. *J Am Sci*, 8(6), 692-700.
25. Baatiah, N. Y., Alhazmi, R. B., Albathi, F. A., Albogami, E. G., Mohammedkhalil, A. K., & Alsaywid, B. S. (2020). Urolithiasis: Prevalence, risk factors, and public awareness regarding dietary and lifestyle habits in Jeddah, Saudi Arabia in 2017. *Urology annals*, 12(1), 57.
26. Weisz, G. (2014). *Chronic disease in the twentieth century: a history*. JHU Press.
27. Thornicroft, G., Deb, T., & Henderson, C. (2016). Community mental health care worldwide: current status and further developments. *World Psychiatry*, 15(3), 276-286.
28. World Health Organization. (2015). The growing need for home health care for the elderly: home health care for the elderly as an integral part of primary health care services.
29. Sivertsen, H., Bjørkløf, G. H., Engedal, K., Selbæk, G., & Helvik, A. S. (2015). Depression and quality of life in older persons: a review. *Dementia and geriatric cognitive disorders*, 40(5-6), 311-339.
30. Jøranson, N., Pedersen, I., Rokstad, A. M. M., & Ihlebaek, C. (2016). Change in quality of life in older people with dementia participating in Paro-activity: A cluster-randomized controlled trial. *Journal of advanced nursing*, 72(12), 3020-3033.