Prevalence of Depression Among Elderly Patients Attending Primary Health Care Center in Makkah Al-Mukarramah 2022

Huthaifa Mohammed Alqethmi[1], Waad Nasser Al-Otaibi[2], Areed Nasser Alotaibi[3], Mohammed Hussain Alsamli[4], Mohammed Hadi Hammad Al Qurayshah[5], Walaa Hussain Ali Abuhulayqah[6], Najiah Ali Alrouqi[7], Bushra Abdullah Alotaibi[7], Ebtisam Dawood Soliman Rawass[8], Fahad Hamed J Allehibi[9], Ahmed Muslem Almehmadi[2], Ahmad Abdulmalik S Alzaedi[10], Malak Ayyad Alyasi[11], Maha Hassan Saad Alghamdi[12], Nedaa Abdullah Aman[9]

[1]Family Medicine Registrar, Almansor Primary Health Center, Makkah, Saudi Arabia.

[2]Nursing Technician, Aladel PHC, Makkah, Saudi Arabia.

[3]Nursing technician, Alwasit health center, Taif, Saudi Arabia.

[4]Pharmacy Technician, Makkah Healthcare Cluster, Saudi Arabia.

[5]Radiology technician, King Khalid hospital in Najran, Saudi Arabia.

[6]Pharmacist, King Fahad Medical City, Saudi Arabia.

[7]Nurse specialist, Taif endocrinology and diabetes center – KASH, Saudi Arabia.

[8]Nursing specialist, King Abdullah Medical City, Saudi Arabia.

[9]Nurse technician, King Abdulaziz Hospital, Makkah, Saudi Arabia.

[10]Health services and hospital management specialist, King Faisal Medical Complex in Taif, Saudi Arabia.

[11]Nursing technician, Jeddah Eye Hospital, Saudi Arabia.

[12]Nursing technician, Alkakiyyah Primary Health Care Center, Makkah, Saudi Arabia.

Abstract:

Background:

The prevalence of depression is higher among geriatric population compared to general population. Depression is associated with several adverse health outcomes including reduced quality of life, functional decline, increased health cost and increased mortality . Depression Disorder is considered one of the challenging issues to diagnose in elderly due to its atypical presentation in this particular group of age. This issue can be easily missed or under diagnosed. Ignoring this issue can lead to unfortunate consequences, although geriatric depression is widespread in primary health care (PHC), local studies on the prevalence of depression in elderly PHC patients appear to be scarce, Change in mood or sadness is one of the normal phases in human being emotions. However, those feelings must be distinguished from depression Disorders or in another medical term known as Clinical Depression. Clinical Depression is known to be one of the commonest mood disorders worldwide. Psychiatrists defined based on certain criteria therefore it can't be missed with normal emotions, besides, limited studies were found regarding the prevalence of depression and the associated factors in elderlies globally and locally, depression is a very prevalent health problem affecting geriatric patients attending primary healthcare centers . **Aim of the study**: To assessment of the prevalence of Depression among elderly patients attending primary health care center in Makkah Al-Mukarramah, 2022 **Method:** cross sectional study conducted at outpatient clinics who registered in the chronic disease clinic attended primary health care center in Makkah Al-Mukarramah, 2022, sample population consists number of elderly patients attending in primary health care center. Our total participants were (345). **Results:** show 345 participants, and the majority age was(69.0%) in (60-70)years, while the age(70-

80)were(20.9%). The majority of them were male(65.2%), while female(34.8%). the most of the participants was widow(58.8%) while married(41.2%), have no education Illiterate(43.2%) while primary education were(30.1), also show that Of the(62.3%) participants have negative depression , 130(37.7%) have positive depression, and the data ranged from(0to15)by mean+ SD (5.736±2.828). **Conclusion**: previse study reported high prevalence of depression among elderly participants receiving care at Primary Health Care Centers, depression is a very prevalent health problem affecting geriatric patients attending primary healthcare centers . However, most of cases are of mild or moderate severity.
Keywords: Prevalence, depression, elderly, patients, primary health care center

Introduction:

Background

According to the World Health Organization (WHO), nearly 15% of elderly population aged over 60 years and over having neuropsychiatric disorders; commonly dementia and depression [1]. Depression in elderly's characterized by "feeling of grief and sadness in response to life events and contextual conditions such as retirement, bereavement, loss of income, disabilities affecting physical, social and cognitive functions" [2]. The prevalence of depression is higher among geriatric population compared to general population; it ranged between 5.9 and 81% particularly among hospitalized patients.[3] It is often misdiagnosed and under treated [4]. Depression in older persons is associated with substantially reduced quality of life, increased mortality and increased use of all health and social service resources, including primary health care (PHC) [5]

Depression in old person can evolve from numerous factors, such as chronic disease, side effects of medications, change in the daily dependency and being alone or even abused, etc.[6] More importantly, studies showed that the suicidal rate is higher in old adult in compared to adult patients[7] Therefore, health care providers must pay special attention to this associated factor its following prognosis. For example, studies showed that increased fatigability can lead to unfortunate event e.g. Suicidal attempts or the recurrence of depression even after going through treatment [8]. Locally, there are few studies focused on depression in elderlies or explore more about likelihood factors. In 2018 in Makkah, the prevalence of depressed elderlies in primary health care (PHC) was more in female and increased with age and was also associated with chronic diseases.[9]

Depression can recurrent or chronic problem and affects the implementation of everyday responsibilities [10]. Depression is associated with several adverse health outcomes including reduced quality of life, functional decline [11], increased health cost [10], and increased mortality [12]. In addition, depression can cause suicide, which leads for about 850 000 deaths yearly [13]

Despite the common occurrence of depression in elderly persons, its recognition remains a problem. The frequent atypical presentation of depressive disorders in older persons, the resistance of many elderly people to acknowledging and reporting their symptoms to their primary care physician, and the increasing pressure on primary care physicians to spend less time with their patients contribute to the low recognition rate of depression in this age group [14]

Studies on the prevalence of depression among older primary care patients locally seem to be scarce. Most studies have been conducted in community settings, outpatient psychiatric

clinics or nursing homes, leading to results that cannot be translated to the primary care settings[15].

Depression is a common underestimated psychological problem among elderly people and influences their well-being and quality of life.[16] Many gaps in our understanding and diagnosis of late-life depression exist which lead to increase healthcare costs and resources. Moreover, the profile of geriatric depression in Makkah is not identified in previous studies up to our knowledge, to the best knowledge of researcher there are limited studies have been conducted on depression among elderly population in Saudi Arabia.

Literature Review:

In Saudi Arabia there are few research led to consider depression among older patients as indicated by analyst information, each of these research each of GDS short structure as instrument to asses for depression . An research conducted in Abha city by Eisa Y. Ghazwani et al. in 2013 among four hundred older patients, demonstrated that the assessed commonness of depression among members, paying little mind to depression seriousness, was 63.7%[10]. Another research led likewise in Abha city in 2001 by M An Aboalfotouh et al. among 810 old people, evaluated the prevalence of depression as 17.5% among participant [17]. A third research was led in Riyadh in 2014, by Abdulaziz U. Joury et.al, and was not restricted to Saudi populace including individuals who communicate in Arabic or English matured[18] years or more, indicated that 59% of member were characterized between moderate to extreme depression[19]

In Egypt, the last Census by the Central Agency for Public Mobilization and Statistics showed that the number of elders (60 years or older) was 6.9 million, which represented 6.6% of the total population [20]. Depressive symptoms are highly prevalent in late life, particularly among older primary care patients [21]. The international studies carried out in primary care settings report a wide range in the prevalence rates among elderly persons: Major depression 1.0–22.4% and minor depression 5.2–36% [22]. Depressive symptoms were present in about 15% of all elderly persons in the community and among nursing home residents [23] and among 60% of attendants' elders of outpatient psychiatric clinics in Egypt [24]. The percentage of depressive symptoms was 52.1% among elders in El-Nahda city [25], while it was 4.8% among the population of Amer-village, Suez governorate [26]. The risk factors for depression among older primary care patients were depression population, chronic medical illness, female gender, single or divorced state, brain disease, certain medication use, and stressful life events [27].

Another local study was conducted during the COVID-19 pandemic that showed that depression and stress were high in old, retired adults [28]

It was reported in several studies that depressive symptoms significantly associated with medical conditions and co-morbidities including diabetes, dementia, stroke, heart disease and osteoporosis [23]

Various rates have been reported for depression among geriatric people elsewhere depending on the tool used in investigating depression as well as the demographic characteristics of the studied population. In Arab countries such as Jordan, according to PHQ-9, 17% and 10.5% of the hospitalized patients were diagnosed with a major depressive disorder and other depressive disorders, respectively and the DSM-5 criteria identified 12% of elderly with major depression. In Iraq, the rate was 38.9% [29]

A study from Oman reported depression prevalence of 16.9% with more prevalence among females than males (19.3% Vs 14.3%). Previous study from Abha (Saudi Arabia) reported that the prevalence of depression among elder individuals was 63.7% in primary health care centers; mild and moderate depression was reported by 47.5% and 14.5% of elderly patients respectively while severe depression was reported by only 1.8% of them. In India, the prevalence was 50.9%; Mild form was observed among 26.2% whereas major form was observed among 24.7% of them. In another study has been conducted in India, the prevalence of depression was 29.4%. The estimated Indian pooled prevalence of depression in elderly was 34.4%. A recent systematic review and meta-analysis revealed an estimated prevalence of depressive symptoms among geriatric population in China of 20.0% [30]. Also, in China, (2018), the prevalence of depressive symptoms was 32.8% [20]. In Vietnam, a rate of 66.9% of self-reported depression was reported. It was mild, moderate and severe among 32.8%, 30.4% and 3.7% of them, respectively [21]. In South Africa, the prevalence of depression was 40% [22]. In Malaysia (2019), the prevalence of depression was 19.3% [23]. Also, in Malaysia (2016), the prevalence of depressive symptoms was 16.5% among community-dwelling older adults [31]

Rationale

Depression is a very prevalent health problem affecting geriatric patients attending primary healthcare centers . However, most of cases are of mild or moderate severity. Widowed as well as diabetic persons were more likely to have depression than others. Based on these findings, periodic screening for depression among geriatric patients is indicated for early discovery and stating adequate management. We believe that depression in elderlies and its related factors are crucial areas for precise investigation, due to their unusual presentation in elderlies and their dire consequences. Since PHCs are the first gate for handling such a patient, protective measures can be applied for early detection and prevention Limited studies were found regarding the prevalence of depression and the associated factors in elderlies globally and locally. Therefore, the aim of the study was to identify the prevalence of depression in elderlies.

Aim of the study

To assessment of the prevalence of Depression among elderly patients attending primary health care center in Makkah Al-Mukarramah, 2022

Objectives

➢ To assessment of the prevalence of Depression among elderly patients attending primary health care center in Makkah Al-Mukarramah, 2022.

Methodology

Study area :

The study has been carried out in Makkah Al-mukarramh is the holy city of every Muslim in the world. It is the main place of the pilgrims to perform Umrah and Hajj. Makkah is a modern city and there is a continuous working to improve the infrastructure of Makkah for the sake of both Makkah citizens and pilgrims. Makkah has many hospitals in addition to King Abdullah Medical city which is tertiary center. Also, it has PHC centers under supervision of Directorate of Health Affairs of Makkah Al-Mukarramah. These centers distributed under health care sectors and each sector contains primary health care centers. Three health care sectors inside Makkah Al-Mukarramah city (urban) primary health care

centers underneath and four sectors are outside Makkah (rural) primary health care centers. The three healthcare sectors inside Makkah Al-Mukarramah .

Study population:

Elderly patients (>80 years old or older) attending the chronic disease clinic primary health care center in Makkah Al-Mukarramah, throughout the period of the study and accept to participate in the study.

Study design:

Cross-sectional, descriptive study.

Inclusion criteria:

➢ All nationality of elderly patients (males and females) attending the chronic disease clinic in primary health care center in Makkah Al-Mukarramah.

➢ Patients who can write and read in Arabic Language.

Exclusion criteria:

➢ Patients who refuse to participate in the study

➢ Persons who have reported severe mental disabilities.

Sample size:

The total number of elderly patients attending the chronic disease clinic primary health care center in one month is 2500. Based on this information sample size was calculated using a website (raosoft.com). The resulted estimated sample size is 300 elderly patients. The confidence interval is 95% and margin of error is 5%. The estimated prevalence used is 50% to calculate maximum sample size.

Sampling technique

Regarding health care center selection, there are three health care sectors inside Makkah Al-Mukarramah . By using simple random sample technique (by using randomizer.org), care sector was selected. Again, by using simple random sample technique the chronic disease clinic in primary health care center was selected (by using randomizer.org website). Regarding patients' selection, the total number visiting the chronic disease clinic in PHC is 2500 per month and the sample size is 345. The data collection period is 30 days (four weeks minus weekends). Every day there are nearly 100 patients attending in the chronic disease clinic in PHC in both section (male and female sections). To collect data from sample size, the researcher needs nearly 115 patients per day to collect desired sample size. The researcher has been selecting every 4th patient to cover the sample size during data collection period.

Data collection tool :

The researcher has been use geriatric depression scale (GDS) which is tool designed first by Yesavage et al., to study the depression among geriatrics. The researcher was use the Arabic version of this tool since there is study conducted to validate the Arabic version. There are two types from this tool the long version with 30 questions and short form with 15 questions. The researcher has been use the short form with the 15 questions. The questionnaire has been having three parts. The first part has been containing questions about socio-demographic data. The second part has been the short-translated form of GDS. The third part has been about possible risk factors.

Data collection technique:

The researcher has been use Arabic version of the questionnaire since the target populations are Saudi elderly. The questionnaire has been distributed to all patients attending the chronic

disease clinic in primary health care center during the data collection period (which is 30 days initially). The questionnaire has been distributed equally between male and female section because it is separate departments. The researcher was train 2 nurses in order to optimize the inter rater reliability. The researcher has been select the patients in the waiting area and give them the questionnaire in the waiting area in male section then waiting them to complete it and after that I has been collecting it from them while in female section, has been trained nurse was do the same in female waiting area. After that, the researcher was collecting the paper daily from the nurse for data entry and analysis after thanking the participants for their precious time and effort.

Data entry and analysis

Statistical analysis has been performed using SPSS software program (Statistical Package for Social Sciences), version 24.0. Descriptive using listing and frequancy and analytic statistics using chi-square testand t-test to analyse the associaton and the diffrence between two categorical variables or using other statistical tests if needed. P value less than 0.05 as level of significance.

Pilot Study

A pilot study on 25 participants representing 10% of study sample size (out of study area) has been conducted to explore methodology tool and enviroment and plan to overcome these problems.

Ethical considerations

- Permission from research committee in the joint program of family medicine in Makkah Al-Mukarramah has been obtained
- Permission from the Makkah joint program of family medicine has been obtained.
- Permission from the Directorate of Health Affairs of the Holy Capital Primary Health Care has been obtained.
- Permission from administration of public health in Makkah Al-Mukarramah has been obtained.
- Written consents from all participants in the questionnaire has been obtained.
- All information will be confidential, and a result has been submitted to the department.

Budget

The research has been self-funded.

Results

Results:

Table 1: shows the socio-demographic details of study participants of depression among elderly patients attending to primary health care center (n=345)

	N	%
Age		
60-70	238	68.9
70-80	72	20.8
>80	35	10.2

Gender		
Female	120	34.8
Male	225	65.2
Marital status		
Married	142	41.2
Widow	203	58.8
Education		
Illiterate	149	43.2
Primary	104	30.1
Preparatory	32	9.3
Secondary	60	17.4

There were 345 participants, and the majority age was(69.0%) in (60-70)years, while the age(70-80)were(20.9%). The majority of them were male(65.2%), while female(34.8%). the most of the participants was widow(58.8%) while married(41.2%), have no education Illiterate(43.2%) while primary education were(30.1)

Table 2: Distribution of participants by clinical variables(Chronic diseases, physical or mental disabilities, social problems, family history of depression and medicines continuously).

	N	%
Chronic diseases	274	79.4
Physical or mental disabilities	178	51.6
Social problems	239	69.3
Family history of depression	147	42.6
Medicines continuously	252	73.0

Regarding clinical variables the Chronic diseases(79.4%)is the most common clinical variables followed by takes medicines continuously were(73.0%)while Social problems were(69.3) and the slightly more than half of the participants had Physical or mental disabilities(51.6%). (42.6%)of the participants have Family history of depression.

Table 3: Distribution of depression in participants by the score .

Depression			Score	
	N	%	Range	Mean±SD
Negative	215	62.3	0-15.	5.736±2.828
Positive	130	37.7		

| Total | | 345 | 100.0 | | | |

Table 3 and figure 1 show that Of the(62.3%) participants have negative depression , 130(37.7%) have positive depression, and the data ranged from(0to15)by mean+ SD (5.736±2.828).

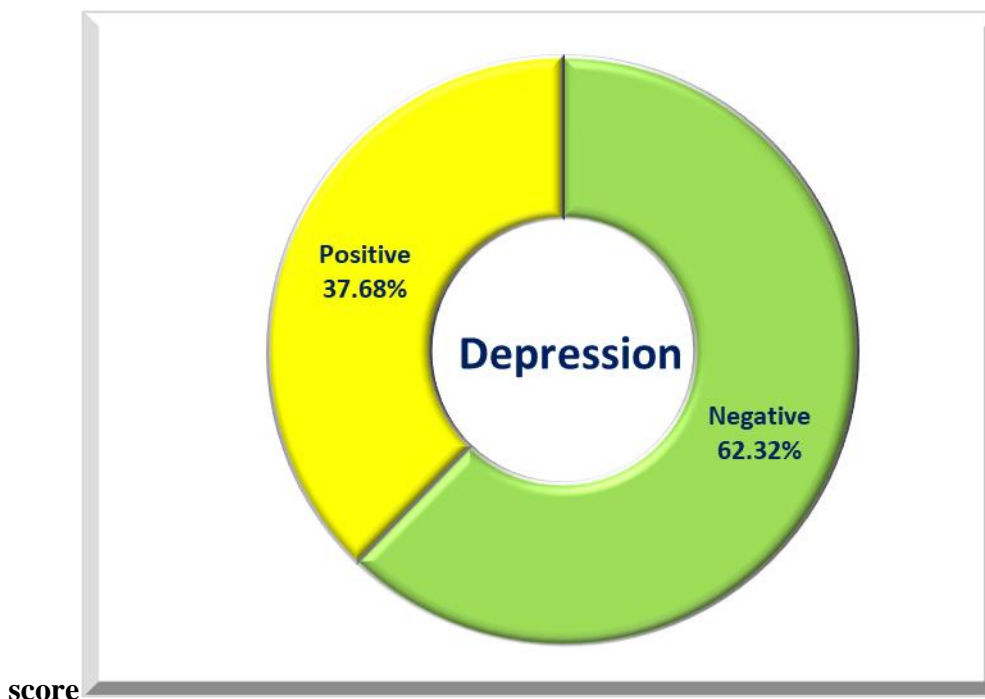**Figure 1 Distribution of depression in participants by the**

score

Table 4: Distribution the relation between depression and socio-demographic data(age, Gender , Marital status and education) among elderly patients.

Items		N	Depression			F or T	ANOVA or T-test	
			Mean	±	SD		test value	P-value
Age	60-70	238	7.050	±	2.722	F	36.228	<0.001*
	70-80	72	3.403	±	1.988			
	>80	35	1.600	±	0.452			
Gender	Female	120	11.175	±	1.638	T	76.116	<0.001*
	Male	225	2.836	±	0.114			
Marital status	Married	142	3.035	±	1.643	F	-18.263	<0.001*
	Widow	203	7.626	±	2.661			
Education	Illiterate	149	6.094	±	3.068	F	0.722	0.539
	Primary	104	5.702	±	2.703			
	Preparatory	32	5.500	±	2.752			
	Secondary	60	5.033	±	2.491			

Table 4 and figure 2 show that is a significant relation between depression and age (increase in aged between 60 - 70 years by the mean+ SD (7.050±2.722)than aged 70-80 by the mean+ SD(3.403±1.988), where F=36.228 and P-value=0.001. A significant relation between

depression and age . Regarding the gender is a significant relation between depression and gender(increase in female gender by the mean+ SD (11.175±1.638)than male by the mean+ SD (2.836±0.114), where T=76.116 and P-value=0.001. A significant relation between depression and gender. Regarding the Marital status show that is a significant relation between depression and marital status(increase in widow by the mean+ SD (7.626±2.661)than married by the mean+ SD(3.035±1.643), where F=-18.263 and P-value=0.001. A significant relation between depression and marital status. Regarding the education is no significant relation between depression and education(increase in illiterate by the mean+ SD (6.094±3.068)than primary by the mean+ SD(5.702±2.703), where F=0.722 and P-value=0.549(less than significant level 0.05) . no significant relation between depression and education.

Figure 2 Distribution the relation between depression and socio-demographic data(age, Gender , Marital status and education) among elderly patients.
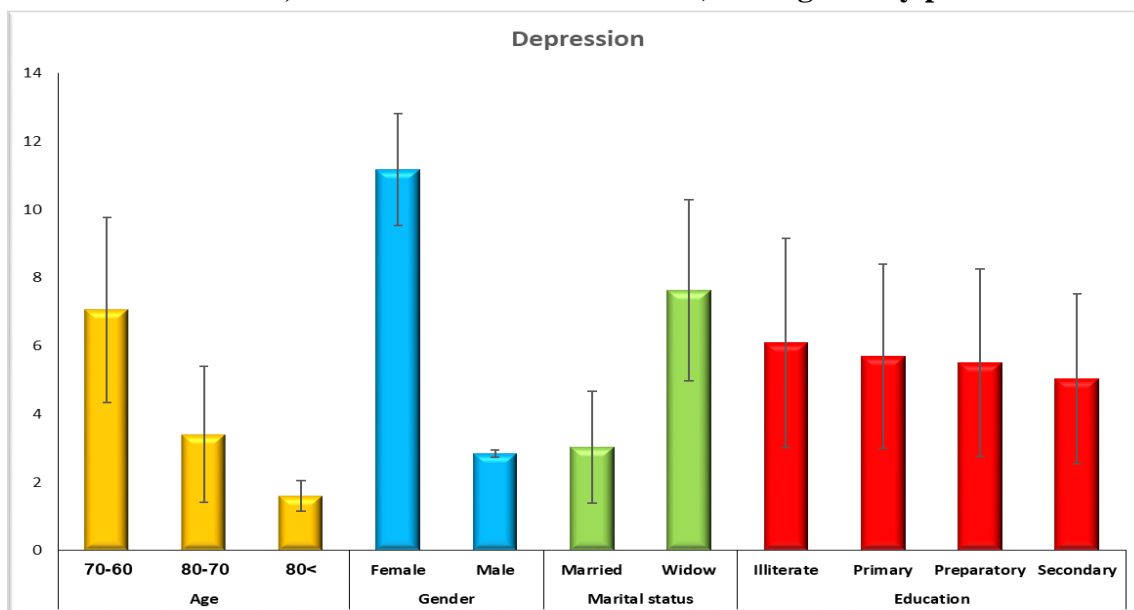

Table 5: Distribution the relation between depression and clinical variables(Chronic diseases, physical or mental disabilities, social problems, family history of depression and medicines continuously)among participants elderly patients .

Items		N	Depression			T-test	
			Mean	±	SD	t	P-value
Chronic diseases	Negative	71	1.746	±	0.381	-14.727	<0.001*
	Positive	274	6.770	±	2.865		
Physical or mental disabilities	Negative	167	3.419	±	1.491	-17.888	<0.001*
	Positive	178	7.910	±	2.905		
Social problems	Negative	106	2.538	±	0.126	-17.108	<0.001*
	Positive	239	7.155	±	2.775		
Family history of	Negative	198	2.793	±	0.402	-39.412	<0.001*
	Positive	147	9.701	±	2.423		

depression						
Medicines	Negative	93	11.344	±	2.387	30.075
continuously	Positive	252	3.667	±	1.990	<0.001*

Table 5 and figure 3 show that is a significant relation between depression and Chronic diseases (increase in positive than negative by the mean+ SD(6.770±2.865), where t=-14.727 and P-value=0.001. A significant relation between depression and chronic diseases .

Regarding the Physical or mental disabilities is a significant relation between depression and Physical or mental disabilities (increase in positive than negative by the mean+ SD (7.910±2.905), where T=-17.888 and P-value=0.001. A significant relation between depression and Physical or mental disabilities . Regarding the Social problems show that is a significant relation between depression and Social problems(increase in positive than negative by the mean+SD(7.155±2.775)where t=17.10818.263 and P-value=0.001. A significant relation between depression and Social problems . Regarding the family history of depression is a significant relation between depression and family history of depression (increase more in the positive than in the negative by the mean+ SD (9.701±2.423), where T=--39.412 and P-value=0.001. A significant relation between depression and Family history of depression, regarding the medicines continuously is a significant relation between depression and medicines continuously (increase in negative than positive by the mean+ SD(11.344±2.387), where t=30.075 and P-value=0.001. A significant relation between depression and medicines continuously .

Figure 3 Distribution the relation between depression and clinical variables(Chronic diseases, physical or mental disabilities, social problems, family history of depression and medicines continuously)**among participants elderly patients** .
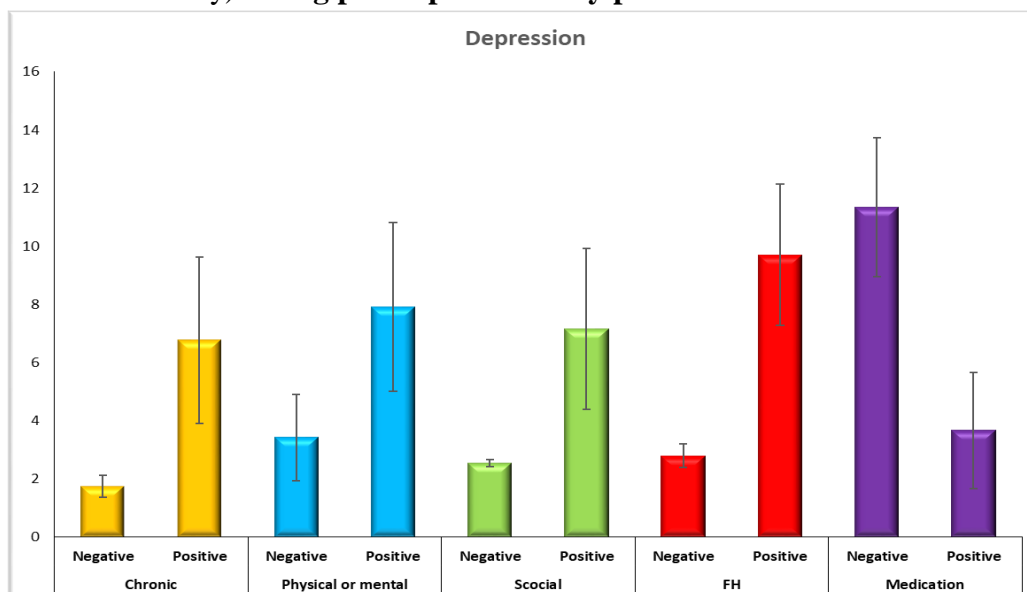

Table 6: Describe of the Multi Logistic Regression between depression as(depending variables)and independent variables (Chronic diseases, Physical or mental disabilities, Social problems, Family history of depression, Medicines continuously)

	B	S.E.	Wald	P-value	Odd	95% C.I.for Odd		R²	Chi-square test	
						Lower	Upper		X²	P-value
Chronic diseases	2.347	0.811	8.380	0.004*	10.450	2.134	51.180	83.10%	325.168	<0.001*
Physical or mental disabilities	3.397	0.692	24.102	<0.001*	29.874	7.697	115.950			
Social problems	3.175	0.787	16.282	<0.001*	23.920	5.117	111.809			
Family history of depression	5.044	0.682	54.671	<0.001*	155.126	40.737	590.722			
Medicines continuously	-1.913	0.522	13.424	<0.001*	0.148	0.053	0.411			

Table 6 show all the final model is affect by explain the regression by R2 (83.10%) a significant relation between depression and independent variables . Were X2(325.168)and P-value=0.001, regarding history of Chronic diseases a significant Positive affect of Chronic diseases and depression were P-value=0.004, and(Odd = 10.450, 95%CI = 2.134-51.180). while(B=2.347, S.E.=0811 and Wald=8.380), regarding Physical or mental disabilities a significant Positive affect of Physical or mental disabilities and depression were P-value=0.001, and(Odd = 29.874, 95%CI = 7.697-115.950). while(B=3.397, S.E.= 0.692 and Wald=24.102), regarding Social problems a significant Positive affect of Social problems and depression were P-value=0.001, and (Odd = 23.920, 95%CI = 5.117-111.809). while(B=3.175, S.E.= 0.787 and Wald=16.282), egarding family history of depression a significant Positive affect of family history of depression and depression were P-value=0.001, and(Odd = 155.126, 95%CI = 40.737-590.722). while(B=5.044, S.E.= 0.682 and Wald=54.671, regarding medicines continuously a significant Negative affect of medicines continuously and depression were P-value=0.001, and (Odd = 0.148, 95%CI = 0.053 -0.411). while(B=-1.913, S.E.= 0.522 and Wald=13.424.

Discussion

Depression is a common public health problem among elderly persons worldwide, growth in the average life expectancy of people in the KSA is increasing with 8 percent of the population (2.2 million individuals) classified as being elderly[26]. This indicates that the elderly population in the country is increasing every year, with all the economic and social implications this has. in our study there were 345 participants, and the show the majority age was(69.0%) in (60-70)years, while the age(70-80)were(20.9%). The majority of them were

male (65.2%), while female(34.8%). the most of the participants was widow(58.8%) while married(41.2%), have no education Illiterate(43.2%) while primary education were(30.1) .(See table 1). Similar study in Riyadh's , about half of cases are undiagnosed. The current study revealed that the prevalence of depression among elderly in Riyadh's Primary Care Centers was 71.6%. This is significantly higher than reported in many previous studies including the study of Mulat et al., (2021) in Ethiopia who reported a prevalence of 45%. Study in Nigeria who reported prevalence among elderlies of 44.7% and study of Mohamed and Abd- Elhamed,[32] (2021) in Egypt who reported a prevalence of 44.4%. In addition, our prevalence is higher than reported in other studies conducted in different regions including India (52.5%) (33), Nepal (57.8%), Vietnam (66.9%), Portuguese (61.4%) and Brazil (49.76%).[26] On the other hand, our prevalence of depression was similar to the results of another study conducted un urban India which resulted in a prevalence of 75.5% among elderly participants [20] and it was lower than reported in another study showed a prevalence of 89.1% .(See table 1)

Ageing is affected by the development of a variety of psychiatric illnesses, the most prevalent among them being depression. The proportion of depression among elderly patients attending chronic disease clinic in primary health care center in Makkah Al-Mukarramah, 2021 . Setting in this study was found to be show that Of the(72.0%) participants have negative depression while (28.0%) have positive depression while is a significant relation between depression were P-value=0.001and X2 57.203 (See table 2) No gender difference was reported in the current study regarding the prevalence of depression among elderly patients, in agreement with others [21]. However, female predominance was observed by others. Of the five rural Indian community-based studies, three reported a high prevalence of depression among elderly persons. All these studies used the shorter version of the Geriatric Depression Scale-15 (GDS-15) for diagnosis of depression, which has a high sensitivity but low specificity. Therefore, there is a possibility of overestimating the true prevalence due to high false-positive results.[29] A cross-sectional community-based study conducted by. [31] found among 82 persons aged over 60 years in a rural area of Hooghly district of West Bengal estimated the prevalence of depression as 53.7% [31]. This high prevalence may be explained by a small sample size and the tool (Bengali version of the GDS-15)used to identify depression. [30]. estimated the prevalence of depression as 47% from the rural area of Valadi of Tamil Nadu.[30] , conducted a community-based study among elderly persons in six villages in Maval Taluka of Pune, Maharashtra and estimated the prevalence as 41.1%.[31] The high prevalence of depression among elderly persons in the above studies could be due to the use of GDS-15, a screening tool, while we used a diagnostic interview to confirm the diagnosis. On the basis of GDS-30 (screening tool) in our study, the prevalence of depression was 19.2% (95% CI 15.7%–23.4%), which was similar to the estimated prevalence for Indian studies (21.9%) in the meta-analysis done by, [29] as well as the prevalence found in the study conducted by in rural areas of up district of Karnataka (21.7%).[29] Relation between depression and socio-demographic data is. A significant relation between depression and age . A significant relation between depression and gender . A significant relation between depression and marital status.(see table 3)

The Saudi culture and traditional social values dictate high respect for and care of the elderly by members of the extended family[24] The association between more privacy and

depression can be explained by the tendency of the elderly in the extended family system of Saudi Arabia to associate more privacy with alienation and neglect by other family members. The finding of more depression in the widowed is in keeping with numerous other studies. [31] In the present study, age was a significant predictor for depression in multivariate analysis. This finding differs with other support by other studies reporting no effect of age on depressive symptomatology.[23] Depression was higher among illiterates compared to literates in this study. Similar findings were reported by [23] These observations strengthen the fact that poor educational background is an important risk factor for depression . Though the prevalence of depression decreased with increase in educational level, it was not statistically significant. Similar to the presence of chronic medical illness has been found to increase the risk of depression in studies reported by [26]

Conclusions

The current study reported high prevalence of depression among elderly participants who visited in Makkah Primary Care Centers, indicating the significant need for developing intervention to control this prevalence. Depression may lead to many limitations in live which are existing already in this population. Helping elderly population to have jobs, stable social life, not living alone, helping them with financially and their daily activities may be associated with lower level of depression among them. More investigations to assess the depression among elderly population in different places in the Saudi Arabia are required to confirm our results. Depressive symptoms are a significant health problem among elderly PHC patients in . Routine screening for depression in any elderly PHC patient is recommended for early detection.

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