

## Chronic Disease, Disability and Depression in Rural Older Peoples a Problem of Co-morbidity

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### Abstract

**Background:** The aim of this study was to determine the prevalence of chronic disease, physical disability and depression in rural older people.

**Subjects and Methods:** This descriptive study was made in Corum-Turkey 2013 with 108 individuals aged 65 and over residing in a village. The data were obtained from a questionnaire form with 25 items and Geriatric Depression Scale.

**Results:** Elderly individuals of the 83.3% had at least one chronic disease and 18.5% of had physical disability and 60.2% of were determined "exact" depression. With the presence of chronic illness and perceived health status between depression scores there was determined statistically a significant difference ( $p < 0.05$ ).

**Conclusions:** In our study, we determined chronic disease in four of every five older individuals and physical disability in one of every five. The mean score of depression in elderly was  $15.66 \pm 5.33$ . It was seen that depression prevalence was very high (78.2%) in elderly. Chronic diseases and physical disabilities were co-morbid for depression. It was suggested that utilization of health care services should be improved in rural. Also healthy aging programs in rural should be implemented to identify, treat and assess depressed people with co-morbid issues.

**Keywords:** Chronic disease; Physical disability; Depression; Co-morbid; Older people

### Introduction

Population is rapidly aging worldwide. The World Health Organization (WHO) reported in 2010, number of aged 65 years and over were 524 million. By 2050, this figure is estimated 1.5 billion [1,2].

Population aging is a major challenge. This problem results in changes with the epidemiological profile of heart disease, cancer, and chronic diseases such as depression as well as the increase in the prevalence and incidence [3].

Physiological changes that occur during the aging process aren't independent from psychological, biological and environmental events. In this process; physical, psychological and psychosocial changes related to each other. Depression is one of the most common problems of old ages in psychological context [4].

According to estimates of the World Health Organization in 2020, major depressive disorder will be the second leading cause of disability in the world [3].

Depression is very common among older individuals so that in general medical practices, hospitals, and nursing homes at least one of every six patients affected. Poor health status and presence of chronic

disease are seen as a common risk factor for depression among elderly individuals [5].

Depression impairs the overall health in elderly, creates a risk of reduced quality of life for these patients and relatives. Depression often shows itself in the elderly with somatic symptoms and leads to psychosomatic retardation. Studies show that depression increases mortality rates leaving a negative impact on the daily functions of elderly people and well-being of elderly people so have higher rates of suicide compared with any age groups [6,7].

Elderly population rate was 7.3% in our country and three of every ten people live in rural [8]. Not only physical disability, chronic illness, loneliness but also limited transportation and lack of financial support may cause utilizing insufficiency from health care services in rural older people. Also this may increase the incidence of depression. Taking into consideration rising in elderly population in terms of health care burden, it is important to detect early risk indicators and prevention strategies of depression.

The aim of this study was to determine the prevalence of chronic disease, physical disability and depression in rural older people.

### Subjects and Methods

This descriptive study was made in Corum-Turkey 2013. The population of study consisted of 150 elderly individuals aged 65 and over residing in a village without sample selection. The study of 108 elderly who agreed to participate was included. For the research ethics

committee approval form was taken from the Erciyes University Faculty of Medicine and oral consents were obtained from the elderly people. The data were obtained from a questionnaire form with 25 item and Geriatric Depression Scale. In 1983 the validity and reliability studies of this scale was developed by Yesevageand et al. [9]. We interviewed with participants by face to face. To determine chronic disease we checked up their reports of disease. The validity and reliability of the scale in our country was built in 1997 by Ertan et al. Geriatric Depression Scale is a 30-item self-report scale. For each in favor of the depression "1" point, the other to "0" and total score of depression score (min:1, max: 30) was obtained. Scores made as 0-10 points "no depression", 11-13 points "possible" depression, scores of 14 and above "absolute" depression [10]. In this study, elderly individuals received at least 7 and the highest 29 points. Reliability coefficient was relatively high value (cronbach's alpha: 0.79). We sought physician's diagnosis for chronic diseases. We didn't use any classification for the physical disabilities. Data were evaluated with SPSS 17.0 program by using the arithmetic mean, the independent samples t test and Pearson Correlation Analysis.

## Results

The mean ages of the elderly were 69.83±7.43 and 76.9% of between 65-75 age range. The 53.7% of respondents were male and 45.4% of were illiterate. Socio-demographic characteristics of the participants were shown in Table 1.

| Chronic illness (n=108)  | Number | %     |
|--|--------|-------|
| yes  | 90     | 83.3  |
| HT   | 36     | 55.6  |
| DM   | 23     | 33.3  |
| Asthma   | 18     | 55.6  |
| Osteoporosis   | 10     | 27.8  |
| Rheumatic disease Gynecological diseases (uterine prolapse and cancer) | 60     | 21.3  |
| No   |        |       |
| Physical disability (n=108)  | 30     | 16.7  |
| Yes  | 23     | 83.3  |
| Fractures (arm, leg, hip)  | 30     | 9.3   |
| Hearing loss   | 18     | 5.6   |
| Vision loss  | 6      | 16.7  |
| Stroke   | 10     |       |
| No   | 18     |       |
| Total  | 108    | 100.0 |

**Table 1:** Socio-demographic characteristics of the participants (n=108)

Hypertension (55.6%), diabetes (33.3%) and heart disease (27.8%) were the most common illnesses and 83.3% of elderly individuals had at least one chronic disease. Also 18.5% of had physical disabilities. Status of chronic disease, and disability in elderly individuals were given in Table 2.

| Socio-demographic characteristics    | Number | %     |
|--------------------------------------|--------|-------|
| Age groups (Age means: 69.83 ± 7.43) |        |       |
| 65-75 years                          | 83     | 76.9  |
| 76 years and over                    | 25     | 23.1  |
| Gender                               |        |       |
| Women                                | 50     | 46.3  |
| Men                                  | 58     | 53.7  |
| Marital status                       |        |       |
| Married                              | 72     | 67.7  |
| Divorced/widow                       | 36     | 32.3  |
| Education levels                     |        |       |
| Illiterate                           | 49     | 45.4  |
| Primary and over                     | 59     | 54.6  |
| Children                             |        |       |
| Had                                  | 97     | 90.7  |
| Had not                              | 11     | 9.3   |
| Monthly income                       |        |       |
| Had                                  | 75     | 69.4  |
| Had not                              | 33     | 30.6  |
| Smoking                              |        |       |
| Current smoker                       | 14     | 13.0  |
| No smokers / Quit smoking            | 94     | 87.0  |
| Total                                | 108    | 100.0 |

**Table 2:** Status of chronic disease, and disability in elderly individuals.

The mean score of depression in elderly individuals were given in Table 3.

| Scores depression   | of  | Number | %     | Scale ranges | Actual ranges | X±SD |
|---------------------|-----|--------|-------|--------------|---------------|------|
| No depression       | 23  | 21.3   | 0-10  | 7-10         |               |      |
| Possible depression | 20  | 18.5   | 11-13 | 11-13        |               |      |
| Absolute depression | 65  | 60.2   | 14-30 | 14-29        |               |      |
| Total               | 108 | 100.0  | 0-30  | 7-29         | 15.66 ±5.33   |      |

**Table 3:** The mean scores of depression in elderly individuals.

The mean score of depression in elderly individuals was 15.66 ± 5.33 and in 60.2% of were determined "exact" depression.

The difference between the mean scores of depression and various features in elderly individuals was shown in Table 4.

| Socio-demographic characteristics | Number | X ± SD       | t     | p     |
|-----------------------------------|--------|--------------|-------|-------|
| Age groups                        |        |              |       |       |
| 65-75 years                       | 83     | 15.76 ± 5.19 |       | 0.744 |
| 76 years and over                 | 25     | 15.36 ± 5.87 | 0.327 |       |
| Gender                            |        |              |       |       |
| Women                             | 50     | 16.91 ± 5.10 | 2.477 | 0.015 |
| Men                               | 58     | 14.43 ± 5.31 |       |       |
| Marital status                    |        |              |       |       |
| Married                           | 72     | 15.07 ± 5.21 |       |       |
| Divorced/widow                    | 36     | 16.86 ± 5.43 | 1.661 | 0.100 |
| Education level                   |        |              |       |       |
| Illiterate                        | 49     | 17.00 ± 5.69 |       | 0.017 |
| Primary and over                  | 59     | 14.56 ± 4.79 | 2.385 |       |
| Living alone                      |        |              |       |       |
| Yes                               | 97     | 15.80 ± 5.52 | 1.226 | 0.020 |
| No                                | 11     | 14.45 ± 3.14 |       |       |
| Monthly income                    |        |              |       |       |
| Had                               |        |              |       |       |
| Had not                           | 33     | 16.06 ± 5.98 |       |       |
| Perceived health status           |        |              |       |       |
| Good                              | 43     | 14.14 ± 4.81 | 2.480 | 0.015 |
| Bad                               | 65     | 16.68 ± 5.45 |       |       |
| Chronic diseases                  |        |              |       |       |
| Yes                               | 60     | 16.95 ± 5.21 |       |       |
| No                                | 48     | 14.06 ± 4.65 | 2.893 | 0.005 |
| Physical disability               |        |              |       |       |
| Yes                               | 20     | 15.75 ± 6.04 | 0.077 | 0.939 |
| No                                | 88     | 15.65 ± 5.19 |       |       |

**Table 4:** The difference between the various characteristics and depression in elderly people

In women the mean scores of depression was  $16.91 \pm 5.10$  and in men it was  $14.43 \pm 5.31$ . Also it was found a statistically significant difference between the gender and depression scores ( $p < 0.05$ ). Divorced or widowed elderly individuals had higher depression scores than married individuals. Depression scores decreased by higher levels of education of older, also was found a statistically significant difference between the education levels and depression ( $p < 0.05$ ). Depression scores were higher in older people living alone ( $p < 0.05$ ). Older people with any physical disability had higher depression scores ( $p > 0.05$ ). With the presence of chronic illness and perceived health status between depression scores there was determined a statistically

significant difference ( $p < 0.05$ ). Correlations between chronic diseases, perceived health status and depression were shown in Table 5. There was a negative and significant correlation between chronic disease, perceived health status and depression.

| Inter correlations | Chronic disease | Perceived health status |
|--------------------|-----------------|-------------------------|
| Depression scores  | r:-0.145        | r:-0.333                |
|                    | p:0.134         | p<0.001                 |
| Chronic disease    | -               | r:-0.190                |
|                    |                 | p:0.049                 |

**Table 5:** Intercorrelations between chronic diseases, perceived health status and depression in elderly people.

## Discussion

In this study it was found that 83.3% of elderly individuals had at least one chronic disease. By choosing more than one option hypertension, diabetes, and heart disease were the common diseases in elderly individuals. 18.5% of elderly individuals had a physical disability. Fracture-induced physical barriers were prevalent among older individuals (Table 2).

Studies in our country about the subject of were shown that one or more chronic diseases rate was between 67.0-89.0% and physical disability rate was between 8.0-19.0%. It was reported that hypertension, heart disease, diabetes and diseases in the joints were the most common chronic diseases. Fractures, decreasing in vision and hearing, stroke were common physical barriers in the aging process [11-16]. India, Cuba, Dominican Republic, Venezuela, Mexico, and Peru also in Netherlands, America, Tanzania and Japan were in the same line with the results of studies conducted in Turkey [17-23].

The mean score of depression in older individuals was  $15.66 \pm 5.33$  and 60.2% of were in the exact diagnosis of depression range (Table 3). It was seemed that high rate of depression results in older people from our study was compatible with studies conducted in Turkey.

In Istanbul [24], the mean score of GDS was found as  $12.1 \pm 6.5$ ; in Edirne [25]  $5.34 \pm 3.74$  in elderly individuals living in a nursing home Istanbul. Also prevalence of depression was reported in Edirne [25] as 85.3%, in Erzurum [26] as 61.1% and in Aydın [14] as 72.5%.

The prevalence of depression and depression severity in older people was seen that differed by country. Depression prevalence in Mexican elderly [27] was 41.9% and in Dutch elderly [7] was 45.0%. Canadian elderly had [28]  $6.29 \pm 5.24$  and Dutch elderly (7) had  $10.3 \pm 6.4$  depression scores. Elderly population rates and availability from health care services in elderly could be affect depression rates seen among countries.

In our study women had significantly higher depression scores than men ( $p < 0.05$ ). Psychiatric epidemiology studies suggested that prevalence of depression was higher in women than men [29,30]. This condition was presented as a proof of a certain risk that hormonal changes were associated with reproductive constituted in women [31]. Also social status of attributed to women in Turkish society, could be shown as an encouraging factor for scores of depression in our country. Divorced or widowed individuals had higher scores of depression than married individuals. Marriage is one of the most

important institutions that affect life and well-being of people, as a part of life contributes to self-esteem by moving away from the stress and reduces loneliness [32,33].

Depression scores were significantly lower in literate people ( $p < 0.05$ ). Several studies reported that highly educated people had better physical and mental functions, observed increasing in quality of life with the increasing of education level, and this situation reduced the rates of depression in elderly [34-36]. Individuals living alone had higher depression scores and difference between groups was statistically significant ( $p < 0.05$ ). Also studies show higher depression scores in individuals living alone [37]. One of the most important causes of loneliness in old age had no wife or husband for sharing life (due to death or divorce). Also it can be a factor that individuals child's residing in another city or country due to education, work or marriage or to another city that increases the feeling of loneliness.

Depression scores were higher in elderly who had chronic disease, physical disability, perceiving health as poor and had no income. But there wasn't found statistically difference between depression scores with physical disability and income ( $p > 0.05$ ). This may be related with the acceptance of the status of older individuals in time. We found difference between perceived health status and chronic disease with depression scores ( $p < 0.05$ ) (Table 4).

It was reported that chronic disease restricted daily life activities by leading to the perception of poor health and increased the depression incidence [38-40]. Chronic disease prevalence increases by aging. Chronic diseases can be controlled with medical treatment and dietary measures but new episodes affect the course of disease and can cause more harm. With co morbid depression it can be more difficult to keep chronic diseases in under control because of the forgetfulness in taking drug, difficulty to medical compliance, physical disabilities, low education level, lack of people who helps older for implementing right treatment.

We found that when depression scores increased, perceived health status was decreased. Also when having a chronic disease, perceived health status was decreased (Table 5). Just as in all population studies were shown that perceived health status was a strong predictor on chronic diseases and depression [41,42].

## Conclusion

In our study, we determined chronic disease in four of every five older individuals and physical disability in one of every five. The mean score of depression in elderly was  $15.66 \pm 5.33$ . It was seen that depression prevalence was very high (78.2%) in rural elderly. Chronic diseases and physical disabilities were co morbid for depression. It was suggested that utilization of health care services should be improved in rural. Also healthy aging programs in rural should be implement to identify, treat and assess depressed people with co morbid issues.

## Limitations

- This study was descriptive. No intervention was provided in order to assess treatment outcomes.

- Participants were obtained from one village in Turkey, results are likely not generalizable.

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This material is original and not previously published or currently submitted elsewhere.

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