Investigation of Depression Prevalence in the Population of 40 Years Old and Above with Beck Depression Inventory in Halkah-Istanbul and Evaluation of the Internal Consistency of the Inventory

İSTANBUL - HALKALIDA 40 YAŞ VE ÜSTÜ NÜFUSTA BECK DEPRESYON ÖLÇEĞİ İLE DEPRESYON PREVALANSININ SAPTANMASI VE ÖLÇEĞİN İÇ TUTARLILIĞININ İNCELENMESİ

A. Emel ÖNAL*, Yıldız TÜMERDEM*, Dilek ARI**

* Dept. of Public Health, Medical School of İstanbul University,
** Dept. of Psychiatry, Medical School of Istanbul University, Istanbul, TURKEY

―――――――Summary―――――――

We aimed to investigate the frequency of depressive symptoms as well as affecting factors of them in the community. The questionnaire was performed with Beck Depression Inventory (BDI) and questioning demographic features by face-to-face interviews with 157 individuals chosen among those 40 years old and above and determined by systematic sampling method between 01.11.1998 and 31.03.1999.1 nternal consistency examinations of Beck Depression Inventory consisted of 21 questions were made using Cronbach's alpha and Split- Half methods.

40.1% of all participants were determined to have moderate or severe depressive symptoms (46.4% of women and 25.5% of men). Depression in women and between 40 and 49 years old was found more. According to both alpha and Split-half correlation values, BDI showed a very high consistency around 0.89. The correlation of each question with scale total points is positive and high.

The depression prevalence of 40.1% determined in the region with this study was high enough to demonstrate the necessity of early diagnosis in the depressive patients who primarily apply to non-specialist doctors and/or non-psychiatrists frequently.

Key Words: Adult age, Depression, Prevalence,
Beck Depression Inventory, Internal consistency

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―――――――Özet―――――――

Bu çalışmada 1 Kasım 1998 - 31 Mart 1999 tarihleri arasında kesitsel yöntemle 40 yaş ve üstü bireyler arasından sistematik örnekleme yöntemi ile seçilen 157 bireye, toplumda depresif semptomların sıklığının ve depresif semptomları etkileyen faktörlerin araştırılması amaçlanarak, yüzyüze görüşme yöntemi ile Beck Depresyon Ölçeği (BDÖ) ve demografik özellikleri sorgulayan bir anket uygulandı. 21 soruluk BDÖ'nin iç tutarlılık incelemesi Cronbach's alfa ve Split- Half yöntemlerine göre yapıldı.

Katılımcıların % 40.1 inde orta ya da ciddi depresyon belirtileri olduğu saptandı (Kadınların %46.4'ünde, erkeklerin %25.5'indc). Kadınlarda ve 40-49 yaşlar arasında olanlarda depresyon prevalansı yüksekti. BDÖ hem alfa değeri hem de Split - Half korelasyon değerine göre 0.89 dolayında çok yüksek iç tutarlılık gösterdi. Herbir sorunun ölçek total puanı ile korelasyonu pozitif ve yüksek değerde idi.

Bu çalışma ile bölgede saptanan %40.1'lik depresyon prevalansı ilk basamakta sıklıkla pratisyen hekimlere ve/veya psikiyatrist dışı hekimlere başvuran depresyon hastalarına erken tanı koymanın ne ölçüde önemli olacağını gösterecek yükseklikte idi.

Anahtar Kelimeler: Erişkin yaş, Depresyon, Prevalans,
Beck Depresyon Ölçeği, İç tutarlılık

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Depression is considered nowadays as a subject relevant to public health in many countries. Because, when it is seen frequently in the society and not treated with early diagnosis, it becomes more chronic and harder to be treated (1). Severe

depressive episodes are associated with the greatest hazards of morbidity and mortality (2). Untreated depressions may lead to suicides (2,3). Depressive disorders are frequently associated with significant and pervasive impairments in social functioning, often substantially worse than those experienced by patients with other chronic medical conditions (4).

Depression that may described as a transition period from happiness and calmness to serious melancholy is diagnosed through clinic symptoms. An objective measurement, Beck Depression Inventory used frequently is a self-evaluation scale (2,5). When the number of symptoms exceed a pre-determined crossing score, depression is diagnosed. This scale provides highly correlated but comple-mentary information with the former measures more heavily weighted by so-called neurovegeta-tive symptoms (i.e. sleep, appetite and psychomo-tor disturbances) and the latter more strongly influ-enced by cognitive symptoms (i.e. pessimism and negative self-appraisals). The Turkish version of BDI was proved to be valid and reliable (6, 7).

Although traditional information is that de-pression increases together with the age, there are also studies proving that it increases between 30 and 40 years old people and declines after 45 (8). In many studies in Turkey, the age above 40 is de-scribed as a risk group in depressive disorders (9, 10). Most of the health problems tied with old age start in adults like depression. Thus, the measures to be taken in adult ages will ensure healthy ageing. That's why, this study aimed to determine the de-pression prevalence and its affecting factors in the population of 40 years old and above in Halkah Region. This study, separately, aimed to investigate the internal consistency of BDI.

Methods

Determination of frequency of depressive symptoms and the affecting factors of them in the population of 40 years old and above in Halkah Region was planned. The questionnaire performed with Beck Depression Inventory (BDI) and by questioning demographic features was applied be-tween 01.11.1998 and 31.03.1999.

The expected depression prevalence in this age group was estimated to be maximum 10 % in the light of the similar studies (8,10). The least sam-pling group with 95% reliability and 5% mistake was determined to be 139 subjects (11). Between above mentioned dates, 4171 individuals registered in the local primary health care unit used to live in this area and 23% of them (n: 959) were 40 years old and above (12). 157 individuals chosen among those by 1/6 systematic sampling method.   J

Beck Depression Inventory (BDI) was applied to determine the frequency of depressive symptoms (5,6). The selected individuals were invited to the local primary health care units by dating formerly, and the questionnaire was made by means of face-to-face interviews by investigators. In the scale formed by 21 questions, each question scores a point varying from 0 to 3. Scores between 0 to 13 points in BDI are described as normal, 14 to 24 points as depressive, and 24 and more as severe de-pressive. In order to facilitate the application of sta-tistics and the interpretation of the results in the study, the findings were presented by gathering "depressive" and "severe depressive" groups to-gether. Internal consistency examinations of Beck Depression Inventory consisted of 21 questions were made using Cronbach's alpha and Split- Half methods (13,14). As known, internal consistency examination is a reliability examination used for scales (13,14).

Results

Out of 157 fourty years old and above partici-pants, 70.1% were female (n: 110) and 29.9% were male (n: 47). Mean age was 52.59 ± 9.47 (mini-mum 40, maximum 77). According to BDI, 40.1% of participants scored (n:63) 14 points and above. 24.2% of participants (n:38) were found moderate and 15.9% (n:25) severe depressive. Depression ac-cording to the gender is shown in Table 1 and to the marital status in Table 2. Depression was seen in women more frequently than in men. When c2 test was applied by forming two groups composed of legitimate and illegitimate married ones and wid-ow(er) and single ones, there was no any statisti-cally significant difference between two groups re-garding the development of depression (x^2:0.30, d.f.:1, p:0.58). Depression according to the educa-tional status was shown in Table 3, to the age groups in Table 4. Depression was seen more in 40 to 49 age group rather than other age groups. Details of BDI (the number of as well as the per-

Table 1. Distribution of the depression by gender

Gender	Yes Number	percent	No Number	Percent	Total Number	Percent
			Depression			
Female	59	53.6	51	46.4	110	70.1
Male	35	74.5	12	25.5	47	29.9
Total	94	59.9	63	40.1	157	100.0

X^2: 5.95, d.f. : 1 , p : 0.02

Table 2. Distribution of the depression by marital status

			Depression			
Marital Status	Yes Number	Percent	No Number	Percent	Total Number	Percent
Married	82	60.7	53	39.3	135	86.0
Single and widow(er)	12	54.5	10	45.5	22	14.0
Total	94	59.9	63	40.1	157	100.0

X^2: 0.30, d.f. : 1 , p : 0.58

Table 3. Distribution of the depression by educational status

			Depression			
Educational Status	Yes Number	Percent	No Number	Percent	Total Number	Percent
Illiterate	14	46.7	16	53.3	30	19.1
Literate	8	72.7	3	27.3	11	7.0
Primary school	44	61.1	28	38.9	72	45.9
High School-University	28	63.6	16	36.4	44	28.0
Total	94	59.9	63	40.1	157	100.0

X^2: 3.24, d.f. : 3 , p : 0.36

Table 4. Distribution of the depression by age classification

			Depression			
Age	Yes Number	Percent	No Number	Percent	Total Number	Percent
40-49	31	46.3	36	53.7	67	42.7
50-59	41	77.4	12	22.6	53	33.8
60-69	17	58.6	12	41.4	29	18.5
70 and +	5	62.5	3	37.5	8	5.0
Total	94	59.9	63	40.1	157	100.0

X^2: 11.95, d.f. : 3 ,p : 0.008

centages of those who scored except zero from each of 21 questions according to those participated in the study) are seen in Table 5 and Figure 1. The most frequent complaints are early tiredness, dense mourning, irritability, sorrow, disability to work, lack of self-satisfaction.

Table 5. Details of B DI (the number of as well as the percentages of those who scored except zero from each of 21 questions according to those participated in the study)

Question	Those who scored except zero(n)	n / 157 (%)
1 (Mood)	98	62.4
2 (Pessimism)	56	35.7
3 (Sense of failure)	39	24.8
4 (Lack of satisfaction)	94	59.9
5 (Guilty feeling)	68	43.3
6 (Self hate)	57	36.3
7 (Self accusation)	77	49.0
8 (Self punitive wishes)	20	12.7
9 (Crying spells)	100	63.7
10 (Irritability)	99	63.1
11 (Social withdrawal)	40	25.5
12 (Indecisiveness)	69	43.9
13 (Body image)	75	47.8
14 (Work inhibition)	96	61.1
15 (Sleep disturbance)	82	52.2
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17 (Loss of appetite)	44	28.0
18 (Weight loss)	36	22.9
19 (Somatic preoccupation)	94	59.9
20 (Loss of libido)	87	55.4
21 (Sense punishment)	32	20.4

Figure 1. Details of Beck Depression Inventory (the percentages of those who scored except zero from each of 21 questions according to those participated in the study)

Both alpha and Split- half correlation values of BDI showed a very high consistency around 0.89. The correlation of each question with scale total points is positive and high. Results of internal con-

sistency examinations are shown in Table 6. The first column in the table shows the correlation of each question (corrected item) with all questions (total correlation) in the inventory. And the second column shows what the alpha value of the inventory would be in case the items are deleted (the values remain the same for Split-Half methods too).

Discussion

Field investigations in our country shows that psychological disorders demanding psychiatric assistance in the society are common above 20%, among which affective disorders, especially depressive type, are seen most frequently (9,10). Depression, with its widespread characteristics and the problems it causes, remains as a primarily important health issue. But, researches prove that only half of the patients could be diagnosed. If the patient has physical as well as psychological diseases, generally physical one is diagnosed and treated in particular (14). But, early diagnosis and sufficient therapy will impact the course and the result of the patience positively, prevent the loss of patient's social functions and reduce the loss of labour force and suicide rates.
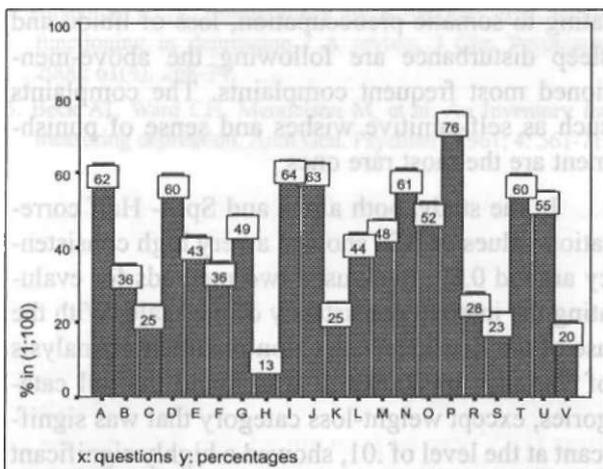
Table 6. BDI - Internal consistency examination

Question	Corrected Item-Total Correlation	Alpha If Item Deleted
1	.4519	.8855
2	.5980	.8810
3	.4914	.8845
4	.5996	.8809
5	.5215	.8835
6	.5952	.8813
7	.5352	.8832
8	.6025	.8848
9	.4828	.8846
10	.2995	.8902
11	.6389	.8808
12	.6137	.8809
13	.5429	.8832
14	.5279	.8833
15	.4424	.8861
16	.6127	.8810
17	.6058	.8811
18	.1705	.8932
19	.4159	.8865
20	.4155	.8873
21	.4582	.8854

In the study, depressive symptoms were found in 40.1% of the group. But, since there was no any significant investigation about the population of 40 years old and above in our country, we have no chance to compare accurately the obtained prevalence value with the other studies. Gulec determined the primary depression prevalence in the population 15 years old and above as 9.2%, Kuey did as 13.0% in 1985 (10). Sagduyu et al fixed the Major Depressive Disorders Prevalence as 23.2% according to DSM-IV, in those who applied to primary health care units in separate 10 cities in different regions (15).

In many studies, prevalence speeds of depressive symptoms and depression in women were found higher 2 to 3 folds compared to those in men (8-10,14). In our study, depressive symptoms were found more in women rather than in men (see Table !)•

In several studies, depression relevant to marital status yielded different results. Beside the studies which found that depression in widow(er)s were more common than married ones, there are also studies which indicate that highest risk group for depressive symptoms was consisted of merely men and married women (9,10). We found no any statistically significant difference in the distribution of depression as for marital status.

Demiriz and Hancioglu stated in their investigation that lack of education was a risk factor for depressive disorders (10). In our study, we could not find out such a statistical difference.

Weissman et al observed the highest prevalence rates for depression were dominant in women between 35 and 45 years old and men between 45 and 65 years old. In their studies in which Weissman and Klerman evaluated several studies conducted in more than 30 countries, they found out that depressive symptoms and maladies were more common in over 40 years of age group as well as in women rather than men (10). In this study, we found that depression in 40 to 49 years old women was higher than the other age groups. In the studies of Demiriz, Hancioglu and Gulec, depression was announced to be more frequent above 40 years of age, and in those of Kuey et al, it was the same for above 45 years of age (10).

The most frequent complaints in our study are early tiredness, dense mourning, irritability, sorrow, disability to work, lack of self-satisfaction. The correlation of the item (no. 16) tiredness, the most frequent depressive symptom (76.4%) within the total scale is 0.61. Item-total correlation is expected not to be negative and to be more than 0.25. Otherwise, it might be deleted from the scale. If the alpha value of the scale is higher than the value after the item is deleted from the scale, it means that the question is important for the scale. After item no. 16 is deleted, the alpha value becomes 0.88 that is lower than the alpha value 0.89. So, the question is of importance for the scale. All of the items in the scale might be discussed in a similar fashion by means of Tables 5 and 6. And, similarly in the study of Sagduyu, lack of energy (88.5%) and feeling demoralised (84.3%) in the depressive group were the most frequent complaints. In the same study, the other frequent complaints are short sleeping, diminished attention, thinking deceleration and difficulty in decision (16). Kuey and Gulec who examined the epidemiological studies in Turkey determined in 1989 that physical depressive symptoms were more frequent than special depressive symptoms such as self-accusation and feeling of guiltiness (10). And also, in our study, the complaints relating to somatic preoccupation, loss of libido and sleep disturbance are following the above-mentioned most frequent complaints. The complaints such as self-punitive wishes and sense of punishment are the most rare ones.

In the study, both alpha and Split-Half correlation values of BDI showed a very high consistency around 0.89. Beck used two methods for evaluating the internal consistency of the scale. With the use of the Kruskal-Wallis Non-parametric Analysis of Variance by Ranks, it was found that all categories, except weight-loss category that was significant at the level of .01, showed a highly significant (at the level 0.001) relationship with the total score of the scale. In our study too, item-total correlation of item no. 18 relating to weight loss is 0.17, and in case the item is deleted from the scale, its alpha value still remains 0.89. Beck found the alpha reliability coefficient of the scale 0.86 with Split-Half Method (5). In the study of Tegin, the Split-Half value for the students and depressive patients groups were determined to be 0.78 and 0.61, re-

spectively. The alpha coefficient in the study of Hisli on university students was found 0.74 (6). As known, the alpha value ranges between 0 and 1.The alpha value between 0.80 and 1.00 shows that the scale is highly confident and that between 0.60 and 0.80 shows it is quite confident (14). Our study showed that Beck Depression Inventory was a reliable one as seen in other studies in the literature that we could reach.

As a result, in our field of study, depression prevalence in the population of 40 years old and above was found very high. This high result is important enough to guide the non-specialist and non-psychiatrist doctors to give importance to the matter and to ponder on the necessity of collaboration with the psychiatrists. The high internal consistency of BDI was proved with this study of prevalence.

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