Psychometric Investigation of Two Turkish Adaptations and Short Form of the Beck Depression Inventory

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Keşkeler
ne getirir
ne bitirir
belkileri.

(Old wishes
not bring
nor cease
maybes.)

To my (and maybe your) depressive moments...

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ABSTRACT

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In this study, Beck Depresyon Ölçeği -BDÖ- adapted from the original Beck Depression Inventory-BDI- (1961) by Teğin (1980) and Beck Depresyon Envanteri -BDE- adapted from the revised BDI (1978) by Hisli-Şahin (1984-89) were investigated in terms of their reliability and validity on the same sample. Also, items of the short form of the BDI which were derived from the revised one were reanalyzed from the data of the BDE as a preliminary step for the adaptation of the BDE-Kısa Form, BDE-KF. Analyses were carried out on a sample of 161 university students, 100 females and 61 males. Half of the participants took the tests in the order of the BDE, MMPI-D, BDÖ and the other half took them in reverse order. In both test-taking orders the mean scores of the BDE were almost equal whereas the mean scores of the BDÖ changed significantly. In the paired and independent sample t-tests of corresponding items, more items that were significantly different were found in the BDÖ due to test-taking order. However, both the BDE, BDÖ and BDE-KF were found to be reliable and valid instruments in terms of internal consistency, item-total correlations, correlations with the MMPI-D and factorial discrimination of symptom groups reported by Beck. It is recommended that the BDE should be preferred since it is more stable and consistent across different test-taking orders

beside being the adaptation of the revised BDI and the BDE-KF should be used after its validation in a clinical sample. (244 words)

ÖZET

Beck Depression Inventory (BDI)'nın İki Türkçe Uyarlamasının ve Kısa Formunun Psikometrik İncelemesi

Fatma Zengin

Bu çalışmada Beck Depression Inventory (BDI)'nin 1961 özgün formundan Teğin (1980) tarafından Türkçe'ye uyarlanan Beck Depresyon Ölçeği -BDÖ ile 1978'de gözden geçirilmiş formundan Hisli-Şahin (1984-89) tarafından Türkçe'ye uyarlanan Beck Depresyon Envanteri -BDE, geçerlik ve güvenirlikleri açısından aynı örneklem üzerinde incelenmiştir. Ayrıca, gözden geçirilmiş BDI maddelerinden elde edilen kısa formun maddeleri, BDE-kısa formun (BDE-KF) uyarlanmasının ilk adımı olarak BDE verileri üzerinden yeniden analiz edilmiştir. Analizler, 100 kız, 61 erkek toplam 161 üniversite öğrencisinden oluşan bir örneklem üzerinde yapılmıştır. Örneklemin yarısı, testleri, BDE, BDÖ ve MMPI Depresyon Ölçeği (MMPI-D) düzeninde, diğer yarısı tam tersi bir sıralama ile almıştır. Her iki test alma düzeninde, BDE ortalamaları aynı iken, BDÖ ortalamaları anlamlı ölçüde fark göstermiştir. Denk maddelerin eşleştirilmiş ve bağımsız testler olarak analizinde de, test alma sırasına bağlı olarak BDÖ'de daha fazla sayıda madde anlamlı farklılık göstermiştir. İç tutarlık, madde-toplam korelasyonu, MMPI-D ile olan korelasyonları ve Beck'in belirttiği semptom alanlarını faktörel ayırdedicilikleri açısından BDÖ, BDE ve BDE-KF'nin üçü de geçerli ve güvenilir bulunmuştur. BDE'nin, testlerin alınış sırasından daha az etkilenmesi, daha tutarlı

bulunmasının yanısıra gözden geçirilmiş BDI'nın uyarlaması olduğu için de tercih edilmesi ve BDE-KF'nin klinik bir örneklemde incelendikten sonra kullanılması önerilmektedir.

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I- INTRODUCTION

Depression is one of the most prevalent psychological disorders of our time. Around the world it is estimated that at least one hundred million people are suffering from severe depression. Besides being a clinical issue, it is also associated with the mood in which people feel sad, unhappy and unmotivated. A study that covered different countries revealed that 8-17 % of healthy adults experienced a short lasting depressive state or suicidal thoughts in the previous year (Kaplan and Sadock, 1985).

The intervention and treatment of depression is an important issue both for the effectiveness of individuals and the society since depression affects both the suffering person, the people in relationship with her/him and the society. Depressed people have low or no motivation and avoid others. They have an alienating effect on people. Chronically depressed people are usually the least productive citizens and frequent users of medical services.

To understand the causes of depression and treatment effects, research grew rapidly in the last three decades. Characteristics and etiology of depression were investigated with both clinical and non-clinical subjects (Beck, 1967; Hersen & Turner, 1991; Kaplan & Sadock, 1985; Rippere, 1994; Twaddle & Scott, 1991; Wolman; 1990). To carry out such research, assessment devices are needed first and foremost. An important part of these studies use tests and inventories as

measurement devices of depression (Rippere, 1994).

Psychological tests are standardized and objective tools to measure the behaviors under consideration (Anastasi, 1976; Öner, 1994). They are used to compare, classify, discriminate, diagnose or screen certain psychological constructs among the selected or unselected groups. Differences between individuals in relation to selected behavior as well as differences between the behaviors of an individual due to the passage of time, changes in situations or treatment effects are analyzed with use of tests. Although the term is often associated with intelligence and achievement tests, there are many kinds of psychological tests which can be classified according to their format, application type or their purpose.

There are many tests which were developed on depression since the Second World War under the title of personality inventories. Rating scales and self-report inventories are main types of tests of depression that clinicians and researchers prefer to use.

One of the most widely used self-report inventories on depression both abroad and in Turkey is the Beck Depression Inventory -BDI- (Ulusoy, 1993). It is a quantitative measure of the existence and severity of depression with 21 items. It was developed in 1961 by A. T. Beck as a rating scale for examiners then it became a self-report inventory which can also be applied to groups. During 1969-1972 it was revised and in 1978 the revised version was copyrighted. In this version, some alternative statements were eliminated while some were changed. Also, Beck and

Beck (1972) developed a short form of the BDI (BDI-SF) selecting 13 items from the revised version as a more rapid technique. It has been used very much by clinicians and researchers abroad (Beck, et. al.,1988).

The BDI has also been used frequently in Turkey both as a research and a clinical tool. Teğin (1980) adapted and used the first version of the BDI (1961) in her doctoral study. But, the alternative statements that existed in some items in the original BDI (1961) did not appear in Teğin's adaptation. Hisli-Şahin[1] translated 1978 version of the BDI in 1984 and adapted it in 1988 (Hisli-Şahin, 1988).

To differentiate Turkish adaptations of the two versions of the BDI, Savaşır and Hisli-Şahin (1997) suggested to use different titles, namely *Beck Depresyon Ölçeği* (Beck Depression Scale)-BDÖ (Teğin, 1980) and *Beck Depresyon Envanteri* (Beck Depression Inventory) -*BDE* (Hisli-Şahin, 1988). However, in the field both adaptations have been used utilizing either one of the two titles randomly. Beside this, majority of the studies used the adaptation of the original BDI, namely the BDÖ and did not mention that there is a revised version of it which is also adapted into Turkish.

A survey among Boğaziçi University graduate studies revealed that there are fourteen master's theses using the BDI between 1985-1998. Twelve of them used Teğin's adaptation, the BDÖ (Alantar, 1989; Aytar, 1985; Bekiroğlu, 1996; Çeşmeci, 1995; İdiğ, 1990; Korkut, 1990; Krespi, 1993; Sağlam, 1989; Serbest,

[1]Nesrin Hisli-Şahin used "Hisli" surname until 1992, later she used "Şahin". In this study "Hisli-Şahin" was preferred for both references.

1993; Sünerin, 1998; Tosun, 1989 and Yeniçeri, 1987) and two used Hisli-Tahin's adaptation, the BDE (Bilger, 1990 and Usluer, 1989).

Among these fourteen researchers, only two mentioned that there are two versions of the BDI and only three of them reported that there are two Turkish adaptations.

Beck, Steer, and Garbin (1988) also complain about such a confusion of two versions of the BDI by some researchers with either wrong or no references to the one utilized. They reported that many present studies kept using the 1961 version although there is a revised BDI which is believed to have more clarity for the test-taker.

Beck and Steer (1984) compared these two versions of the BDI and found that both are valid and reliable measures although there are slight differences. However, they warn the reader that the samples of the two BDI were different since the 1961 version was administered to both inpatients and outpatients after admission by a trained interviewer while the 1978 version was self-administered at the time of admission to the outpatient clinic. They offered to hold a research on the same sample for more reliability.

Thus the present study aims to compare the two Turkish adaptations of the BDI on their psychometric properties to be able to help to their utilization. Also it aims to explore the items of the short form of the BDI to aid in bringing about a shorter and easy to apply valid instrument.

For this purpose, in the present study, the two Turkish versions of the BDI were compared on the same sample including university students in terms of their internal consistency, concurrent validity with the Minnesota Multiphasic Personality Inventory-Depression Subscale (MMPI-D), factor loadings and discrimination of depression severity in order to see whether they can be interchangeable or if there is a significant difference between their psychometric properties.

Also, the short form of the BDI which was not available to Turkish users was analyzed from the items of Turkish adaptation of the revised version, namely the BDE, in terms of its internal consistency, concurrent validity and factor loadings.

II- REVIEW OF LITERATURE

In this section initially, various definitions, classification systems and characteristics of depression are presented. After age and prevalence rates of depression are given, basic theoretical explanations about depression will be summarized. Then Beck's model of depression and the construction of the BDI are reported in detail together with psychometric studies of it and the Turkish adaptations of two versions.

2. 1. Definitions and Characteristics of Depression

The word "depression" is used in everyday life with a connotation of the mood state in which the person feels sad, unhappy and unmotivated to work. However, as a syndrome, it is a constellation of somatic, cognitive, behavioral and mood symptoms enduring over different periods of time (Hersen & Turner, 1991).

Clinical depression, however, is a disorder in which the depressed person feels apathetic, listless, unable to enjoy typical activities. Those who are clinically depressed find themselves unrealistically inadequate. Their cognitive functions such as memory, concentration, decision making are impaired. Sleep and appetite disorders, increased physical complaints, slow or agitated movements and sad facial expressions also accompany depression (Hersen & Turner, 1991).

There are various classifications of depression based on different criteria by different theorists in the field (Aytar, 1987; Kaplan & Sadock, 1985; Hersen & Turner, 1991). Some of them classify depression according to its causes. One of the basic

controversies is about the cause of depression, that is, whether it is caused by endogenous or environmental factors (Hersen & Turner, 1991). This dichotomy is known as endogenous versus neurotic-reactive depression. Nineteenth century psychiatrist Kraepelin made this distinction when he was studying manic depressive psychosis. However, today some biologically oriented psychiatrists accept that all depressions are endogenous whereas some psychoanalysts assume that all depressions are actually neurotic reactions (Kaplan & Sadock, 1985). As a third approach Kielholz, Pöldinger and Adams (1982, cited in Aytar, 1987) conceptualize depression to be on a continuum between organic and reactive poles under the headings of somatogenic, endogenous and psychogenic.

Another classification is done according to the history of the depressive illness. American school of psychiatry introduced the primary versus secondary depression distinction. If depression is not associated with or not preceded by another psychiatric disorder it is called primary depression. But if there are other psychiatric disorders like neurosis, psychosis, alcoholism etc. it is called secondary depression (Kaplan & Sadock, 1985).

A third way of conceptualizing depression is suggested by German and Swiss investigators in the fifties and sixties as unipolar versus bipolar affective disorders distinction. Unipolar affective disorders are characterized by the clear presence or history of depressive symptoms whereas bipolar type consists of depressive and manic symptoms together (Hersen & Turner, 1991; Kaplan & Sadock, 1985).

In recent years depression has come to be classified according to six criteria namely; natural history of the disorder, symptoms, biological factors, episodes or periods of attacks, presence or absence of a time-related stress and treatment response (Kaplan & Sadock, 1985).

Two classification systems are mainly preferred around the world. One of them, International Classification of Diseases (ICD-9), uses the general headings of affective psychosis, neurotic disorders and adjustment reactions for classification of affective disorders. The other system is Diagnostic and Statistical Manual of Mental Disorders (DSM) of the American Psychologists Association (APA) and became the main source in classifying clinical depression. It avoids the use of the terms 'neurotic,' 'reactive and manic psychosis' which are used in ICD-9 (Kaplan & Sadock, 1985). The DSM-IV (Hekimler Yayın Birliği, 1994) classifies affective disorders as organic brain syndrome, bipolar affective disorder, major depression and atypical affective disorders.

The DSM-IV lists nine symptoms of major depression that are seen for at least two weeks and causes a change in normal functionality. At least five of them must be present including 1st and 2nd items for a person to be labelled as depressed. These are:

1) depressive mood experienced during almost all day,

2) reduced interest in the daily activities lasting almost all day,

3) significant weight loss without dieting or increase in weight; loss or increase in appetite almost every day,

4) insomnia or hypersomnia almost every day,

5) psychomotor agitation or retardation almost everyday (it must be reported not only by the subject but also by others),

6) fatigue or loss of energy almost every day,

7) feelings of worthlessness, or excessive guilt almost every day,

8) reduced concentration or indecisiveness,

9) recurrent suicidal ideation, or suicide attempt or having a special plan for suicide.

2. 2. Age of Onset and Prevalence of Depression

There is no specific time in the life span for the occurrence of depression that is identified in the literature. Child and adolescent depressions are accepted as well as adult depression. In a sample of 11 year olds 2 % met the criteria for adult depression (Anderson, Williams, McGee & Silva, 1987). In adolescence this rate increases to 3.2 % for current depression in the U.S.A. Percentage of one episode of unipolar depression in their lifetime is 11.4 for male adolescents while it is 22.3 for female adolescents (Lewinsohn, Hops, Roberts, Seeley & Andrews, 1993).

Boyd and Weisman (1981) found that 9-20 % of the respondents of a questionnaire on depressive symptoms reported the presence of the symptoms for depression in a community sample. Kaplan and Sadock (1985) reported that 15-30% of U.S. adults experience clinically significant depression sometime during their life and 2-3 % of the world population suffer from severe depression.

In Turkey, the prevalence of depression among the whole population is estimated to

be 20 % but clinically this is about 10 % (Güleç & Küey, 1988, cited in Bilger, 1991). Some studies held in the universities, however, yielded higher rates maybe depending on the sample characteristics and cutoff scores. For example, Aytar (1985), using the BDÖ, found that 24.6% of 306 medical students had mild depression (scores between 10-15) 7.8% had moderate depression (scores between 16-23) and 4.2% had severe depression (scores over 24). Aydın and Demir (1988) found 22.8 % depression rate among university students who live in dormitories and 12.6 % among those who live with their families using 22 as cutoff score on the BDI. Güney (1985) found 69 % depression rate among Hacettepe university students with a sample of 275 using 9 as cutoff score on the BDI.

2. 3. Etiology of Depression

There are different theoretical models explaining the causes of depression. Two broad etiological categories are biological and psychological models.

2. 3. 1. Biological Models

The underlying assumption of biological approaches to the etiology of depression is that it is biologically determined. Although these approaches admit that environmental factors trigger the biological mechanisms, depression is accepted as having an endogenous origin.

2. 3. 1. 1. Genetic Transmission of Depression

This view is searched widely through twin and kinship studies. The former studies provide no evidence, however, family studies with relatives of depressive patients gave more consistent data supporting the genetic transmission view (Goldin & Gershon, 1988, cited in Hersen & Turner, 1991). Another research area, molecular genetics studies with recombinant deoxyribonucleic acid (DNA) is still in its infancy. Yet, it was stated that there is no evidence for genetic transmission of unipolar depression.

However, in a recent newspaper article translated from Time magazine ("Depresyonun yeri beyin" 1997) it was reported that some researchers from the U.S.A. photographed the brains of depressed people who are diagnosed as having genetic depression. Among these subjects a small part of the brain behind the nasal area had 39-48% less cells than nondepressed people.

2. 3. 1. 2. Neuro-chemical Abnormalities

Use of antidepressants in the treatment of major depression is based on the investigation of neurotransmitter systems and has a long history. One strong hypothesis known as monoamine hypothesis holds depression as a functional deficiency of monoamine neurotransmitters like norepinephrine and serotonin (Kaplan & Sadock, 1985). However, Thase and Howland (1989, cited in Hersen and Turner, 1991) reviewed the related literature and concluded that this hypothesis is

insufficient to explain complex neurochemical relationships.

Siever and Davis (1985) formulated a dysregulation hypothesis of depression referring to an impairment in neurotransmitter homeostatic regulatory mechanisms. Also, certain disorders of endocrinological systems such as cortisol hypersecretion or disinhibition of cortisol secretion could be related to depression.

However, most biological researchers admit that there is a complex interaction between various etiological factors of depression (Wolman, 1990).

2. 3. 1. 3. Circadian Rhythm Dysfunction

It was postulated that there are certain chronobiological rhythm dysfunctions in depression such as shortened REM (rapid eye movement) latency, changes in cortisol secretion, seasonal changes in depressive symptoms and diurnal (during the day) variation in mood. It was supposed that they are because of a dissociation between the fluctuation of two subsystems, including respectively, sleep-wake cycle and body temperature, REM propensity and cortisol secretion. Also it can be endangered by certain neurochemical functioning (Hersen & Turner, 1991).

2. 3. 2. Psychological Models

There are many approaches under this heading. They try to explain the depressive symptomatology and causality in terms of the individuals' environment, behavior,

cognition or psychic structure. The main psychological models of depression are as follows:

2. 3. 2. 1. Psychoanalytical Approaches

In classical psychoanalytic theory depression is viewed as a symptom neurosis in which the person has a decreased interest in the external world and an increase of aggression toward self. This aggression comes through self-criticism, feelings of guilt and self-punishment activated by a real or imaginary object loss. The person feels her/himself unable to protect against the loss of the love object and this brings a fright response resulting from the sudden loss of control over external or internal reality. To regain control, the lost object is introjected and the patient treats her/himself as if s/he were the lost object. The conflict resulting from anger toward the loss and libidinal cathexis to the loved object creates a tension between the ego and the superego (Eidelberg, 1968; Wolman, 1990).

However, some psychoanalysts argued that there might be other mechanisms in depression. Bibring (1953, cited in Markson, 1993) believed that depression is a state of helplessness of the ego which results from tension in the ego between narcissistic aspirations and its inability to achieve them. Jacobson (1972) asserted that depression always has a somatic component and the depressed people evaluate their love object and the self by the infantile values of omnipotence and invulnerability.

2. 3. 2. 2. Behavioral Approaches

Behavioral theories use stimulus-response paradigm to explain the psychological processes. Depression is also viewed as the result of a reduction in response-contingent positive reinforcement. Cognitive features of depression such as guilt, low self-esteem, pessimism are also thought to be the result of the attributions made by the individual about his/her dysphoric mood (Lewinsohn, 1974).

Total amount of the response-contingent positive reinforcement of an individual is thought to be a function of: 1) the number of events that are potentially reinforcing the person, 2) the number of such events that occur, 3) the degree of the skills possessed by the individual that enables her/him to gain reinforcement from the environment.

Lewinsohn, Hoberman, Teri and Hautzinger (1985) also added a sequence of causal connections between the depression evoking event and the reduced rate of positive reinforcement. They also mentioned a number of vulnerability factors that increase the likelihood of depression including being female, being between the ages of 20 and 40, previous history of depression, low coping skills, low socioeconomic status, low self-esteem and sensitivity to aversive events.

2. 3. 2. 3. Cognitive Approaches

There are many theoreticians who were cited under this heading including Seligman, Abramson, Ellis and Beck. In general, cognitive theories propose that cognitions,

that is, all kinds of thinking processes and outcomes precede affective and emotional reactions.

Seligman (1975) stated that depression occurs when an individual perceives a lack of relationship between her/his behavior and important outcomes, leading to a state of passivity which is called "learned helplessness." Abramson, Seligman and Teasdale (1978) reformulated this theory emphasizing the attributions that individuals make about the cause of their helplessness. These attributions may vary along such dimensions like personal-universal, global-specific, stable-unstable. The more the attributions are personal, stable and global the more the person is likely to be depressed.

Ellis (1962), the founder of the rational-emotive therapy, proposed "A-B-C model" stating that the cause of depression is irrational beliefs and negative self-evaluations. In his model; A is the activating event, B is the belief or the thought of the person about this situation and C is the emotional consequence. These irrational beliefs result in excessive emotional reactions which lead to depression .

Beck (1967) and Beck, Rush, Shaw and Emery (1979) suggested that depression occurs as a result of negatively distorted cognitive judgments about the events and situations the person encounters. These negative distortions reflect an important problem with cognitive schemata which includes more stable thoughts, beliefs, attitudes developed in earlier years and which act as a framework in which new situations are evaluated accordingly.

Beck's model is explained in detail in the next section since the BDI that is the focus of the present study was developed according to it.

2. 4. Beck Cognitive Model of Depression and the BDI

The distinctive assumption of cognitive theory is that cognitive distortions precede affective and motivational symptoms. If an individual views a situation as negative s/he is likely to experience a negative feeling (Beck, 1967).

There are three basic concepts to explain the psychological structure of depression according to Beck, et. al., (1979):

1) Cognitive triad: Depressive patients regard themselves, their future and their experiences negatively. The depressed mood and motivational symptoms of depression are result of these incorrect, negative cognition.

2) Schemas: Cognitive schemas are stable, structural thinking patterns of an individual. Depressed people maintain their self-defeating, negative attitudes despite the fact that there are many positive factors in their life.

3) Faulty information processing: There are systematic thinking errors of depressives such as arbitrary inference (drawing a specific conclusion without evidence), selective abstraction (conceptualizing the whole experience on a detail out of context), overgeneralization (drawing a general rule out of very few incidents), magnification or minimization (evaluating the significance of an event

larger than it is or minimizing), personalization (connecting external events to oneself in the absence of any basis) and absolutistic-dichotomous thinking (placing all experiences in two opposite categories and selecting the negative pole in self-descriptions).

Some people are more depression-prone that is more vulnerable to depression because they have such permanent negative attitudes based on their cognitive schemata. When they are subjected to stressful situations which they are especially sensitive to, they react with the above-mentioned negative evaluations which in turn create depressive feelings of sadness, guilt, loneliness etc. (Beck, 1967).

2. 4. 1. Conceptual Background of the BDI

The Beck Depression Inventory reflects the findings of research reported in 1961 based on clinical observations of A. T. Beck .

Before giving information about the construction and validation of the BDI, a brief description of depressive symptomatology presented by Beck will be given. In fact, the BDI was mainly established on the manifestations of these symptoms.

Beck (1967) divides the symptoms of depression into four basic areas:

1) Emotional manifestations: This term refers to the changes in feelings and behaviors directly related to these changes.

Depressed mood expressed by the adjectives "blue, sad, hopeless, miserable, unhappy, useless etc." is one of the six emotional manifestations. As depression becomes more severe, the dysphoric state tends to be more noticeable and persistent.

Negative feelings toward self is another manifestation. These feelings are different from general dysphoria since they are directed toward the self expressing the dissatisfaction with the self. As depression becomes severe, the feeling progresses to a point in which the person hates her/himself.

Loss of gratification and satisfaction from activities is the third one. With the increase in severity, the feelings of boredom are generalized and nothing gives satisfaction.

Loss of emotional attachments is sometimes accompanied by the loss of gratification, however, it is manifested especially by the loss of affection and concern for others. It starts with a decline in the enthusiasm or intensity of love and reaches an apathetic state.

Crying spells is also a frequent manifestation among depressives. Without having a reason to cry depressed people, especially women, tend to weep or cry. In severe cases, however, some patients cannot cry even though they want to do so.

Loss of mirth (fun) response is another complaint of depressed p[illegible]nts. They cannot be amused with a joke or cartoon in the usual way they do. Most of the depressed

people report this situation as the loss of their sense of humour.

2) Cognitive Manifestations: Beck cites seven types of manifestation under this heading:

Low self-esteem and self-devaluation are characteristic of depression. It goes from feeling inadequate to feeling a complete failure as a person.

Negative expectations are the result of pessimism and hopelessness immanent in depression. Future is perceived in terms of the continuity of present deficiencies. Suicidal thoughts are generally a result of this hopeless view about the future.

Self-blame and self-criticism are perseverant characteristics of depression. If depressed people cannot meet their standards which are usually rigid and perfectionistic, they criticize themselves intolerantly. In severe cases they blame themselves for the suffering and the violence in the world, take many stimuli as the signs of social disapproval.

Indecisiveness is seen both in the cognitive and the motivational sphere. Fear of making a wrong decision prevents making a choice. To avoid any action, the person tends to procrastinate. This difficulty in making a decision can spread to simple everyday activities or as in the severe cases it can result in stopping to try. Depressed people have a distorted body image. They are excessively concerned with their physical appearance and believe that they are unattractive.

3) Motivational manifestations: Depressed people have a regressed type of motivation. They prefer not to take responsibility as an adult and rather seek activities that fit a child's role.

Paralysis of the will means that the person cannot activate himself or even a desire to do something. This loss of positive motivation can progress into a withdrawal from vital needs such as eating or lack of communication.

Avoidance, escapist, withdrawal wishes are common to depression. Depressed people find their duties boring, meaningless and wish to avoid or postpone them. Activities which involve less effort or no responsibility are preferred. Severely depressed people express that they do not want to see anybody and in some cases suicide is a form of escaping from their intolerable life.

Suicidal wishes may be seen in nondepressed people, however, it is usually a characteristic of depression. These wishes can take a passive form of wish to die, a daydream or an active wish with a detailed plan.

Increased dependency (not included in the inventory) is not unique to depression, but Beck believes that it is involved in depression as an intensified desire for help and support. A person who was used to be self-sufficient wants to be helped perhaps getting an emotional satisfaction. In severe cases the depressed patient may want others to do everything for her or him.

4) Vegetative and Physical Manifestations: Although these are considered as evidence of biological roots of depression, they showed low correlations with each other and with clinical ratings of depth of depression in Beck's study (Beck, 1967).

Loss of appetite is accepted as the first sign of depression. Almost two third of the severely depressed patients report some degree of appetite loss. It is manifested as a lack of desire or enjoyment for food.

Sleep disturbance is common among depressed people although 40 percent of nondepressed also report it. Mostly it is seen as insomnia that is difficulty in sleeping. However, in some cases sleeping more than usual can be seen.

Loss of libido is reported together with loss of appetite, loss of interest in other people and depressed mood. It can start with a slight decline in sexual desire and reach an aversion for sex.

Fatigability is increased tiredness and can be reported as a complete physical phenomenon by some depressives. However, it is difficult to distinguish it from the lack of motivation. It correlates more highly with pessimism and lack of satisfaction rather than other physical/vegetative symptoms.

Besides these manifestations Beck adds delusions (of worthlessness, being punished, degeneration of the body, nihilism) and hallucinations as symptoms of especially severe and psychotic depressives.

2. 4. 2. Construction of the Original BDI

The BDI was developed in 1961 to provide a standardized, economical tool for clinical diagnoses of depression (Beck, 1967). Its aim was to discriminate depressives from nondepressives on a continuum measuring the severity of depression. Clinical observations of Beck showed that the difference between depressed and nondepressed psychiatric patients increased with the increase of the numbers and intensity of symptoms related to depression.

Twenty one items were designed according to the behavioral manifestations of the symptoms. Based on the continuity assumption, basic symptoms of depression were formed into four or five statements expressing the intensity of the symptom. In each item, gradual numbers from 0 to 3 (meaning neutral, mild, moderate, and severe) were assigned to each statement. In 8 of the 21 items, two alternative statements were presented at a given level and labelled as *a* and *b* such that each has the same numerical value. The total score of a patient was accepted as the reflection of the severity of depression.

The symptom manifestations reflected in the BDI items were: depressive mood, pessimism, sense of failure, dissatisfaction, guilt, expectation of punishment, self-dislike, self-accusations, suicidal ideas, crying, irritability, social withdrawal, indecisiveness, distortion of body image, work retardation, insomnia, fatigability, loss of appetite, weight loss, somatic preoccupation, and loss of libido.

2. 4. 2. 1. Administration and Instruction Types of the BDI

The BDI was initially developed for administration by a trained interviewer. The interviewer was to read aloud all statements in each item and ask the patient to select a statement among them representing the immediate feelings during the interview.

Interviewers were given detailed instructions for different situations such as:

1. If the patient indicates his choice by the number of the statement the interviewer has to read that statement.

2. If the patient indicates there were more than one statements that fit his/her feelings the interviewer records the higher of the values.

3. If the patient indicates that the way s/he feels is between two statements but not exactly the one, the interviewer records the value s/he is closer to.

However, the instruction of the BDI which was used as a self-report test in later applications, especially in research based studies applied to patient and student samples changed as follows in the field (Williams, 1988):

> Here are some statements regarding the way people feel or think. The statements are grouped in twenty-one sections from A to U. One statement must be chosen from each section. You are requested to put a circle round the number of the statement which best fits the way you feel at this moments. Be sure to read all statements in each group before making your choice (p. 54).

On the other hand, the instruction of the revised version of the BDI which was

designed as a self-report inventory differed from the above mentioned instruction (Beck, Rush, Shaw & Emery, 1979):

> On this questionnaire are groups of statements. Please read each group of statements carefully. Then pick out the one statement in each group which best describes the way you have been feeling the PAST WEEK , INCLUDING TODAY! Circle the number beside the statement you picked. If several statements in the group seem to apply equally well , circle each one. Be sure to read all the statements in each group before making your choice (p. 398).

2. 4. 2. 2. Psychometric Properties of the Original BDI

To establish its psychometric properties, two samples were taken by Beck, Ward, Mendelsohn, Mock and Erbaugh (1961, cited in Beck, 1967). The initial sample was comprised of 226 patients while the other sample of replication study consisted of 183 patients. So, the original version of the BDI was applied to a total 139 of inpatients and 270 outpatients with mixed diagnoses.

The sample was made up of 60.9 % female and 64.7 % Caucasian. The age range of the sample was between 15 and 44. Psychotic disorders were reported for 41 % of the subjects and psychoneurotic disorders covered 43 % of the patients while personality disorders were represented by 16%.

In the above-mentioned study, internal consistency of the BDI was evaluated at first by Kruskal-Wallis Non-Parametric Analysis of Variance by Ranks and showed a significant relationship ($p<.001$) between all items and total scores of each subject.

Another item-total analysis with a sample of 606, resulted in significant correlations ranging between .31and .68 (Pearson Product momentss Correlation). Split-half reliability coefficient was found to be .86 as Pearson r and it rose to .93 with a Spearman-Brown correction (Beck, 1967). Vredenburg, Krames, and Flett (1985) compared the long and short form of the BDI on a sample of 126 patients. They used 1961 version of the long form and found a coefficient alpha of .87.

Concurrent validity in comparison to Hamilton Rating Scale was evaluated in a sample of 153 medical patients and a correlation of .75 (Spearman Rank Correlation Coefficient) was found by Schwab, Bialow and Holzer (1967, cited in Beck, 1967). Nussbaum and his colleagues (1963 cited in Beck, 1967) used the BDI, clinical ratings and MMPI-D as criterion measures in a drug study and found that the BDI had significant correlations with clinical ratings before and after treatment while the MMPI-D had nonsignificant correlations with clinical ratings. Scaefer and his colleagues (1985) found a Pearson correlation of .59 with MMPI-D and .81 with Zung Depression Scale in a sample of 101 inpatients.

Construct validity of the BDI was investigated according to the hypotheses on the relationship of depression and masochistic dreams, negative self-concept, identification with the "loser" in projective tests, childhood deprivation and high drop in self-esteem and increase in hopelessness as response to experimentally induced failure. All hypotheses were largely supported. Also Gottschalk, Gleser and Springer (1963, cited in Beck, 1967) found a significant correlation (.47) between scores on the BDI and the hostility-inward scale. Nussbaum and Michaux (1963,

cited in Beck, 1967) found a negative association between scores on a humor test and scores on the BDI.

Factor analytic study of Pichot and Lempériére (1964, cited in Beck, 1967) with 135 cases of depression yielded four factors, namely, Vital Depression (fatigability, loss of appetite, somatic preoccupation, weight loss, difficulty in sleeping and loss of libido items), Self-Debasement (self-dislike, sense of failure, expectation of punishment and guilt items), Pessimism-Suicide (pessimism and suicidal ideas items), and Indecision-Inhibition (indecision and work retardation items).

Vredenburg and his colleagues (1985) studied the factor structure of the original BDI on a sample of 126 patients and found 6 factors among which 3 were singleton using principle components analysis. They accounted for 59.3% of the total variance and had item loadings greater than .40. They did not name the factors. The first factor was loaded with the items Depressed Mood, Pessimism, Sense of Failure, Dissatisfaction, Guilt, Expectation of punishment, Self-dislike, Self-accusations, Suicidal ideas, Indecisiveness. The second factor included Crying, Distortion of body image, Work retardation and the third factor included Insomnia and Loss of appetite. Fatigability, Irritability, and Loss of libido appeared as singletons.

Based on these studies the BDI was suggested as a reliable, valid and effective measure of depression.

2. 4. 3. The Revised BDI

Original BDI (1961) was used by many clinicians after it was developed and some criticisms were made upon it. It was said that especially the language of it and the alternative statements created problems of comprehension for the patients. May, Urquhart and Tarran (1969 cited in Beck, et. al., 1988) suggested changes in the format of the BDI.

Beginning by 1971, Beck and his colleagues began to employ a modified version of the BDI (Beck, et. al.,1988). The revision was copyrighted in 1978 by Beck, Rush, Shaw and Emery and published in 1979. In this version, alternative statements were eliminated and double negatives were reduced in order to increase readability. The symptoms that were covered and the numbers and the order of items were the same.

The revised BDI was designed as a self-administered inventory and the instruction was changed to "write down according to how you have been feeling for the last week including today" instead of asking for the immediate state.

Beck and Steer (1984) compared the two versions in terms of their internal consistencies. The data from the patients who were administered the 1961 version and completed the form without missing any item were selected. A restricted sample of 598 subjects made up of 60.9 % females and 64.7 % Caucasians was utilized for this purpose. The sample of 1978 version of the BDI comprised of 248 outpatients which was made up of 50.3% females and 93.6% Caucasians. The modal diagnosis

was depressive neurosis (55.2%). The rate of patients who had a past treatment was 76.7%. An important difference between the administration of two studies was that the 1961 version was administered both to inpatients and outpatients after admission by a trained interviewer whereas the 1978 version was self-administered at the time of admission of outpatients.

The alpha coefficient of 1961 version was .88 and for the 1978 version it was .86 meaning that both versions were internally consistent. Corrected item-total correlations of 1961 version were between .23 and .63 while for the 1978 version the range was between .14 and .64. In the 1961 BDI, Weight Loss and Irritability items and in the 1978 version Insomnia, Weight Loss and Somatic Preoccupation items had low corrected item-total correlations which were less than .30.

The mean of total scores in 1961 BDI was 19.28 (SD = 10.87) and for 1978 version it was 23.16 (SD=9.55). There was a significant mean difference ($t(844) = 5.16$, $p < .001$). Beck and Steer (1984) explained this to be due to the characteristics of the sample of 1961 version which was moderately depressed whereas the latter sample was severely depressed.

Both versions were found to possess high level of internal consistency although they had evaluated different samples with different mode of administration (Beck & Steer, 1984).

2. 4. 4. Short Form of the BDI

Beck and Beck (1972) presented the self-administered short form of the BDI with 13 items as a more rapid technique. They selected the best set of items by multiple regression analysis using the data of original BDI.

The contents that were included are sadness, pessimism, sense of failure, dissatisfaction, guilt, self dislike, self-harm, social withdrawal, indecisiveness, self-image, work difficulty, fatigue and appetite. Each item has four statements scored as 3, 2, 1 and 0 reflecting the severity of that symptom. The sum of the score for each item is the total score (Beck & Beck, 1972). Cut-off points suggested by Beck and Beck (1972) were 0-4 for nondepression, 5-7 for mild depression, 8-15 for moderate depression and above 16 for severe depression.

Beck and Beck (1972) reported a Pearson product-moments correlation of .96 between the long and short forms of the BDI scores in a mixed sample of inpatient and outpatient psychiatric sample (N=598) while age, sex and race had nonsignificant correlations with the short BDI. Also, Vredenburg, Krames and Flett (1985) found a Pearson correlation of .93 between the long and short BDI in a sample of 126 patients diagnosed as depressive. They also found an alpha value of .86 supporting internal consistency of the BDI-SF. Reynolds and Gould (1981, cited in Rippere, 1994) found internal consistency reliabilities of the long and short form, to be .85 and .83 respectively with a sample of participants in a methadone maintenance programme and concluded that the short BDI was a reliable and valid

brief measure of depression. Foelker, Shewchuk and Niederehe (1987) found internal consistency values of .74 (N=199) and .80 (N=113) with two elderly samples.

Other researchers also provided suggestive findings for the short form of the BDI. Scogin, Beutler, Corbishley and Hamblin (1988) found the short form of the BDI to be a reliable instrument with older adults. They found alpha coefficient value of .82 for volunteers (n=57) and .79 for depressed older adults (n=61).

Foelker, Shewchuk and Niederehe (1987) investigated factor structure of the BDI-SF in two elderly samples with confirmatory factor analysis and found the three factor model reported by Reynolds and Gould (1981, cited in Foelker, et. al.,1987) to fit these samples. They found three factors, namely, *Negative Self-Esteem* (Self-dislike, Sense of Failure, Guilt, Distortion of Body Image and Suicidal Ideas items), *Anergy* (Indecisiveness, Work Difficulty, Fatigability, Loss of Appetite items) and *Dysphoria* (Dissatisfaction, Pessimism, Sadness and Social Withdrawal items).

Also, Vredenburg and his colleagues (1985) studied factor structure of the short form of the BDI and found three factors including Mood, Pessimism, Sense of Failure, Self-Dislike, Dissatisfaction, Suicidal Ideas, Guilt, Indecisiveness as first factor; Social Withdrawal, Work Retardation, Fatigability as second factor and Loss of Appetite as singleton. They mentioned that the main factors for both long and short form were the first factors which were loaded with cognitive items. Other factors accounted for little variances consisting of some somatic items. They suggested to improve both scales especially the short one in order to cover areas

other than cognitive symptoms.

International data on the BDI-SF was provided by Hojat, Shapurian and Mehryar (1986) who carried out psychometric studies of the BDI-SF with two Iranian university student samples (N=232, N=305) and they reported alpha values of .85 and .83, respectively.

Although it was shown that the BDI-SF was a reliable and valid instrument, Beck and his colleagues (1988) suggested that in clinical practice the short BDI must be used together with more intensive interviews since it doesn't cover non-cognitive aspects of depression thoroughly.

2. 4. 5. Studies on the BDI

Beck and his colleagues (1988) evaluated psychometric properties of all forms of the BDI with a meta-analysis considering about 60 studies that are done in the last 25 years and had at least 30 subjects. However, almost all studies reviewed in this article did not distinguish which version of the BDI they used. Thus, Beck, Steer and Garbin (1988) evaluated all studies with the BDI as a whole. Following results are taken from this article:

Twentyfive studies on internal consistency yielded values between .73 and .95 mostly as coefficient alphas. Temporal stability estimates from 10 studies ranged between Pearson product-moments correlations of .62 (four months) and .90 (2 weeks).

Content of the BDI was compared to the DSM-III criteria and it was concluded that the BDI reflected six of the nine DSM-III criteria well (Moran & Lambert, 1983, cited in Beck, et. al., 1988). However, explicit items reflecting psychomotor activity and agitation in the DSM-III in the diagnosis of major depression were absent in the BDI.

Concurrent validity was found as Pearson product-moments correlations within the range of .55-.96 with clinical ratings; .41-.86 with the Hamilton Rating Scale of Depression; .62 -.86 with the Zung Depression Scale; .41-.75 with the MMPI-D and .71 with Symptom Check List-90 (SCL-90).

For discriminant validity Conde and Esteban (1976; cited in Beck, et. al., 1988) reported that they could differentiate depressed and alcoholics from normals with the BDI. Steer, Beck, Brown and Berchick (year is not mentioned, cited in Beck, et. al., 1988) found that in 18 items of the BDI major depressive disorders could be discriminated from dysthymic disorders (Delay et. al., 1963, cited in Beck, et. al., 1988). However, Schnurr and his colleagues (1976, cited in Beck, et. al., 1988) reported that BDI did not differentiate among persons with mixed depression diagnosis.

Thirteen factor analytic studies reported 3 to 6 factors which mainly reflect Negative Attitudes Toward Self, Performance Impairment, and Somatic Disturbance as mentioned by Beck and Lester (1973, cited in Beck, et. al., 1988).

In sum, the BDI is a widely used depression inventory which has been employed over 1000 research studies between 1961 and 1988. Many studies on the BDI indicated that it has a high internal consistency and concurrent validity with other measures of depression both in psychiatric and non-psychiatric samples. It also discriminates psychiatric and non-psychiatric samples as well as subtypes of depression.

2. 5. Turkish Adaptations of the BDI

The BDI was translated and adapted into Turkish initially by Teğin (1980) as part of her doctoral thesis with the title of Beck Depresyon Ölçeği (BDÖ). Hisli-Şahin translated 1978 version of the BDI in 1984 and adapted it in 1988 under the title of "Beck Depresyon Envanteri (BDE)" (Hisli-Şahin, 1988). Savaşır and Hisli-Şahin (1997) advise the use of these titles for discrimination of the two versions. However, many researchers and clinicians use the two adaptations under either one of the two titles indiscriminantly.

2. 5. 1. "Beck Depresyon Ölçeği": Teğin's Adaptation of the BDI

Teğin translated and adapted the original BDI (1980) with the name of "Beck Depresyon Ölçeği-(BDÖ)." However, the alternative statements of the original version did not appear in this adaptation and the statement on punishment was the last item although it was the sixth in the original BDI

The instruction given to the subjects was "fill out according to how you have been

feeling during the last week including today" whereas in the original BDI it was filled out according to the immediate state of experience. However, some researchers abroad also used the former instruction (Williams, 1988).

She used a sample of 40 Social Science students and 30 depressive patients. Split-half reliability coefficient was .78 for the student sample and .61 for the patient sample. Test-retest reliability for the student sample was .65 with two weeks interval.

For criterion validity, Teğin (1980) compared the BDÖ and Depresyonda Bilişsel Tepkiler Ölçeği (Inventory for Cognitive Reactions in Depression) which was developed by her. She found Pearson Product momentss correlations of .20 for normals, .52 ($p<.01$) for depressives and -0.33 ($p<.05$) for schizophrenics. Aydın (1988) found a Pearson Product momentss correlation of .29 between the BDÖ and Depresif Açıklama Biçimi Ölçeği (Depressive Expression Style Scale) in a university student sample. With neurotic-depressives Aydın and Demir (1988) found a correlation between scores of the BDÖ and Çok Yönlü Depresyon Envanteri (Multiscore Depression Inventory) to be .77. Aydın and Aydın (1990) found a Pearson Product momentss correlation of .70 in a study with depressives and normals using the BDÖ and Otomatik Düşünceler Ölçeği (ODÖ) (Automatic Thought Questionnaire). Also Aytar (1987) using the same instruments (the BDÖ and ODÖ) found a Pearson-Bravais correlation of .77 with clinically depressed patients and .78 with non-depressed normals. She also compared the BDÖ and the MMPI-D and found the correlation values of .70 and .56 (Pearson-Bravais

correlation) for clinically depressed patients and non-depressed normals, respectively. Demir (1989) found .77 correlation coefficient between the BDÖ and UCLA Yalnızlık Ölçeği (UCLA Loneliness Scale).

Teğin (1980) concluded that the BDÖ is a reliable and valid measurement tool for assessment of depression.

2. 5. 2. "Beck Depresyon Envanteri" : Hisli-Şahin's Adaptation of the BDI

Hisli-Şahin translated the revised version of the BDI in 1984 with a title of "Beck Depresyon Envanteri (BDE)" and adapted it in 1988. Number and order of the items were kept the same (see D). But there was a difference between instructions. It was asked to the test-taker to choose only one statement in each item in Hisli's adaptation whereas in the instruction of 1978 version (Beck, et. al., 1979) test-takers were allowed to choose several statements in each item group if it applies equally well.

Translation study included 58 female students. Twentyeight students were given initially the Turkish version of the BDI which was translated by Hisli-Şahin and then the English version with one week interval. The other 30 students were administered the test in the reverse order. Statistical analyses showed that the correlation coefficients between the two forms were .81 and .73. (Hisli-Şahin, 1984, cited in Hisli-Şahin, 1988). No age, gender or educational status effect was found in both instruments in this study.

With a sample of 259 university students split-half reliability coefficient was found to be .74 and Cronbach alpha as .80 (Hisli-Şahin, 1989). In this sample, mean score was found as 9. 58 (SD = 6.75) and this was parallel to previous mean score found in a study with student sample by Aytar (1985). She concluded that the results indicated that the BDE is a reliable measure.

She studied concurrent validity of this adaptation by comparing it with the MMPI-D in two different studies. She found a correlation of .63 (Pearson Product momentss correlation coefficient) on a psychiatric sample composed of 63 inpatients (Hisli-Şahin, 1988) and a Pearson Product momentss correlation of .50 in a sample of university students (Hisli-Şahin, 1989).

Also, Hisli-Şahin and Şahin (1992, cited in Savaşır and Hisli-Şahin, 1997) found a correlation of .47 between the BDE and the State Trait Anxiety Inventory- Trait (STAI-T), .74 between the BDE and Otomatik Düşünceler Ölçeği (Automatic Thoughts Questionnaire) and .50 between the BDE and Etkisiz Başa Çıkma Ölçeği (Ineffective Coping Skills Scale).

Ulusoy (1993) studied psychometric properties of Beck Anksiyete Ölçeği-BAÖ (Beck Anxiety Inventory) in a sample of 177 patients with depressive and anxiety disorders using a control group and as a sign of discriminant validity found a Pearson Moments correlation of .46, .65, and .67 between the BDE and the BAÖ, Durumluk Kaygı Envanteri (State Trait Anxiety Inventory-State) ac Sürekli Kaygı Envanteri (State Trait Anxiety Inventory-Trait), respectively. Also he found that the

BDE could predict the four diagnostic groups (depression, anxiety, depression and anxiety, control groups) when the demographic variables were excluded.

In a factor analytic study (N=259) using principle components analysis, Hisli-Şahin (1989) found six factors which explain 58% of total variance. Only four of them could be interpreted and these were labeled as Hopelessness (Depressive Mood, Pessimism, Dissatisfaction, Suicidal Ideas, Irritability, Social Withdrawal, Indecisiveness, Work Retardation and Fatigability items); Negative Thoughts Toward Self (Sense of Failure and Self-dislike items); Somatic Preoccupations (Distortion of Body Image and Somatic Preoccupation items) and Guilt Feelings (Guilt, Expectation of Punishments, Self-Accusations and Indecisiveness items). Further factor analyses on samples of high school and university students (N=1512, N=573, N=1055) resulted in four factors namely, Decrease in Performance (Dissatisfaction, Crying, Irritability, Social Withdrawal, Indecisiveness, Work Retardation and Fatigability items), Negative Thoughts Toward Self (Depressive Mood, Pessimism, Sense of Failure, Self-dislike, Suicidal Ideas and Distortion of Body Image items), Somatic Disturbance (Insomnia, Loss of Appetite, Weight Loss, Somatic Preoccupation and Loss of Libido items), and Guilt Feelings (Guilt, Expectation of Punishments and Self-Accusations items) (Hisli-Şahin & Şahin, 1991, cited in Savaşır and Hisli-Şahin, 1997).

As a result of these studies, the BDE was accepted as a reliable and valid instrument both in clinical and nonclinical samples.

2. 6. Statement of the Problem and Research Questions

The BDI is one of the most widely used depression inventory by clinicians and researchers both in the world and in Turkey. The original BDI was developed in 1961 by Beck and his colleagues and it was revised in 1978. The original BDI was adapted into Turkish by Teğin (1980) and the revised BDI was adapted by Hisli-Şahin (1988). In Turkey both versions are being used in clinical settings as well as research studies but generally either with wrong or no reference to the Turkish adaptations of the BDI.

In addition to this confusion, there is no comparison of both versions in Turkey whereas Beck and Steer (1984) carried out such a study on the two BDI to assure their equivalency. However, they based their study on different samples and they recommended that it would be better to compare the two BDI on the same sample.

This confusion and question have also been raised by Sunar and Erkman (personal communication, November 19, 1996). They voiced the need to bring clarity to the Turkish versions. Thus the present study aimed to do this, that is comparing the two Turkish adaptations of the BDI on their psychometric properties to be able to help in their utilization. In addition, the short form of the BDI which has been used widely by clinicians and researchers abroad (Foelker, et. al., 1987; Hojat, et. al., 1986; Scogin, Beutler, Corbishley and Hamblin, 1988; Vredenburg, et. al., 1985) was explored with the name of Beck Depresyon Envanteri-Kısa Form (BDE-KF) to aid in providing to the field a shorter and easy to apply valid instrument.

Based on these, following questions were considered in the present study:

1. a) Is there any significant difference between the total scores obtained from the BDE and the BDÖ by each participant?

   b) If there is such a difference, is there a relationship between the participants' score differences and test-taking order?

2. When the corresponding items in the BDÖ and the BDE are compared, are there specific items showing significant differences?
3. What are the internal consistencies of the instruments namely the BDE-KF, the BDE, the BDÖ?
4. What are the concurrent validity of the BDÖ, the BDE and the BDE-KF in comparison to the MMPI-D?
5. Are the BDÖ and the BDE mean scores validated by the MMPI-D scores in comparison to suggested cut-off points by Beck and Hisli-Şahin?
6. What are the main factors of the BDÖ, the BDE and the BDE-KF?

III. METHOD

The aim of this study was to compare the two Turkish versions of the BDI in terms of their internal consistency, corresponding items and validity taking the MMPI-D as criterion measure in order to see whether they can be interchangeable or whether there is a significant difference between them in favor of one. Additionally, items of the BDE-KF were derived from the adaptation of the revised version, namely the BDE and it was analyzed in terms of its reliability and validity.

3. 1. Participants

In total, 228 students from various classes of Faculty of Education at Boğaziçi University participated in the study. However, four booklets were eliminated at the beginning since two participants were graduate students and two didn't complete the study. Thus, the sample was initially composed of 224 university students, 139 females and 85 males. Half of the students in each class were given the booklet with the order of BDE-MMPI-D and BDÖ and the other half were given the scales in reverse order. In Table 1, the detailed description of the initial sample is given.

Table 1

Distribution of the Initial Sample According to Gender and Test-taking Order

Order	Female	Male	Total
BDE first taken	67	43	110
BDÖ first taken	72	42	114
Total	139	85	224

However, on the BDÖ forms (and on a few of the BDE forms) of 63 participants there were multiple markings with both positive and opposing negative statements in the same item groups. In the instruction of the BDÖ, participants were allowed to choose more than one statement in each item group. Scoring was done taking the biggest value for these items. However, most of these multiple marks were confusing since the statements with opposite meaning such as "I don't feel sad" and "I feel sad" were chosen in general. (Such items are called "contradictory multiple marks" in the following pages.) The instruction of the BDE did not allow choosing more than one statement in each item, however, the BDE forms subsequent to the BDÖ included some multiple marked items. So, these data were excluded and analyses were held on 161 cases, 100 females and 61 males (see Table 2). Detailed information about these contradictorily marked items are presented in the Results section.

Table 2

Distribution of the Restricted Sample According to Gender and Test-taking Order

Order	Female	Male	Total
BDE first taken	48	34	82
BDÖ first taken	52	27	79
Total	100	61	161

Moreover, the MMPI-D data from those participants omitting more than five items were excluded resulting in 152 cases for the MMPI-D analyses.

3.2. Instruments

For data collection, a demographic information questionnaire, the BDE, the BDÖ, and the MMPI-D were used. In the statistical analyses, in addition to these four instruments, the BDE-KF derived from the BDE items was used. Following are some information about these instruments:

3. 2. 1. Demographic Information Questionnaire

The questionnaire was developed by the researcher to collect information about the subjects' gender, grade level, age, birth place, residence type, family background and work condition.

3. 2. 2. Beck Depresyon Ölçeği (BDÖ)

Teğin translated and adapted the original BDI in 1980 with the name of "Beck Depresyon Ölçeği (BDÖ)" which was comprised of 21 items in which gradual numbers from 0 to 3 (meaning neutral, mild, moderate, and severe) were assigned to each of the four statements. She used a sample of 40 Social Science students and 30 depressive patients. Split-half reliability coefficient was .78 for the student sample and .61 for the patient sample. Test-retest reliability for the student sample was .65 with a two week interval.

For criterion validity, Teğin (1980) compared the BDÖ and Depresyonda Bilişsel Tepkiler Ölçeği (Cognitive Reactions in Depression Scale) which was developed by her. Correlations were found to be .20 for normals, .52 for depressives and .33 for schizophrenics with the Pearson Product Moments correlation technique.

3. 2. 3. Beck Depresyon Envanteri (BDE)

Hisli-Şahin translated the revised version of the BDI in 1984 with the title of "Beck Depresyon Envanteri (BDE)" with 21 items and adapted it in 1988. In each item, gradual numbers from 0 to 3 (meaning neutral, mild, moderate, and severe) were assigned to each statement. In the translation study (N=58), the correlation coefficients among English and Turkish forms were between .81 and .73 (Hisli-Şahin, 1984, cited in Hisli-Şahin, 1988). No age, gender or educational status effect was found in either instrument in that study.

In a later study, she found a split-half reliability coefficient of .74 with a sample of 259 university students (Hisli-Şahin, 1989).

She studied concurrent validity of this adaptation by taking MMPI-D as criterion measure and found a correlation of .63 (Pearson Product Moment correlation) in a sample composed of 63 inpatients (Hisli-Şahin, 1988) and a Pearson Product Moment correlation of .50 in a sample of university students (Hisli-Şahin, 1989).

3. 2. 4. Beck Depresyon Envanteri-Kısa Form (BDE-KF)

BDE-KF was not applied to the participants of the present study separately, however, as a preliminary study for the adaptation of the short form of the BDI (BDI-SF) which was derived from the revised version of the BDI, 13 items of it were reanalyzed from the BDE items.

BDI-SF was developed by Beck and Beck (1972) as a self-administered short form of the BDI with 13 items. They selected mainly cognition-related items of the revised BDI by a multiple regression analysis. The contents included sadness, pessimism, sense of failure, dissatisfaction, guilt, self dislike, self-harm, social withdrawal, indecisiveness, self-image, work difficulty, fatigue and appetite. Each item has four statements scored as 3, 2, 1 and 0. The sum of the score for each item is the total score.

High correlations were reported between the long and short form of the BDI as .96 (Beck & Beck, 1972) and .93 (Vredenburg, et al., 1985). Also, Reynolds and Gould (1981, cited in Rippere, 1994) found alpha coefficients of .85 and .83 respectively for the long and short form with a sample of participants in a methadone maintenance programme.

Scogin and his colleagues (1988) found alpha coefficients to be .82 for volunteers (n=57) and .79 for depressed older adults (n=61). Foelker and his colleagues (1987) found internal consistency values of .74 (N=199) and .80 (N=113) and found three factors labeled as Negative self-esteem, Anergy and Dysphoria. Hojat and his colleagues (1986) reported alpha values of .85 and .83, respectively for two Iranian university student samples (N=232, N=305).

3. 2. 5. The Minnesota Multiphasic Personality Inventory-Depression Scale (MMPI-D)

The MMPI is a paper and pencil test with 566 items (Dahlstrom, Welsh & Dahlstrom, 1975). It is applied to people who are older than fifteen and preferably at least secondary-school graduates. The raw scores are turned into standard scores (T scores) and a test profile is developed accordingly. All elevations and lowerings of the scores are taken into consideration in the evaluation process.

The MMPI was developed in 1940 and was first published in 1943 by Hathaway and McKinley (Groth-Marnat, 1990). The MMPI consists of ten psychological scales,

namely, Hypochondriasis (Hs), Depression (D), Hysteria (Hy), Psychopathic Deviate (Pd), Masculinity-Femininity (Mf), Paranoia (Pa), Psychasthenia (Pt), Schizophrenia (Sc), Hypomania (Ma) and Social Introversion (Si). Also there are three validity scales specifically Lie (L), Infrequency (F) and Correction (K) scales.

Depression Scale consists of 60 items with a Yes/No answer format. It measures the severity of the symptoms of depression. These symptoms are apathy, feelings of worthlessness, hopelessness, denial of sexual motives, somatic manifestations, sleep disorders, decrease in thinking and movements. It reflects the immediate feelings of the subject.

High scores on this scale, especially T scores exceeding 80 are accepted as a sign of clinical depression. Moderate scores, on the other hand, may be suggestive of a general negative attitude and life style characterized by poor morale and lack of involvement.

Internal consistency estimates have been found to be .58 for college students (split-half, N=97) and .76 for the patient group (Kuder-Richardson 21, N=220) (Dahlstrom, et al., 1975). Test-retest reliability values of MMPI Depression Scale are as in Table 3:

Table 3

Test-retest Reliability Coefficients of the MMPI-D with Different Intervals*

	College students		Psychiatric cases	
Interval Period	male	female	male	female
One day	.88 (n=28)	.96 (n=33)	.72 (n=35)	.86 (n=39)
One week	.69 (n=42)	.84 (n=55)	.89 (n=50)	.80 (n=21)
Eight month	.57 (n=201)	.56 (n=289)	--	--
One year	--	--	.49 (n=55)	.50 (n=49)

*Dahlstrom, et al., 1975.

Goldberg (1966, cited in Dahlstrom, et al., 1975) compared the MMPI subscales in a sample of college students and found intercorrelation values ranging from -.13 (between Depression and Ma) and .55 (Depression and Si) for male students (n=340) and -.11 (between Depression and Ma) and .57 (Depression and Si) for female students (n=425).

The MMPI was translated into Turkish by Savaşır (1982). In transliteral equivalency study of the MMPI, test-retest reliability coefficients of Depression Scale were .43 for English and Turkish forms applied to 22 bilingual people and .77 for Turkish forms applied to 20 people with one week interval (Savaşır, 1982).

3. 3. Procedure and Design

Three education staff who were teaching to first, second, third and fourth year students in Educational Sciences Department permitted the present researcher to collect data during their class hour. A booklet containing the demographic questionnaire, the BDÖ (Teğin, 1980), the MMPI-D and the BDE (Hisli-Şahin 1988) was given to half of the students in each class and another booklet containing a different order, specifically the demographic questionnaire, the BDE, the MMPI -D and the BDÖ was given to the other half. They were informed that the study was about some tests widely used in the field of psychology and the data will be used only for this aim. They were asked to read instructions of each instrument and to fill out the questionnaires accordingly. The total time of the administration was 20-30 minutes.

The reason for administration of the BDE and the BDÖ in reverse order for half of the subjects is to control to some degree the effect of taking very similar inventories successively which all had negative expected items causing a tendency to score less on the second test.

3. 4. Data Analysis

Following statistical analyses was carried out for research questions:

1. T-test analysis was carried out to see if there is any significant difference between the total scores obtained from the BDE and the BDÖ and then paired samples test was applied to see if this difference is due to test-taking order.
2. Paired t-test analysis was done to see if there are differences between the corresponding items on the BDÖ and the BDE.
3. For reliability study, internal consistencies of the BDÖ, the BDE and the BDE-KF were calculated by Cronbach alpha values. Also item-total correlations were carried out to see if there are weak items.
4. For concurrent validity of the BDE, BDE-KF and the BDÖ, the MMPI-D was taken as criterion measure and Pearson Product Moment correlation coefficients were calculated.
5. For further validation of the BDE and BDÖ, their measurement of severity of depression was searched through some cut-off points offered by Beck and Hisli-Şahin taking the MMPI-D mean scores as criterion.
6. To explore the main factors of the BDI tools, principle components analysis with varimax factor rotation was applied.

IV. RESULTS

In this chapter the results of data analyses of the present study are presented. All the analyses were done by SPSS-PC software program.

4. 1. Description of the Initial and Restricted Data

When the data were entered into the computer, it was seen that in 70 cases some items in the BDE and especially in the BDÖ were filled out with more than one mark due to the instruction of the BDÖ. As it was explained in the "Participants" section, 63 of them were excluded from the data since they had contradictory responses in some items.

For more information, the frequency of the cases with multiple marks were counted for the BDE and the BDÖ taking into consideration the test-taking order. Table 4 shows the number of cases with multiple marks in each item of the BDE and the BDÖ with regard to test-taking order of the participants. No participant marked more than one statement in the BDE when it was taken first and this is congruent with its instruction. However, when the BDE was taken as the last instrument after the BDÖ, multiple marks appeared. This means that the instruction of the BDÖ which allows the participant to mark more than one statement affected responding to the BDE as well. For the BDÖ, cases with multiple marks are almost equal in number in both test-taking order.

Table 4

Number of Cases in the Initial Sample* with Multiple Marks on the BDE and the BDÖ in Regard to Test-taking Order

Items of the BDE and BDÖ	BDE		BDÖ	
	first taken	last taken	first taken	last taken
Depressive Mood	0	4	8	4
Pessimism	0	3	6	5
Sense of failure	0	4	8	5
Dissatisfaction	0	3	7	13
Guilt	0	4	3	6
Expectation of punishment	0	0	1	4
Self-dislike	0	3	8	8
Self-accusations	0	11	23	22
Suicidal ideas	0	1	1	3
Crying	0	1	12	10
Irritability	0	2	8	8
Social withdrawal	0	4	6	3
Indecisiveness	0	3	3	1
Distortion of body image	0	0	1	1
Work retardation	0	4	13	13
Insomnia	0	0	2	1
Fatigability	0	5	6	2
Loss of appetite	0	3	0	0
Weight loss	0	0	0	0
Somatic preoccupation	0	1	1	2
Loss of libido	0	3	1	2

*N=224

When the cases with contradictory multiple marks were excluded, the outcome was dramatically changed as can be seen in Table 5. There were no multiple marks on the BDE and multiple marks decreased for the BDÖ.

Table 5

Number of Cases in the Restricted Sample* with Non-contradictory Multiple Marks on the BDE and the BDÖ Items in Regard to Test-taking Order

	BDE		BDÖ	
Items of the BDE and BDÖ	first taken	last taken	first taken	last taken
Depressive mood	0	0	2	1
Pessimism	0	0	3	2
Sense of failure	0	0	1	0
Dissatisfaction	0	0	1	2
Guilt	0	0	0	0
Expectation of punishment	0	0	0	0
Self-dislike	0	0	1	1
Self-accusations	0	0	0	1
Suicidal ideas	0	0	1	0
Crying	0	0	1	1
Irritability	0	0	2	1
Social withdrawal	0	0	0	0
Indecisiveness	0	0	0	0
Distortion of body image	0	0	0	0
Work retardation	0	0	1	0
Insomnia	0	0	0	1
Fatigability	0	0	0	0
Loss of appetite	0	0	0	0
Weight loss	0	0	0	0
Somatic preoccupation	0	0	0	0
Loss of libido	0	0	0	0

*N=161

4.2. Demographic Characteristics of the Participants

Some major demographic characteristics of the participants are described in this section. These are, department, grade level, age, birthplace, marital status, residence type, mother and father education level and life situation, number of siblings and work condition.

Among 161 participants 63% were female (n=100) while 37% were male (n=61) students. Most of the participants (80.1%) were from departments in Faculty of Education. The reason for this is that the students in the sample were chosen from different courses in Faculty of Education at Boğaziçi University. Since some courses are open to students from other faculties, one out of five students in the sample came from various faculties. There were also two who are double major students in Guidance and Psychology departments (see Table 6).

Table 6

Distribution of the Participants in terms of Faculties

Faculties	n	%
Faculty of Education	129	80.1
Faculty of Arts and Sciences	17	10.6
Faculty of Eco. and Adm. Sci.	2	1.2
Faculty of Engineering	11	6.8
Double Major	2	1.2
Total	161	100

Participants were from all academic years from freshmen to senior. As can be seen in Table 7 the biggest group was first year students (30.4%). About one fourth of the sample (22.4%) was second year students while third and last year students together composed one third of the sample.

Table 7

Distribution of the Participants According to Academic Year

Academic year	n	%
First year	49	30.4
Second year	36	22.4
Third year	33	20.5
Fourth year	25	15.5
Unanswered	18	11.2
Total	161	100

Majority of the sample was between ages 18 and 23 (89.4 %). Mean age of the sample was 20,87. In Table 8 ages of the participants are presented.

Table 8

Age Distribution of the Sample

Age	n	%
17	1	0.6
18	16	9.9
19	25	15.5
20	36	22.4
21	25	15.5
22	30	18.6
23	12	7.5
24	8	5.0
26	5	3.1
29	1	0.6
30	1	0.6
31	1	0.6
Total	161	100

One third of the sample was born in Istanbul. Majority of the sample (78. 9 %) were from west regions of Türkiye including the Blacksea Region. Seven percent of the sample were born abroad. In Table 9, birthplaces of the participants are shown.

Table 9

Birthplaces of the Participants

Birthplace	n	%
İstanbul	54	33.5
Ankara-İzmir	15	9.3
Marmara Region outside of İstanbul	24	14.9
Aegean Region outside of İzmir	10	6.2
Mediterranean R.	8	5.0
Blacksea Region	16	9.9
Center Anatolia R. outside of Ankara	11	6.8
Eastern Anatolia R.	5	3.1
Southeastern Anatolia R.	4	2. 5
Germany	6	3.7
Soviet Blocks	5	3. 1
Unanswered	3	1.9
Total	161	100

The largest residence type reported was "living with family" (37.9 %) (see Table 10). The other big groups were those staying in the dormitory (31.7 %) and those staying with friends (19.9%).

Table 10

Type of Residence

	n	%
With family	61	37.9
In dormitory	51	31.7
Alone	5	3.1
With relatives	5	3.1
With friends	32	19.9
With boyfriend	1	0.6
With siblings	3	1.9
With spouse	3	1.9
Total	161	100

When the educational status of the parents were asked, it was seen that 37.3 % of mothers were graduates of primary school while 45.3 % of fathers were graduates of university. Only 4.3 % of mothers and 0.6 % of fathers in this sample were illiterate (see Table 11).

Table 11

Educational Status of the Parents of the Participants

	Mothers		Fathers	
	n	%	n	%
Illiterate	7	4. 3	1	0.6
Literate without diploma	-	-	1	0.6
Primary school grad.	60	37.3	39	24.2
Secondary school grad.	12	7.5	16	9.9
High school grad.	48	29.8	31	19.3
University grad.	34	21.1	73	45.3
Total	161	100	161	100

Majority of the sample had an intact family (n=142, 88.2 %). However, eight parents (5 %) were divorced. Two participants had lost their mothers (1.2%), and eight had lost their fathers (5 %). One participant had lost both parents.

Most of the participants had one sibling (42.4 %) while about one out of ten were single children while ten percent of the sample had four or more siblings (see Table 12).

Table 12

Sample Distribution of Siblings

	n	%
Single child	14	8. 7
1 siblings	71	44.1
2 siblings	44	27.3
3 siblings	15	9.3
4 siblings	9	5.6
5 siblings	5	3.1
6 siblings	1	0.6
7 siblings	1	0.6
Unanswered	1	0.6
Total	161	100

Majority of the sample (80.1 %, n=129) was not working. Among others, 16.1 % (n=26) of them were earning money from part-time jobs while 2.5 % (n=4) had a full time job.

4. 3. Differences Between Total Scores of the BDE and the BDÖ

The first research question was whether there is any significant difference between the total scores obtained from the BDE and the BDÖ by each participant.

When the total scores obtained from the BDE and the BDÖ were analyzed, a significant difference (t=2.99, p<.05) between the means was found as can be seen in Table 13.

Table 13

Mean Differences of the BDÖ and BDE

Groups	N	M	SD	t
BDE	161	9. 19	7.27	-2.99*
BDÖ	161	10.23	7.72	

*p<.05

To rule out if this difference was due to test-taking order, further statistics was utilized. As can be seen in Table 14, results of matched samples test showed that there is a significant mean difference between the BDE and the BDÖ regardless of test-taking order. So this difference was due to taking similar tests successively.

Table 14

Mean Differences of the BDE and the BDÖ in regard to Test-taking Order

Test-taking Order	n	M	SD	t
BDE first taken	82	9.22	6.85	2.56*
BDÖ last taken	82	8.17	6.62	
BDÖ first taken	79	12.38	8.22	-7.06***
BDE last taken	79	9.16	7.73	

*p<.05, ***p <.001.

When the mean differences of the first and last taken BDE scores were analyzed as independent samples, it was seen that the BDE gives the same mean score in both test-takings, however, the BDÖ has higher scores when it was taken first (see Table 15).

Table 15

Mean Differences of the First and Last Taken BDE and BDÖ Scores

Groups	Order	n	M	SD	t
BDE	first	82	9.22	6.85	
	last	79	9.16	7.73	-.05
BDÖ	first	79	12.38	8.22	
	last	82	8.17	6.62	3.57***

***p<.001

The difference between the means of first and second taken BDE was not significant. On the other hand, the mean difference between the first and last taken BDÖ was significant. The BDÖ seems to be influenced from the test-taking order more than the BDE.

4. 4. Differences Between Corresponding Items of the BDE and the BDÖ

Second research question was about the existence of a significant difference between the scores of corresponding items of the BDE and the BDÖ. Following results in Table 16, 17 and 18 should be interpreted cautiously since the mean of each item is very small.

When the items of the BDE and BDÖ were compared without taking into consideration the test-taking order, the mean scores of Depressive Mood, Crying, Irritability, Social Withdrawal, Indecisiveness, Work Retardation and Weight Loss items showed significant differences as can be seen in Table 16. In all these items, except Social Withdrawal and Indecisiveness items, means of the BDÖ items were higher than the means of the BDE items.

Corresponding items were also analyzed as matched samples according to test-taking order. As can be seen in Table 17 numbers of items showing differences dropped to five when the BDE was taken first. Mean scores of Social Withdrawal, Indecisiveness, Insomnia, Loss of Appetite and Weight Loss items were significantly different. In all these items, except Weight Loss item, means of the BDE items were higher. When it is compared with Table 16, Social Withdrawal and Indecisiveness items were still significant while Insomnia and Loss of Appetite were newly added.

Table 16

Mean Differences of the Corresponding Items of the BDE and the BDÖ regardless of Test-taking Order

	BDE		BDÖ			
Paired items	M	SD	M	SD	df	t
Depressive Mood	.42	.66	.52	.69	160	-2.39*
Pessimism	.29	.54	.39	.81	160	-1.94
Sense of failure	.22	.54	.22	.53	160	.00
Dissatisfaction	.64	.67	.72	.84	160	-1.73
Guilt	.64	.55	.65	.58	159	-.35
Expectation of punish.	.54	.85	.53	.93	155	.11
Self-dislike	.38	.58	.46	.66	159	-1.96
Self-accusations	.59	.66	.66	.64	160	-1.55
Suicidal ideas	.20	.54	.19	.52	159	.58
Crying	.53	.88	.74	.78	158	-3.16*
Irritability	.56	.77	.74	.92	159	-2.76*
Social withdrawal	.42	.57	.33	.57	160	2.04*
Indecisiveness	.71	.79	.54	.69	159	3.46*
Distort. of body im.	.16	.56	.17	.53	160	-.45
Work retardation	.71	.65	.98	.78	159	-5.10**
Insomnia	.46	.66	.47	.69	160	-.17
Fatigability	.59	.64	.66	.71	159	-1.64
Loss of appetite	.26	.62	.25	.61	160	.32
Weight loss	.08	.35	.19	.53	153	-3.52*
Somatic preoccupat.	.28	.56	.24	.50	158	1.61
Loss of libido	.38	.73	.32	.66	157	1.84

*p<.05, **p<.01.

When the BDÖ was taken first (Table 18), Pessimism, Dissatisfaction, Guilt, Self-Accusations and Fatigability items were added to differed items. In total, twelve items,

namely, Depressive Mood, Pessimism, Dissatisfaction, Guilt, Self-Accusations, Work Retardation, Insomnia, Fatigability, Loss of Appetite and Weight Loss were significantly different.

Table 17

Mean Differences of the Corresponding Items of the BDE and the BDÖ when the BDE is Taken First

	BDE		BDÖ			
Paired items	M	SD	M	SD	df	t
Depressive mood	.32	.49	.37	.51	81	-1.07
Pessimism	.27	.50	.23	.50	81	1.00
Sense of failure	.20	.51	.20	.51	81	.00
Dissatisfaction	.60	.56	.49	.63	81	1.91
Guilt	.65	.51	.56	.57	81	1.83
Expectation of puni.	.49	.75	.41	.77	79	.86
Self-dislike	.30	.49	.38	.62	80	-1.41
Self-accusations	.61	.70	.52	.69	81	1.47
Suicidal ideas	.15	.36	.13	.34	81	.57
Crying	.60	.94	.57	.74	81	.23
Irritability	.56	.74	.54	.76	81	.352
Social withdrawal	.43	.57	.27	.52	81	2.70**
Indecisiveness	.78	.81	.54	.74	80	3.66***
Distort. of body im.	.10	.46	.12	.48	81	-.70
Work retardation	.76	.71	.80	.74	81	-.68
Insomnia	.54	.72	.43	.69	81	2.39*
Fatigability	.65	.73	.56	.59	81	1.62
Loss of appetite	.24	.56	.10	.43	81	2.651*
Weight loss	.08	.31	.18	.44	79	-2.62*
Somatic preoccupa.	.28	.55	.22	.47	80	1.39
Loss of libido	.48	.81	.41	.74	79	1.39

*$p < .05$, **$p < .01$, ***$p < .001$.

Table 18

Mean Differences of the Corresponding Items of the BDE and the BDÖ when the BDÖ was Taken First

	BDE		BDÖ			
Paired items	M	SD	M	SD	df	t
Depressive Mood	.53	.78	.68	.81	78	-2.17*
Pessimism	.32	.59	.54	1.02	78	-2.58*
Sense of failure	.24	.58	.24	.56	78	.000
Dissatisfaction	.68	.76	.96	.95	78	-4.14***
Guilt	.63	.61	.74	.59	77	-2.24*
Expectation of punish.	.59	.95	.66	1.07	75	-.93
Self-dislike	.47	.66	.53	.69	78	-1.39
Self-accusations	.57	.61	.80	.56	78	-3.66***
Suicidal ideas	.26	.67	.24	.65	77	.33
Crying	.45	.80	.92	.79	76	-6.21***
Irritability	.56	.82	.96	1.02	77	-3.66***
Social withdrawal	.41	.57	.39	.61	78	.207
Indecisiveness	.63	.77	.53	.64	78	1.38
Distort. of body im.	.23	.64	.23	.58	78	.00
Work retardation	.65	.58	1.17	.78	77	-7.08***
Insomnia	.38	.58	.51	.70	78	-2.43*
Fatigability	.53	.53	.77	.80	77	-3.42**
Loss of appetite	.28	.68	.41	.73	78	-2.59*
Weight loss	.08	.40	.20	.62	73	-2.39**
Somatic preoccupa.	.28	.58	.26	.52	77	.81
Loss of libido	.28	.62	.22	.55	77	1.22

*p<.05, **p<.01, ***p<.001.

In all these items BDÖ had higher mean scores. It was also seen that Depressive Mood, Crying, Irritability, Social Withdrawal, Indecisiveness items disappeared. Almost

equal means of Insomnia, and Loss of Appetite items between the BDE and BDÖ total means changed.

In sum, seven items showing significant differences regardless of test-taking order were changed when the test-taking order was considered. There were twelve corresponding items which show significant mean differences when the BDÖ was taken first whereas there were five items showing significant differences when the BDE was taken first. Insomnia, Loss of Appetite and Weight Loss items showed significant differences in both testing order.

In addition to these analyses, mean differences of corresponding items of the BDE and the BDÖ were analyzed as independent samples between each instrument's first and last administration. For the BDE only the mean scores of the first item (Depressive Mood) yielded a significant difference ($p<.05$) with a mean difference of .21 (see Table 19). However when the items of the first and last taken BDÖ were compared, means of nine items resulted in significant difference (see, Table 20).

Table 19

Mean Differences of the First and Last Taken BDE Items

	First taken[a]		Last taken[b]		
Items	M	SD	M	SD	t
Depressive mood	.32	.49	.53	.78	2.07*
Pessimism	.27	.50	.32	.59	.56
Sense of failure	.20	.51	.24	.58	.53
Dissatisfaction	.60	.56	.68	.76	.82
Guilt	.65	.51	.63	.60	-.15
Expectation of punishment	.48	.74	.62	.98	1.01
Self-dislike	.30	.49	.47	.66	1.79
Self-accusations	.61	.70	.57	.61	-.39
Suicidal ideas	.15	.36	.26	.67	1.28
Crying	.60	.94	.45	.80	-1.03
Irritability	.56	.74	.56	.82	.03
Social withdrawal	.43	.57	.41	.57	-.24
Indecisiveness	.78	.81	.63	.77	-1.16
Distortion of body image	.10	.46	.23	.64	1.49
Work retardation	.76	.71	.66	.57	-.96
Insomnia	.54	.72	.38	.58	-1.52
Fatigability	.65	.73	.53	.53	-1.15
Loss of appetite	.24	.56	.28	.68	.35
Weight loss	.07	.31	.08	.40	.11
Somatic preoccupation	.28	.55	.28	.58	.02
Loss of libido	.47	.81	.28	.62	-1.64

[a] $n=82$, [b] $n=79$

*$p<.05$.

Table 20

Mean Differences of the First and Last Taken BDÖ Items

	First taken[a]		Last taken[b]		
Items	M	SD	M	SD	t
Depressive mood	.68	.81	.37	.51	2.97**
Pessimism	.54	1.02	.23	.50	2.45*
Sense of failure	.24	.56	.20	.51	.54
Dissatisfaction	.96	.95	.49	.63	3.70***
Guilt	.74	.59	.56	.57	1.99*
Self-dislike	.53	.69	.38	.62	1.43
Self-accusations	.80	.56	.52	.69	2.76**
Suicidal ideas	.25	.65	.13	.34	1.45
Crying	.91	.79	.57	.74	2.81**
Irritability	.99	1.04	.54	.76	3.14**
Social withdrawal	.39	.61	.27	.52	1.39
Indecisiveness	.53	.64	.55	.74	-.16
Distortion of body image	.23	.58	.12	.48	1.26
Work retardation	1.17	.78	.80	.74	3.00**
Insomnia	.51	.70	.43	.69	.73
Fatigability	.77	.80	.56	.59	1.87
Loss of appetite	.40	.72	.10	.43	3.25**
Weight loss	.22	.61	.17	.44	.53
Somatic preoccupation	.25	.52	.22	.47	.39
Loss of libido	.22	.55	.41	.74	-1.91
Expectation of punishment	.66	1.07	.41	.77	1.68

[a] n=79, [b] n=82

*p<.05, **p<.01, ***p<.001.

As a summary, the analyses of corresponding items between the BDE and BDÖ as matched samples and between items of the first and last administered BDE and BDÖ as independent samples showed that there are more items showing significant mean differences in the BDÖ.

4. 5. Reliability of the BDÖ, BDE and BDE-KF

Investigating the internal consistencies of the instruments was the third research question of the study. For this purpose, alpha coefficients were calculated. In Table 21 result of this analysis is presented.

Table 21

Cronbach Alpha Coefficients of the Instruments

	N of cases	N of items	Alpha
BDÖ	161	21	.87
BDE	161	21	.86
BDE-KF	161	13	.83
MMPI-D	152	60	.73

Hence both the BDÖ and the BDE as well as the short form of the BDE are shown to have high internal consistency with values of .87, .86 and .83, respectively. The criterion measure, MMPI-D also showed a high internal consistency value specifically .73.

When the item-total correlations of Turkish BDI forms were investigated almost all items of the instruments were strong enough. Item-total correlations of the BDE-KF ranged between .32 and .57. However, Weight Loss and Somatic Preoccupation items of the BDE were the weakest being less than .30 (Beck, 1967) in comparison to other items. Other items of the BDE have values between .37- .58. In the same line, Weight Loss, Loss of Appetite and Somatic Preoccupation items of the BDÖ were weak being less than .30. Other items of the BDÖ have higher values than the BDE ranging between .34-.64 (see Appendix A).

4. 6. Validity of the BDÖ, BDE and BDE-KF

In this section, results on validity of the BDI tools analyzed through inter-correlations of the BDI tools and the MMPI-D, comparison of the means and standard deviations of the BDI tools with the MMPI-D mean scores and lastly factor structure of the BDI tools are presented.

4. 6. 1. Concurrent Validity of the BDI Tools as Compared to MMPI-D

The fourth research question was stated for the purpose of exploring the concurrent validity of the instruments. In this comparison the MMPI-D was used as criterion measure and its correlation with the BDE, BDÖ, and BDE-KF were found with Pearson Product Moments correlation technique. As Table 22 shows, the BDE-KF, BDE and BDÖ were all correlated with the MMPI-D ($p<.01$).

Table 22

Inter-correlations of Instruments

	BDE[a]	BDE-KF[a]	BDO[a]	MMPI[b]
BDE	1.000	.95**	.83**	.63**
BDE-KF		1.000	.82**	.66**
BDO			1.000	.66**
MMPI				1.000

[a]N=161 and [b]N=152

**p< 0.01

4. 6. 2. Validation of the BDI Tools in Measurement of Depression

As stated in the fifth research question, means and standard deviations of all the instruments were calculated for validation of the BDE and BDÖ taking the the MMPI-D mean scores as criterion.

Male and female mean scores of the MMPI-D in Table 23 are very close to Turkish norms as 20.63 (SD=4.76) and 23.86 (SD=5.08), respectively (Savaşır, 1982).

Table 23

Means and Standard Deviations of the Instruments

	MMPI-D		BDÖ		BDE		BDE-KF	
	M	SD	M	SD	M	SD	M	SD
Male	19.79	4.94	8.05	5.68	7.51	5.76	4.56	3.57
Female	24.00	6.36	11.57	8.49	10.22	7.91	6.38	5.01
Total	22.42	6.20	10.23	7.72	9. 19	7.27	5.69	4.59

Gender differences were also investigated. Mean differences between male and female participants for each instrument was found to be significant as can be seen in Table 24.

Table 24

Mean Differences of Male and Female Scores

Instruments	df	t
MMPI-D	150	4.28**
BDÖ	157.6	3.15**
BDE	159	2.33*
BDE-KF	159	2.48*

*p<.05 **p<.01

As it is pointed out in earlier sections, there are different cut off points that are used to determine the prevalence of depression. Discrimination of depression by the BDE and BDÖ was examined through the four point cut-off system of Beck, et al. (1988) and two cut-off points suggested by Hisli-Şahin (1988).

The scoring system with four points suggested by Beck et al. (1988) were 0-9 for non-depression, 10-18 for mild to moderate, 18-29 moderate to severe and above 30 for severe depression.

As can be seen in Table 25 and 26, the number of participants falling in the depressive range was higher on the BDÖ than the BDE. There were 72 participants (44.72%) on the BDÖ while 64 participants (39.75%) on the BDE who got scores higher than 9. However MMPI-D mean scores of these participants were very close to each other and each increase gradually as can be seen in Table 25 and 26.

Table 25

Means and Standard Deviations of the BDÖ and MMPI-D in terms of four cut-off points suggested by Beck, et al. (1988).

	BDÖ			MMPI-D		
Points	n	M	SD	n	M	SD
0-9	89	4.89	3.04	83	19.88	5.02
10-18	54	13.63	2.80	52	23.88	4.94
19-29	13	24.23	2.92	13	32.23	4.88
30-63	5	32.40	3.05	4	30.75	5.73
Total	161			152		

Table 26

Means and Standard Deviations of the BDE and MMPI-D in terms of four cut-off points suggested by Beck, et al (1988)

	BDE			MMPI-D		
Points	n	M	SD	n	M	SD
0-9	97	4.62	3.06	93	20.03	5.04
10-18	47	13.15	2.71	43	24.95	5.55
19-29	15	22.67	2.99	14	29.21	6.18
30-63	2	37.00	8.49	2	31.50	7.78
Total	161			152		

Also, the MMPI-D mean scores of the participants who had higher than 9 and 16 points in the BDE and BDÖ were calculated separately (Table 27). These were cut-off points of mild and moderate depression for Turkish university students suggested by Hisli-Şahin.

Table 27

Means and Standard Deviations of the MMPI-D in comparison to Mild and Moderate Depression Points for Turkish Population suggested by Hisli-Şahin

	MMPI-D								
	Male			Female			Total		
	n	M	SD	n	M	*SD*	n	M	SD
BDE ≥ 10	17	23.00	4.08	42	27.48	6.23	59	26.19	6.02
BDÖ ≥ 10	21	22.29	4.51	48	26.88	6.27	69	25.48	6.13
BDE ≥ 17	6	24.17	5.34	17	30.65	5.37	23	28.96	5.99
BDÖ ≥ 17	7	22.57	4.50	22	31.05	5.36	29	29.00	6.28

As can be seen in Table 27, MMPI-D scores of the participants who had scores above 10 on the BDE and BDÖ were almost equal with each other. These scores on the MMPI-D were within the norms of Turkish population as provided by Savaşır (1982). The MMPI-D mean scores of the participants who got 17 on the BDE and BDÖ are lower than the mean score one SD above the MMPI-D Turkish norms referring to clinical depression (Hisli-Şahin, 1989) which is 25.39 for males whereas it is higher for females, 28.94.

4. 6. 3. Factor Analyses of the BDE, BDÖ and BDE-KF

The last research question was stated to explain the meaningful factors of the BDE, the BDÖ and the BDE-KF. Factor analyses were carried out to search meaningful grouping of items for further validation. The results of the present factor analyses should be regarded cautiously since the sample size is not sufficient for factor analysis.

Following results were attained by principle components analysis and varimax rotation. For factor extraction eigenvalues 1 or higher were chosen. As salient loading point, .40 was accepted (Kim & Mueller, 1987).

4. 6. 3. 1. Factor Analysis of the BDÖ

Five factors were extracted for the BDÖ which accounted for 56.9 % of the scale variance. In Table 28 factor loadings of the items are shown.

Table 28

Factor loadings of the BDÖ items

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Depressive mood	**.70***	.30	.05	.16	.05
Work retardation	**.69***	.17	.28	.00	.18
Dissatisfaction	**.65***	.43*	.15	.03	.11
Crying	**.56***	.28	.31	.15	-.15
Irritability	**.56***	.-08	.18	-.01	.01
Expectation of punishment	**.50***	.38	.09	.06	.05
Social withdrawal	**.46***	.21	.-10	.03	.44*
Suicidal ideas	.13	**.68***	-.07	.31	-.21
Distortion of body image	.15	**.67***	.05	-.01	.27
Self-dislike	.14	**.65***	.41*	.02	.14
Sense of failure	.12	**.62***	.13	-.12	.35
Pessimism	.49*	**.53***	.08	.00	.00
Guilt	.08	.21	**.78***	.14	.08
Self-accusations	.23	.10	**.78***	-.09	-.05
Indecisiveness	.36	-.05	**.52***	.24	.27
Fatigability	.45*	.02	**.46***	.29	.16
Weight loss	-.08	-.01	.10	**.84***	.12
Loss of appetite	.13	.11	.08	**.80***	-.13
Insomnia	.41*	-.01	.01	**.55***	.30
Loss of libido	.30	.13	.04	-.04	**.66***
Somatic preoccupation	-.19	.11	.15	.15	**.60***
Percent of variance	28.9	8.9	7.1	6.1	5.8

*salient ($p \geq .40$)

First factor was loaded by ten items, namely, Depressive Mood, Pessimism, Dissatisfaction, Crying, Irritability, Social Withdrawal, Work Retardation, Fatigability, Expectation of Punishment and Insomnia. It seems a mix of depressive symptom manifestations listed by Beck (1967) except vegetative symptoms. Depressive Mood, Crying, Irritability, Work Retardation and Expectation of Punishment were solely loaded under the first factor. Other five items were also loaded under the second, third and fifth factors. Pessimism and Insomnia items had lower loadings while Dissatisfaction had higher loading in this factor. Social Withdrawal, and Fatigability had equal loadings with other factors.

Second factor was loaded six items. These are Pessimism, Sense of Failure, Suicidal Ideas, Self-Dislike, and Distortion of Body Image items which were mainly cognitive and emotional manifestations suggested by Beck (1967). Sense of Failure, Suicidal Ideas and Distortion of Body Image items were solely loaded under this factor. Self-dislike, Pessimism and Dissatisfaction items were shared with Factor 1 and Factor 3. Pessimism and Self-dislike items had higher loading in this factor while Dissatisfaction item had a lower loading.

In third factor, there were five items as Guilt, Self-dislike, Self-accusations, Indecisiveness, and Fatigability which were mainly listed under cognitive manifestations except Fatigability. Guilt, Self-accusations and Indecisiveness were solely loaded under this factor. Loading of Self-dislike was lower than its loading under Factor 2. Fatigability item was shared with Factor 1 with almost the same loading.

Fourth factor was loaded with Insomnia, Loss of Appetite and Weight Loss items which were vegetative symptoms of depression. Insomnia item was also under the first factor with lower loading while the other two items were solely loaded under this factor.

Fifth and last factor was loaded with Social Withdrawal, Somatic Preoccupation, and Loss of Libido items. It covers motivational, cognitive and vegetative symptom manifestations. Social Withdrawal item was loaded under Factor 1 almost with the same loading. Other two items were only loaded under this factor.

In general, six items of the BDÖ, namely, Dissatisfaction, Social Withdrawal, Self-dislike, Pessimism, Insomnia and Fatigability were loaded under two factors. Other items were were loaded only one factor with at least .50 factor loading.

4. 6. 3. 2. Factor Analysis of the BDE

Factor analysis of the BDE extracted six factors. They accounted for 61.5% of the scale variance. In Table 29 factor loadings of the items are listed. It was seen that the first factor of the BDÖ was divided into two factors in the BDE.

Table 29

Factor Loadings of the BDE Items

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Crying	**.81***	-.11	.19	.10	.06	.04
Dissatisfaction	**.68***	.32	.08	.16	.04	.03
Depressive mood	**.67***	.24	.09	.12	.16	-.05
Expectation of punishment	**.56***	.24	-.05	-.01	.22	.21
Suicidal ideas	**.50***	.30	.19	.04	.06	-.47*
Distortion of body image	.15	**.76***	.11	.04	-.06	.17
Self-dislike	14	**.70***	-09	.19	.34	.18
Pessimism	.43*	**.60***	.13	.01	-.01	.16
Sense of failure	13	**.57***	.00	.52*	.17	-.20
Loss of appetite	.18	.04	**.81***	.02	.07	.05
Weight loss	-.09	-.08	**.77***	-.09	.10	-.21
Insomnia	.18	.02	**.65***	.20	.02	.11
Loss of libido	.09	.27	**.52***	.15	.05	.22
Somatic preoccupation	-.05	-.02	.02	**.82***	.20	-.05
Social withdrawal	.30	.16	.13	**.63***	-.09	.31
Work retardation	.36	.28	.17	**.51***	. 09	.13
Self-accusations	.01	.08	.02	.19	**.80***	.11
Guilt	.29	.00	.17	.06	**.78***	-.03
Indecisiveness	.07	.23	.24	-.01	**.54***	**.54***
Fatigability	.39	.07	.11	.29	.20	**.52***
Irritability	.37	17	.35	.36	.14	.06
Percent of variance	28.3	9.3	7.4	6.1	5.6	4.8

*salient ($p \geq .40$)

First factor of the BDE covered six items, Depressive Mood, Pessimism, Dissatisfaction, Expectation of Punishment, Suicidal Ideas, and Crying. It reflects mainly emotional items listed by Beck except Suicidal Ideas as a motivational manifestation. All items except Suicidal Ideas which was loaded under Factor 6 with a very close value and Pessimism item loaded under Factor 2 with a higher loading were loaded only under this factor.

Second factor covered the items Pessimism, Sense of failure, Self-dislike, and Distortion of Body Image. These items were mainly cognitive manifestations. Pessimism and Sense of Failure items were shared with Factor 1 and 4 with lower loadings.

Third factor was loaded with Insomnia, Loss of Appetite, Weight Loss, and Loss of Libido items which were all the vegetative symptoms and solely included in this factor.

Fourth factor covered Sense of Failure, Social Withdrawal, Work Retardation, and Somatic Preoccupation items which were mainly performance-related items. All items except Sense of Failure which was shared with Factor 2 were loaded under this factor.

Fifth factor consisted of Guilt, Self-accusations, and Indecisiveness items which were mainly cognitive manifestations. Indecisiveness was shared with Factor 6 with the same loading.

Sixth factor consisted of Suicidal Ideas, Indecisiveness and Fatigability items which are listed under different manifestation groups. All had moderate loadings and were shared with other factors except Fatigability.

Irritability item had not loaded under any factor. However, its loadings as .37 (Factor 1), .35 (Factor 3) and .36 (Factor 4) were very close to minimum point accepted for the present analysis.

Four items of the BDE, namely, Pessimism, Sense of Failure, Suicidal Ideas and Indecisiveness were loaded under two factors. Others were loaded under only one factor with at least .51 loading.

4. 6. 3. 3. Factor Analysis of the BDE-KF

Factor analysis of the BDE-KF extracted three factors. These three factors accounted for 52% of the scale variance. Factor loadings of the items are shown in Table 30.

Table 30

Factor Loadings of the BDE-KF Items

Items	Factor 1	Factor 2	Factor 3
Self-dislike	**.74***	.10	.02
Sense of failure	**.70***	.18	-.04
Suicidal ideas	**.63***	-.11	.22
Pessimism	**.61***	.19	.26
Distortion of body image	**.61***	.26	-.02
Dissatisfaction	**.54***	.34	.22
Depressive Mood	**.51***	.32	.30
Social withdrawal	.22	**.77***	.04
Fatigability	.10	**.74***	.20
Work retardation	.42*	**.51***	.30
Guilt	.19	-.02	**.76***
Loss of appetite	.05	.13	**.67***
Indecisiveness	.06	.35	**.64***
Percent of variance	33.8	10.4	7.8

*salient($p \geq .40$)

First factor of the BDE-KF was loaded with eight items, namely, Depressive Mood, Pessimism, Sense of Failure, Dissatisfaction, Self- Dislike, Suicidal Ideas, Distortion of Body Image and Work Retardation items. These items were a mix of manifestation groups of Beck except vegetative symptoms. All items were under solely this factor except Work Retardation item which had a higher loading on Factor 2.

Second factor included Social Withdrawal, Work Retardation and Fatigability items. It covers both motivational and vegetative symptoms. Work Retardation item was shared with Factor 1.

In third factor there were Guilt, Indecisiveness, and Loss of Appetite items. Loss of Appetite was the single somatic item of the BDE-KF while other two items were cognitive manifestations congruent with each other.

Only Work Retardation item of the BDE-KF was loaded under two factors. Others were loaded under one factor with at least .51 loading.

V. DISCUSSION

5. 1. Summary and Discussion of Findings in Relation to Literature

In the light of the results, both the BDÖ, the BDE and the BDE-KF has been shown to be reliable and valid instruments. However, the BDÖ seems less consistent being influenced very much by test-taking order and suffer with problems related to its instruction.

Present study was very much influenced by the ambiguity created by the instruction of the BDÖ. Data was entered into the computer as 224 cases, however, analyses was carried out for only 161 cases because there were contradictory multiple marks on the same item in 63 cases. In these items positive and opposing negative statements were chosen at the same time.

When these contradictory marks were counted, it was seen that they heavily appeared on the BDÖ. This could be due to the instruction of the BDÖ which allows the test-taker to choose more than one statement in each item group. Marking contradictory items did not seem to depend on false reading of the instructions because there was no such problem for the BDE.

This brings the possibility of misunderstanding in Turkish meanings of the statements of these items on the BDÖ. When Turkish and English versions of the BDÖ were compared

to each other word by word some problems in the translation of Self-accusations, Crying, Social Withdrawal, Work Retardation and Body Image Change items were seen. Self-accusations, Crying and Work Retardation items were also the most frequent contradictorily marked items. Social Withdrawal item also had such a problem, however with less frequency.

For example, a statement of Self-accusations item of the BDI as *"I blame myself for everything bad that happens"* which was not changed on the revised BDI was translated in the form of simple present tense on the BDÖ as *"Her aksilik karşısında kendimi kabahatli bulurum"* while the corresponding item on the BDE was in the form of present continuous tense as *"Her kötü olayda kendimi suçluyorum."* So it is possible that the test-takers interpreted these statements as a general attitude rather than a time-specific experience.

Also, in the Crying item, the statement "*I cry more now more than I used to*" which was also the same on both BDI forms was translated as "*Zaman zaman içimden ağlamak geliyor*" on the BDÖ while it was translated as "*Eskisine göre şu sıralarda daha fazla ağlıyorum*" on the BDE. Thus, a verb implying a direct action was changed into a feeling on the BDÖ.

Another problem in the translation of the BDÖ was that in some items some verbs or adjectives implying subjective feelings or perceptions were omitted or replaced with another one. For example, in the Social Withdrawal item the statement *" I have not lost interest in other people*" was translated as *"Başkalarıyla görüşmek, konuşmak isteğimi*

kaybetmedim" on the BDÖ while it was "*Diğer insanlara karşı ilgimi kaybetmedim*" on the BDE. Thus, the word "interest" meaning a wish and having a motivational emphasis was translated as "istek"and was turned into an intentional and voluntarily directed feeling having a cognitive emphasis.

In the Distortion of Body Image item, the emphasis of the BDI statements were on a disfunctional cognition (*" I don't feel I look any more worse than I used to be*") while the BDÖ translation was on a mere perception on the changes of the body ("*Aynada kendime baktığımda bir değişiklik görmüyorum*"). The same statement was translated on the BDE as a thought instead of feeling ("*Dış görünüşümün eskisinden daha kötü olduğumu sanmıyorum*").

In general translation of some items on the BDÖ seemed not to fit well in Turkish especially in verb and tense selection while it seemed better on the BDE.

The contradictory marking could also be a result of ambiguity of the directives the participants in a group administration received. It was seen that the original BDI was designed to be applied by a trained interviewer and had a detailed instruction. The interviewer had to do the test-taker to make a decision if s/he has hesitations among some statements (Beck, 1967). However, different instructions were used for self-administered type. In a reference book, Williams (1988) gave an instruction for the original BDI stating to choose only one statement in each item. However, in the revised version of the BDI, Beck, et al. (1979) allowed the test-taker to choose more than one in an item group.

The instruction of Turkish adaptation of the revised BDI, namely the BDE, certainly points out to the test-taker to choose only one statement in each item as opposed to the instruction of the revised BDI. In the present study, it was seen that this type of instruction resulted in more consistent data and for group applications it seemed to be better approach than allowing multiple marks.

The BDÖ was also affected very much by the design of the present study in which half of the participants took the instruments in reverse order. It was found that there is a significant mean difference ($t(161)=-2.99$, $p<.005$) between the BDE and the BDÖ in such a design. This is parallel with the findings of Beck and Steer (1984). They found a significant mean difference ($t(844) = 5.16$, $p < .001$) between original and revised version of the BDI although different samples were used.

However, when test-taking order was considered, the BDE had almost the same mean value in the first and last takings while the BDÖ had a greater mean value when it was taken first. The difference between the means when it was taken first and last was significant (t (79 and 82)$=3.57$, $p<.001$). This significant difference maybe due to the instructions. The instruction of the first instrument may have influenced the second instrument which is very similar to the first one and it was filled out according to it. However, the BDE seems to be more consistent during different test taking times in comparison to the BDÖ although the same effect is there for it, too.

A similar problem for the BDÖ was seen in the analyses of corresponding items of the BDE and the BDÖ. When the corresponding items of the BDE and the BDÖ were

compared regardless of the test-taking order, there were 7 items (Depressive Mood, Crying, Irritability, Social Withdrawal, Indecisiveness, Work Retardation, Weight Loss) showing significant differences. However, when the test-taking order was taken into consideration, 5 items showed significant differences in the order the BDE was taken first whereas 12 items showed significant differences in the order the BDÖ was taken first. The items showing significant differences for the BDE when it was taken first were Social Withdrawal, Indecisiveness, Insomnia, Loss of Appetite and Weight Loss. The last 3 are doubtful items in the present study since many participants, added some notes down on the forms for these items stating that they have hypersomnia, increased appetite or weight gain opposite to the statements in the instruments. In fact, the BDI was criticized because of its emphasis on only one direction in these vegetative symptoms although the opposite statements are also signs of depression. Depression can cause both weight loss or increase, insomnia or omnisomnia, anorexia or obesity (Moran and Lambert, 1983 cited in Beck et. al.1988; Vredenburg, et al. 1985).

Twelve items showing significant differences when the BDÖ was taken first were Depressive Mood, Pessimism, Dissatisfaction, Guilt, Self-Accusations, Crying, Irritability, Work Retardation, Fatigability, Loss of Appetite, Insomnia and Weight Loss. The 9 items except Fatigability, Insomnia and Weight Loss also resulted in significant differences when the BDÖ items of first and last takings were compared. However, when the BDE items were compared only Depressive Mood item showed significant difference. It seems that these items showing significant differences had some problems. They are almost the same with the items which were frequently marked contradictorily except Loss of Appetite item.

It is apparent that the BDE items were more consistent in comparison to the BDÖ items in different test-taking orders. Some items, especially vegetative items and Self-accusations, Crying, Social Withdrawal, Work Retardation items seemed to differ when they were compared as corresponding items. However, it should be noted that the means of the instruments were small and these statistical significances maybe superfluous.

In terms of the reliability of the instruments, both the BDÖ and the BDE as well as the BDE-KF had good internal consistency with alpha values of .87, .86 and .83 respectively which parallel the internal consistency values of 1961 and 1978 version, which were .88 and .86 respectively (Beck & Steer, 1984) and previous reports of alphas between .73 and .95 (Beck, et al. 1988; Hojat, et al. 1986; Reynolds and Gould 1981, cited in Rippere, 1994; Scogin, et. al.,1988).

These values are also similar to the findings on the Turkish adaptations of the BDI. Teğin (1980) had found split-half reliability coefficient of the BDÖ to be .78 with nonclinical subjects and Hisli-Şahin (1989) found it to be .74 and Cronbach alpha to be .80 for the BDE with a university students sample.

However Weight Loss and Somatic Preoccupation items of the BDE and Fatigue, Weight Loss and Somatic Preoccupation items of the BDÖ had low corrected item total correlations specifically less than .30. Beck and his colleagues (1988) reported that in the original BDI Weight Loss and Irritability items and in the 1978 version Insomnia, Weight Loss and Somatic Preoccupation items had low corrected item-total correlations which were less than .30 as well.

Correlation of the BDE-KF with the BDE resulted in a high correlation of .95 (Pearson product moment correlation) very similar to the findings of Beck and Beck (1972) which was .96 between the long and short form of the BDI and Pearson correlation value of .93 was found by Vredenburg, et al. (1985) between the long and short BDI in a sample of 126 patients diagnosed as depressive.

High inter-correlations with the MMPI-D give support for concurrent validity of the BDÖ, BDE and the short form of the BDI (r=.66, r=.63, r=.66, respectively). These correlations were slightly higher than the previous studies of Teğin (1980) and Hisli-Şahin (1989). The BDÖ had a .63 Pearson correlation coefficient value with the MMPI-D while Teğin (1980) found a correlation of .56 for the same comparison in normal subjects. The BDE had a correlation of .66 with the MMPI-D while Hisli-Ţahin (1989) found a correlation of .50 for university students between the BDE and the MMPI-D. Also the concurrent validity studies on the BDI was found to be values within the range of .41 and .75 with the MMPI-D (Beck, 1988).

When the mean scores of the BDÖ and the BDE were investigated, it was seen that they are consistent with previous scores of university students and thus bring further reliability to the instruments. The mean score of the BDE was 9.19 (SD=7.27). It was parallel with the previous results reported by Hisli-Ţahin (1989) with a mean of 9. 58 (SD=6.75) who used the BDE. However, in the present study, the mean score of the BDÖ was 10.23 (SD=7.72) which was slightly higher than the mean score of 9.10 (SD=6.75) reported by Aytar (1985) who used the BDÖ. Both studies had

student samples and had higher mean scores than of student samples abroad such as M=7.47 and SD= 5.89 by Gotlib (1984); M=7.90 and SD=6.62 by Tanaka-Matsumi and Kameoka (1986). Male and female mean scores of the MMPI-D (M= 22.42, SD= 6.20) in the present study are very close to Turkish norms which are 20.63 (SD=4.76) and 23.86 (SD=5.08), respectively (Savaşır, 1982) and Hisli-Şahin's (1989) findings for university students (M= 22.40, SD= 5.86).

Significant mean differences between male and female students for the MMPI-D, the BDÖ, the BDE and the BDE-KF ($t = 4.28$, $p < .01$; $t = 3.15$, $p < .01$; $t = 2.33$, $p < .05$; $t = 2.48$, $p < .05$, respectively) were also parallel to the findings of studies abroad which state almost two times greater depression scores among females than males (Hersen & Turner, 1991; Lewinsohn, et al. 1993; Wolman, 1990). However, Hisli-Şahin (1989) reported that there was no gender difference on the BDE in her study with university students.

The congruence of the BDE and the BDÖ in measuring the severity of depression were compared with the MMPI-D mean scores of the participants using the last classification system of Beck, et al. (1988) and the mild and moderate depression points suggested by Hisli-Ţahin (1988-89). For the four points classification system of Beck, the MMPI-D points increase as the BDE and BDÖ means increase. However, the BDÖ tends to load higher depression points in comparison to the BDE although the MMPI-D scores of the participants did not differ.

The MMPI-D mean scores of participants who had 10 and above points on the BDE (n=

59) and the BDÖ (n= 69) were within the Turkish norms reported by Savaşır (1982). The MMPI-D mean scores of participants who had 17 and above points on the BDE (n=23) and the BDÖ (n=29) were very close to the points which are one SD above of Turkish MMPI-D norms suggested by Hisli-Şahin as the sign of clinical depression. However, MMPI-D mean score of male participants (n=7) who got 17 and above on the BDÖ was 22.57 (SD=4.50) and lower than one SD above the male norms which is 25.39 while it was almost the same for male participants who got 17 and above on the BDE (M=24.17, SD=5.34). On the other hand the MMPI-D mean score of female participants who got 17 and above on the BDÖ and BDE (n=22 and n=17, respectively) were higher than the point one SD above the female norms with a value of 28.94.

However, this comparison had not been supported with statistical significance since the number of the cases for each cell was not sufficient. In addition, these cutoff scores do not solely show the presence of depression as it is warned by Beck, Steer and Garbin (1988). They suggested that the cut-off scores should be based on clinical decisions and cutoff points can be changed according to the nature of the sample and the purposes of the use.

Factor analyses of the present study produced five factors for the BDÖ and six factors for the BDE. When the BDÖ and the BDE were compared in terms of their factors, most of the items were grouped in the same way. It seems that both discriminated the symptom groups well in terms of the depressive symptomatology stated by Beck (1967). However, the factors of the BDE seems to be more refined for interpretation. It differentiated the first factor of the BDÖ into two symptom

groups in which cognitive and performance-related items were specified.

Nevertheless these results are not parallel to earlier factor analytic studies. There was no factor analytic study on the BDÖ in Turkish literature. However, Vredenburg, and his colleagues (1985) found 3 factors and 3 singletons (one item as a factor) using 1961 version of the BDI. Only the third factor which included Insomnia and Loss of Appetite were parallel with Somatic Disturbance factor of the BDÖ. Factor analytic study of Pichot and Lempériére (1964, cited in Beck, 1967) were not parallel to the findings of the present study. Four factors, were Vital Depression (Fatigability, Loss of Appetite, Somatic Preoccupation, Weight Loss, Difficulty in Sleeping and Loss of Libido items), Self-Debasement (Self-Dislike, Sense of Failure, Expectation of Punishment and Guilt items), Pessimism-Suicide (Pessimism and Suicidal Ideas items), and Indecision-Inhibition (Indecision and Work Retardation items). However, these two studies used psychiatric samples unlike the present study.

On the other hand, the BDE had been analyzed in Turkish student populations in terms of its factors by Hisli-Şahin (1989). She found 6 factors but interpreted only 4 of them. These item groupings do not parallel the factors found in the present study. Namely, they are Hopelessness (Depressive Mood, Pessimism, Dissatisfaction, Suicidal Ideas, Irritability, Social Withdrawal, Indecisiveness, Work Retardation and Fatigability items); Negative Thoughts Toward Self (Sense of Failure and Self-dislike items); Somatic Preoccupations (Distortion of Body Image and Somatic Preoccupation items) and Guilt Feelings (Guilt, Expectation of Punishment, Self-Accusations and Indecisiveness items). Other items which were not interpreted by Hisli-Şahin (1989)

were Loss of Appetite and Weight Loss in the fifth factor and Insomnia and Fatigability in the sixth factor of that study. Three of these four items came together under the third factor in the present study as somatic symptoms.

Factor analyses for the BDE-KF yield three factors in which cognitive and motivational symptoms were well grouped. However, the only somatic item, Loss of Appetite came together with Guilt and Indecisiveness items. Factorial structure of the BDE-KF are partly supported by the factorial study of Vredenburg, et al. (1985). The first and second factors almost included the same items of the BDE-KF. However they found Loss of Appetite as a singleton. They mentioned that the cognitive items loaded the main factors and explained the great part of the variance whereas the items of other factors, especially somatic items accounted for little variances.

On the other hand the findings of Foelker, et al. (1987) who used confirmatory factor analysis did not parallel the results of the present study. The item loadings of their three factors, namely, Negative Self-Esteem (Self-dislike, Sense of Failure, Guilt, Distortion of Body Image and Suicidal Ideas items), Anergy (Indecisiveness, Work Difficulty, Fatigability, Loss of Appetite items) and Dysphoria (Dissatisfaction, Pessimism, Sadness and Social Withdrawal items) were different than the factor structure of the BDE-KF.

As a conclusion general overview of data and item comparisons showed that the BDÖ may have some problems due to its instruction and item readability although the present study supported the reliability and validity of both adaptations of the BDI, namely, the BDE and the BDÖ.

Thus the use of the BDE instead of the BDÖ is recommended since it is more stable and consistent across different test-taking orders and since it is the adaptation of the revised version which is believed to have more readability and to be more concise (Beck, et al. 1988).

As for the BDE-KF, the results of the present study was a preliminary step towards its adaptation. It seems that it has good internal consistency and validity values. After further validity studies it could be a valuable and more rapid tool for utilization by clinicians and researchers.

5.2. Limitations and Recommendations for Further Study

The reverse order design used in the present study seems to be a basic limitation. Taking two similar tests with 5-10 minutes interval could be an obstacle for consistent data. It may have carried the basic limitation of test-retest design for depressive samples. In fact, test-retest applications in depressive disorders were not suggested because of memory factors, mood fluctuations and nature of depression (Beck, 1967; Rippere, 1994). Due to the nature of the depression inventories that are administered which have negative expectations in the items, the scores in last taken instruments decrease. However, the BDE has shown consistency between first and last taking whereas the BDÖ was very much influenced by taking similar tests successively.

Instruction and problems in the translation of some items of the BDÖ led to reduced sample size and made it more homogeneous. The results the study could be influenced by this. In the administration of such tools for group administration such a consequence should be bear in mind and detailed directives should be given.

It is highly recommended that addition of the opposite information on three vegetative items (Insomnia, Loss of Appetite and Weight Loss) into the wording and scoring should be done to provide a more comprehensive tool.

Sampling of the present study is another limitation since only a student sample was used. There are many criticisms made upon the use of the BDI in nonclinical samples. Tanaka-Matsumi & Kameoka (1986) concluded that use of self-report depression inventories to

select depressed subjects among college students was not so suitable because of social desirability effects and nondiscriminance of depression and anxiety. Gotlib (1984) suggested caution in extrapolating empirical findings from students obtaining high scores on the BDI. Also, Hatzenbuehler, Parpal & Matthews (1983) mentioned that classifying college students as depressed and nondepressed using cutoff scores of the BDI could be misleading. In their study with 159 university students they found significant decrease between two application of the BDI within 1-6 hours among high depression scorers whereas there was no such difference for low scorers. Also, the results of the present study could not be generalized to student population since it was only applied in Boğaziçi University which is unique in terms of its medium of education.

Another limitation of the present study was that the BDE-KF was not applied to any group but derived from the data of the BDE. The BDE-KF should be applied to clinical and non-clinical subjects for further reliability and discriminant validity before it is utilized. It should be remembered that Beck, et al. (1988) suggested that in clinical practice the short BDI must be used together with more intensive interviews since it does not cover non-cognitive aspects of depression thoroughly.

Since the BDI was developed as mainly a screening device for the presence of clinical depression such a comparison of the BDE and BDÖ should also be carried out with a clinical sample for further and more reliable information. In fact, the present researcher attempted to hold such a study parallel with the student sample but that study was not completed partly because of difficulties in finding appropriate participants in the clinics and completion of the tools by depressed patients. In a clinical sample, other

administration possibilities rather than taking three depression instruments should be searched.

There were some limitations on the analyses carried out. Since too many t-tests are run the Type 1 error possibility has increased. Also factorial analyses were not justified by sample size. Thus it is a preliminary explanatory analysis for validation of the BDI tools. It must be cross-validated.

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APPENDIX A

Item-Total Statistics of the BDÖ, BDE and BDE-KF

Item-total Statistics of the BDÖ

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
Dep. Mood	9.3750	51.0571	.6313	.8573
Pessimism	9.5000	50.7550	.5488	.8600
Sense of failure	9.6711	54.2090	.4238	.8648
Dissatisfaction	9.1645	49.1052	.6770	.8544
Guilt	9.2434	53.5099	.4625	.8635
Self-dislike	9.4539	52.4085	.5469	.8606
Self-accusati.	9.2368	53.5064	.4187	.8647
Suicidal ideas	9.6908	54.7581	.3616	.8664
Crying	9.1579	50.9418	.5740	.8590
Irritability	9.1250	52.1631	.3474	.8699
Social withdraw.	9.5592	53.8905	.4331	.8644
Indecisiveness	9.3618	52.4973	.4971	.8621
Dist.of body ima.	9.7039	53.9846	.4471	.8641
Work retard.	8.9145	50.1714	.6408	.8563
Insomnia	9.4276	52.9086	.4391	.8641
Fatigability	9.2368	51.8508	.5541	.8601
Loss of appetite	9.6382	54.8285	.2935	.8685
Weight loss	9.7105	56.2070	.1927	.8705
Somatic preoccup.	9.6645	56.6085	.1428	.8716
Loss of libido	9.5724	53.8093	.3698	.8664
Exp.of punish.	9.3553	50.1643	.5107	.8621

Item-total Statistics of the BDE

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
Dep. Mood	8.8562	45.7378	.5616	.8567
Pessimism	8.9863	47.0757	.5288	.8587
Sense of fail.	9.0479	47.2598	.4783	.8601
Dissatisfac.	8.6507	45.5668	.6035	.8554
Guilt	8.6370	47.4052	.4674	.8605
Exp.of punish.	8.7123	45.1443	.4628	.8612
Self-dislike	8.9178	47.5932	.4489	.8611
Self-accusat.	8.6918	47.4974	.3712	.8636
Suicidal ideas	9.0685	47.9539	.3948	.8626
Crying	8.7397	44.5801	.5071	.8592
Irritability	8.7260	44.9313	.5606	.8565
Social withdra.	8.8630	47.0708	.4970	.8595
Indecisiveness	8.5548	46.0694	.4242	.8624
Dist.of b.ima.	9.1096	47.5741	.4218	.8618
Work retard.	8.5616	45.7927	.5803	.8562
Insomnia	8.8082	47.0940	.4122	.8622
Fatigability	8.6986	46.3637	.5106	.8587
Loss of appet.	9.0205	47.2892	.4137	.8621
Weight loss	9.2055	50.4402	.1436	.8683
Somatic preoc.	9.0205	48.9030	.2788	.8660
Loss of libido	8.8767	46.5088	.4150	.8624

Item-total Statistics of the BDE-KF

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
Dep. Mood	5.2075	17.0769	.5702	.8103
Pessimism	5.3522	17.8372	.5610	.8127
Sense of fail.	5.4151	18.1304	.4713	.8184
Dissatisfac.	4.9937	17.0822	.5606	.8111
Guilt	4.9874	18.4429	.3954	.8234
Self-dislike	5.2704	18.0340	.4963	.8168
Suicidal ideas	5.4340	18.4877	.4005	.8230
Social withdra.	5.2138	18.0046	.4781	.8178
Indecisiveness	4.9245	17.2601	.4174	.8252
Dist.of b.ima.	5.4717	18.0989	.4633	.8189
Work retard.	4.9308	16.9509	.6056	.8075
Fatigability	5.0440	17.7892	.4509	.8198
Loss of appet.	5.3774	18.5149	.3247	.8289

APPENDIX B
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Long and Short Forms

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April 22, 1999

Ms. Fatma Zengin
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Dear Ms. Zengin:

Thank you for your letter regarding your use of the *Beck Depression Inventory* (BDI) in your thesis research.

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If you want to publish a translated version of the *BDI*, please contact a reputable publisher. The publisher, in turn, should submit a detailed proposal to The Psychological Corporation, Attn.: Legal Affairs, 555 Academic Court, San Antonio, Texas, 78204.

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Thank you for your interest in our test materials. If you have any questions, please contact us.

Sincerely,

Linda Murphy

Linda Murphy
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Legal Affairs

Enclosures

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