# Antidepressive Behaviors and Depression in a College Student Population

A Thesis Presented by

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to

The Institute of Social Sciences

in Partial Fulfilment of the

Requirement for the degree of

Master of Arts

in the Subject of

Applied Psychology

M.E.T.U.

February 1988

I certify that this thesis is satisfactory for the award of the degree of Master of Arts

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ACKNOWLEDGMENTS

I must first express deep gratitude to my adviser Assoc. Prof. Esen Gilleard, whose ideas initiated and influenced this study through all stages. Her patience and tolerance in supervising was a great support. However, I must assume all responsibility for weaknesses.

I acknowledged the support provided by Assoc. Prof. Christopher Gilleard throughout the realization of the study.

My special thanks go to my jury member Prof. Isik Savasir.

Several other people, whose name I cannot mention here have contributed as respondents. Among them were psychiatrists, psychologists from Hacettepe, Ankara Tip and Numune hospitals, and collegues and students from METU.

Finally our sincere appreciations goes to Osman Yalcinlar, whose help in writing and printing is undeniable; and to Nejla Osseiran for the correction of the manuscript.

Lastly. I should acknowledge that without the permanent support of my wife, Gulcan (Tug) Bayraktar, this study would hardly be realized.

ABSTRACT

The study aimed to collect the antidepressive behaviors (ADB) in normal university population and taking into account their degree of helpfulness and difficulty, use them in an activity scheduling framework in the treatment of depression.

The ADBs were obtained by asking subjects "what's the thing to do when you're feeling depressed" and found that a great proportion of the responses were consensually shared in the sample. The ADBs collected in this first study made up the Antidepressive Activity Questionnaire (AAQ). This questionnaire was used to obtain ratings on helpfulness and difficulty dimensions, by a new sample. As a second order agreement it was found that there existed a consensuality with regard to the degree of helpfulness and difficulty of ADBs. The sample was divided as high and low-depression groups. The ranking of the items in these two samples did not differ neither on the helpfulness nor on the difficulty. Thus, there existed also a consensuality in the perception of helpfulness and difficulty in low and high-depressed samples. However, depressed subjects perceived the ADBs overall as more difficult to engage in.

According to the mean rating of helpfulness of ADBs by the second sample, the items of the AAQ were ranked. The most helpful 40 item were again ranked according to their mean ratings of difficulty. Consequently, those 40 helpful

ADBs were grouped as "easy","moderately easy","moderately difficult" and "difficult" items.

In the intervention study, 15 depressed subjects were randomly assigned to "Self-Selection Activity Increase", "Forced-Choice Activity Increase", and "Monitor-Control" groups. During the first week of the treatment, all groups monitored their 40 ADBs and mood. By the second week the "activity increase" was introduced in the two experimental groups.

Results indicated that all groups decreased on depression score from pre to post-assessment. A significant interaction of Group x Time indicated that subjects in the experimental conditions decreased significantly on BDI by the end of treatment, whereas the control group's drop did not reach significance. Nevertheless, the pre to follow-up BDI change revealed only a significant Time effect and groups were equal at the follow-up. The analysis of the mood ratings did not parallel the above results. Despite the decrease on depression score evidenced by the measurement on BDI, the three weeks' mood ratings were not different from each other. These results suggest the alleviating impact of the coping activity scheduling on the depressed mood.

Further analysis of the association between depressed mood and ADBs revealed that the antidepressive activity level was negatively correlated with the intensity of the depressed mood. However, the ADB frequency during the

treatment had a marginal association with the outcome of depression.

The mood ratings appeared as less stable measurement. At the preassessment, the mood ratings were unrelated to the BDI scores. On the other hand, only the second and the third weeks' ratings were associated with each other and the last week's mood rating was significantly correlated with the post-assessment BDI scores.

Subjects were divided to high and low-compliers according to their increase of ADBs during the treatment period. The high-compliers had a lower antidepressive activity baseline, and their increase of ADBs was significantly higher than the low-compliers. Thus, subjects having low ADB level complied most, but their outcome on depression was not better than the low compliers, nor was their depression intensity at the intake higher. As a result the compliance to treatment requirement did not seem to have a clear impact on the depressed mood.

These results were discussed in terms of the limitations and weakness of the study.

# INTRODUCTION

## *Definition of Depression as a Syndrome*

Depression has been regarded as one of the most common psychological complaints. The essential feature of depression is dysphoric mood or loss of interest or pleasure. The depressed person expresses his dysphoric mood in terms of sadness and depressed mood, and sometimes as a complete indifference -"not caring anymore", and a lack of pleasure in previously enjoyed activities (APA, 1980). Associated with the depressed affect are other symptoms covering the cognitive and behavioral domains. A lack of energy, manifested by a constant fatigue and decreased activity level with or without psychomotor agitation or retardation may be observed. Cognitive symptoms include a sense of worthlessness, hopelessness, loss of self-esteem, guilt over past experiences ,and difficulty in concentrating and thinking. Vegetative symptoms such as disturbance of sleep and appetite or loss of libido accompany the depressed state.

Essentially, depression is considered to be a mood disturbance which is subjective and unobservable in nature. We know also that many experience temporary mood fluctuations as a normal reaction when confronting daily stress. The depressed affect has been equated with sadness

and caused much debate with regard to the distinction between adaptive vs. maladaptive responses (Akiskal & Kinney, 1975).

The classification of the syndrome of depression has been the subject of considerable controversy involving such distinctions as neurotic vs. psychotic and reactive vs. endogenous dimensions. These were mostly understood as dimensions where the extremes corresponded to milder and severe forms of depression (Kendell, 1970). The neurotic or reactive depression -the mild form-, was supposed to have a precipitating factor; to be transitory, responding better to psychotherapy; and having blends of anxiety. Conversely the severe form, the endogenous or psychotic depression was associated with an acute onset, without clearly identified stressors; refractory to psychotherapy and in need of biological intervention; and often showing delusions and hallucinations (Beck, 1973; Kendell, 1970). These classifications attempted to encompass all the symptomatic, aetiological and prognostic features of depression at the same time. In DSM-III (APA, 1980) the above classifications were abandoned and diagnosis relied merely on symptomatology. The title of "affective disorder" -as an illness-, is taken as a synonym of "mood disorder", and major and minor classifications are made. To distinguish mood disorder from temporary depressed mood, duration is introduced as a criterion. In addition to persistent depressed mood, the diagnosis of major depressive episode

requires the presence of associated symptoms such as decreased energy, psychomotor retardation, sleep disturbance etc. which are not associated with other physical or mental disorder.

The 'dysthymic disorder' is reserved for cases whose complaints are not so intense to permit the diagnosis of major affective disorder. Personality factors and a chronic course are implied by requiring a duration of at least two years. The major depressive disorder is clearly equated to the affective syndrome, but, for the minor disorder DSM-III provides less clear cut diagnostic criteria.

Although the espousal of symptomatology permitted a more operational definition of depression, DSM-III provides no explanation as to how the various components of depression come to be associated with each other. In other words, it provides no understanding of the linkage between the affective, cognitive, behavioral and somatic symptoms which all together form the depressive syndrome.

*Behavioral and Cognitive Models*

Behind all formulations of behavioral theories of depression lies the assumption that there is a disruption in the link which exist between behavior and its contingencies. Depression is generally regarded as a weakened behavioral repertoire. Through his functional analysis, Ferster (1973) concluded that depression is characterized by inertia.

Reductions of the emitted behaviors in the repertoire restrict the range of available reinforcers which reciprocally maintain the inertia. The inertial quality of the behavioral repertoire reduces the influence of the environment to a minimal degree (Ferster, 1973; 1981) so that the potentially available reinforcers are not obtained since the individual does not emit the necessary behaviors. As is apparent from the above reasoning, the lowered level of activity, generally expressed by a lack of energy and fatigue has priority over the mood disturbance, and is considered to be both a characteristic feature and cause of the disturbance. Ferster (1981) has also examined how the repertoire of positively reinforcible behaviors are restricted in depression. From this perspective, rather than a sudden change in the environment, the importance of insufficient reinforcible behaviors is stressed. Instead of a lack of reinforcement, the individual has deficits in the repertoire of his/her reinforcible behaviors. Ferster (1981) sees a greater number of aversively maintained behaviors (i.e. fear of criticism) in the repertoire of depressed persons than positively reinforced ones. By focusing on avoidance of aversive consequences, he suggests that the depressed person is prevented from seeking out potential positive reinforcers. As a result, the depressed person's self-directed complaints and criticisms (which are assumed to be aversively maintained behaviors), in addition to leading the person to be avoided by others, would also

prevent the person from becoming engaged in possibly reinforcing interactions.

Ferster (1981) also considers that a sudden change in the environment, such as the requirement for a greater amount of behavior to be emitted or the sudden loss of a reinforcement source may be the cause of depression. In this situation, even though the person's repertoire contains reinforcible behaviors, the loss of reinforcers causes a reduced frequency of such behaviors. Lazarus (1968) labeled this state as "inadequate or insufficient reinforcement" and asserted that as a function of this reinforcer loss, behavior undergoes extinction.

The social skill deficit was suspected to be a principal source of insufficient reinforcement. Given the importance of the interpersonal aspect in depression, Lewinsohn and collaborators (Lewinsohn, Mischel, Chaplin & Barton, 1980; Sanchez & Lewinsohn,1980; Libet & Lewinsohn, 1973; Lewinsohn, Weinstein & Alper, 1970) have studied depressed subjects in social contexts examining the amount of positive and negative reinforcers given and received by them. Results indicated a strong relationship between socially skillful behaviors and the level of depression, both concurrently and prospectively. Depressed persons' emitted behaviors were fewer, produced less positive responses in others and their low level of social behaviors predicted the future level of depression (Lewinsohn et al., 1980; Wierzbicki, 1984). Moreover, the tendency of

depressed persons to view the 'negative' conversation topics as appropriate may be the cause of their avoidance (Kuiper & MacCabe, 1985).

Concurrently with the social skill conceptualization, Lewinsohn has also stressed the importance of deficiencies in "response-contingent positive reinforcement" (RCPR) arising from pleasant events and activities in one's life. A schedule of 320 pleasant activities was developed (Lewinsohn & Graf, 1973; Lewinsohn & Libet, 1972 ). These were rated for their frequency of occurrence and subjective enjoyability. He obtained an overall pleasure score which was derived by the cross product of frequency x enjoyability. The schedule was reported to be reliable and valid (MacPhillamy & Lewinsohn, 1982). The scale took into account the subjective impact of each event by the inclusion of enjoyability rating. Depressed mood has been found to be characterized by a low positive affect (Watson & Tellegen, 1985) and the enjoyability rating on Pleasant Events Schedule (PES) was found to correlate with the lowered positive affect (Bouman & Luteijn, 1985) -as measured by Beck Depression Inventory (BDI) (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) and the Depressive Adjective Checklist (DACL) (Lubin, 1965).

Underlying the approach of Lewinsohn was the assumption that the low rate of RCPR would determine the depressed mood,the causality being unidirectional. Correlational studies of mood and activities, in depressed and non-

depressed subjects demonstrated that lowered mood and depression were characterized by lower levels of pleasant activities (O'Hara & Rehm, 1979; Rehm, 1978; Wener & Rehm, 1975; Lewinsohn & Graf,1973; Lewinsohn & Libet,1972). However, the primacy of reinforcement on subsequent mood is not proven: Either they covary, having reciprocal effects (Harmon, Nelson, & Hayes, 1980) or appear unrelated for longer lapses of time (Sweaney, Shaeffer, & Golin, 1982).

One of the major problems in the measurement of pleasant events is their consistency within and between individuals. This is related to the perception of pleasantness. A particular activity may be pleasant for one person but not for another; also the same person may find a particular activity pleasant in one situation but unpleasant in another one. The enjoyability dimension is created to tap this inter and intra individual differences. However, if the variability is too great the conceptualization of RCPR via its inherent pleasantness will loose its power. One has to assume that these activities are inherently pleasant or have positively reinforcing value to attribute them a causal function, so that their performance will automatically alter mood. In this direction, Lewinsohn and co-workers (Lewinsohn & Amenson, 1978; Lewinsohn & Graf, 1973) identified pleasant activities having strong associations with mood for a substantial proportion of the population. They found that the most enjoyable items were also the most frequently

practiced mood related (M-R) behaviors. Specifically, with increasing percentage of population for whom the item was mood related, the positively reinforcing value also was increasing. Although correlational in nature, this finding was supportive of the stable reinforcing property of the pleasant events. However, for unpleasant events there was less evidence of consensus. The association between M-R pleasant and M-R unpleasant events was more interesting. Subjects experiencing most M-R unpleasant events had also higher frequencies of M-R pleasant events. Thus, with increasing aversiveness of M-R unpleasant events, the enjoyability of M-R pleasant events also increased.

Despite the specific mood-related behaviors and the identification of their consensual positively reinforcing value, the relationship of engagement in pleasant activities and deriving pleasure from them is obscure. Although the reduced frequency of pleasant activities and their reduced enjoyableness is substantiated in depressed persons, we do not know whether depressed persons engage less often in reinforcing activities because these activities are less pleasurable for them or vice versa. This makes the theory circular. Moreover, the dysphoric mood may also affect these two variables independently. Depression induction studies are critical to the understanding of causality in relation to mood and pleasantless ratings. Findings from such studies, support the contrary relationship where the mood induction influences the perception of pleasantness

(Teasdale & Fogarty, 1979; Carson & Adams, 1980). The induction of depressed mood is found to negatively influence the pleasantness of events. If the mood determines the pleasantness, so the reduction in frequency is not a surprise.

An alternative behavioral model has been developed by Seligman. Seligman's learned helplessness theory constitutes the link between behavioral and cognitive models of depression. The model was first developed in animal learning laboratory experiments. It was observed that animals exposed to an inescapable aversive stimulation showed learning deficits when subsequently they had a chance to avoid the shock. The term "helplessness" was used to describe the situation of the animal which as a result of being previously exposed to non-contingent aversive stimulation, failed to escape when exposed to contingent aversive stimulation. The helplessness was assumed to be characterized by a reduction of self initiated behaviors that would lead to positive reinforcement or avoidance of aversiveness (Seligman, 1981).

Aversive stimulation was also indicated by Ferster(1981) as an aetiological factor in depression. The helplessness model deviates from Ferster's position by its stress on perception of contingency and expectation of uncontrollability. The rate of reinforcement which is central to Lewinsohn's theory, is also important for the

helplessness model in as far as it is related to the learning of controllability. Levinsohn's and Seligman's positions may be compatible, since with the high rate of RCPR, the individual may gain the control of the environment (Blaney, 1977).

The application of the model to human depression caused much debate and Seligman and co-workers (Abramson, Seligman, & Teasdale, 1978) revised their theory by taking into consideration the causal attributions. It was assumed that whenever a person is confronted with undesirable consequences, s/he looks for causal explanations and attributes causality to some factors. Three dimensions of attributions were specified: internality, globality and stability. Helplessness is hypothesized to result whenever the attributed cause is due to self-related characteristics (internality); affects a broad range of outcomes (globality); and does not change over time (stability) (Abramson et al., 1978). The revised theory assumes a biased attributional style which predisposes the individual to depression.

Evidence of self-depreciating attributions has been found in depressed compared to non-depressed persons. The most consistent finding is an internal attribution for failure, while attributions on globality and stability dimensions remain equivocal (Coyne & Gotlib, 1983). The evidence for expectancy of uncontrollability and biased

perception of non-contingency among the depressed is even less convincing. Depressed persons display less self-serving bias than non-depressed in the presence of controllability and contingency; so the distortion is more characteristic of normality (Coyne & Gotlib, 1983; Sackeim & Wegner, 1986).

Lastly, regarding the causal role of attributional style, much of the evidence indicated that the learned helplessness theory is inaccurate; the observed attributional style is only temporary and manifested only during the depressed phase (Hammen, 1985; Hamilton & Abramson, 1983).

More support for a cognitive model of depression is seen in Beck's work. Permanence of depressogenic schemas, from which the cognitive triad flows (negative thinking about the 'self, the situation and the futur'), is the basic assumption. The depressogenic schemas are considered to be latent until a stressful event activates them (Beck, 1964; 1973). However, since they constitute a vulnerability assumption, the research has attempted to identify cognitive deficiencies antecedent to depression. As criticised by Coyne and Gotlib (1983), the acceptance of the latent nature of these schemas leaves few way to test the theory. Hence, generally it has been assumed that the predicted characteristics of schematic

functioning could be measured before the onset or the remission of depression.

The self-defeating attitudes and the negativism of the depressed person were thought to be a result of the depressogenic schemas and a distortion of the objective situation. While substantial evidence support more negativistic processing of information and selective recall of negative experiences, the distortion issue has been contradicted (Coyne & Gotlib, 1983; Lewinsohn et al., 1980). As was mentioned for the learned helplessness theory, a self-serving bias appear to characterize normal individuals, both in their perception and recall of events.

On the other hand, tests of the stability of the depressogenic cognitions point to their state-dependency. The depressive cognitions and self-schemas are found to be no longer evident when a person's depression remits (Hollon, Kendall, & Lumry, 1986; Hammen, 1985; Hamilton & Abramson, 1983). This result is embarrassing for the theory even if the cognitive vulnerability is true; because few other ways of showing the predisposing schemas exist. A general conclusion is that Beck's cognitive theory is descriptive of the depressive state. It has been criticized for not taking into account the relative importance of external factors. Recently, the theory has undergone some modifications and embraces this neglected domain to some extend. In his recent formulation of his model, Beck includes a personality dimension which interacts with the environmental events. He

distinguishes two personality types; "autonomous" persons who are success motivated, thus susceptible to failure in their everyday life, and the "sociotropic" persons who are sensitive to interpersonal relations (Hammen, 1985; Willner, 1984).

Although Beck's theory subordinated the emotional and behavioral components of depression to cognitions, Beck's therapeutic package includes behavioral methods. The cognitive-behavioral therapy of depression has become a routine, combining especially Beck's and Lewinsohn's models. Despite the criticisms that the cognitive-behavioral theory lacks a strong theoretical base (Beidel & Turner, 1986), the therapy has proliferated. Essentially the intervention consists of attempts of changing the depressive cognitions and increasing the positive reinforcements. Because of the inherent concurrence between these two models many comparison studies have been conducted. There are supporting evidence of the effectiveness of each mode of therapy (Jong, Treiber, & Henrich, 1986; Blaney, 1981; Hodgson, 1981; Shaw, 1977). But, what constitutes the effective ingredient in these therapy packages is a debated issue. If the difficulties of therapy research are considered, the conflicting results regarding the comparison are not surprising.

A recent approach has aimed to identify the differential effect of each component of therapy on symptoms. It was expected that the behavioral treatment would result in

improvement on behavioral measures and the cognitive manipulation would affect the associated measures (Rehm , Kaslow & Rabin, 1987; McNamara & Horan, 1986; Zeiss, Lewinsohn, & Munoz, 1979). In two of these studies this was not supported; whatever the treatment modality, the effect of treatment generalized to other non-manipulated dependant variables. So, a person who was in behavioral treatment improved also on cognitive symptom measures and vice-versa. Hence, Zeiss et al. (1979) discussed this result in terms of the effects of coping skills learning in inducing self-efficacy. However, this assertion has been invalidated, when cognitive-behavioral coping skills training was contrasted to non-directive Rogerian group treatment (Fleming & Thornton, 1980). The specific training did not have better outcome than a non specific treatment. The authors concluded that teaching of self-help skills is not a necessary condition to alleviate depression.

Even though it has not been replicated, the study of Hammen and Glass (1975),where the increase of RCPR resulted in increased depression, stands as the most threatening investigation to behavioral intervention of Lewinsohn. The undesired effect was explained by the authors to be due to the exclusion of mediating cognitive variables. They claimed that subjects, for whom the increase of pleasant events has not been effective, would probably be more depressed. In reply to this issue, Lewinsohn (1975) pointed to mood relatedness of the events and concurred that the assigned

activities had to be perceived as pleasant by the subjects. Related to this discussion, the effect of focus on pleasantness was found to be associated with a significant decrease on depression as measured by BDI. However, improvement on the subjective daily mood assessments were not evidenced (Dobson & Joffe, 1986).

In the light of its weak theoretical base, cognitive-behavioral therapy of depression has been largely considered to work as coping enhancement (Kessler, Price, & Wortman, 1985).

*Coping Model*

At a practical level, a person is uninterested in the aetiological factors of his/her emotional problems, in so far as s/he can not perceive a direct relationship between the two. In contrast to aetiological theories of depression, the coping model is concerned with the way in which people's behavior can ameliorate or maintain their depression (Kessler et al., 1985).

Although it can be traced back to Freud's work on defence mechanisms, the study of coping has proliferated in the last decade. The belief that appropriate coping strategies can ameliorate the impact of emotional distress guides the studies in this area, but many related questions persist. First of all, there is the confounding of coping

strategies with symptoms; secondly is the question whether coping prevents the instillation or distrupts the maintenance of depression (Kessler et al., 1985). Thirdly, how does one construe rational and irrational, effective and ineffective coping strategies and how does one decide to use such behaviors? These questions remain mostly unanswered.

In this respect the work of Rippere provided an important contribution to the question "how does one acquire a repertoire of coping behaviors". She proposed that there exists a culturally shared "common stock of knowledge" about depression and related coping behaviors which she called "antidepressive behaviors" (ADB). The main goal of her studies was to show that people are culturally endowed with coping behaviors. She began by showing that in response to the question "what's the thing to do when you're feeling depressed" people tended to agree on a number of "antidepressive strategies" (Rippere, 1977). She demonstrated that there was also some cross-cultural consensus upon such strategies (Caro et al., 1983). What was more surprising was that her respondents accurately predicted the degree of helpfulness of some ADBs for their peers (Rippere, 1979). Depressed and non-depressed persons were found not to differ in their use of ADBs and they reported utilizing the same amount of ADBs to control their mood as did non-depressed people (Rippere, 1976; Bloor, 1983). Subject variables such as sex, internality and conceptualization (major vs. minor/internal vs. external)

of depression had an influential effect on the repertoire and perception of ADBs, whereas current depressive status did not. The promising value of these findings is that even depressed individual have a potential to cope with their lowered mood.

Rippere (1980a; 1980b) has demonstrated that there is a consensual agreement about depression and what to do about it, but she writes as if the consensus is achieved as a result of a particular cultural tradition. One consequence would seem to be that different cultures would not inevitably share the concept of what to do and different cultures may have more or less extensive "stock of knowledge". Thus, in her Spanish study, she found a much lower frequency of responses to her basic question than in the English study (Caro et al., 1983). Rippere's work has not been so concerned with the impact of different coping styles on depression.

Other workers however, have sought for characteristic coping styles for depression. On this basis, researchers have become interested in distinguishing between depressed and non-depressed people's coping strategies, disregarding the appropriateness of coping. Depressed people have been reported to use some coping strategies -that are seemingly inappropriate-, more frequently than the non-depressed persons (Folkman & Lazarus, 1986; Beckman & Adams, 1984; Coyne, Aldwin, & Lazarus, 1981). One must be cautious on the results of these studies, because their categories of coping

behaviors are more susceptible to being labeled as symptoms. On the other hand, the study of Parker and Brown (Parker, Brown, & Blignault, 1986; Parker & Brown, 1982) specified coping behaviors similar to Rippere's ADBs, as well as "preventive" anti-depressive behaviors. They investigated the ADBs' impact and stability in the course of depression. In contrast to Rippere's findings (1976), their results showed that when depressed, people engaged less in coping behaviors compared to non-depressed persons and their less depressed phase; suggesting a state-dependent property of coping. Although, this result does not support the idea that people are vulnerable to depression because of a lack of coping strategies, suggests that depression influences an individual's use of coping behaviors. Thus, if the coping behaviors were a corollary of depressive symptoms, they would be expected to decrease in frequency when remitted; but, on the contrary the ADBs decreased during the course and increased by recovery from depression.

In a second prospective study, Parker et al. (1986) tried to predict the course of depression by examining the coping behaviors of clinically depressed persons. One of the important conclusions of this study in combination with the earlier 1982 study was that behaviors they classified as "self-consolation" (such as spending money, taking alcohol, eating,doing something to gain attention of others, listening to music) were predictive of less improvement. To a weaker degree, those behaviors which were described as "affect

reducing" (such as breaking things, watching TV) predicted a better outcome. "Distraction" behaviors (doing something to take your thoughts off the problem, taking on some new activity, finding a challenge in new activities) were weakly associated with less improvement, which is against the expectations. Parker's studies contrast in some ways with the work of Rippere, since it suggests that cognitive assumptions concerning what to do about depression may be ineffective despite their 'common-sense' basis. However, there have been no studies which have specifically investigated whether or not manipulation of "common-sense" antidepressive behaviors have any impact on depression. Most psychological studies of therapy have been associated with either cognitive or behavioral models, rather than arising from the coping approach.

The aim of the present study was to explore applications of the coping model to the treatment of depressed mood.

The hypothesis of this study are as following:

1. The first hypothesis is that there are consensually shared ADBs in Turkish college population.

2. The second hypothesis is that there is also a second order consensuality in relation to the 'degree' of helpfulness and difficulty of ADBs. In addition to the consensuality expected by the first hypothesis, it is expected that there will be also an agreement on the degree of helpfulness and difficulty

3. With regard to the association between the perception of the degree of helpfulness of ADBs and the intensity of depression, it is expected that the depressed persons will not differ from the non-depressed persons.

4. The antidepressive activity increase in a graded assignment framework is expected to alleviate the depressed mood.

5. The last hypothesis is that subjects having a control over the selection of which ADBs to increase will have a better outcome on depression than those who will not choose the activities themselves.

These expectations will be examined in three related studies.

## STUDY ONE

## COLLECTION OF ADBS

The first study was designed to identify specific ADBs in Turkish culture, asking people, "what's the thing to do when you're feeling depressed", using the methodology developed by Rippere (1977).

Up until now, there appears to have been only one cross-cultural study conducted in Spain, which suggests that there may be both similarities and differences in ADBs across cultures.

The essential aim of this study was to collect the variety of behaviors that could have antidepressive potential and to make a cross-cultural comparison with the data gathered from Rippere's (1977) English, and Caro et al.'s (1983) Spanish studies.

### METHOD

*Subjects*. 193 METU students, all from the preparatory classes, in the age range of 17-25 participated as respondents to the study.

*Material*. Since the expression "feeling depressed" was not thought to be widely used in Turkish, the help of 14 psychiatrists and psychologists working in clinical settings was sought. They were individually approached and asked the

expressions that their clients use when communicating their depressed mood, and what could be equivalent to the English expression "feeling depressed". The most frequently enumerated expression (12 out of 14 respondents) was retained for the wording of the question. Two other terms that were suggested by these respondents were inserted between paranthesis (See Appendix A).

*Procedure*. Subjects were contacted in their classrooms and handled the questionnaire where they were asked "what's the thing to do when you're feeling depressed" ("kendinizi çokkun (bezginlik, bunalma) hissetiginizde neler yaparsiniz") and required to write down their responses. They were told that there were no wrong answers, and that they could feel free to write whatever they had in mind.

## RESULTS

*Content analysis*. A response was operationalized as any element of behavior that could be performed independently from any other. A response that was mentioned more than once was counted as one single behavior. The content analysis was carried out inductively to form the category headings.

*Quantitative analysis*. As is shown in Table 1, the sample produced a total of 984 non-repetitive responses. In term of the mean response rate, this appears to be less than the English sample, but greater than the Spanish study results. The average Turkish University student came up with

5 ADBs. Even though the range of antidepressive responses for Turkish sample is narrower, the average is almost double of the Spanish sample.

Table 1. Response Number by Sample

| | English | Spanish | Turkish |
|---|---|---|---|
| n | 50 | 50 | 193 |
| resp. num. | 731 | 137 | 984 |
| mean/sd | 14.62/N.A. | 2.74/N.A. | 5.10/1.95 |
| range | 5-53 | 1-16 | 1-12 |

N.A. : Not available

*Consensual responses*. The analysis of responses showed a great consensuality ratio, even surpassing the English proportion. Ninety three percent of the responses in Turkish sample was mentioned by more than one person. This must be due in part to the difference in sample sizes (Table 2); since with greater sample sizes the chance of having a response mentioned by more than one person is proportionately higher.

Table 2. Number and Percent of Consensual and Non-consensual Responses

| | English | | Spanish | | Turkish | |
|---|---|---|---|---|---|---|
| consensual | 571 | 87% | 61 | 51% | 911 | 93% |
| non-consensual | 84 | 13% | 59 | 49% | 73 | 7% |
| total | 655 | | 120 | | 984 | |

*Consensual items*. The total number of ADBs was higher than the Spanish study, but lower than the English (Table 3). Surprisingly, the percent of items that were consensual was very similar to the English study. Although the sample sizes were different the proportions of consensual to non-consensual were very much alike: as much as 60% of the items were consensually approved, and some 40% of the ADBs collected were individual behaviors, mentioned only by one person. The tendency of the average English respondent to mention almost 15 ADBs may account for the high consensuality. However, this may also reflect the fact that in English culture people are more aware of the 'common stock of knowledge' (See Appendix B).

Table 3. Number and Percent of Itemized ADBs

| | English | | Spanish | | Turkish | |
|---|---|---|---|---|---|---|
| consensual | 126 | 60% | 19 | 25% | 98 | 57% |
| non-consensual | 84 | 40% | 58 | 75% | 73 | 43% |
| total | 210 | | 77 | | 171 | |

## DISCUSSION

Of all the ADBs obtained, more than 50 percent were found to be consensual. Compared to English culture, the variety of ADBs was restricted, but the proportion of consensual to non-consensual remained similar. The greater ratio of consensuality of responses supports the idea that a larger sample would provide a higher rate of consensuality in responses. This is also reflective of the power of consensuality on some ADBs since most of the responses given were consensual items, and very few were non-consensual behaviors : So, 911 responses accounted for 98 consensual ADBs. Although much less than the English respondent, the average Turkish respondent gave almost twice as many ADBs as the average Spanish respondent. The inspection of consensual vs. non-consensual item proportion indicate that only 40 % of the ADBs are given by only one person. This suggests that individuals share a "common stock" of ADBs; but, also develop or adopt their own unique ADBs. The comparison to the English and Spanish studies deserve caution, because the sample size was held much larger in Turkey.

Since the aim of the study was essentially the collection of ADBs, the sex difference pointed out by Rippere (1977) was disregarded. This will be examined however in the next study.

In summary, the results supported the influential effect of "common stock of knowledge" on individual's coping behaviors in the case of depression.

## STUDY TWO

## CONSENSUS OVER ADBS

The aim of this second study was to itemize the ADBs derived from the first study into a questionnaire and identify their helpfulness and difficulty as perceived by a group of students. Furthermore, the study was designed to provide evidence of the consensuality over the ADBs constituting the Antidepressive Activity Questionnaire (AAQ). At the same time, in order to test whether perceptions of helpfulness and difficulty of ADBs is affected by the level of depression of the raters, a depression questionnaire (BDI) was included in the study.

### METHOD

*Subjects.* 99 females, 88 males and 9 subjects who did not mention their sex participated in this study. Altogether, 196 METU students in the age range of 17-27 completed the questionnaires.

*Measures*

*Beck Depression Inventory (BDI).* The BDI is a self-report inventory of 21 items developed and introduced as an assessment tool by Beck et al. (1961). Each item is scored between 0-3, and highest possible total score is 63. The items are representative of 21 symptom areas. The inventory is reported to have good concurrent validity as found by the association of BDI and clinical ratings (range of r=.60/.90;

Steer, Beck & Garrison, 1986). However, the discriminant validity, which is reported to range between .50 and .80, is challenged by findings that BDI is also associated with anxiety (Steer et al., 1986; Matsoumi & Kameoka, 1986).

The BDI is extensively used in the screening of depressed students, and many have reported the presence of a high ratio of depressive complaints in college population (Lightfoot & Oliver, 1985; Hammen, 1980; Oliver & Burkham, 1979; Bumberry, Oliver & McClure, 1978). The mild level of depression is suggested to score below 14, the moderate between 14-20, and the severe level of depression above 21. In spite of this, many screening studies included students scoring higher than 10, relying on the original score ranges proposed by Beck (Steer et al., 1986).

The BDI has been translated to Turkish by Buket Tegin (1980). She reported the test-retest reliability as .65; and found split-half reliability to be .78 for students and .61 for depressed patients.

Recently, Hisli (1987a) reported the split-half reliability as r=.74 with a larger sample of university students (n=259) with mean score 9.58 (sd=6.75). With regard to the concurrent validity, Hisli (1987a) found a high correlation (Pearson r=.50) between the BDI and MMPI-D scale which was used as the criterion measure. However this correlation was lower than the coefficient she found with psychiatric outpatients (r=.63) (Hisli,1987).

In both of her studies she suggested a cutting point of 17 either in student or psychiatric patient population. Lastly, no sex difference on mean BDI scores was found.

As a result there is supporting evidence for the use of BDI as a reliable and valid measure in a Turkish student population.

*The Antidepressive Activity Questionnaire (AAQ).* The 98 consensual ADBs of the previous study constituted the basic pool of items of this questionnaire. Forty-two consensual ADBs were retained without any alteration. Forty-six items further were consensual, but were similar in meaning and thus were joined to one or more other to make up 18 items of AAQ; for example "joking" and "laughing" formed the "joking and laughing" item. Another 9 consensual items were connected with 9 non-consensual items to form 7 new items; either consensual items were joined together with consensual items to form new unique items, or one consensual was joined to other non-consensual items. Here the category labels were enlarged to include the others. For example, the separate consensual item "going to movie" and "going to theatre" were joined to the non-consensual item "going to a concert" and a composite item "going to movie, theatre or concert" was formulated. Also, the consensual item "tidying up" was associated with the non-consensual item "cleaning up" to make up the composite item "cleaning and tidying up around the house". Lastly, 10 non-consensual items were brought

together to form 3 new items. One was telling about "outing to shopping centre" and another expressed this as "window shopping"; these were joined as "outing to shopping center, window shopping". At the end of these manipulations, the AAQ constituted 70 ADBs (see Appendix A for details of AAQ; reformulated and constituting categories, frequencies, etc.).

Each item of the AAQ had to be rated on a 7 point scale for its helpfulness and difficulty separately (1=least helpful/difficult; 7=most helpful/difficult).

*Data collection*. Both the BDI and AAQ were administered in classroom settings to volunteer students. They were requested to carefully follow the instructions that were also given orally, and any questions were answered by the examiner. Because of the time constraints, one third of the students took the questionnaire at home and returned them the following day to their teachers. They were also requested to explicitly state if they wanted to participate in a subsequent study, and mark their names.

## RESULTS

The following analyses are computed with SPSS (Hull & Nie, 1981; Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975) on Burroughs A9F system.

A. *Beck Depression Inventory (BDI).* The mean score on BDI for the whole sample was 11.32 (sd 7.36). Scores ranged between 0 and 41. Half of the sample scored in the 0-9 range; 26 % in the 10-15; 18 % in the 16-23 range and 6 % had scores higher than 24. Although males scored higher than females (mean=12.20, sd=7.71; mean=10,71, sd=7.09 respectively), the difference was not significant (t(166)=1.31; ns).

B. *Analysis of consensus.* The sample was randomly split to two groups and mean ratings of helpfulness and difficulty for each ADB was computed in each group. Thus, each group came out with mean ratings of helpfulness and difficulty for 70 ADBs and the obtained 280 means were processed in the analysis. Kendall's and Spearman's rank order correlations between two groups' means for helpfulness and difficulty for the whole questionnaire was performed. The correlation coeffients are shown on Table 4.

Table 4. Spearman's and Kendall's Rank Order Correlation Coefficients Between Two Random Groups

| | | HELPFULNESS | | DIFFICULTY | |
|---|---|---|---|---|---|
| | | Group1 | Group 2 | Group 1 | Group 2 |
| HELPFULNESS | Group 1 | -- | .974* | .013 | -.29 |
| | Group 2 | .875* | -- | .035 | -.016 |
| DIFFICULTY | Group 1 | .003 | .020 | -- | .964* |
| | Group 2 | -.032 | -.023 | .852* | -- |

Note: Above the diagonal Spearman's rho; below Kendall's tau

* $p < .001$

The rank order correlations showed that there were strong relations between the two groups's mean ratings and the ranking of the items according to their helpfulness and difficulty. As a result, an item which was found strongly helpful by one group, was also ranked by the other group at the top of the list. This was similar for the difficulty of ADBs. Nevertheless, the two groups concurred on the unrelatedness of helpfulness to difficulty. The non significant coefficients between helpfulness and difficulty ratings are indicative of this result.

To test whether depressed subjects' perception of ADBs was similar to non-depressed persons, the mean ratings of helpfulness and difficulty for each item in each group were computed. Subjects scoring less than 8 on BDI constituted

the low-depression and those above 17 formed the high-depression groups (n=77 and n=42 respectively). The mean ratings of 70 items of AAQ in each group were correlated with the other group's ratings. Spearman rank order correlations indicated that on both helpfulness (rho=.94; df=70; $p < .001$) and difficulty (rho=.91; df=70; $p < .001$), ranking of the items were similar in the two groups. Thus, the mean ratings for each of the 70 items of the depressed group did not differ from the non-depressed sample's ratings. This indicates that the depressed students also share the common knowledge about the degree of helpfulness and difficulty of ADBs.

C. *Relations with depressed mood*. Total scores of difficulty and helpfulness were computed by adding the ratings of 70 items for each subject. The total scores were correlated with each other and then with BDI. The only significant association was between the total difficulty rating and the BDI (Pearson r=.30; df=168; $p < .001$). Partialling out of the effect of the third variable did not change the correlation pattern, still the difficulty correlated positively with BDI (r=.31; df=165; $p < .001$).

To test whether the most depressed subject was most likely to rate the ADBs as more difficult to engage in than the average individual, subjects were grouped as above. Those who scored less than 8 on BDI constituted the low-depression and those above 17 formed the high-depression

groups. Since subjects who had more than 17 missing ratings out of 70 items were excluded the sample size was smaller than the preceding grouping. One-way analysis of variance between groups on the mean across all items' total helpfulness and difficulty scores proved that the depressed group did not rate the helpfulness differently than the non-depressed subjects ($F(1,85)= .04$; ns). However, the depressed group perceived the ADBs as more difficult to engage in ($F(1,85)= 7.08$; $p < .01$). The associated means are shown on Table 5.

Table 5. The Means and SDs of Depressed, Non-depressed and Total Groups on Helpfulness and Difficulty

| | HELPFULNESS | | | DIFFICULTY | | |
|---|---|---|---|---|---|---|
| | depressed | non-depres | total grp | depressed | non-depres | total grp |
| n | 21 | 66 | 170 | 21 | 66 | 170 |
| Mean | 3.81 | 3.76 | 3.81 | 3.54 | 3.06 | 3.25 |
| S.D. | .67 | .57 | .57 | .77 | .70 | .72 |
| S.E | .15 | .07 | .04 | .17 | .09 | .06 |

Lastly, one way ANOVAs on helpfulness and difficulty scores between males and females were conducted. Results showed that neither the helpfulness score ($F(1,160)=2.176$; ns) nor the difficulty of ADBs ($F(1,160)=.15$; ns) were affected by the sexe of the rater.

## DISCUSSION

The consensuality on helpfulness and difficulty of ADBs is mirrored in the high correlations between the ratings of two halves of the sample and ratings of depressed and non-depressed groups. A strong consensus effect appears for both helpfulness and difficulty dimensions. Thus, beyond the common stock of knowledge about the antidepressive activities, the consensuality about the degree of helpfulness and difficulty has also been established. On the other hand, the consensual knowledge of helpfulness seems unrelated to the consensual rating of difficulty of the ADBs, suggesting two independent dimensions. Thus, the degree of helpfulness of coping behaviors are independent of the degree of difficulty.

The 70 item AAQ also contained behaviors that could be considered inappropriate such as taking alcohol, smoking, eating, breaking things or being alone. The ranking of the items according to their helpfulness rating showed that, although they were reported as ADBs, they were among the least helpful behaviors. Crying, a symptom of depression, was considered as a moderately helpful ADB.

Concerning the perception of helpfulness of ADBs, the intensity of depression was not found to be influential. Both the correlational and one way analysis of variances

showed that the intensity of depression did not affect one's perception of helpfulness of ADBs. Nevertheless, the ratings of difficulty were associated with the depth of depression; the more depressed one subject was, the more difficult was for him/her to engage in ADBs. Although they do not perceive the ADBs as less helpful than the non-depressed persons and concurred on the consensual difficulty of ADBs, the depressed persons clearly expressed their difficulty in engaging in coping behaviors.

Sex of the raters was unrelated to the perception of helpfulness and difficulty. In the English study females were found to report more ADBs than males. The preceding study did not provide comparable results, however it is seen that females do not rate ADBs differently than males.

The interrelations may be summarized as follows. First, with the increasing level of depression coping becomes more difficult. Second, even the depressed persons share the common beliefs about the degree of helpfulness of coping.

The fact that helpfulness remains intact in the presence of depression is parallel to some findings on pleasantness, which suggest that the depressed subjects do not approach the activities with a reduced expectation of pleasantness (Carson & Adams, 1980). As far as the learned helpfulness is concerned, the cognitive or learned helplessnes point of view

does not hold. Neither the consensual knowledge about coping is distorted nor a negativistic expectation prevails. The reverse may be true when the difficulty is considered. Although, their ranking of items according to their difficulty was very similar to non-depressed persons, the depressed subjects clearly stated more difficulty in coping, which is not unexpected if the behavioral components (i.e. inertia) are taken into account. Unfortunately, the design does not unable us to evaluate the stability of this feature; whether the difficulty of coping is dependent on depressed mood or whether it is a predisposing characteristic of the depressed person remains questionnable.

## STUDY THREE

## INTERVENTION

This last study aimed to explore the impact of enhanced engagement in antidepressive activities in depression. The previous study pointed to the difficulty of coping in depressed state. As already mentioned, most of the cognitive behavioral treatments of depression are considered to act as coping enhancement. Up to now, no attempt at direct manipulation of coping behaviors has been conducted. The question regarding which kind of coping behaviors are to be enhanced remains obscure. However, the ADBs stand as specific, goal-oriented activities consensually accepted both by depressed and non-depressed persons. Increased activity scheduling is frequently prescribed in cognitive-behavior therapies. The counselor, together with the client, identifies potentially reinforcing activities and prescribes their increase. The general assumption is that the increase of positive reinforcement will counteract the depressed mood. The aim of this study was to prescribe helpful ADBs to significantly depressed students, using a graded task assignment framework. The previous study suggested that depressed subjects found coping more difficult. So, it was planned to begin the prescription by the easier ADBs.

Another related issue is the degree of helpfulness of ADBs. Although reported as antidepressive, some were

consensually identified as much less helpful than others. This may be related to the inappropriate /appropriate distinction already discussed. For this reason, only ADBs that were rated most helpful were selected and the least helpful activities were eliminated. The items to be kept were ranked according to their difficulty.

In spite of the consensuality of the ADBs, it was intended to examine the effect of self-selection vs forced-assignment of antidepressive activities. As indicated by Hammen (1975), the attribution to an external source may counteract the effect of coping. However, the contrary also seems plausible: In the inertial state, an external exertion may be necessary to initiate coping and the individual may still experience the alleviation of depressed mood without necessarily making any adverse attribution.

## METHOD

*Subjects.* 17 subjects, with mean age 21.76 (sd=2.04; range=19-24) began the study. Two of these subjects (1 male, 1 female) dropped out during the study. Eight males (mean age=22.75; sd=1.64; range=19-24) and 7 females (mean age=20.14; sd=1.55; range=19-23) finished the intervention program. All were undergraduates from various departments of METU. Subjects were recruited by poster advertisements, calling for volunteers who want to overcome their "depressed feeling". Five subjects declared having sought treatment in

the last two years; and one was on medication during the previous month, but said that he seldom took medication and discontinued in the last week. None of the subjects were hospitalized for depression.

*Measures*

*Beck Depression Inventory (BDI).* The BDI, the Turkish version, was briefly described. The mean BDI score was 11.32 with a standard deviation of 7.36 (range= 0-41) among METU students. One standard deviation above the mean was set as the inclusion criterion. Consequently, subjects scoring higher than 18 were admitted to the intervention program.

*Antidepressive Activity Questionnaire (AAQ).* The 70 item AAQ was reduced to 40 items by eliminating the least helpful ADBs. First, the 70 items were ranked according to their mean helpfulness rating and the 25 items that were least helpful were excluded. Five items among the most helpful were exluded, because their performance were either dependent on a skill -such as "playing guitar", "transcendental meditation" or "drawing"- or because they showed a bimodal distribution, such as "staying alone"-, which a majority of the respondents rated in fact as "least helpful" (mode=1). Lastly, "crying" was excluded from the schedule, for practical reasons, since it would be unwise to assign such an ADB as an activity to increase.

These 40 items were ranked according to their mean difficulty rating in descending order. The top 10 items were grouped as "difficult", and the 10 easier items constituted the "easy" ADBs. The remaining 20 items were "moderately difficult" and "moderately easy" groups with 10 ADBs in each.

*Daily Mood Ratings.* The daily mood rating was a 10 point Likert-type scale which was to be rated each night for the whole day, ranging from "very depressed" (1) to "very happy" (10).

*Hamilton Rating Scale of Depression (HRSD).* The HRSD is a 17 item rating scale developed by Hamilton (1960) . The scale which served as a structured interview tool, was included to cross validate the assessment made by BDI.

*Procedure*

Every subject who responded to the advertisement was administered the BDI and if s/he scored 18 or above s/he was included in the study and randomly assigned to one of the three groups. Subsequently, a semi-structured interview was conducted using HRSD. Subjects were seen individually and given preliminary explanations about the study. They were told that the study was examining mood and activity relations and were requested to start monitoring their engagement in antidepressive activities, using the 40 item AAQ beginning on the following day. An appointment was fixed for a week

later. The first group was called "the Self-Choice Activity Increase", the second one "Forced-Choice Activity Increase", and the last one the "Monitoring-Control" group. The intake into the program continued until there were 5 subjects in each group. The treatment lasted three weeks. In the first week all subjects monitored their activities; the second and the third weeks were used for activity scheduling for the two experimental groups.

*Treatment*

*Monitoring*

*First Week.* All subjects had to monitor their mood and ADBs during the first week. They were shown how to fill out the AAQ and the Daily-Mood Ratings. They were instructed to mark the number of times they engaged in each ADB for the whole day before going to bed. In addition, they had to register their overall mood for the entire day.

*Activity Assignment*

Second Week.

a. *The Self-Choice Activity Increase Group.* Subjects in this group selected 5 easy and 5 moderately easy items out of two lists of 10. The rational of the ADB increase was discussed and they were instructed to choose items that they could increase their engagement in. Along with monitoring like in the baseline period, they were required to increase the number of ADBs during this second week.

b. *Forced-Choice Activity Increase Group.* Each subject in this group was assigned 5 easy and 5 moderately easy ADBs that were choosen by one subject of the Self-Choice group. Thus, all subjects of the Forced-Choice group were given the same ADBs selected by subjects of the Self-Choice group, giving rise to a matching of subjects on the basis of assigned activities.

c. *Monitor-Control group.* Subjects in the control group were required to continue monitoring their ADBs and mood during the same week.

*Third week.*

a. *Self-Choice Group.* Subjects in this group selected this time 5 moderately difficult and 5 difficult items among the 20 ADBs of the associated ADB lists, for the last week.

b. *Forced-Choice Group.* Subjects in this group were again assigned 5 moderately difficult and 5 difficult ADBs which were choosen by their counterparts in the Self-Choice group.

c. *Monitor Group.* Participants in this group continued monitoring without any instruction to increase their activities.

In summary, for all groups, the first week of treatment was spent in monitoring and this constituted the baseline. By the second week, subjects in the experimental conditions

were instructed to increase the 10 ADBs which were either selected by themselves or which were assigned to them.

An average session took between 30-45 minutes. The main focus during the sessions was on the ADBs, and the coping structure of the intervention program. But, if a subject brought a personal topic, this was discussed briefly.

At the end of the program, the BDI was readministered, and the follow-up took place one month later.

## RESULTS

The analysis focused on the effect of treatment group and assessment time on BDI and mood ratings; and then on the relations of antidepressive acticity frequency with level of depression; and lastly on the effects of compliance to treatment.

### A. *Initial level of Depression*

I. *Pre-assessment BDI.* Since the treatment groups were formed by random assignment of subjects, one-way ANOVA on the BDI was conducted. The three groups did not differ on the pre-assessment BDI scores ($F(2,12)=.403$; ns), hence, groups were equal on their initial level of depression.

II. *The HRSD and the BDI relation.* The ratings on HRSD correlated significantly with BDI scores (Pearson r=.70; df=15; $p < .01$) reflecting the accuracy of self-report of depression. The mean score on HRSD was 8.6 (sd=5.0), ranging between 3 and 22.

B. *Effects on Depression*

I. *Analysis of BDI scores*

1. *Immediate Effects.* The BDI data was analysed by 3x2 repeated measure analysis of variance (Kirk, 1968), the treatment group (Self-Choice vs Forced-Choice vs Monitor-control) as between subjects and the assessment time (pre vs post) as within subjects factors. The mean BDI scores are given in Table 6.

Table 6. Means, SDs and Range of BDI Scores

| | | Pre-Assessment | Post-Assessment | Follow-up Assessment |
|---|---|---|---|---|
| Self-Choice | Mean | 29.0 | 12.0 | 9.6 |
| | SD | 5.79 | 4.18 | 9.04 |
| | Range | 22-37 | 8-18 | 2-25 |
| Forced-Choice | Mean | 26.0 | 8.6 | 6.2 |
| | SD | 7.58 | 8.59 | 5.26 |
| | Range | 18-35 | 2-18 | 1-14 |
| Monitor | Mean | 26.2 | 18.80 | 10.0 |
| | SD | 3.70 | 9.73 | 5.05 |
| | Range | 22-31 | 9-32 | 6-16 |

As displayed in Table 7, The analysis yielded significant main effect of Time ($F(1,12)=78.24$; $p < .01$) and interaction of Group x Time ($F(2,12)=4.31$; $p < .05$). Although no main effect of Group was obtained the interaction pointed to the differential outcome between the groups. Additional t-tests were conducted for each group to examine the differences between their pre and post BDI scores.

Table 7. ANOVA of Group by Time (pre-post) on BDI Scores

| Source | SS | df | MS | F |
|---|---|---|---|---|
| Between Subjects | 1077.2 | 14 | | |
| A (Group) | 137.6 | 2 | 68.8 | .88 |
| Ss within groups | 939.6 | 12 | 78.3 | |
| Within Subjects | 1839.5 | 15 | | |
| B (Time) | 1456.0 | 1 | 1456.0 | 78.24** |
| AB (Group x Time) | 160.3 | 2 | 80.1 | 4.31* |
| B x Ss within grps | 223.3 | 12 | 18.6 | |
| Total | 2916.7 | 29 | | |

*p < .05
**p < .01

It was found that the two experimental groups' post-assessment BDI scores were significantly less than their preassessment depression levels ($t(4)=8.84$ and $t(4)=5.19$ respectively; both $p < .01$ ). On the other hand, the drop in depression level in the control group did not reach significance ($t(4)=2.73$; ns). In summary, both the experimental groups decreased on BDI scores; whereas the

monitor group, despite showing a drop, did not significantly differ on the post-assessment BDI from the pre-assessment level, which accounts for the interaction effect.

As a control of the activity level of the subjects in the control group, the frequencies of engagement in ADBs in three weeks were compared by t tests. Summing up the frequency of 40 ADBs across a week, three total scores of activity were computed for each subject in the control group. None of the group means was significantly different from the other weeks' mean activity level ($t(4)=.70$; ns for week 1 and week 2; $t(4)=-.19$; ns for week 1 and week 3; and $t(4)=-.87$; ns for week 2 and week 3). Thus, the antidepressive activity level of the controls did not change during the treatment.

2. *Follow-up Effects.* The inspection of means (see Table 6) shows that the depression levels are almost equal in all groups on the follow-up assessment. A 3x2 (treatment group X pre vs follow-up) ANOVA revealed only a significant main effect of Time ($F(1,12)=82.0$; $p < .01$) and the interaction effect disappeared ($F(2,12)=.31$; ns). As a result, all groups' post-assessment BDI scores were significantly less than their initial level.

Because of small $n$ in groups $F_{max}$ tests (Kirk, 1968) were conducted for each of the previous ANOVAs for testing the homogeneity of error variances between groups. This revealed that, by pooling the error variances, the assumption of homogeneity of variances was not violated ($F_{max}.05(2,4)=2.47$; ns for the error variance of Group; $F_{max}.05(2,4)=3.04$; ns for the error variance of Time for pre vs post ANOVA; $F_{max}.05(2,4)=4.13$; ns for the error variance of Group; $F_{max}.05(2,4)=3.57$; ns for error variance of Time for the pre vs follow-up ANOVA).

Non parametric tests were also conducted for the main effects. Results are presented in the Appendix D, and were generally supportive of the results of ANOVAs. No group differences emerged; but, the experimental groups' pre-post scores of BDI differed significantly, whereas the control group's did not.

Overall, these results are indicative of the facilitative effect of ADBs on depression. Although all had decreased in their depression scores by follow-up, the enhanced use of ADBs accelarated their recovery.

II. *Analysis of Daily-Mood Ratings.*

The mood ratings for each day were summed up for each week. Hence, total Mood scores were obtained. So, each subject had three total Mood scores for the three weeks of the intervention. Details of the Mood Rating data are shown in Table 8.

Table 8. Means, SDs and Ranges of Total Mood Scores of Three Weeks

| | | Week 1 | Week 2 | Week 3 |
|---|---|---|---|---|
| Self-Choice | Mean | 30.0 | 35.6 | 36.6 |
| | SD | 3.58 | 5.99 | 0.80 |
| | Range | 25-36 | 28-43 | 36-38 |
| Forced-Choice | Mean | 36.2 | 35.0 | 36.4 |
| | SD | 5.78 | 1.90 | 5.35 |
| | Range | 29-46 | 33-38 | 27-43 |
| Monitor | Mean | 31.0 | 30.0 | 34.4 |
| | SD | 2.45 | 5.18 | 9.31 |
| | Range | 27-34 | 20-35 | 22-46 |

Repeated measures 3x3 ANOVA, the Group as between subjects and the Time (three weeks) as within subjects variables, was conducted on Mood data. Neither Group nor the Time affected the Mood Ratings ($F(2,12)=1.57$; ns for Group; $F(2,24)=1.55$; ns for Time main effects). No interaction was found ($F(4,24)=.82$; ns).

According to subjective Mood Ratings, subjects' mood did not change during the treatment period, which contradicts the results on the BDI.

C. *ADB and Depressed Mood*

The frequency of engaging in ADBs was analyzed to test whether the antidepressive activity level was correlated to depressed mood.

Four computed scores were derived concerning the ADB frequency.

The first score concerned the baseline ADB frequency which was obtained by summing up the frequency of engaging in 40 ADBs during the first monitoring, week (**Baseline 1** ). This was a general baseline score of ADB frequency for all subjects (n=15) which reflected the subjects' level of engagement in ADB's before they were instructed to increase their ADBs.

A second baseline for subjects in the activity increase conditions was computed for the 20 behaviors that were assigned (through self-selection or forced-assignment ) during the second and third weeks at the program (**Baseline 2**). Each subject's assigned activities were identified and for these items the total frequency of the engagement during the monitoring phase was computed. The difference between

these two baseline scores was that the first one comprised all 40 ADBs and the second baseline score included only those 20 items that subjects were required to increase during the intervention period. The latter could only be calculated for the 10 subjects in the experimental conditions, since subjects in the monitor control group were never told to increase their ADBs.

The computation of antidepressive activity during the intervention period was done by summing the frequency of assigned ADBs for the 10 experimental subjects. Since each subject in the experimental conditions were assigned 10 activities during the second and third weeks, this score was based on a total of 20 ADBs. The obtained **"intervention period ADB score"** was comparable to the second baseline score, since both were based on the same ADBs for each subject.

The subtraction of the Baseline 2 score for the 20 ADBs from the "intervention period activity score" provided an index of the increase in antidepressive activity during the intervention period. So, the level of antidepressive activity level of each subject was **"corrected"** according to his/her baseline on these same behaviors. Group means, sd and ranges are given in Table 9.

Table 9. ADB Frequency Before and After Activity Increase

| | Mean | SD | Range |
|---|---|---|---|
| Baseline 1 (n=15) | 91.47 | 23.72 | 49-138 |
| Baseline 2 (n=10) | 51.10 | 11.88 | 35- 71 |
| Intervention Period (n=10) | 76.90 | 14.02 | 50-102 |
| Corrected Increase (n=10) | 25.80 | 20.17 | 21- 47 |

Note : Baseline 1 = ADB frequency over monitoring week for 40 items
Baseline 2 = ADB frequency over monitoring week for 20 items
Intervention Period= (ADB frequency over second and third weeks for 20 items)/2
Corrected Increase = (Intervention Period - Baseline 2)

To examine the relationship of depression with antidepressive activity level, Pearson correlation coefficients were calculated between BDI scores and total Mood Rating and activity scores. The coefficients are displayed in Table 10.

Table 10. Correlation Coefficients Between Activity, Depression and Mood Scores

| | Base 2 | ADB Inter | Corr. ADB | Pre BDI | Post BDI | Follow up BDI | Mood 1 | Mood 2 | Mood 3 |
|---|---|---|---|---|---|---|---|---|---|
| Baseline 1 (n=15) | .80 *** | -.34 | -.71 ** | -.46 ** | -.19 | .03 | .71 *** | -.02 | .12 |
| Baseline 2 (n=10) | | -.21 | -.73 *** | -.73 *** | -.33 | -.06 | .51 * | -.40 | -.27 |
| ADB Intervention Period (n=10) | | | .82 *** | -.28 | -.53 * | -.36 | -.41 | .32 | .04 |
| Corrected ADB Increase (n=10) | | | | .23 | -.17 | -.22 | -.59 ** | .45 | .18 |
| Preassessment BDI (n=15) | | | | | .52 ** | .24 | -.22 | .07 | -.31 |
| Postassesment BDI (n=15) | | | | | | .34 | -.04 | -.45 ** | -.75 *** |
| Follow-up BDI (n=15) | | | | | | | -.02 | -.19 | -.04 |
| Mood First Week (n=15) | | | | | | | | -.03 | -.01 |
| Mood Second Week (n=15) | | | | | | | | | .44 ** |

* p < .10
** p < .05
*** p < .01

The baseline for 40 activity level (Baseline 1) correlated -.46 (df=15; $p < .05$) with preassessment BDI scores and .71 (df=15; $p<.001$) with the mood ratings of the monitoring week. Consequently, the enhanced antidepressive activity level was associated with a less intense depressed mood at the initial phase of treatment. The initial level of

ADB did not show any association to subsequent depressed mood; both the mood rating of the second and third weeks and BDI outcome on postassessment were not significantly correlated to Baseline 1 ADB scores. Furthermore, the baseline for the 20 ADBs (Baseline 2) that subjects were assigned was also found to correlate -.73 (df=10; $p < .01$) with the initial BDI scores. So, in general the more depressed subjects engaged in fewer ADBs immediately before the intervention began.

Results regarding the association of the increased ADB level with the outcome of depression were less clear. The activity frequency during the second and third weeks did not show significant correlation with the preassessment level of depressed mood. On the other hand, the antidepressive activity level during the treatment was weekly associated with their post-assessment BDI scores (Pearson r=-.53; df=10; p=06) suggesting a better outcome for those who had most ADBs during the activity increase period regardless of their baseline level.

Briefly, the baseline antidepressive activity was found to be negatively correlated with depressed mood as measured by BDI and positively with Daily-Mood Ratings. The ADB level during the treatment period which consisted of activity increase, was weakly related to the BDI outcome, suggesting again that higher attempts of coping resulted in better alleviation of depression. The latter relationship was not evidenced in the self-rating of mood.

An interesting relationship in this context is the negative association between the baseline activity level and the compliance which is expressed by the increase from the baseline. So, it is seen that higher increase of the ADBs is related with lower level of antidepressive activities in the baseline; this will be further analyzed in the following section.

Mood rating of the baseline period does not reflect the initial level of depression, as observed in the correlation between monitoring week's mood rating and the pre-assessement BDI. In contrast to the unrelatedness of these two measures of depressed mood in the baseline, the third week's mood rating is strongly associated with the outcome BDI measurement. Lastly, the preassessment BDI score appears as positively related to the outcome assesment on the same measure (Pearson $r=.52$; $df=15$; $p < .05$); whereas only the mood rating between second and third weeks do display an association. This suggests that mood rating are less stable and reliable indicators of depression.

D. Compliance to Treatment

In many studies the issue of compliance to treatment remains mostly an uncontrolled variable (Primakoff, Epstein, & Covi, 1986). In this section the compliance to the activity increase requirement will be analized. Rather than

the "self-selection vs. forced-assignment" issue, the compliance may be a source of differential outcome. Subjects in the experimental conditions were required to increase ADBs, but their compliance could only be assessed retrospectively through the monitoring of their engagement in the assigned activities. The previous correlational results regarding the association of the baseline activity level and the increase in ADBs suggest that those who had less frequent engagement in ADBs before the treatment period, increased their ADBs most and thus complied most. While this is indicative of a greater willingness to comply for those who have lower levels of antidepressive activities, no relationship was found between the initial ADB level and depression outcome. To see whether compliance which indicated a greater increase of the ADBs, was associated with the initial level or associated with the outcome of depression, the 10 subjects in the two activity increase groups were divided into high and low compliers according to their score on the "computed (corrected) increase score". With this procedure 5 subjects who scored less than the mode (28) on the increase measure, formed the low-compliers group and those who increased their activities more during the treatment made up the high-compliance group. Table 11 summarize the data for the two groups.

Table 11. Means and SDs of High and Low-Compliance Groups and t Test Analysis Results

| | Low Compliers | | High-Compliers | | | | |
|---|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | t | df | p |
| Baseline 1 | 113.80 | 16.18 | 72.80 | 18.91 | 3.68 | 8 | < .01 |
| Baseline 2 | 59.60 | 8.36 | 42.60 | 8.20 | 3.25 | 8 | < .05 |
| ADB Intervention Period | 72.40 | 12.97 | 81.40 | 14.96 | -1.02 | 8 | ns |
| Corrected ADB Increase | 12.80 | 20.45 | 38.80 | 8.64 | -2.62 | 8 | < .05 |
| Pre-assessment BDI | 24.20 | 4.49 | 30.80 | 7.01 | -1.77 | 8 | ns |
| Post-assessment BDI | 9.80 | 6.02 | 10.80 | 7.86 | .23 | 8 | ns |
| Follow-up BDI | 9.40 | 9.42 | 6.40 | 4.72 | .21 | 8 | ns |
| BDI Drop Score [Pre-Post] | 14.40 | 3.78 | 20.00 | 6.40 | -1.68 | 8 | ns |
| Mood First Week | 35.40 | 7.02 | 30.80 | 4.38 | 1.29 | 8 | ns |
| Mood Third Week | 36.20 | 5.80 | 36.80 | 1.64 | -.22 | 8 | ns |

Both high and low compliers' decrease on BDI from pre to post assessment was significant ($t(4)=8.51$; $p < .001$ for low compliers; $t(4)=6.98$; $p < .01$ for high compliers).

Also, the low-compliers' frequency of ADB engagement during the activity increase phase was not significantly different from their baseline on these same activities ($t(4)=1.40$; ns). On the contrary, the high compliers' increased activity after being prescribed the ADBs, was

significantly greater than their initial engagement in ADBs ($t(4)=-10.04$; $p < .001$). So, the high-compliers increased significantly their activity level, whereas the low-compliers did not. As shown in Table 11,the high and low-compliance groups did differ on both the general Baseline 1 ADBs ($t(8)=3.68$; $p < .01$) and the assigned activities' Baseline 2 ($t(8)=3.25$; $p < .05$). Thus, the high-compliers had significantly less frequent antidepressive activities during the monitoring phase. The activity increase scores corrected for the baseline proved that the mean increase in high compliance group was significantly higher than the low compliers' mean ($t(8)=-2.62$; $p < .05$). Consequently, the high-compliers' increase of ADBs was greater. Although these differences on both the baseline activity and the rate of increase during treatment point to a clear difference on complying, the outcome on BDI was equal between groups ($t(8)=.23$; ns). On the other hand, although the pre-assessment BDI was higher for the high-compliers the difference was not significant ($t(8)=-1.77$; ns). Furthermore, the high compliers showed greater decrease on BDI; but, the results did not indicate any significant difference between the two groups' "drop scores".

# DISCUSSION

The treatment groups were equal on their preassessment depression. Being in the experimental or control group did not differentiate the course of depressed mood. By time, the subjects' depression alleviated. The pattern of the decrease by time showed an interaction with the treatment group, which was due to more rapid alleviation in experimental groups than the controls. Consequently, although all subjects' depression appeared temporary in longer lapse of time, the ADB increase proved to accelerate the remission from depressed mood. A caution at this point is necessary, because according to subjective mood ratings no change occurred.

The correlation analysis of the relationship between the ADB and depressed mood supported that the baseline ADB frequency was negatively related to depressed mood. Thus, the lowered ADB frequency was most probably associated with lower mood. However, a marginally significant correlation suggested a better outcome for subjects who displayed more ADBs during the treatment. Thus, those who had displayed more ADBs during second and third weeks, had seemingly better outcome. Nevertheless, this was not true for the corrected ADB increase; so, when the activity frequency of the intervention period was corrected for the baseline, the correlation between the activity increase and the post-

assessment BDI was not significant. Surprisingly the corrected ADB increase of the second and third weeks was significantly correlated with subjective mood ratings of the first week; then, the lower was a subject's mood at intake, the more s/he increased her/his ADB level.

The BDI and mood ratings were independent in the beginning of the treatment. But, at the post-assessment, subjects' mood ratings concurred with the BDI. The mean mood ratings for each week appeared less stable. This may reflect the susceptibility of the mood ratings to daily events.

The previous correlational results regarding the ADBs and depression was further investigated in the compliance analysis. Briefly, the high compliers had lower levels of antidepressive activities and significantly increased while on treatment. But their outcome on depression was not better than the low compliers, and this difference of degree of complying was not related to preassessment BDI. Though the low compliers remitted as well as the high compliers they began the treatment with much higher antidepressive activity frequency. Since they already used these ADBs frequently, it seems that there was no further place to increase. This suggests whether some subjects have spontaneously began to engage in ADBs immediately after they felt depressed. On the contrary the high compliers displayed a reduced frequency of ABDs compared to their counterparts, but when instructed to increase their engagement in ABDs they showed a greater effort and their depression alleviated as well as those who

already engaged frequently in ADBs. The level of activity was unaffected by the initial level of depression. In this case another possibility is the duration of the depressed mood. A long lived depressed mood may be the cause of the reduction in ADB repertoire. Unfortunately the design of the study does not permit such a conclusion since it was not controlled.

## GENERAL DISCUSSION AND CONCLUSIONS

The results of the first study are similar to the English and Spanish studies. It seems that the psychological distress is recognized and possible solutions are elaborated in every culture. Rippere's (1980a; 1980b) study proved that people are aware of this common stock of knowledge whether or not they personally share the same beliefs about their efficacy. The consensuality on ADBs proves that what people do about their depression is generally not their own invention. Not only are ways of coping learned from others, but also the results of their experience are transmitted to others. This common stock appeared less elaborated in the Turkish sample than in the English. However, it seems to be even more restricted in the Spanish sample; most of the ADBs collected in this study were non-consensual, but, the non-consensual Spanish items overlapped to a great extent with the English consensual responses. On one hand, the consensuality seems to be affected by the average number of responses given by respondents, on the other hand it may be influenced by the sample size. In all the three studies many of the items are similar. Hence, the major cross-cultural difference emerge essentially not in the content of ADBs, but, in the number of responses and in the degree of consensuality.

Therefore, there appears a great cross-cultural similarity in the way people cope with depression. Yet, there is always some variance between individuals. The common sense may provide a basis from which people derive their own individual ADBs. The qualifier item which state that the response to depressed mood "depends on the situation, or on what is available", reflects this dynamic characteristic. The choice of ADB may largely depend on external conditions and the appraisal made by the individual. Nevertheless, this state-dependent feature does not suggest that a particular activity is devoid of any antidepressive potential, depending solely on the perception of the performers. The consensuality on the degree of helpfulness that is found in the second study supports this suggestion.

With the second study, beyond the identification of commonly shared ADBs, the second order consensuality for the degree of helpfulness was also proven. This higher order consensuality was reached through the ranking of the items according to their mean helpfulness and difficulty in two random samples. The mean degree of helpfulness and difficulty of each ADB was similar in both groups. When presented with the 70 item AAQ, subjects rated very few items as "not helpful".

The existence of a common stock does not necessarily mean that ADBs are equally effective for everybody in every situation. None the less, they provide a starting point to effective coping. In addition these are behaviors that have proven their antidepressive quality through generations' or mass' experiences. So, the agreement on the degree of helpfulness and difficulty suggest the inherent antidepressive characteristic of these activities. The results suggested that even the depressed persons share the common knowledge about the degree of both helpfulness and difficulty. The finding that the depressed persons do not differ on their *a priori* knowledge is most significative when considering the cognitive theories of depression, since it is against their causal presumptions ( Beck, 1964; Seligman, 1981). This study shows at least that the commonsense knowledge of the depressed persons is not different from the normals; but it does not imply that the cognitive structure is completely unrelated to depression. Hence, factors or cognitions that prevent the person from activating his commonsense knowledge are to be determined.

Another meaningful implication of the consensuality on AAQ was that it also enabled the identification of least helpful behaviors. Even though they emerged as antidepressive activities, there was a consensual belief about the unhelpfulness of some ADBs.

The helpfulness of the items was unrelated to the perception of difficulty: An item's difficulty did not influence its degree of helpfulness. Therefore, ADBs appear with certain inherent helpfulness and difficulty potentials which are independent of each other.

Beyond the consensuality comparisons, rather quantitative comparisons of degrees of helpfulness and difficulty between depressed and non-depressed groups were caried out. More interesting was the finding that the helpfulness was unaffected by the level of depression. The depressed individual is not especially negativist about the potential utility of the ADBs and does not differ from the non-depressed subject in her/his ratings of helpfulness. In spite of equality of perception for the helpfulness, the depressed persons perceived a greater difficulty in engaging in ADBs. Whether or not these are stable appraisal of ADBs await further research. On one hand, they share the common stock of knowledge approving the helpfulness and difficulty of ADBs; on the other hand, they differ from their non-depressed peers on the perception of difficulty. In summary, even if the ADBs are also helpful for them, they cannot so easily use them to control their mood.

In the light of these findings, it appears justifiable to employ an intervention aimed at increasing ADBs which depressed people may otherwise find difficult to do.

The outcome of the treatment study favored the ADB increase groups during the three weeks' intervention period. Surprisingly, the two experimental groups did not differ from each other. The superiority of the ADB increase groups from the controls was no longer significant in the follow-up.

The subjective mood ratings showed no association with the BDI at the first week of treatment; but, at the end of the intervention mood ratings were significantly related to BDI scores. Even so, the mood rating did not change over time. The mean weekly mood ratings were weakly related to each other. In other studies also the BDI and daily mood ratings have been found to be independent of each other (Dobson & Joffe, 1986).

The relationship of the ADB frequency and depth of depression was examined. It was found that, with the more depressed mood at the intake, the level of ADBs was lower during the monitoring week. The frequency of ADBs during the intervention period was marginally associated with the outcome of depression on BDI. Thus, subjects who engaged in more ADBs during the treatment had better outcome. Moreover, antidepressive activity level during the treatment

period was negatively related to initial level of coping activities. With increasing levels of antidepressive activity during the treatment, one was more likely to have lower baseline. A more stringent test of relatedness of level of antidepressive activities to depression relied on the analysis of absolute (corrected) increased activity score. The activity level during the intervention was corrected by substracting the baseline activity level and correlated to depression measures and other activity scores. This did not supporte our last contention; the significant likelihood of increasing the activity level in the intervention period with lower level of coping at the intake was obscured. However, this time, the correlation coefficients indicated that those who are subjectively more depressed on the daily mood ratings engaged in more coping behaviors in the second and third weeks.

A more precise analysis on the compliance followed the above correlational examinations. It was thought that the degree of activity increase was a matter of compliance. Subjects were divided as low and high compliers according to their absolute increase of ADBs (as reflected on the corrected activity increase scores). Subjects who complied are those who most increased their activity level. It was found that the high compliers had initially lower activity level and that the corrected ADB increase was greater for subjects who initially had lower levels of activity.

Though their preassesment BDI scores was higher, it was not significantly different from the mean BDI of the low compliers, neither was the outcome. So, it seems that the correlational findings are compatible with the results of compliance analysis.

In summary, the compliance to treatment requirement did not clearly enhance the treatment effect. Generally, the relationships are in the expected directions and relatively high, but the small sample size probably reduced the possibility of obtaining significant results.

However, certain criticisms can be made in relation to the present study. The ADBs used in this study were collected in college population. A survey with different age groups may provide other ADBs. Secondly sex difference on ADBs was not examined. If the ADBs would be used in intervention studies in clinical settings, the identification of ADBs that are mostly specific to sex may be fruitful. On the other hand, although this is a preliminary trial of intervention using the ADBs, the treatment is not exempt from criticism. First of all, the diagnostic procedure does not ensure the exclusion of other nosological categories. Moreover, all the sessions were conducted by the same therapist who was not blind to the subjects' treatment groups.

The results on activity-depression relationship deserve caution, because first of all, the analysis is mostly correlational and secondly the sample is small. However, the intend of the present study was to examine the effect of coping on depression and the effect of self-selection vs forced-assignment. The study supported the contention that enhancing specific, "helpful" coping behaviors alleviates the depression, and this regardless of the source of prescription: The forced-assignment group did not have a worse outcome. The most important finding of the study is that relying on their common sense knowledge about ADBs, it is possible to mobilize the coping capacities of the depressed person.

However, until a thorough examination of the use of ADBs either longitudinally or concomitantly with treatment procedure on larger samples, the causal structure of coping and depression will remain obscure.

## APPENDİX A

Responses collected from 14 psychiatrists and psychologists as Turkish equivalent of the term "feeling depressed" are given below with frequencies.

| | |
|---|---|
| çökkün | 12 |
| yıkılmış | 2 |
| sarsılmış | 2 |
| bezgin | 1 |
| bunaltı | 1 |
| depresyonda | 1 |
| total | 19 responses |

The basic question "what's the thing to do when your "feeling depressed" was worded as following:

"Kendinizi çökkün hissettiğinizde neler yaparsınız?"

## APPENDIX B

## ANTIDEPRESSIVE ACTIVITY QUESTIONNAIRE (AAQ)

The first study's initial items that constituted the 70 items of the AAQ and items that were used in the intervention are given below. Items of the AAQ are numbered from 1 to 70 and their mean rating of helpfulness and difficulty are on the left columns. Items with asterisk (*) are the ADBs that were rated as most helpful and which were used in the intervention study.

There are 4 types of items in the AAQ according to their status (consensual vs. non-consensual) in the first study.

a. Consensual item that has been used without or with minor change in wording.

b. Composite item constituted by at least 2 consensual items.

c. Composite item which is obtained by joining consensual and non-consensual ADB.

d. Item composed out of non-consensual ADBs.

Table 1. AAQ items, their mean helpfulness and difficulty ratings, constituting ADBs and frequency of reporting (item type is given in paranthesis).

| Item no | Helpful Mean | Difficulty Mean | | Frequency |
|---|---|---|---|---|
| 1 | 2.834 | 2.301 | Yemek, atıştırmak (a) | 15 |
| * 2 | 3.602 | 2.579 | TV, film seyretmek (b) | |
| | | | a. TV seyretmek | 7 |
| | | | b. Film seyretmek | 2 |
| * 3 | 5.260 | 2.945 | Yakın biri ile çeşitli konularda konuşmak (b) | |
| | | | a. Yakın biri ile konuşmak | 55 |
| | | | b. Arkadaşlarla sohbet | 5 |
| | | | c. Aile ile konuşmak | 3 |
| | | | d. Tanıklarla sohbet | 2 |
| * 4 | 4.837 | 3.038 | Hobiler ile uğraşmak (b) | 2 |
| * 5 | 4.703 | 3.290 | Şakalaşmak, gülmek (b) | |
| | | | a. Saçma şeylere gülmek | 2 |
| | | | b. Şakalaşmak | 2 |
| * 6 | 4.719 | 3.115 | Sinema, tiyatro, konsere gitmek (c) | |
| | | | a. Sinemaya gitmek | 9 |
| | | | b. Tiyatroya gitmek | 3 |
| | | | c. Konsere gitmek | 1 |
| * 7 | 4.468 | 3.634 | Koşmak (a) | 3 |
| * 8 | 3.878 | 5.253 | Can sıkan olayı düşünmemeye çalışmak (a) | 5 |
| 9 | 2.720 | 3.710 | Bağırmak, birşeyler kırmak (b) | |
| | | | a. Bağırmak | 8 |
| | | | b. Tekmelemek, yumruklamak | 2 |
| | | | c. Kırmak | 2 |
| 10 | 3.984 | 3.522 | Ağlamak (a) | 27 |
| 11 | 3.153 | 3.343 | Yiyecek, yemek hazırlamak (a) | 3 |

| | | | | |
|---|---|---|---|---|
| 12 | 5.351 | 4.005 | Çözüm, çare aramak (b) | |
| | | | a. Çare aramak | 24 |
| | | | b. Çözüm bulmaya çalışmak | 4 |
| 13 | 3.351 | 2.940 | Şarkı söylemek (a) | 2 |
| *14 | 4.397 | 4.027 | Ortam değiştirmek (a) | 8 |
| *15 | 3.616 | 5.457 | Unutmaya çalışmak (b) | |
| | | | a. Unutmaya çalışmak | 13 |
| | | | b. Kurtulmaya gayret etmek | 3 |
| *16 | 5.089 | 4.511 | Sessiz, sakin yerde tatil yapmak (a) | 2 |
| *17 | 3.561 | 3.060 | Dans etmek (a) | 5 |
| *18 | 4.605 | 2.005 | Uzanıp dinlenmek (a) | 18 |
| *19 | 4.942 | 3.203 | İçinde bulunulan durumun nedenlerini aramak (a) | |
| | | | a. Nedenleri aramak | 20 |
| 20 | 2.011 | 3.022 | Çalışmayı, dersi bırakmak (a) | |
| | | | a. Dersi bırakmak | 2 |
| *21 | 3.593 | 3.813 | Geçici olduğunu düşünmek (a) | 2 |
| *22 | 4.725 | 3.385 | Uyumak (a) | 51 |
| *23 | 3.582 | 3.272 | Can sıkan olayı baştan düşünmek (a) | |
| | | | a. Olayı baştan düşünmek | 5 |
| *24 | 4.439 | 3.137 | Değişik işlerle uğraşmak, oyalanmak (b) | |
| | | | a. Meşgale aramak | 15 |
| | | | b. Başka şeyle uğraşmak | 8 |
| | | | c. Sıkıntı hafifletecek uğraşlarla oyalanmak | 4 |
| | | | d. Eğlencali uğraşlara yönelmek | 2 |
| | | | e. Değişik işlerle uğraşmak | 2 |
| *25 | 5.325 | 2.621 | Sevilen arkadaşa gitmek (b) | |
| | | | a. Yakın arkadaşa gitmek | 29 |
| | | | b. Sevdiklerini görmeye gitmek | 3 |
| *26 | 4.654 | 2.770 | Arkadaş grubu ile birlikte olmak (a) | |
| | | | a. Arkadaşlarla birlikte olmak | 8 |

| | | | | |
|---|---|---|---|---|
| 27 | 3.027 | 3.011 | Yapılmış işleri yeniden yapmak; dolap, dergi, fotograf albümü düzenlemek (d) | |
| | | | a. Eskiden yapılmış bir işi yeniden yapmak | 1 |
| | | | b. Dolap boşaltıp yeniden yerleştirmek | 1 |
| | | | c. Foto albümünü yeniden yerleştirmek | 1 |
| | | | d. Eski dergilere göz atıp yeniden sıralamak | 1 |
| | | | e. Eksik işleri bitirmek | 1 |
| *28 | 5.201 | 1.729 | Müzik dinlemek (a) | 110 |
| 29 | 3.452 | 3.566 | Alışveriş yapmak (a) | 5 |
| *30 | 4.889 | 2.466 | Duş almak, banyo yapmak (a) | 8 |
| *31 | 5.132 | 3.011 | Sevilen bir sporu yapmak (b) | |
| | | | a. Spor yapmak | 21 |
| | | | b. Basketbol oynamak | 9 |
| 32 | 3.351 | 2.885 | Tanıdıklara telefon etmek (a) | 18 |
| 33 | 1.995 | 1.869 | Ev içinde dolanmak (a) | 4 |
| *34 | 4.202 | 3.585 | Başkalarına danışmak, yardım istemek (b) | |
| | | | a. Başkalarına danışmak | 4 |
| | | | b. Yardım istemek | 2 |
| 35 | 3.283 | 5.087 | Durumu kabullenmeye çalışmak (c) | |
| | | | a. Kabullenmeye çalışmak | 2 |
| | | | b. Zorluklar, üzüntüleri kabullenmek | 1 |
| 36 | 3.530 | 3.818 | Resim yapmak (a) | 7 |
| *37 | 4.286 | 2.863 | Eğlenceli kitap, dergi, roman okumak (a) | 33 |
| 38 | 3.632 | 2.845 | Yalnız kalmak (a) | 16 |
| 39 | 2.460 | 1.860 | Çay, kahve içmek (a) | 5 |
| 40 | 1.677 | 3.231 | Çevredekileri azarlamak, terslemek (a) | 8 |
| 41 | 3.413 | 3.255 | Hayal kurmak (b) | |
| | | | a. Hayal kurmak | 6 |
| | | | b. Güzel olaylar düşünmek | 10 |

| | | | | |
|---|---|---|---|---|
| *42. | 4.150 | 3.255 | Birileri ile çeşitli konularda tartışmak (c) | |
| | | | a. Neden üzerinde tartışmak | 2 |
| | | | b. Çeşitli (sosyal, ekonomik) konularda tartışmak | 1 |
| 43. | 3.214 | 3.508 | Odayı,evi toplamak, temizlik yapmak (c) | |
| | | | a. Oda, ev toplamak | 2 |
| | | | b. Temizlik yapmak | 1 |
| *44. | 4.032 | 3.424 | Sıkıntı, duygu,düşünceleri yazmak (a) | 5 |
| 45. | 3.086 | 3.066 | Yalnız kalmamaya çalışmak (b) | |
| | | | a. Yalnız kalmamaya çalışmak | 5 |
| | | | b. Bir gruba katılmak | 3 |
| *46. | 4.835 | 2.204 | Dışarıda dolaşmak, yürüyüş yapmak (b) | |
| | | | a. Dışarıda dolaşmak | 35 |
| | | | b. Yürüyüşe çıkmak | 17 |
| | | | c. Gezinti yapmak | 11 |
| *47. | 5.302 | 3.148 | Yakın veya güvenilir birine açılmak, dertleşmek (b) | |
| | | | a. Dertleşmek | 11 |
| | | | b. Birine açılmak | 7 |
| | | | c. Sıkıntıyı paylaşmak | 3 |
| 48. | 2.952 | 2.470 | Atlatılmış geçmiş sıkıntıları anımsamak (a) | 2 |
| *49. | 3.791 | 3.654 | Matematik problemi, bulmaca, ders gibi bilişsel yoğunlaşma gerektiren uğraşlarla oyalanmak (c) | |
| | | | a. Bir konuda odaklaşmak | 3 |
| | | | b. Ders çalışmak | 2 |
| | | | c. Bulmaca çözmek | 1 |
| | | | d. Matematik soruları çözmek | 1 |
| 50. | 4.429 | 3.522 | Müzik aleti çalmak (b) | |
| | | | a. Gitar çalışmak | 6 |
| | | | b. Müzik çalışmak | 3 |
| 51. | 1.824 | 2.715 | Sigara içmek (a) | 18 |
| *52. | 4.578 | 3.126 | Hataları gözden geçirmek (a) | 4 |
| 53. | 2.267 | 2.278 | Oyun kağıtları ile oynamak (a) | 3 |

| | | | | |
|---|---|---|---|---|
| 54. | 3.900 | 4.488 | Transandantal Meditasyon (a) | 2 |
| *55. | 4.337 | 2.576 | Arkadaşlarla birlikte gezmek (a) | 3 |
| 56. | 1.715 | 3.583 | İçki içmek (a) | 5 |
| *57. | 3.469 | 2.663 | Daha zor durumda olanlar ile kendi durumunu karşılaştırmak (c) | |
| | | | a. Daha zor durumda olanların sorunlarını düşünmek | 2 |
| | | | b. Daha zor durumda olanlari düşünmek | 1 |
| 58. | 3.182 | 2.388 | Çarşı-pazar, vitrinleri dolaşmak (d) | |
| | | | a. Çarşı-pazar dolanmak | 1 |
| | | | b. Vitrin dolaşmak | 1 |
| 59. | 2.898 | 2.818 | Sessiz, sakin bir köşeye çekilmek (a) | 6 |
| *60. | 4.288 | 3.824 | Sorunun üstüne gitmek (a) | 4 |
| *61. | 3.585 | 3.287 | Temiz, güzel giyinmek, süslenmek (a) | 2 |
| 62. | 3.006 | 2.541 | Kalabalığa karışmak (a) | 3 |
| *63. | 4.791 | 3.141 | Park, kır gibi doğa ile başbaşa olunacak bir yere gitmek (c) | |
| | | | a. Kamp yapmak | 2 |
| | | | b. Parkta oturmak | 1 |
| | | | c. Doğa ile başbaşa olmak | 1 |
| 64. | 2.435 | 3.775 | Kendini avutmak (a) | 4 |
| *65. | 4.736 | 2.765 | Açık, temiz havaya çıkmak (b) | |
| | | | a. Dışarı çıkmak | 30 |
| | | | b. Açık, temiz havaya çıkmak | 11 |
| *66. | 3.927 | 3.124 | Çeşitli konularda düşünmek (a) | 14 |
| *67. | 4.124 | 3.845 | Kendini rahatlatmaya çalışmak (b) | |
| | | | a. Kendini rahatlatmaya çalışmak | 3 |
| | | | b. Kurtulmaya çalışmak | 3 |

| | | | | |
|---|---|---|---|---|
| *68. | 4.363 | 3.234 | Yarının farklı bir gün olacağını düşünmek (d) | |
| | | | a. Yarın yeni bir gün doğuyor diye düşünmek | 1 |
| | | | b. Daha huzurlu, mutlu günler olacağını düşünmek | 1 |
| | | | c. Her şeyin bir gün düzeleceğini düşünmek | 1 |
| 69. | 1.695 | 4.279 | Kimse ile konuşmamak (a) | 2 |
| 70. | 2.491 | 5.428 | Hiç bir şey düşünmemeye çalışmak (b) | |
| | | | a. Hiç bir şey düşünmemeye çalışmak | 5 |
| | | | b. İlgiyi dağıtmaya çalışmak | 4 |
| | | | c. Nedeni düşünmemeye çalışmak | 3 |
| | | | d. Bunaltan şeyi kafadan atmaya çalışmak | 2 |
| | (Qualifier) | | Duruma bağlı (a) | 4 |

In AAQ 97 consensual and 19 non-consensual ADBs were used. The last consensual item is "qualifier" and thus excluded from the AAQ.

Table 2. Distribution of AAQ items according to their type and status.

| Type of item | Number of consensual items | Number of non-consensual items | Number of items in AAQ |
|---|---|---|---|
| a | 42 | -- | 42 |
| b | 46 | -- | 18 |
| c | 9 | 9 | 7 |
| d | -- | 10 | 3 |
| Total | 97 | 19 | 70 |

Table 3. Distribution of AAQ items used in the intervention according to their type.

| | a | b | c | d |
|---|---|---|---|---|
| Number of items | 21 | 13 | 5 | 1 |

## APPENDİX C

## BECK DEPRESSION INVENTORY

Yönerge: Aşağıda gruplar halinde bazı cümleler yazılıdır. Her gruptaki cümleleri dikkatle okuyunuz. BUGUN DAHİL, GEÇEN HAFTA içinde kendinizi nasıl hissettiginizi en iyi anlatan cümleyi seçiniz. Seçmiş olduğunuz cümlenin yanındaki numarayı daire içine alınız. Eğer bir grupta durumunuzu tarif eden birden fazla cümle varsa herbirini daire içine alarak işaretleyiniz. Seçiminizi yapmadan önce her gruptaki cümlelerin hepsini dikkatle okuyunuz.

7 0 Kendimi üzüntülü ve sıkıntılı hissetmiyorum.
1 Kendimi üzüntülü ve sıkıntılı hissediyorum.
2 Hep üzüntülü ve sıkıntılıyım. Bundan kurtulamıyorum.
3 O kadar üzüntülü ve sıkıntılıyım ki artık dayanamıyorum.

8 0 Gelecek hakkında umutsuz ve karamsar değilim.
1 Gelecek hakkında karamsarım.
2 Gelecekten beklediğim hiçbir şey yok.
3 Geleceğim hakkında umutsuzum ve sanki hiç birşey düzelmeyecekmiş gibi geliyor.

9 0 Kendimi başarısız bir insan olarak görmüyorum.
1 Çevremdeki bir çok kişiden daha çok başarısızlıklarım olmuş gibi hissediyorum.
2 Geçmişime baktığımda başarısızlıklarla dolu olduğunu görüyorum.
3 Kendimi tümüyle başarısız bir kişi olarak görüyorum.

10 0 Bir çok şeyden eskisi kadar zevk alıyorum.
1 Eskiden olduğu gibi her şeyden hoşlanmıyorum.
2 Artık hiçbir şey bana tam anlamıyla zevk vermiyor.
3 Her şeyden sıkılıyorum.

11 0 Kendimi herhangi bir şekilde suçlu hissetmiyorum.
1 Kendimi zaman zaman suçlu hissediyorum.
2 Çoğu zaman kendimi suçlu hissediyorum.
3 Kendimi her zaman suçlu hissediyorum.

12 0 Bana cezalandırılmışım gibi gelmiyor.
1 Cezalandırılabileceğimi hissediyorum.
2 Cezalandırılmayı bekliyorum.
3 Cezalandırıldığımı hissediyorum.

13 0 Kendimden memnunum.
1 Kendi kendimden pek memnun değilim.
2 Kendime çok kızıyorum.
3 Kendimden nefret ediyorum.

14 0 Başkalarından daha kötü olduğumu sanmıyorum.
1 Zayıf yanlarım veya hatalarım için kendi kendimi eleştiririm.
2 Hatalarımdan dolayı her zaman kendimi kabahatli bulurum.
3 Her aksilik karşısında kendimi kabahatli bulurum.

15 0 Kendimi öldürmek gibi düşüncelerim yok.
1 Zaman zaman kendimi öldürmeyi düşündüğüm oluyor fakat yapmıyorum.
2 Kendimi öldürmek isterdim.
3 Fırsatını bulsam kendimi öldürürüm.

16 0 Her zamankinden fazla içimden ağlamak gelmiyor.
1 Zaman zaman içimden ağlamak geliyor.
2 Çoğu zaman ağlıyorum.
3 Eskiden ağlayabilirdim şimdi istesem de ağlayamıyorum.

17 0 Şimdi her zaman olduğundan daha sinirli değilim.
1 Eskisine kıyasla daha kolay kızıyor ya da sinirleniyorum.
2 Şimdi hep sinirliyim.
3 Bir zamanlar beni sinirlendiren şeyler şimdi hiç sinirlendirmiyor.

18 0 Başkaları ile görüşmek, konuşmak isteğimi kaybetmedim.
1 Başkaları ile eskisinden daha az konuşmak görüşmek istiyorum.
2 Başkaları ile konuşma ve görüşme isteğimi kaybettim.
3 Hiç kimseyle görüşüp, konuşmak istemiyorum.

19 0 Eskiden olduğu kadar kolay karar verebiliyorum.
1 Eskiden olduğu kadar kolay karar veremiyorum.
2 Karar verirken eskisine kıyasla çok güçlük çekiyorum.
3 Artık hiç karar veremiyorum.

20 0 Aynada kendime baktığımda bir değişiklik görmüyorum.
1 Daha yaşlanmışım ve çirkinleşmişim gibi geliyor.
2 Görünüşümün çok değiştiğini ve daha çirkinleştiğimi hissediyorum.
3 Kendimi çok çirkin buluyorum.

21 0 Eskisi kadar iyi çalışabiliyorum.
1 Birşeyler yapabilmek için gayret göstermek gerekiyor.
2 Herhangi birşeyi yapabilmek için kendimi çok zorlamam gerekiyor.
3 Hiçbir şey yapamıyorum.

22 0 Herzamanki gibi iyi uyuyabiliyorum.
1 Eskiden olduğu gibi iyi uyuyamıyorum.
2 Herzamankinden 1-2 saat daha erken uyanıyorum ve tekrar uyuyamıyorum.
3 Herzamankinden çok daha erken uyanıyor ve tekrar uyuyamıyorum.

23 0 Herzamankinden daha çabuk yorulmuyorum.
1 Herzamankinden daha çabuk yoruluyorum.
2 Yaptığım hemen herşey beni yoruyor.
3 Kendimi hemen hiçbir şey yapamayacak kadar yorgun hissediyorum.

24 0 İştahım herzamanki gibi.
1 İştahım herzamanki kadar iyi değil.
2 İştahım çok azaldı.
3 Artık hiç iştahım yok.

25 0 Son zamanlarda kilo vermedim.
1 İki kilodan fazla kilo verdim.
2 Dört kilodan fazla kilo verdim.
3 Altı kilodan fazla kilo verdim.

Daha az yiyerek kilo vermeye çalışıyorum. Evet____ Hayır____

26 0 Sağlığım beni fazla endişelendirmiyor.
1 Ağrı, sancı, mide bozukluğu veya kabızlık gibi rahatsızlıklar beni endişelendiriyor.
2 Sağlığım beni endişelendirdiği için başka şeyleri düşünmek zorlaşıyor.
3 Sağlığım hakkında o kadar endişeliyim ki başka hiçbir şey düşünemiyorum.

27 0 Son zamanlarda cinsel konulara olan ilgimde bir değişme farketmedim.
1 Cinsel konularla eskisinden daha az ilgiliyim.
2 Cinsel konularla şimdi çok daha az ilgiliyim.
3 Cinsel konulara olan ilgimi tamamen kaybettim.

## APPENDIX D

## RESULTS OF NON PARAMETRIC ANALYSES

Table 1. Kruskal-Wallis One Way Anova Results on Pre-Post and Follow-up BDI assessments between treatment groups (n=15)

| | Mean Ranks | | | Corrected for Ties | |
|---|---|---|---|---|---|
| | Group 1 | Group 2 | Group 3 | Chi-Square | p |
| Pre BDI | 9.3 | 7.6 | 7.1 | .669 | .716 ns |
| Post BDI | 7.4 | 6.0 | 10.6 | 2.831 | .243 ns |
| Follow-up BDI | 8.1 | 6.3 | 9.6 | 1.380 | .502 ns |

Table 2. Wilcoxon Matched-Pairs Signed Ranks Tests' results for each treatment group between Pre-Post BDI assessment (n=5)

| | Mean - Ranks | Mean + Ranks | z | 2 Tailed p |
|---|---|---|---|---|
| Group 1 | 3.0 | 0.0 | -2.023 | .043 ** |
| Group 2 | 3.0 | 0.0 | -2.023 | .043 ** |
| Group 3 | 3.5 | 1.0 | -1.753 | .080 * |

* p < .10
** p < .05

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