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Experience during the early stages of treatment with antidepressant medication

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EXPERIENCE DURING THE EARLY STAGES OF TREATMENT WITH ANTIDEPRESSANT MEDICATION

by

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ABSTRACT

Experience during the Early Stages of Treatment with Antidepressant Medication

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There is an abundance of research on the psychopharmacological treatment of depression. However, recent controversy surrounding potential increases in suicidality with SSRI treatment has highlighted deficits in our understanding of antidepressant medication treatment. To explore the nature of changes in inner experience during the initiation of treatment with antidepressant medication we recruited three depressed individuals and conducted in-depth case studies of their experience over the first 10 weeks of treatment. The participants showed high degrees of comorbidity and different patterns of changes in symptoms over the course of the study. The one common finding was that none of the participants reported depression as being in their momentary experience after the first week. These three case studies support the importance of carefully exploring the inner experience of individuals on antidepressant medication and point to the potential value of research taking an idiographic approach before drawing generalizations about experience across individuals.

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CHAPTER 1

INTRODUCTION

Impact of Depressive Disorders

It is well established that depression is a substantial problem both for individuals and society. Depression affects more people than any other psychological disorder (Simon, 2003) and in some cases proves to be fatal. The far reaching effects of depression are indicated by high prevalence rates; Major Depressive Disorder occurs in between 10-25% of women and 5-12% of men (APA, 2000). Dysthymia, a less severe depressive disorder, occurs in approximately 6% of the population (APA, 2000).

Furthermore, depression is a serious problem because it contributes to impairment across several major life domains. A review of the effects of various disorders on quality of life conducted by Simon (2003) indicated that the functional impairment for people with depression was similar to or worse than people suffering from diseases such as hypertension, diabetes, heart disease, arthritis, and chronic coronary disease. Simon's review also examined the social and economic burdens of depression which are most apparent in a decrease in work productivity and an increase in the utilization of health services.

Coryell, Scheftner, Keller, Endicott, Maser, and Klerman (1993) examined the effects of depression on several major areas of life over a period of five years. They found that compared to matched counterparts, depressed persons had lower levels of

education and employment and showed less improvement over time in both these areas. The participants with depression were also less likely to have ever been married. In addition, those that had been married were more likely to have had divorces and those that were currently married rated their marriages poor more often than the comparison group. Other areas of functioning that seemed to be impaired among depressed persons included frequency of sexual activity, interpersonal relationships, involvement in recreational activities, and overall satisfaction with life. It is also particularly noteworthy that these deficits were observed at follow-up, even among participants who had maintained full recovery from major depressive episodes for the previous two years.

Kessler and colleagues (2003) found the negative influences of depression in other major life domains. People with Major Depressive Disorder reported impairment in their ability to function at home, work, in relationships, and in social settings at the moderate to severe level. They also reported that depression negatively influenced their mobility, cognitive abilities, and productivity. Additionally, people with depression reported less ability to care for themselves. It is important to note that the relationship between depression and functional impairment has been observed across cultures (Ormel, VonKorff, Ustun, Pini, Korten, & Oldehinkel, 1994), further indicating that depression affects many people.

The economic burden of depression has increasingly become the focus of other research as well (Wang, Simon, & Kessler, 2003). For example, in an important study by Kessler and colleagues (1999), depression was associated with a 50% loss in time spent working and likelihood of work absenteeism increased by 250%. Various studies

have found between 50% and 75% increases in health care costs associated with depression (Henk, Katzelnick, Kobak, Greist, Jefferson, 1996; Simon, VonKorff, & Barlow, 1995; Unützer, et al., 1997).

The most serious danger of depression is its relationship to suicide. Approximately half of people who die from suicide attempts have previously suffered from depression, indicating depression is often a precursor for suicide (Isometsä & Lönnqvist, 1998). This issue is particularly alarming because untreated depression results in suicide rates between 6 – 18.9% (Benazzi, 2003). Suicide completion occurs in approximately 15-19% of people who have been hospitalized for depression (Goodwin & Jamison, 1990; Guze & Robins, 1970). In addition, many more people engage in suicide attempts, although rates are not known (Van Praag, 2002).

The effects of depression are far-reaching and serious. It negatively affects many people, interfering with functioning across major life domains. Thus, there is tremendous need to understand depression and its treatment more fully.

Overview of Depressive Disorders

There are a number of different ways of classifying depression and different subtypes exist within these systems. However, the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR, APA, 2000) is currently the dominant system for classifying depressive disorders. Within DSM-IV-TR, Major Depressive Disorder is the most serious and common depressive disorder. According to DSM-IV-TR (APA, 2000), Major Depressive Disorder is a mood disorder that is characterized primarily by a depressed mood or loss of interest in pleasurable activities. Other associated

symptoms include changes in eating patterns that result in significant weight loss or weight gain, changes in sleeping patterns including insomnia or excessive sleeping, and energy loss. Depressed people may also experience excessive feelings of helplessness, hopelessness, emptiness, or guilt. Disturbances in concentration and memory are associated with depression as are thoughts associated with suicidal ideation (APA, 2000). These symptoms must be present most of the day nearly every day for at least two weeks to meet the criteria for Major Depressive Disorder.

For research and treatment purposes, it is of primary importance first to distinguish Major Depressive Disorder from Dysthymic Disorder. According to the DSM-IV-TR, "Dysthymic Disorder and Major Depressive Disorder are differentiated based on severity, chronicity, and persistence" (APA, 2000, 374). Although the DSM-IV-TR criteria attempt to clarify and distinguish among depressive disorders, there are variations in presentation that do not neatly fit into the current classification system. Depression can be subclassified in many different ways that highlight the limitations of our current diagnostic system and indicate a need to understand more completely the phenomenon of depression.

For example, Koscis (2003) discussed variants and combinations of depressive disorders. His study reported that over 75% of people with Dysthymia have experienced a Major Depressive Episode, a phenomenon referred to as double depression. Other people may experience a Major Depressive Episode for a span exceeding two years, which is referred to as Chronic Major Depression. Of those who experience a Major Depressive Episode, 20% can be considered to have Chronic Major Depression (Kocsis, 2003). Other classifications of Major Depression include Major

Depression with partial recovery and recurrent Major Depression with incomplete recovery between episodes (APA, 2000).

Experience during Depression

As can be seen from the diagnostic criteria for depression and related disorders, inner experience is the central component of depression. Despite this, there has been relatively little careful study of the inner experience of people suffering from depression. Those studies that have been done have primarily used retrospective self-report questionnaires or retrospective qualitative approaches. These measures are not well suited to careful examination of the experience of depression. Some studies have examined the experience of depression using the experience sampling method (ESM) in which people answer a set of fixed questions when prompted by a quasi-random beep. Although this method is less retrospective than typical questionnaires, it still is limited in that the questions are determined in advance and thus the method is not well suited to discovering unanticipated experience. There have been a few studies which have used descriptive experience sampling to explore the experience of depressed individuals. Descriptive experience sampling is an open-ended, qualitative approach that is well suited to conducting a careful survey of ongoing experience.

In this study I will use a variety of methods, including descriptive experience sampling, to explore the experience of individuals depressed individuals initiating treatment with antidepressant medication. These medications are designed to alter the experience of depression and thus exploring their experience over their first 10 weeks

of treatment with medication may reveal something about the nature of their experience and changes in that experience associated with the use of antidepressant medication.

CHAPTER 2

LITERATURE REVIEW

Capturing Experience during Depression

Phenomenological Approaches with Limited Structure. While a substantial amount of research addresses the observable symptoms of depression and appropriate diagnosis, other researchers have focused on examining the experience during episodes of depression. These studies are numerous and reflect the centrality of experience in depression. Investigators have used a wide range of methods in an attempt to explore the complex experience; ranging from personal accounts to more systematic methods.

The most common form for presentation of depressive experience to the general public is through memoirs or unstructured reflections. The most well known memoirs of depression include *An Unquiet Mind: A Memoir of Moods and Madness* (Jamison, 2005), *Darkness Visible: A Memoir of Madness* (Styron, 1990), and *The Noonday Demon: An Atlas of Depression* (Solomon, 2001). Each of these books provides a personal account of the author's experience of and reflections on her or his experience of depression. A wealth of similar books exist, including *Unholy Ghost: Writers on Depression* (Casey, 2001), *The Beast: A Journey through Depression* (Thompson, 1995), *Speaking of Sadness: Depression, Disconnection, and the Meanings of Illness* (Karp, 1996), *Undercurrents: A Life Beneath the Surface* (Manning, 1994), and *Willow Weep for Me: A Black Woman's Journey Through Depression* (Danquah, 1998).

There have been attempts to integrate personal accounts of depression and biographical data to say something about experience. For example, Kramer (2002) conducted a psychobiographical account of the experience of a woman that had committed suicide. By reviewing this woman's personal letters, diaries, academic writings, and other communications, she was able to use an object relational approach to explain the themes of hope, faith and despair in this woman's depression. Some authors have attempted to gather many personal accounts of experience during depression and present them together. For example, *On the Edge of Darkness* (Cronkite, 1994) is a compilation of accounts of prominent American's experiences with depression. Many interviews were included in *The Deepest Blue* (Dockett & McKay, 2001), a book about the experience of depression among women.

An increase in the systematic study of depression can be seen in qualitative psychological research and tends to increase the utility of conclusions. For example, grounded theory, a tool for systematically analyzing qualitative data, has been used to examine the experience of depression among women in two studies (Scattolon & Stoppard, 1999; Schreiber, 2001). Both studies included extensive in-depth interviews which were analyzed using aspects of grounded theory. Scattolon and Stoppard (1999) described their use of grounded theory analysis as an "ongoing process in which data is concurrently collected, coded, and analyzed for common themes and patterns of meaning" (p. 206). In this study the thematic analysis aspect of grounded theory was used to identify common themes in the experiences of the women, but a complete theory of depression among women was not generated. In addition, the way in which

individual's constructed their language was further analyzed for additional meaning, although details of how this was done were not provided.

Themes that emerged as salient characteristics of the 15 women's experiences were isolation, aloneness, and detachment (Scattolon & Stoppard, 1999). Women also frequently described more difficulty completing daily activities (e.g., household duties, physical appearance) as an aspect of their depression. However, these women also described the necessity of continuing their responsibilities despite their depressive experiences. The majority of the women viewed their own experiences of depression as an understandable consequence of their situations (i.e., poverty) rather than as a mental illness. Coping for these women often involved ignoring distress, seeking support from family, friends, and strangers with similar experiences (usually other women), or dealing with their sadness on their own. The authors of this study suggest that the prominent theme underlying these women's descriptions of depression is a struggle to live up to an ideal image of a woman across various roles (e.g., wife, mother, friend).

Schreiber (2001) also used a grounded theory approach to explore the experience of depressed women. In a compilation of three of her previous studies, Schreiber developed a perspective of depression based upon interviews of over 70 women who had suffered from depression. During these interviews women described an internal dialogue. The internal dialogues were analyzed from a symbolic interactionist perceptive. According to this perspective, the meanings of objects are derived from human interactions rather than being intrinsic. The internal dialogues revealed that the women used the expectations of society to define who they should or should not be. In

this way, the women had internalized society's expectations and used these expectations to define themselves. Often times, the restrained ideas of the self as imposed with society were in tension with the more spontaneous, naturally occurring self. This tension loosened the integrity of the women's sense of personal coherence, thereby contributing to depression; by adopting the societal expectations as their own, these women limited their behaviors and were unable to express their "true self." The author concluded that through socialization women tend to value the needs of others before their own and therefore do not seek to meet their own needs, thereby contributing to their own marginalization. The theory supported by this study (as well as Scattolon and Stoppard, 1999) views depression as a social disorder rather than one of an individual.

Thematic analysis of interviews with 48 participants (male and female) diagnosed or self-referred as depressed was conducted by Lewis (1995) and was used to describe how individuals are influenced by their self-reflections on their own depression. Participants described a need to explain depression to others as difficult because they did not feel an adequate explanation existed. Also, participants described their experiences of depression included a search for the meaning of the depression and uncovering a reasons for the depression. Depressed individuals tended to experience a sense of powerless when ascribing to typical explanations for depression (i.e., biochemical or social circumstances).

The experience of depression among men has also been examined. Heifner (1997) conducted semi-structured, in-depth interviews with 14 men who had been diagnosed with depression. This study also used grounded theory to generate the concepts and

categories of experience described in the interviews. The men in this study expressed an acceptance of rigid, traditional gender role identities in which being strong, successful, in control, and capable of handling problems without help were considered essential. They also expected to perform exceptionally well and believed that acceptance from others was related to performance. Men in this study described emotional distance from others which coincided with a belief that needing, depending on or expressing truthfully to others (especially other men) were indications of weakness. The presence of a "hidden self" was also described often, as was a sense of loss of control.

Students were the focus of the remaining two studies. A study by Jackson (1998) examined the experience of depression among 10 gifted adolescents. All participants responded to the probe, "Please describe for me your experiences with the less than positive emotional state commonly known as depression" and the interviewer provided active listening, empathetic reflection, and minimal encouragers. The method of analysis of these responses was similar to the other studies in that a reduction operation was implemented to break the transcripts into meaningful units which reflected the "essences or core of the phenomenon."

The experience of depression among these adolescents was marked with heightened awareness of and ability to understand one's own experiences. Several needs were found to be repeatedly expressed. For example, the needs to understand oneself, others, relationships, phenomena, and existential topics were prominent. They also described the importance of achieving an authentic self based on self-scrutiny/appraisal. These adolescents valued the exchange of emotional/spiritual thoughts, emotions, and

experience and felt they needed to be understood within their families. The adolescents described feeling that they had few outlets to meet their needs for understanding and knowledge, communion, and expression. This disconnection was suggested to be at the root of their depressive experiences.

In the final study, Daughtry and Kunkel (1993) used the method of concept mapping to explore the perception of depression held by college students. Seventy-eight.students were asked to recall vividly the last time they felt depressed and asked to describe this depression. These descriptions were then reduced to meaning units which were put on note cards and given to the students to organize into piles which represented relatedness of the concepts. The data were analyzed with multidimensional scaling and cluster analysis to produce a concept map. Each meaning unit was represented by a dot on the concept on the map, with the distance between the dots indicating the degree of relation among the concepts. Clusters of interrelated concepts were found and identified by the researchers.

The following clusters were identified: (1) Helpless/Hopeless (e.g., sad, incomplete, empty); (2) Burdened (e.g., loss of motivation, scared of future); (3) Internal Chaos (e.g., confused, betrayed, guilty); (4) Estrangement (e.g., alone, worthless, outcast); (5) Personal Inefficacy (e.g., self-pity, unable to compete, ugly); (6) Vegetative (e.g., tired, bored, stupid); and (7) Interpersonally Hostile (e.g., frustrated, bitter, irritable). The authors concluded that depression is a multifaceted experience, and whereas there was much overlap with participants' descriptions of depression and DSM-IV diagnostic criteria, additional elements of depression were indicated by participants.

These studies suggest that our conceptualization of depression as a combination of symptoms may be oversimplified. They reveal a complex disorder that may be experienced differently by different people or different groups of people. In this way, they highlight the need to gain a better understanding of the experience of depression.

Issues in Examining Experience. Hurlburt, Heavey, and Seibert (2006) reviewed the psychological literature with the goal of developing research-based guidelines for gaining accurate reports of inner experience. They identified fourteen such guidelines which are relevant to attempts to understand the experience of depression.

Investigators should be aware of common problems that occur when attempting to obtain accurate reports of internal experience and adapt their approach in an effort to minimize the effects of these problems. For example, research has shown that experimenters can subtly influence reports of participants. Because experimenter blindness is generally not possible in phenomenological research, investigators are encouraged to minimize demand characteristics by "suspending" or "bracketing" preconceptions. Scattolon and Stoppard (1999), for example, mentioned an analysis of how the interviewers' thoughts and/or feelings may have affected process. Jackson (1998) made efforts to bracket presuppositions during the process of deconstructing interviews into meaning units. Efforts to minimize experimenter influence were not reported in the other interview studies reviewed.

Another common flaw in phenomenological approaches is that people assume a shared meaning of vocabulary when in actuality the same word may describe different experiences for different individuals. Investigators exploring inner experience are encouraged to be aware of this issue and use methods that do not assume a shared

understanding of terminology. Although Scattolon and Stoppard (1999) used discourse analysis to evaluate meaning of language and terminology, meaning of individual words was not addressed or questioned. The interview studies used grounded theory and thematic analysis to code the interviews into "meaning units." Although the validity of these meaning units was enhanced by peer debriefing, member checking, and consultation with expert researchers (Heifner, 1997), the questions used during the interviews themselves did not allow for in depth exploration of individual uses of particular terms.

Perhaps the most important guideline in directing phenomenological research approaches is "skepticism is appropriate." Memory is necessary to facilitate attempts to access inner experience, but memories are prone to a variety of errors. Therefore, investigators are encouraged to be skeptical regarding the accuracy of their subjects' self-reports. In addition, investigators should not be misled by participants' confidence in the accuracy of their own reports, as confidence of accuracy has not been shown to relate to actual accuracy (Reisberg, 1997).

The other guidelines encourage methods that decrease the influence of errors in memory. For example, because forgetting occurs rapidly following an event, Hurlburt, Heavey, and Seibert (2006) recommended to "introspect with little delay." When the details of experience are recalled soon after the actual experience, they are more likely to be accurate. When people are asked to recall their experiences over extended periods of time, they are more likely to use self-theory to generate the information that they convey rather than actual experiences. They are also prone to other errors such as relaying salient experiences rather than an accurate depiction of their general

experience. Additionally, people's recall of extended periods of time has also been shown to be influenced by their current state. Therefore, it is recommended that phenomenological studies focus on specific concrete episodes rather than general experience.

There are limitations on the amount of information that can be accurately processed and recalled (Atkinson & Shiffrin, 1968; Craik & Lockhart, 1972). The shorter the periods of time subjects are asked to recall, the more detail and accuracy they are able to provide. Some researchers suggest that time periods of two weeks or less can be considered sufficiently short (Hurlburt, Heavey, & Seibert, 2006). However, Hurlburt (1993, 1997) used time frames closer to one second to obtain detailed accounts of inner experience.

To prevent the process of measurement from interfering with what is measured, investigators are encouraged to use open ended methods to capture a report of inner experience. People cannot accurately identify their own motivations for their behaviors or accurately identify reasons for cognitive change (Hurlburt, Heavey, & Seibert, 2006). Therefore, questions regarding causation should be avoided because people are not likely to be able to answer them accurately.

In the phenomenological interview studies discussed in the previous section, participants were asked general questions about their experience of depression over time. In many cases they were asked to describe how their depression had improved. In these interviews several, if not all, of the recommended guidelines for accurate reporting of inner experience were violated (Daughtry & Kunkel, 1993; Heifner, 1997;

Jackson, 1998; Lewis, 1995; Scattolon & Stoppard, 1999; Schreiber, 2001) which should lead to a cautious interpretation of the accuracy of their findings.

Experience Sampling Methods. Researchers interested in studying daily experiences have developed methods for capturing events and experience in natural settings as they occur. Methodologies in which participants document thoughts, feelings, and behaviors in everyday contexts are referred to as diary methods or experience sampling (Christensen, Barrett, Bliss-Moreau, Lebo, & Kaschub, 2003). These types of methods are usually employed to investigate experience because they reduce the likelihood that reports of experience will be distorted by retrospective interference by minimizing time between an experience and the report of the experience (Bolger, Davis, & Rafaeli, 2003). Diary methods have been used to explore different types of experiences, including; personality processes, relationships, physical symptoms, and mental health (Bolger, Davis, & Rafaeli, 2003).

There are two main types of diary designs; time-based and event-based (Bolger, Davis, & Rafaeli, 2003; Christensen, Barrett, Bliss-Moreau, Lebo, & Kaschub, 2003). Participants in time-based designs are asked to report their experiences during a decided-upon interval. The interval for reporting may be fixed (e.g., specific times of day, daily, weekly), random, or a combination of both. Random intervals have the advantage of potentially reducing participant bias because the participant is less able to anticipate when the sampling will occur (Bolger, Davis, & Rafaeli, 2003; Scollon, Kim-Prieto, & Diener, 2003). However, random sampling may be more of a burden to participants because it is more intrusive (Bolger, Davis, & Rafaeli, 2003). Event-based designs ask participants to report their experiences after an agreed upon event occurs.

Event-based designs are normally used to capture events that occur rarely and would be difficult to capture in a time-based design. Diary reports can vary from completely unstructured, participants are simply asked to record general experience, to highly structured, participants are provided with instructions as to when to record specific types of experience. The diary studies reviewed were all intended to examine depression and were structured.

Several diary studies have focused specifically on the experience of depression. The relation between depression and anger was examined in a diary study by Robbins and Tanck (1997). Daily diaries were completed by 77 undergraduate students for 10 consecutive days. Students were instructed to complete the diary each night before going to bed. The diaries consisted of forced choice questions related to depression ("Did you at any time feel depressed today? If yes, how depressed did you feel?") and anger ("Did you feel angry or annoyed today? If yes, what was it that made you feel angry? Did you express feelings of angry or annoyance to anyone today?"). Similar questions were asked related to isolation, anxiety, frustration, help seeking behavior, daydreaming, and intrusions into privacy. Results indicated that within individuals, anger, and potentially other negative emotions, occurred more frequently on depressed days. This relationship was particularly strong on days in which anger experienced but not expressed and when angry feelings were attributed to one's own shortcomings.

Robbins and Tanck (1987) had previously used a similar diary method to investigate diurnal variations in depressed mood. The forced choice diary questions related to depression were also used in this study. In addition participants were asked when they felt the most depressed and the least depressed that day. The responses

provided were, "morning, afternoon, evening, and about the same all day long." Other items in the diary included ratings of social interactions, productivity, and physical symptoms. In addition, they used open ended questions. Results indicated that most participants experienced depression that increased throughout the day. Participants who reported consistently experiencing depression throughout the day reported more physical symptoms and less pleasure derived from social interactions.

Hopko, Armento, Cantu, Chambers, and Lejuez (2003) used a structured diary method to examine the experience of mildly depressed university students. In this study, participants that scored high on the Beck Depression Inventory were compared with students in a low scoring group. All participants in the study completed seven day's of a daily monitoring form. The form was divided into half-hour sections into which participant's were instructed to write down only overt behaviors engaged in within that time period. Participants were instructed to fill out the form every two hours to ensure accuracy. In addition, an assessment of positive and negative affect, the PANAS, was completed each day. Consistent with current theories of depression, results indicated that mildly depressed participants engaged in fewer pleasurable activities thereby receiving less response-contingent positive reinforcement compared to their non-depressed counterparts.

To explore how attribution of negative events relates to depression, Hankin, Fraley, and Abela (2005) had participants complete diaries each day for 35 days. To decrease fabrication of daily diaries, participants were given four diaries at a time which were collected throughout the week during participant's Introduction to Psychology Course. The diary consisted of one part in which participants rated the nine depressive

symptoms of depression that are listen in DSM-IV. On the second part of the diary, participants were asked to list five negative events that had occurred during the day and circled the most negative event. The participants then described causes and consequences of the occurrence of the most negative event and inferred the event's self-meaning. Results showed that an individual's disposition toward depression vulnerability interacted with his or her daily negative cognitions to predict daily depressive symptoms.

Whereas diary methods have been a useful method for collecting experiential data, these methods have been criticized because they are subject to forgetfulness (e.g., missed reports) and retrospection error (e.g., fabrication to complete missed entries; Bolger, Davis, & Rafaeli, 2003). To reduce the error that may result from these occurrences, think aloud methods have been developed. Think aloud methods are less subject to recall problems because participants are asked to convey their experience as it is occurring. There has been one think aloud study that examined experience during depression (Barnhofer, de Jong-Meyer, Kleinpaß, & Nikesch, 2002) and two that examined dysphoria (Conway, Howell, & Giannopoulos, 1991; Mayo & Matsumi, 1996).

Barnhofer, de Jong-Meyer, Kleinpaß, and Nikesch (2002) conducted a think aloud study of depression. During their experiment participants were presented with a cue word (positive words such as happy, safe; negative words such as sad, lonely) and asked to remember an autobiographical event. For the two minutes following presentation of the cue word, participants verbalized their thoughts as they were occurring. The transcriptions of participants' verbalizations were coded for the number

of memories that were relayed, and the specificity of each memory was categorized. Specificity categories included specific (particular time and location), extended (occurred over period of time), and categoric (a series of repeated events). Results indicated that depressed participants experienced fewer specific memories and more categorical memories than did non-depressed participants. These results are consistent with the theory that depressed people tend to overgeneralize during memory retrieval.

Another study by Conway, Howell, and Giannopoulos (1991) examined the mood-congruent hypothesis and the cognitive effort hypothesis with the think aloud method. Participants in this study were administered a test and given feedback that they had either succeeded or failed. This was followed by a think aloud procedure in which they were instructed not to think about the test. Consistent with the mood-congruent hypothesis, dysphoric participants had more intrusions of failure during the think aloud procedure and less intrusions of success than did non-dysphoric participants. The mood congruent hypothesis was supported because dysphoric participants showed more intrusions of both types during the final minute of the five minute task. In the second part of the study, the cognitive effort hypothesis was directly examined. During this task, participants were presented with a neutral word stimulus and instructed to not think about it during the following think aloud task. Similar to the first study, dysphoric participants had a harder time suppressing the thought as evidenced by more intrusions during the final minute of the five minute think aloud task, further supporting the cognitive effort hypothesis.

Mayo and Tanaka-Matsumi (1996) conducted a think aloud study with dysphoric and non-dysphoric participants. During this study participants viewed a video which

presented an interpersonal problem. Participants were asked to verbalize their thought process as they attempted to solve the problem. Their self-focused verbalizations were coded into four categories; task-facilitating, task-inhibiting, emotion-focused, and problem-focused. Dysphoric participants were able to generate as many solutions that were also as effective as the non-dysphoric participants. However, dysphoric participants tended to voice more emotion-focused self-statements and fewer problem-focused self-statements.

The Articulated Thoughts in Simulated Situations (ATSS; Davison, Robins, and Johnson, 1983) is very similar to the think aloud method in that it asks participants to describe their inner experience as it is happening. ATSS implements even greater control in the structure of elicitation of inner experience. White, Davison, and Haaga (1992) used ATSS to explore differences in cognitive bias in the articulation of thoughts in depressed participants and non-depressed participants. Participants were presented audiotaped simulated situations that were negative, neutral, or positive. In response to the negative situation, depressed participants exhibited more negative thoughts. These results indicate that depressed people may have negative cognitive bias that is situation specific.

As previously mentioned, diary studies have been criticized for their potential to be influenced by retrospective memory errors and fabrication of data. In addition, there is also concern about errors that may occur in data entry and handling when using paper and pencil methods (Bolger, Davis, & Rafaeli, 2003). The think aloud methods and ATSS have attempted to address these issues by observing inner experience in structured laboratory settings. While the structured settings and real time observations

of these methods decreases vulnerability to the mentioned errors, it also decreases ecological validity by only examining experience in contrived settings. Other methods have been developed which seek to observe inner experience as it is occurring in its natural setting using an external cue. The external cue signals participant to complete an observation of their currently occurring inner experience. These methods are generally referred to as thought sampling methods.

To combat problems that occur with data handling and fabrication of data, some thought sampling methods have been slightly modified so that observations of experience can be completed electronically (e.g. Barrett & Barrett, 2001; Christensen, Barrett, Bliss-Moreau, Lebo, & Kaschub, 2003). In these methods, experimenter error is reduced because the data provided by participants can be directly analyzed, thereby reducing the likelihood of errors in data entry and management. In addition, the time of observation completion can be objectively recorded to ensure that participants are completing observations when signaled. Researchers are provided with the time lapse between signaling and response and therefore can detect and dismiss fabricated data (Bolger, Davis, & Rafaeli, 2003). The studies are similar to other experience sampling methods except that data are collected on palmtop computers that have been programmed with experience sampling programs such as the Experience Sampling Program (ESP; Bolger, Davis, & Rafaeli, 2003). The major drawback of electronic sampling studies is that they require the use expensive devices that may have software with limitations (Bolger, Davis, & Rafaeli, 2003). In addition, the closed ended responses that are typically elicited by computerized programs may fail to capture the richness of actual experience.

Some researchers have used the general method for thought sampling that has been discussed while other researchers have defined more specific methodologies. There are two studies have used general thought sampling methods to examine depression. One of these studies was conducted by Josephson, Rose, and Singer (1999). During this study, participants whose depression level had previously been assessed with the Beck Depression Inventory came into the lab to watch video clips that were sad or neutral. For the 15 minutes following the clip, participants were buzzed and asked to speak their thoughts out loud. Depressed participants had more overall negative thought content and did not show the same pattern of thought repair as did the non-depressed participants.

The other general thought sampling study was conducted by Kumari and Blackburn (1992). During this study, participants were given Daily Record of Dysfunctional Thoughts Forms which they were asked to complete over a two week period when they noticed mood fluctuations. Automatic negative thoughts were found to be related to dysphoric moods in depressed and non-depressed participants. However, there were variations in terms of the affective state associated with these thoughts for depressed participants. For example, it was found that depressed participants mainly experienced depression and anxiety during dysphoric moods while non-depressed participants' dysphoric moods consisted mainly of anger and anxiety.

Several specific procedures for experience sampling have been developed and promoted by different researchers. These more specific forms of experience sampling include Ecological Momentary Assessment (EMA), Experience Sampling Method

(ESM), and Descriptive Experience Sampling (DES). Each of these methods differs in some important way from other sampling methods.

Ecological Momentary Assessment (EMA; Shiffman & Stone, 1998) is a method in which participants use handheld computers to record their inner experiences. Completion of the questionnaires can be event-contingent (e.g., when you feel sad), interval-contingent (e.g., every night), or signal-contingent (e.g., randomly generated sound). Biller (2005) used EMA to explore the experience of depression. The study began by collecting 41 depressed participants. However, only 12 participants were asked to participate in the EMA part of the study, of which just 3 completed the study due to termination of psychotherapy, not completing the study requirements, therapist request, and software problems. The three participants were prompted twice a day for a 6-week period to record their cognitions and mood and complete 30 ratings. Positive and negative affect ratings varied greatly among the three participants and no common patterns were detected.

The experience-sampling method (ESM) (Csikszentmihalyi & Larson, 1992) is another method in which participants are randomly signaled to answer a series of questions, which in this case are listed on what is called an Experience Sampling Form (ESF). In most ESM studies participants are signaled 7 to 10 times per day for a week. The ESF can be modified by the researcher to explore the area of interest of a particular study. Participants are commonly asked to report their location, who they are with, what they are doing, what they are thinking, and the time of the report. Participants also complete Likert scales that measure affect, activation, cognitive efficiency, and motivation. The majority of the data collected is in the form of self-reported rating

scales. Open ended questions are usually coded into larger categories defined by the researcher.

ESM has been used with depressed participants in several studies (Barge-Schaapveld, Nicolson, & Berkof, 1999; Kraan et al., 1992; Merrick, 1992; Mokros, 1993; Myin-Germeys et al., 2003; Peeters, Nicholson & Berkhof, 2003; Peeters, Nicholson, Berkhof, Delespaul, & deVries, 2003; Peeters, Berkhof, Delespaul, Rottenberg, & Nicolson, 2006; Swendsen, 1997; Swendsen, 1998; Swendsen, 2007; Swendsen & Compagnone, 2000). For example, Barge-Schaapveld, Nicholson, Berkhof, and deVries (1999) compared quality of life between depressed and non-depressed samples. The 63 depressed participants and 22 control participants were randomly signaled 10 times per day for 6 days. After the signal the participants responded to a series of rating scales that assessed quality of life ("In general, how is it going with you right now?"), positive affect (energetic, cheerful, satisfied, alert, calm, enthusiastic, strong, and happy), negative affect (hostile, depressed, tense, lonely, anxious, insecure, guilty, harried, and irritable), physical complaints (headache, dizziness, dry mouth, drowsiness, and nausea), and enjoyment of the activity they were currently taking part in. They also reported their current activity which was later coded into eight categories (work or study, household chores, shopping, childcare, social activities, active leisure, passive leisure, or doing nothing).

Results indicated that depressed participants reported lower levels of quality of life. They also gave higher ratings of physical complaints and lower ratings of enjoyment of the current activity. In addition, they reported higher ratings of negative affect and

lower ratings of positive affect. Depressed participants also endorsed "doing nothing" as their current activity more often than did non-depressed participants.

Descriptive Experience Sampling. The previously described sampling methods are primarily quantitative. Other researchers are investigating experience using random signals that obtain qualitative reports. Descriptive Experience Sampling (DES) is a sampling method in which experience is studied qualitatively (Hurlburt, 1990, 1993, 1997). Participants in DES studies are randomly signaled by a beeper. When the beep sounds, participants are asked to write notes about their inner experience that was ongoing at the moment of the beep. In most cases, 6 samples are collected in one day. Within 24 hours of collected sampled moments, the participants are interviewed in an expositional interview, an attempt to gain an in-depth understanding and description of the sampled moments. DES is a unique sampling method because "it encourages participants to develop their own descriptive language and to report aspects of their inner experiences as they themselves experience them and does not ask them to rate or categorize experiences according to predefined dimensions or categories" (Hurlburt, 1997, p. 946). Reports of experiences in DES studies indicate that inner experience varies between individuals and commonly held assumptions of inner experience (i.e., thoughts are always in words) are challenged (Hurlburt, 1993).

Hurlburt (1993) examined the experience of depressed mood that ranged from dysphoria to mild depression to deep depression using DES with four participants. Each participant was sampled during periods of both depressed mood and normal affect. Hurlburt extracted patterns of experience by evaluating both inter-subject and intra-subject commonalities.

One major finding from this study was that as depression increased, inner symbolization decreased. Inner symbolization refers to inner experience that is represented by images or words. Therefore, during depressed periods, participants reported more experiences of unsymbolized thinking, "an inner process which is clearly a thought and which has a clear meaning, but which seems to take place without symbols of any kind, that is, without words, images, bodily sensations, etc." (Hurlburt, 1993; p. 5).

Hurlburt (1993) also found that inner perceptual clarity decreased as depression increased. Although participants reported the presence of visual images during depressed moods, they were less able to provide detailed descriptions than during non-depressed moods. The images were also described as indeterminate. This same lack of clarity was observed in the perception of inner words during depressed moods. Depressed participants had a harder time reporting whether or not words were present. When words were present during depressed moods, participants had difficulty reporting the precise words. Lack of clarity was also detected when discriminating the depressed participants' experiences as either perceptual or conceptual. The participants reported perceptual experiences, such as, an image. However, during the interview, the participant would not report any visual experience associated with the experience. The experience revealed seemed to have more conceptual characteristics than perceptual characteristics.

Descriptive Experience Sampling with depressed individuals was also the focus of a study conducted by Perlotto (2001). In this study, the inner experience of three depressed participants was compared with that of five control participants. Each

participant completed six beeps per day for approximately five days. Overall, the differences in forms of experience between depressed and control participants were small. Feelings, sensory awareness, and unsymbolized thinking tended to occur frequently in the depressed participants. The control group's samples also contained mostly feelings and sensory awareness, but they experienced more frequent images than did the depressed participants. A difference was also found in the occurrence of multiple experiences during a single sampled moment, with more of these moments occurring in depressed group. In addition, depressed participants had a higher percentage of feelings per sample. Lastly, the depressed group had a much greater rate of negative to positive feelings (4:1 ratio) compared to the control group (1:1 ratio).

The role of attributional style during depression was examined by Cavenagh (2003). Participants were grouped by whether or not they had a negative attributional style, with three participants in each of the two groups. Each participant was beeped six times a day for four days. Evidence of the cognitive triad, attributional style, negative valence, and rumination were coded for each beep. Two of the six participants were determined to be at high risk for depression. These two participants did show a tendency to have negative-valence inner experience.

Experience during Antidepressant Treatment

The research reviewed thus far has indicated the experiential component of depression is important. Given that antidepressant treatments have been shown to reduce depression, we can infer that antidepressants should have an effect on

experience. However, careful examinations of change during antidepressant have been severely limited.

Studies that indicate the efficacy of antidepressants usually look for changes in patients' scores on the Hamilton Depression Rating Scale (HAM-D) or the Montgomery-Asberg Depression Rating Scale (MADRS) (Nemeroff & Schatzberg, 2002). These studies show a reduction in depression symptoms during antidepressant treatment, but do not provide an in-depth understanding of changes that occur in inner experience.

Phenomenological Methods with Limited Structure. Many of the previously mentioned autobiographical accounts of depression included some discussion of treatment that occurred, occasionally including expressions of the experience of antidepressant treatment. In addition, Kramer, a psychiatrist, in a popular book called *Listening to Prozac* (1997), chronicles the types of changes he observed while treating patients with antidepressant medications. The patients became less focused on minor negative daily occurrences and had more social confidence which helped them to function better at home, in relationships, and with their families. Kramer was intrigued by what these changes reveal about the nature of brain chemistry, personality, and the conceptualization of treatable pathology. These topics tend to be the theme of the book rather than in-depth accounts of individual experience.

Experience Sampling Methods. Only one experience sampling study has been conducted on participants undergoing antidepressant treatment. Barge-Schaapveld and Nicolson (2002) used the same ESM procedure that they used to explore depression in a previously discussed study to study the effects of antidepressants. Participants were

signaled to complete a series of rating scales that assessed quality of life ("In general, how is it going with you right now?"), positive affect (energetic, cheerful, satisfied, alert, calm, enthusiastic, strong, and happy), negative affect (hostile, depressed, tense, lonely, anxious, insecure, guilty, harried, and irritable), physical complaints (headache, dizziness, dry mouth, drowsiness, and nausea), and enjoyment of the activity they were currently taking part in. They also reported their current activity which was later coded into eight categories (work or study, household chores, shopping, childcare, social activities, active leisure, passive leisure, or doing nothing). In this double-blind study, 63 participants initiated use of imipramine and 31 participants received a placebo. Participants were randomly sampled 10 times per day on sampling days. Sampling occurred during six consecutive days during a baseline week in which no treatment was administered. Participants were also sampled for the last 3 days of the first week of treatment. During the sixth week of treatment, sampling occurred for 6 consecutive days.

In this study, both groups (treatment and placebo) showed significant clinical improvement. However, the treatment group improved significantly more than did the placebo group. Despite clinical improvement, the treatment group did not show increases in ratings of quality of life. Both groups indicated increased positive affect and decreased negative affect but there was no significant difference between groups. Although neither groups' quality of life ratings increased, treatment group participants indicated more stability in their quality of life ratings. The variability in ratings of quality life tended to vary less between beeps as well as between sampling days

compared to the placebo group. In addition, the treatment group showed a significant decrease in reports of time spent "doing nothing."

A Current Dilemma in the Treatment of Depression: Implication of the Impact of Neglecting Careful Examination

The lack of our complete understanding of depression has been highlighted by a recent dilemma in psychiatry, namely the concern that use of antidepressants may paradoxically increase suicidality. Case reports, epidemiological studies, and coroner studies have been conducted to examine the link between antidepressant use and increased suicidality. A review and meta-analysis by Healy and Whitaker (2003) is often cited when supporting the relationship between selective serotonin reuptake inhibitors (SSRIs) and suicidality.

These studies have indicated that antidepressants, particularly SSRIs, tend to increase suicidal ideation, suicide attempts, and completion of suicide. Studies have indicated suicide rates as high as 219 out of 100,000 patients on SSRIs compared to 68 per 100,000 on non-SSRI antidepressants. A meta-analysis of studies by Khan and colleagues (2001) using odds-ratios indicated that suicidal acts were more likely to occur on SSRIs than placebo ($p<.001$). However, although SSRIs were related to an increase in completed suicides, these findings were not significant ($p=.16$) (Healy & Whitaker, 2003; Khan, Khan, Leventhal, & Brown, 2001; Khan, Warner, Brown, 2000).

Healy and Whitaker (2003) reviewed four epidemiological studies that indicated fluoxetine (Prozac) increased risk of suicidality more than did other antidepressants.

Jick, Dean, and Jick (1995) found that suicide attempts were twice as likely to occur on fluoxetine compared to a reference antidepressant, dothiepan.

Donovan and Madeley (2000) reviewed 2776 acts of self harm, finding that self harm acts occurred twice as frequently among people taking SSRIs and compared to those taking other antidepressants. The SSRI group had an incidence rate of 19.4 per 100,000 compared to the TCA groups which ranges between 6.9 to 11.4 cases per 100,000. Breggin (2003) reviewed studies related to the negative side effects (i.e., agitation, mania, and suicidality) of antidepressants and concluded that SSRIs are more likely to cause stimulant-like effects than are placebos. These effects may cause agitated depression which is more likely to result in violence toward oneself or others.

In response to the growing concern that antidepressant treatment might increase suicidality, the U.S. Food and Drug Administration (US Food and Drug Administration Public Health Advisory) issued a warning in March 2004. The warning encourages physicians to monitor their patients for worsening of symptoms of depression and signs of suicidality (including activation symptoms). The warning pertains to 10 antidepressants, which include SSRIs: Fluoxetine (Prozac), Sertraline (Zoloft), Paroxetine (Paxil), Fluvoxamine (Luvox), Citalopram (Celexa), and Escitalopram (Lexapro); and Nonselective serotonin reuptake inhibitors (NSRIs): Bupropion (Wellbutrin), Venlafaxine (Effexor), Nefazodone (Serzone), and Mirtazapine (Remeron).

The warning advises physicians to assess activation symptoms (i.e., anxiety, agitation, panic attacks, insomnia, irritability, hostility, impulsivity, akathisia, hypomania, and mania) because these symptoms are associated with agitated

depression. It also suggests that the discontinuation of treatment should be tapered rather than abrupt. In addition, family members of the patient should be educated to look for signs of worsening of depression or suicidality.

Although there is reason for caution when considering the link between antidepressants and suicidality, the FDA warnings may not be entirely justified. Research has not established a causal link between antidepressants and suicidality. In addition, the methodology of research finding a relationship between antidepressant use and suicidality has been criticized and the benefit of antidepressant treatment may outweigh potential risks.

The article by Healy and Whitaker (2003) has been criticized for combining studies that use different methods/samples, which may not produce statistically accurate results (Benazzi, 2003). Also, many of the reported results are not significant and pre-group differences (i.e., severity of illness) exist in groups receiving different medications; therefore implications from Healy and Whitaker's article are not clear (Casey, 2004).

In addition, more recent research has failed to detect significant differences among types of antidepressants in terms of increased suicidality. For example, no difference in increased suicidal behaviors between tricyclic antidepressants and SSRIs was detected in a study by Jick, Kaye, and Jick (2004). However, the researchers did find that suicidal behaviors occurred most often during the first 1 – 9 days of treatment and reduced drastically after the first month of treatment.

Due to the recent FDA warning, physicians must exercise greater caution in prescribing antidepressants due to the severity of consequences if antidepressants do indeed increase suicidality. The existing research that has examined the validity of this

claim has resulted in divergent findings. In addition, limiting the use of antidepressants must be carefully weighed with the equally serious potential outcome of not treating the depression because untreated depression results in suicide rates of 6-18.9% (Benazzi, 2003).

The current dilemma challenges previous assumptions of our understanding of depression and its treatment. It is likely that a greater knowledge of the experience of depression would assist in the understanding of the current dilemma related to consequences of the use of antidepressant medication and may help us make sense of contradictory findings. In addition, it may be easier to identify sub-types of depression that have an increased risk for suicidality during antidepressant treatment if we are able to obtain a clearer view of the experience of depression.

The Present Study

A review of the literature indicates that the inner experience of depression is not clearly understood. Depression is an experience-based disorder that is treated with antidepressants. However, studies that have examined change during antidepressant treatment are largely based on vague questionnaire data, and very few studies have directly examined experience. Therefore, the purpose of the present study was to attain a better understanding of the experience of depression as it was altered during antidepressant treatment. The present study involved an examination of the inner experience of depressed participants using Descriptive Experience Sampling (Hurlburt, 1990, 1993) and other methods during their first ten weeks of treatment with antidepressant medication.

Three individuals who were beginning treatment with antidepressant medication were recruited. These participants were referred by the psychiatrist at the on-campus student counseling center during the appointment in which their medications were prescribed. We attempted to schedule the first meeting within 48 hours of initiating the antidepressants and to continue these meetings weekly for approximately their first ten weeks of treatment. Participants were asked to complete several questionnaires about their experience during the first meeting and then at the outset of each subsequent meeting. Participants also provided momentary reports of ongoing experience by participating in descriptive experience sampling during each week of the study. Participants were also asked to indicate whether there was any depression or agitation in their awareness at each sampled moment and, if so, to rate its severity. Within 24 hours of collecting the samples, participants met with the investigator for an interview to reach a shared understanding of the inner experience that was occurring at the moment of the beeps. The process of collecting beeps and subsequent interviews occurred approximately once weekly over a 10 week period to produce approximately 60 sampled moments for each participant.

Summaries of the sampled moments were generated to obtain a description of the inner experience of the sampled moments. The sampled moments were coded according to the codebook developed by Hurlburt and Heavey and analyzed for characteristics of inner experience and patterns of change across sampling days for each participant. Responses to the questions regarding depression and agitation were examined to determine if there were changes over the sampling days or associations with the nature of the corresponding inner experience.

CHAPTER 3

METHOD

Participants

This study included three participants. To recruit these participants, assistance from the psychiatrist at the University of Nevada, Las Vegas' Student Counseling and Psychological Services was elicited. All participants were prescribed antidepressants to treat depression. The participants included in this study also experienced symptoms of anxiety disorders. Two of the three participants were female. The two females were Caucasian and the male was Asian. Participants' ages ranged from 24 to 32. All participants were prescribed Lexapro. Each participant was paid $10 per sampling session for a total of $100.

Measures and Equipment

This study used random signal generators (beepers). The beeper is a small box that can easily be worn on the waist or carried in a pocket. The beeper is connected to an earpiece that delivers the beep. The volume on the beeper can be adjusted depending upon the particular participant and surrounding noise. The beeper is programmed to beep randomly within one hour of being set with the mean time between beeps being 30 minutes. Participants were given small notepads to record notes about their inner experience. The bottom of each page included two yes/no questions regarding

depression and agitation and corresponding 6.5 cm visual analog scales to indicate the extent to which either experience was present in awareness. The questions were: "Was there any experience of depression in your awareness at the beep? Yes/No. If so, how much?" and "Was there any experience of agitation in your awareness at the beep? Yes/No. If so, how much?" Measures of momentary depression and agitation were calculated using the visual analog scale. Each moment's rating was converted into a percentage. A score of 0% was assigned to moments that did not include experience of depression or agitation. When depression or agitation was indicated, the percentage was calculated by measuring the location of the mark on the line and dividing by the total line length. The average percentage of depression and agitation were calculated for each sampling day. This form of analysis was not possible for the third participant because he did not use the visual analog scale to indicate the severity of his depression. For this participant, the percentages of moments in which he answered yes to the question awareness of agitation or depression were calculated.

The Beck Scale for Suicide Ideation (BSS; Beck & Steer, 1991) was used to assess for suicidality. The BSS is a short questionnaire which includes 21 questions. The first five items are screening items which reduce the length of the assessment for people that are non-suicidal. Scores on the BSS range between 0 and 38. A score above 0 on items 4 or 5 indicates the potential for suicide ideation. This measure has been shown to be a reliable and valid quick measure of suicide ideation. Pearson product-moment correlation between patient report and ratings by psychiatrists was .90. The assessment has been shown to have a Cronbach coefficient alpha of .93 (Beck, Steer, & Ranieri, 1988).

The Beck Depression Inventory-II (BDI-II) (Beck, Steer, & Brown, 1996) was included in the study. The BDI is a 21-item questionnaire that is quickly completed and provides a reliable and valid indication of the severity of depression experienced at the time of assessment (Beck, Steer, & Gardin, 1988). The internal consistency of the BDI-II is considered to be high with adult psychiatric patients ($\alpha = .90$). In addition, test-retest reliability has been reported to be high ($r = .93$). Scores from the BDI-II have been shown to correlate ($r = .89$) with the Hamilton Psychiatric Rating Scale for Depression (Riskind, Beck, Brown, & Steer, 1987) indicating its validity (Steer & Beck, 2001). Scores on the BDI-II can be used to infer severity of depression. A score between 5 and 9 is considered normal. The range for mild-moderate depression is between 10 and 18, while the range for moderate-severe depression is between 19 and 29. Scores between 30 and 63 are indicative of severe depression. In addition, scores below 4 are considered below scores for normal participants possibly indicating a tendency to deny depression or faking good. Scores above 40 are high even for severely depressed people. Although these scores may indicate significant levels of depression, they have been associated with exaggeration of symptoms or histrionic and borderline personality disorders (Groth-Marnat, 1990).

Procedure

During a meeting in which he prescribed antidepressants to a patient not currently on medication, the psychiatrist at the student counseling center provided potential participants with information about the study. Interested participants signed a release of information form which allowed the psychiatrist to give their contact information to

the investigators. The investigators promptly contacted interested participants to schedule an initial meeting. Three of the eight potential participants contacted for an initial meeting completed the study. Only one person was unable to complete the study after agreeing to participate in the study during the initial meeting. Other participants were either unable to be scheduled for the initial meeting or declined participation during the initial meeting. The most commonly provided reason for declined participation was that the participant was too busy to dedicate time to the study.

We attempted to schedule the initial meeting within 48 hours of initiating the antidepressants. During this meeting the study was explained to participants in detail, any questions the participant had were answered, and informed consent was obtained. Informed consent included a review of the limits of confidentiality in cases of possible or suspected child or elderly abuse or danger to self or others. Participants were screened for suicidality using the BSS. A protocol was in place to address suicide risk through services at the student counseling center. However, no participants were found to be at an elevated risk for suicide.

After obtaining consent, participants were asked to complete a BDI-II and PANAS-X during the initial meeting. This first meeting was typically less than one hour. Each participant received a beeper and was instructed in its use. Participants were allowed to choose when to wear the beeper. They were asked to wear the beeper during the chosen time period until six beeps were collected. Although participants were encouraged to wear the beeper continuously until all six beeps are collected, continuous use was not required. When participants arrived at the sampling interview with fewer

than six beeps collected, the interview was conducted as usual and included discussion of the beeps that were collected.

During the first meeting, the investigator explained to the participant that the nature of their interactions is that of co-investigators. The participants were encouraged to be honest and forthcoming about their inner experience. At the same time, the investigator relayed respect for the participants' privacy by establishing permission for the participant to decline discussion of any beeps that they wished. In these instances, the investigator asked the participant to omit discussion of the moment and to state directly that it is a beep that would not be discussed. The purpose of this conversation was to avoid incomplete or partial understanding of the sampled moments.

During the initial meeting the participant was asked to consent to being videotaped during the following interviews. Videotaping was conducted to maintain a record of the interviews in case further review was necessary. All participants agreed to the videotaping. The interview was concluded by answering any questions or concerns the participant may have had and thanking them for their willingness to participate.

Participants were asked to wear the beeper within a day of the initial meeting. When the beeper generated a signal, the participants were asked to recall the last brief moment (i.e., fractions of a second) that was undisturbed by the beep itself and to jot down notes about their inner experience at the moment directly preceding the beep. The notes were to be written in a three by five inch notebook that was provided to the participant. These notes were meant to act as a reference for the participant and were not analyzed by the investigator. Participants were asked to answer the questions regarding depression and agitation after recording their notes about their inner

experience at each beep. Each question was followed by a visual analog scale for rating depression and agitation if it was in awareness. This process was repeated until all six beeps were collected.

A DES expositional interview was scheduled to occur within 24 hours of collecting the beeps. Two investigators, including the author conducted the expositional interviews. During the majority of these interviews both investigators were present. Occasionally only one interviewer was present. Participants met with the interviewers for an interview that lasted a maximum of one hour. Typically, interviews were 30-40 minutes. At the beginning of each interview the BDI and PANAS-X were administered to track levels of self-reported depression and affect throughout the study. The purpose of the interview was to attempt to reach a shared understanding of the inner experience that occurred at the moment of the collected beeps. To do this, the investigators asked the participant to describe each beep. The investigators' aim was to limit the moment described to the last undisturbed moment before the beep. The investigators attempted to ask open ended questions. The investigators have been trained to bracket presuppositions and help the participant bracket presuppositions during the interview to limit the influence of investigator bias on the reported information.

The process of collecting beeps and subsequent interviews occurred twice during the first week of treatment and once weekly for the following nine weeks. The aim of the ten sampling sessions was to produce 60 sampled moments. A written summary of each beep was prepared by the interviewers. The form of the experience in each sampled moment was coded by the interviewers using the codebook developed by Hurlburt and Heavey (1999).

CHAPTER 4

RESULTS

For each participant there are three categories of information about their experience during the 10-week duration of the study. First, each participant completed widely used questionnaires assessing symptoms of depression (BDI-II) and positive and negative affect (PANAS-X) at the outset of each interview. Second, each participant was asked to indicate whether depression or agitation was in their awareness at each beeped moment using a yes/no format and, if yes, to indicate the intensity of the depression or agitation using a visual analog scale. This constitutes a moment-based assessment of depression and agitation. Third, the participant's experience at each sampled moment was assessed via descriptive experience sampling.

This information will be used to present an overview of each participant's experience during the study with a focus on four questions. First, what was the course of their depression as revealed by traditional questionnaires? Second, what was the course of their depression as revealed by the momentary ratings on the visual analog scales? Third, what were the characteristics of their inner experience as revealed by DES? Fourth, what overall picture emerges of each participant's experience over the course of the study when considering all sources of information?

Participant One: Karen

Referral & Initial Impressions. Karen was a 27 year-old Caucasian female studying nursing. She had seen the psychiatrist at the student counseling center because she had begun to experience high levels of anxiety. During her meeting with the psychiatrist she was diagnosed with depression. She was surprised by this diagnosis, but when rationale for this diagnosis was explained, she agreed that it was accurate. Lexapro was prescribed for her depression and anxiety. We met with her for the first time two days after initiation of antidepressant treatment.

Karen presented as a cheerful and competent woman. She was attractive, well groomed, and presented a generally positive outward demeanor. Although she indicated previous attempts of suicide, she indicated no suicidal ideation at the time of the initial meeting.

Questionnaire-Based Assessment. Figure 1 shows the BDI-II scores across the 10-week assessment period. As can be seen, Karen began the study reporting high levels of depression. Her initial BDI-II score of 47 falls within the severe range of depressive symptoms. Her self-reported depressive symptoms decreased over the first seven weeks of her participation, reaching a low of 20, a score on the low end of the moderate-severe range, during week 7. Her BDI-II score rose substantially after that, ending the study again in the severe range of depression.

Figure 1: BDI-II Scores for Karen

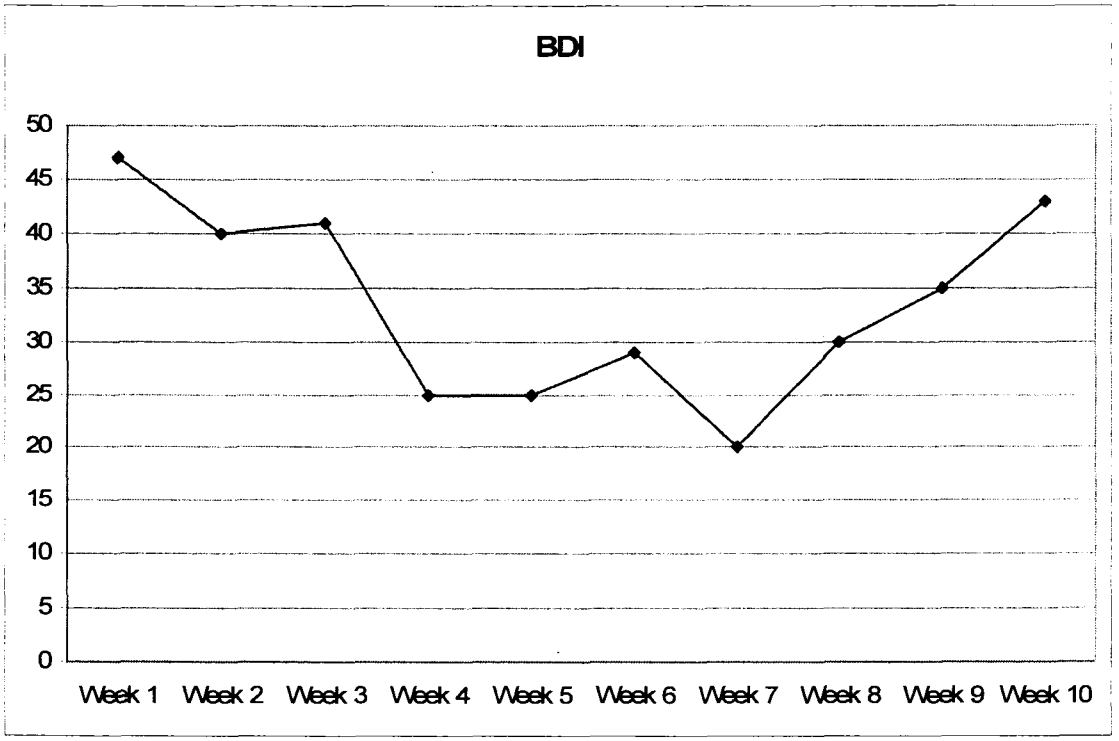
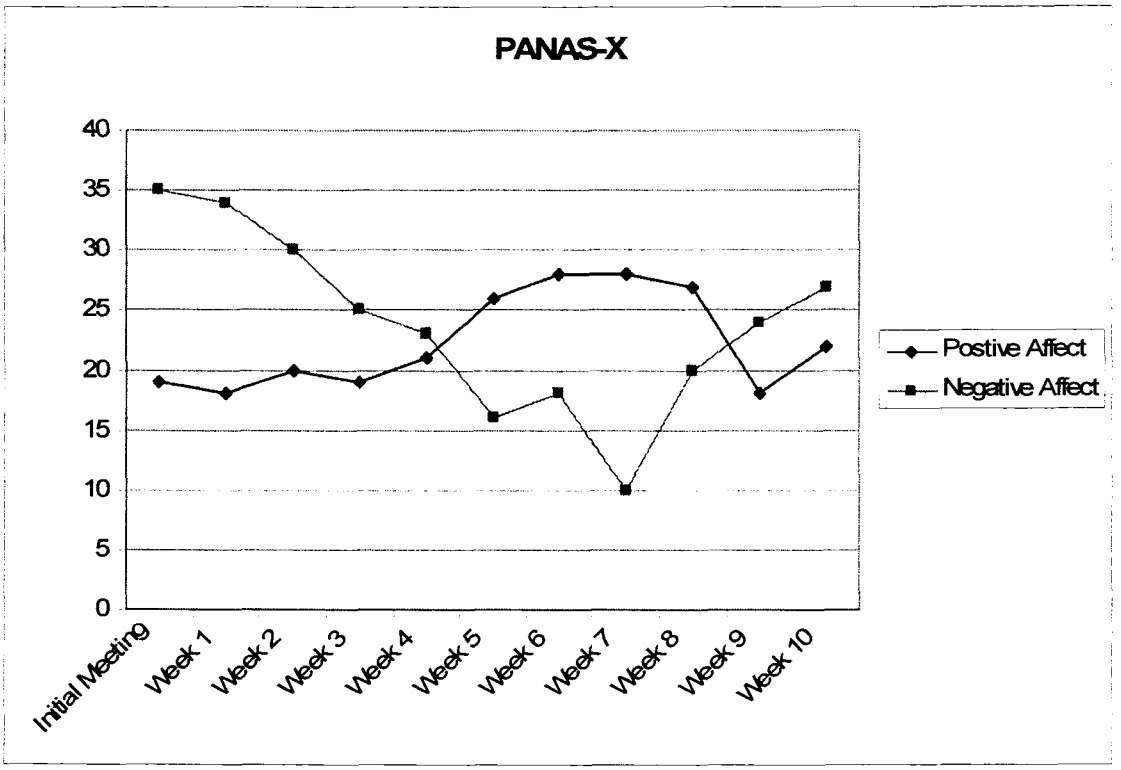


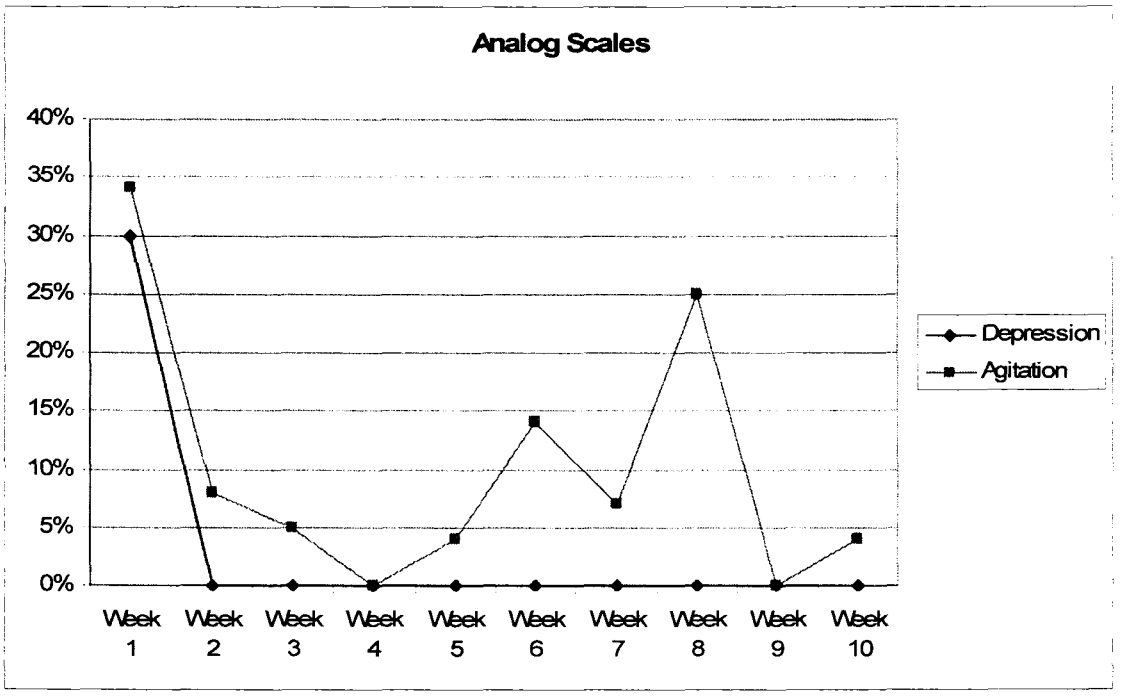
Figure 2 shows Karen's scores on the positive and negative subscales of the PANAS-X. As can be seen, Karen's reported positive and negative affect closely tracked her depression as reported on the BDI-II with a consistent decrease in negative affect and increase in positive affect through the first seven weeks of the study. At that point, her reported negative affect sharply increased and her positive affect decreased. Her changes in positive affect were generally less pronounced than her changes in negative affect.

Figure 2: PANAS-X Positive and Negative Affect Scores for Karen



Momentary Rating of Depression and Agitation. Figure 3 shows the average momentary visual analog scale scores of depression and agitation for Karen. Karen only reported depression being present in her awareness during the first week of sampling. Her momentary experience of agitation showed an initial decrease but became quite elevated during week 8. However, during the final 2 weeks of the study, when her depression as measured by the BDI and PANAS-X had increased substantially, her agitation returned to its lowest points.

Figure 3: Analog Scale Scores for Karen



Descriptive Experience Sampling. During the 10 weeks of the study, 53 moments were collected and analyzed for Karen. Karen showed a mixture of inner experience. Karen experienced all five of the most common forms of inner experience. These forms of inner experience include feelings (present in 40% of sampled moments), inner speech (26%), unsymbolized thought (30%), sensory awareness (21%), and images (8%). She also frequently experienced perceptual awareness (30%). In addition, she experienced other forms of inner experience which included talking, worded thinking, reading, and just doing.

Figure 4 shows the percentage of sampled moments each week which contained an experience of a feeling. Feelings were Karen's most common form of inner experience. The graph indicated that the frequency of feelings in Karen's experience

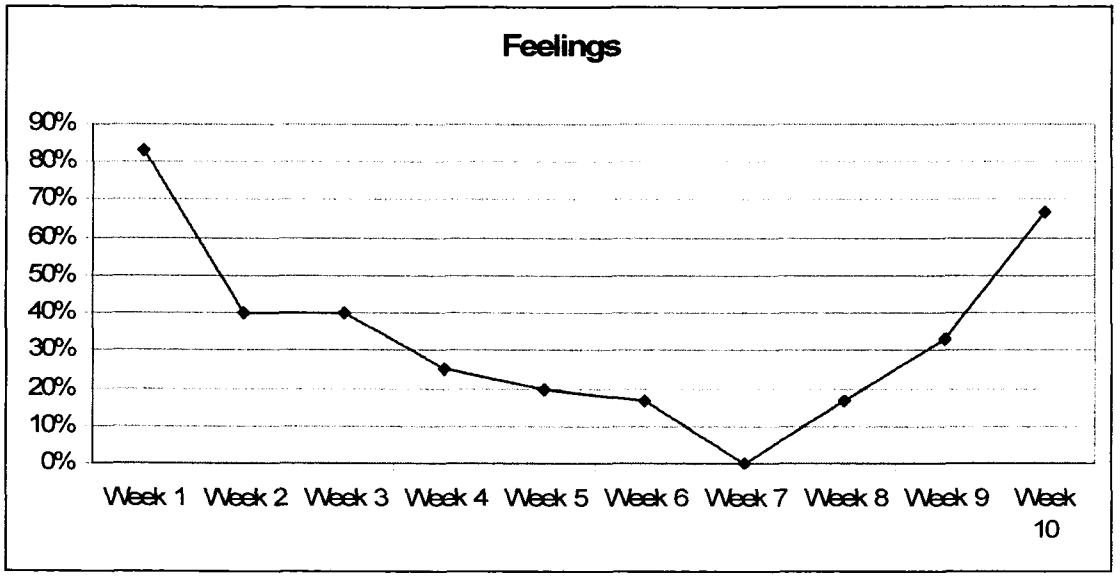
was greatest during the early and later weeks of her participation. Comparing the pattern of this graph to other measures, we see that during times that she was reporting more depression and negative affect on the self-report measures, she experienced more frequent feelings.

When feelings occurred in Karen, they tended to be negative in valence. For example, she experienced frustration, disappointment, discouragement, dread, annoyance, anxiety, uneasiness, worry, agitation, tension, tightness, and stress. The experience of these feelings was often accompanied by the awareness of bodily sensations.

A typical experience of feelings for Karen is captured in the following summary:

> She was flipping through papers in a file searching for a particular "care plan." At the moment of the beep she was experiencing a combination of frustration and panic in response to not finding the paper. She experienced the panic as a heaviness on her chest like a weight pressing inward near the top of her chest. She felt as if this pressure limited her ability to take deep breaths. She was also experiencing what she referred to as a repeating thought that was present in words in her own voice. Although she was unable to specify the exact words, the gist of the words were "Did you do the case plan; Are you sure?"

Figure 4: Experience of Feelings for Karen

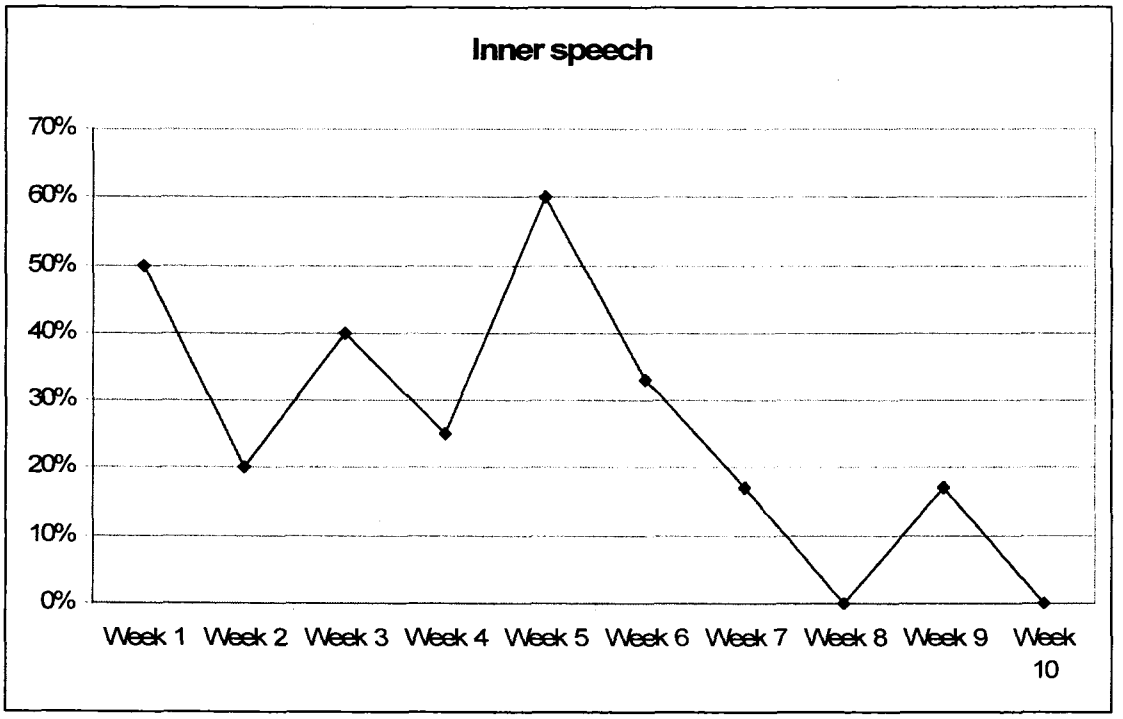


Karen regularly experienced inner speech throughout the course of the study. Karen experiences the highest rate of inner speech during the middle of the study, when she was reporting the lowest levels of depression. She also experiences low rates of inner speech near the end of the study when her reports of depressive symptoms had risen again.

The majority of Karen's inner speech was related to mundane topics. The following is a typical example of moment of inner speech for Karen:

> She was in the kitchen standing at the counter sorting through beans. At the moment of the beep she was having an inner dialogue in which she was saying "It's 'spelling' spelled backwards." She experienced this as though she was speaking aloud to tell her boyfriend's family this. Although she was unable to identify particular people she was saying this to, she was aware that it was being said to members of his family in order to persuade them to play the game *Cranium*.

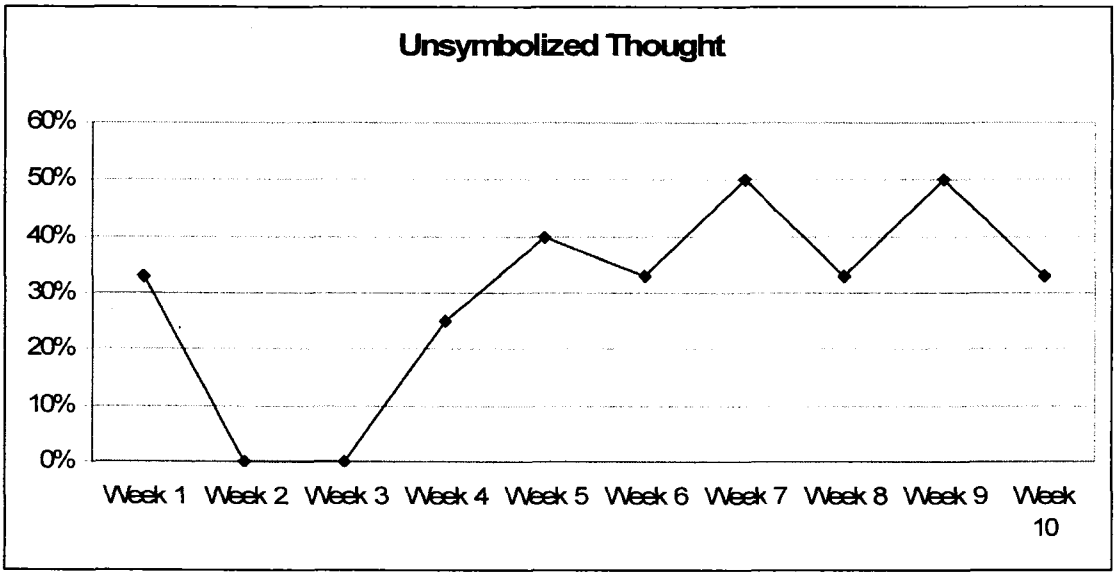
Figure 5: Experience of Inner Speech for Karen



Karen frequently experienced unsymbolized thoughts throughout the course of the study, as indicated in Figure 6. At the beginning of the study, the unsymbolized thoughts Karen experienced seemed to contain negative content. For example, during the first sampling day, she experienced a thought "loop" consisting of the following repeated thoughts; that she had so much to do, her homework takes some much time, she can't leave her dogs alone, she needs a better study area. During the rest of the study her unsymbolized thoughts tended to be more neutral. An example of a neutral thought occurred while she was driving to school and listening to the radio. She had just changed the channel on the radio and heard the end of a song. The announcer then said that the song was by Chris Rice. At the moment of the beep, she was thinking

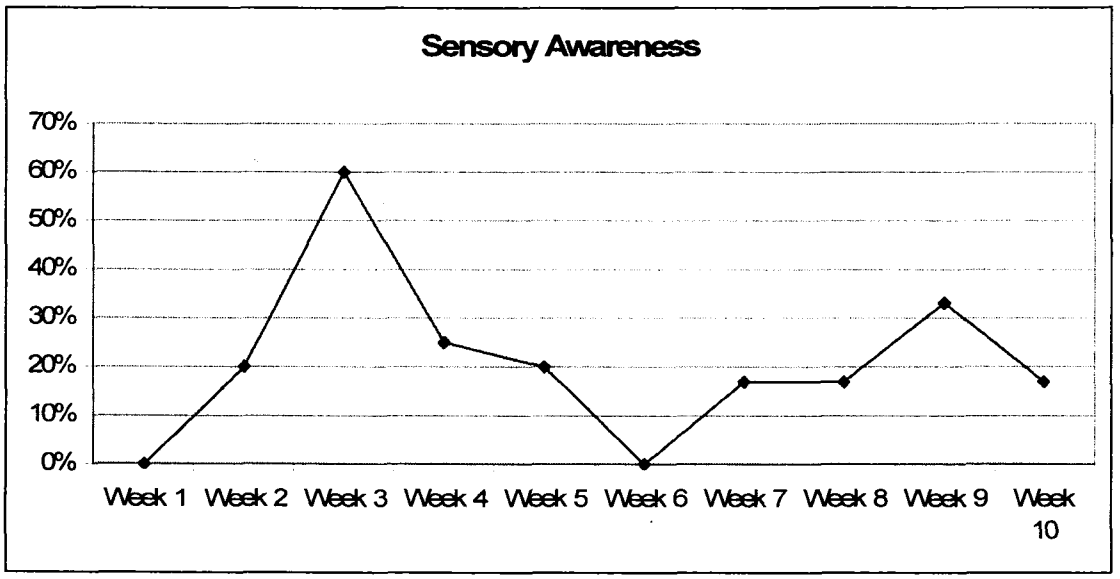
something like, "Who's Chris Rice" or "I don't know who that is" or "I've never heard of him" or just "Who?!?" This thought occurred without words or other symbols.

Figure 6: Experience of Unsymbolized Thought for Karen



The frequency of Karen's experience of sensory awareness is depicted in Figure 7. Sensory awareness tended to occur on most sampling days throughout the study. Karen's sensory experiences most often included sensations related to touch. For example, she felt a tightness in her feet, an ache in her ribs, the feeling of her dog's head as she pet it, and various experiences of coldness. There were two visual instances of sensory awareness as well as an auditory one.

Figure 7: Experience of Sensory Awareness for Karen



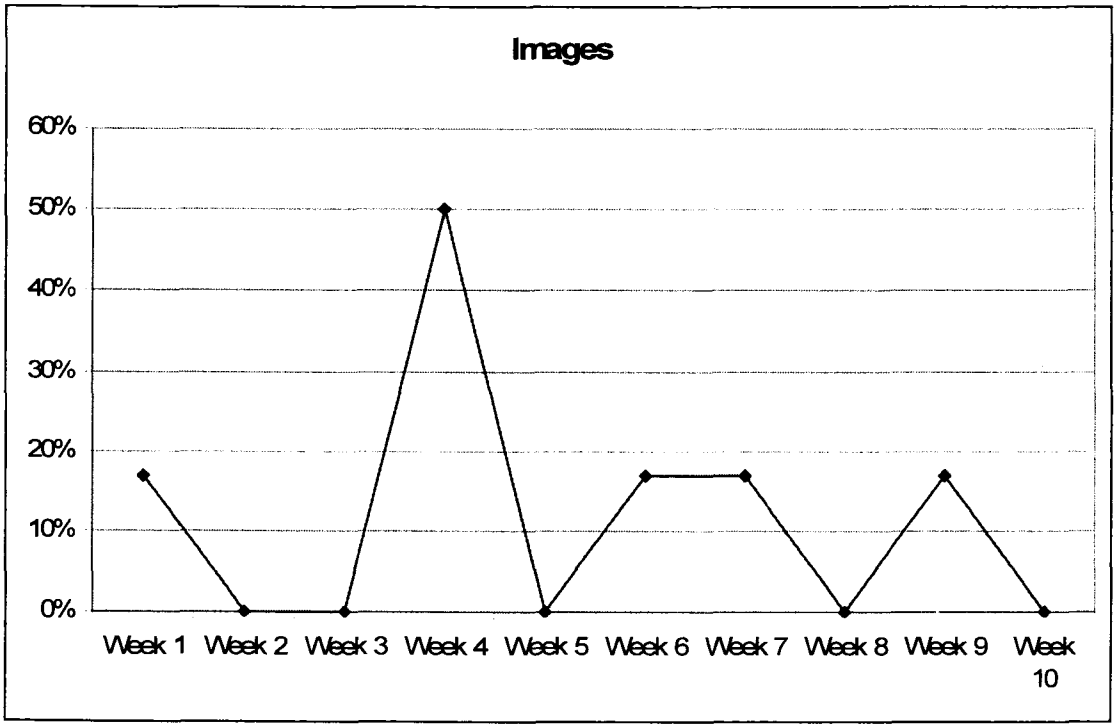
Karen experienced images sporadically throughout the course of the study as indicated by Figure 8. The images that she tended to experience were generally related to whatever activity she was engaged in at the time. For example:

> She was still in the hallway talking with her friends waiting for the class to start. Her friend was taking care of someone's dog and it had gotten sick. The veterinarian had told her to give the dog pumpkin to cure constipation. Her friend had said that you can't give pumpkin to a dog. At the moment of the beep, she was saying, "No, it really works!!!" The beep came right around the end of her sentence. Her expression was one of emphasis to address the skepticism on her friend's face. She was also seeing a mental image of a can of Libby pumpkin on her counter. She was seeing the back of a can pumpkin sitting on her counter. She saw that it had a recipe on either side of the label and some type of emblem in the middle. She saw the dark counter and the blue wall around the can. This image seemed to be in her head just in front of her ears and seen as if looking from behind. She thinks this may have been a memory of a can of pumpkin on her counter as she recently gave pumpkin to her dog, but she wasn't sure. She also had a sense that she could see her friend's face, but she wasn't sure.

There was one image experienced during the first day of sampling that was noteworthy because it was related to negative self-evaluation. During this moment,

Karen was feeling a sense of disappointment in herself related to what she had eaten for dinner. At the moment of the beep, she had an image of herself reflected in a mirror that was a recreation of a real experience when she had looked at herself in the mirror in her bathroom in the morning when she was getting dressed. She was looking at herself at an angle in the mirror and focused on her thighs. Her focus on her thighs was accompanied by a sense of dissatisfaction with her weight/appearance.

Figure 8: Experience of Images for Karen



Overview of Karen's Experience. Karen began the study reporting high levels of depression on the BDI-II. Her depression dropped into the moderate-severe range over the first seven weeks and then increased again. Her reports of positive and negative affect closely mirrored changes in her reported depression. She ceased reporting

depression as present in her momentary awareness after the first sampling day, though she sporadically reported agitation. The form of her inner experience as revealed by DES was varied, with feelings being most common and images being least common. The frequency of her experience of feelings appeared to correspond rather closely to her reported level of depression. The valence of her feelings also corresponded to her reported depression, with negative feelings predominating during the early and later weeks of the study.

Participant Two: Emily

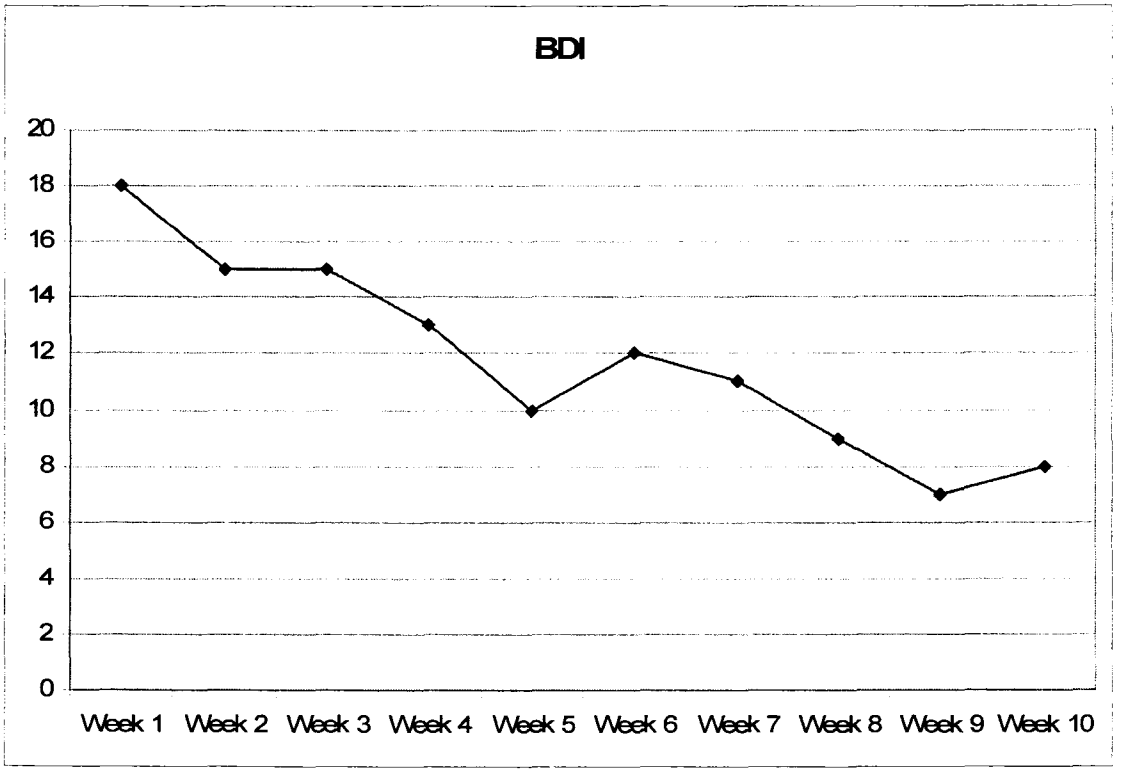
Referral & Initial Impressions. Emily, a 24-year-old Caucasian female, met with us 11 days after beginning psychopharmacological treatment. She was a university student also employed in the service industry. She had been seen by the psychiatrist because she was experiencing occasional panic attacks. Anxiety and panic typically occurred while she was in classes, especially if she was expected to speak in front of other students. The psychiatrist diagnosed her with depression and panic disorder and prescribed Lexapro for these symptoms.

Emily presented as attractive, well-groomed, and casually dressed. She had a somewhat reserved manner and maintained a reserved demeanor throughout the meeting. She indicated no suicidal history or current ideation on the BSS.

Questionnaire-Based Assessment. Figure 9 shows the BDI-II scores across the 10-week assessment period for Emily. As the graph indicates, Emily began the study reporting some symptoms of depression. Her initial BDI-II score of 18 falls within the high end of the mild-moderate range of depressive symptoms. Her self-reported

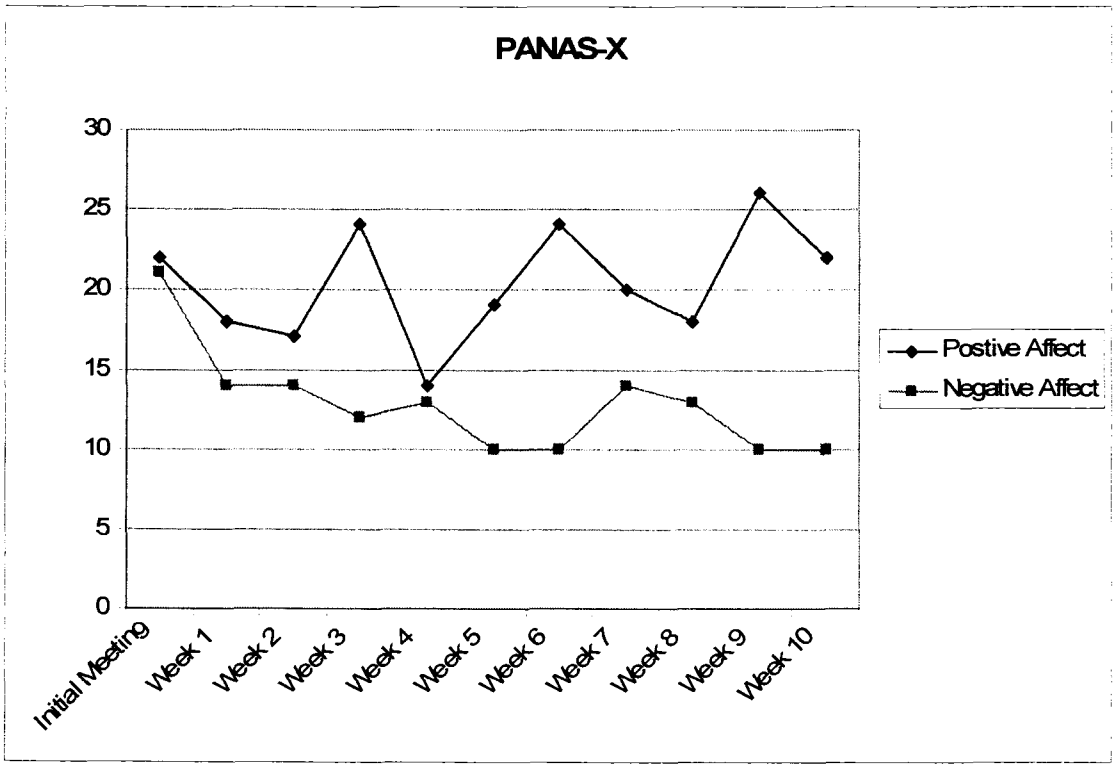
depressive symptoms showed an overall decrease throughout the course of the study. Her lowest BDI score of 7 falls within the normal range of depressive symptoms.

Figure 9: BDI-II Scores for Emily



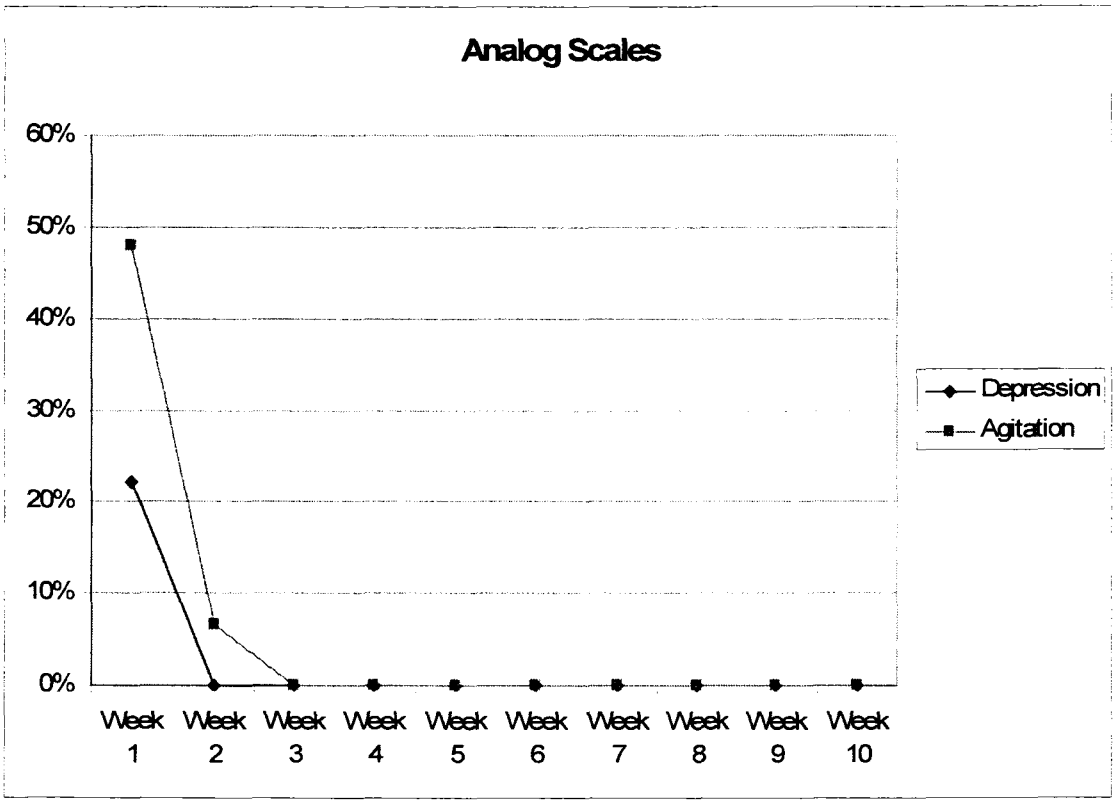
Emily's scores on the positive and negative subscales of the PANAS-X are shown in Figure 10. As can be seen, Emily's reported negative affect tracked the BDI-II, with a consistent decrease in reported symptoms throughout the course of the study. However, the largest decrease in negative affect was observed at the beginning of the study and then tended to fluctuate very little. Conversely, her positive affect tended to show substantial fluctuation from week to week throughout the duration of the study.

Figure 10: PANAS-X Positive and Negative Affect Scores for Emily



Momentary Rating of Depression and Agitation. Figure 11 shows the analog scale scores of depression and agitation for Emily. The figure represents the average intensity of momentary reports of depression and agitation during each week of sampling. Emily rated depression as being experienced at the moment only during the first week of sampling; agitation was reported during only the first two weeks of sampling. Agitation showed a sharp decline in intensity between weeks 1 and 2.

Figure 11: Analog Scale Scores for Emily



Descriptive Experience Sampling. Fifty-five moments of Emily's experience were examined via DES. Emily's inner experience was mixed. She experienced four of the five forms of inner experience most commonly experienced in the population. These forms of Emily's inner experience include images (present in 36% of sampled moments), unsymbolized thought (29%), feelings (16%), and sensory awareness (11%). She did not experience inner speech. She did, however, experience perceptual awareness (15%) and occasional moments of no inner experience (7%). Other forms of inner experience including confusion, desire, listening, just doing, just talking, anticipation, and effort were seen in one or two moments. In addition, there were three moments in which she was unable to recall her inner experience.

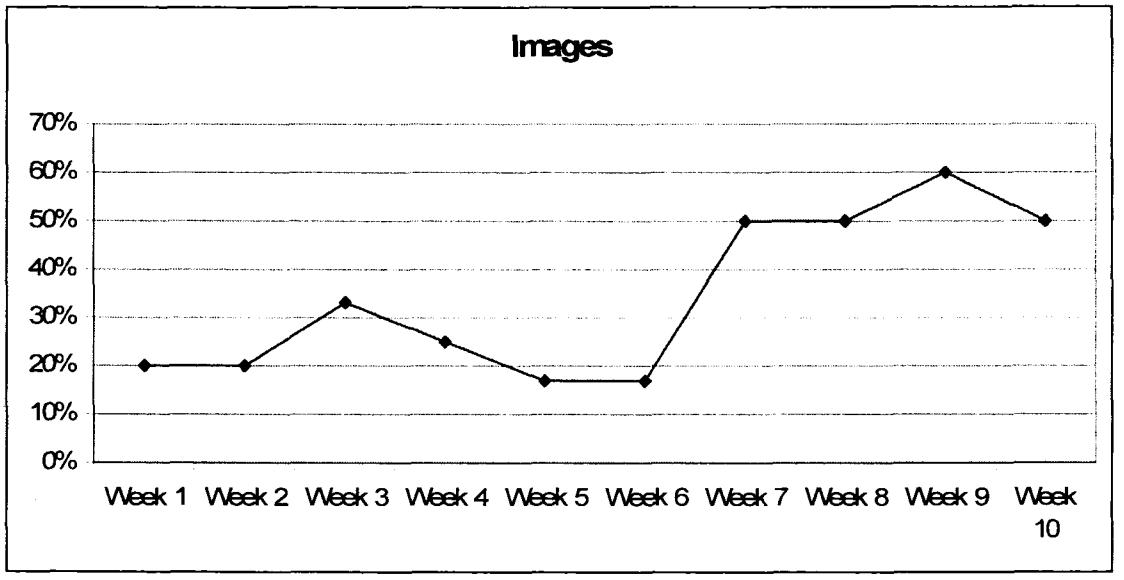
Figure 12 represents the frequency of Emily's experience of images. As the graph shows, images tended to occur frequently and the prevalence of images tended to increase over the course of the study. Emily's experience of images tended to increase as her experience of depression decreased.

The content of Emily's images was varied. While some images represented objects, they frequently were representative of herself or others. For example, she had one image of herself in which she was thinking about how the roots of her hair were visible. This thought was represented by an image she had in which she was at work looking at pictures of herself. The image was seen from first-person perspective and she was pointing at the roots of her hair in the picture of herself on the computer screen. The rest of the image was unclear as she was primarily focused on noticing that her roots were visible.

A typical image that included another person was:

> Emily was thinking about why her ex-boyfriend chose the girl he is with because she is so different from her. At the moment of the beep she was having an image of her boyfriend and the girl he is with in his room. The room was the same as the room she knew he had. They were looking at one another and she could see the computer next to him. Visually, she was seeing this as though she was in the room with them but they were not aware of her being there. She was thinking as though from his perspective. In her thoughts he was thinking that he didn't really like the girl he was with, he was just with her to pass the time. This was associated with a thought of the girl being different from the Emily and wondering why he is with her.

Figure 12: Experience of Images for Emily



Emily frequently experienced unsymbolized thoughts throughout the course of the study, as indicated in Figure 13. Emily's unsymbolized thoughts tended to be related to anticipations about future events. For example, she had an unsymbolized thought while she was thinking about calling a girl from work to ask her to pick up her shift that night. At the moment of the beep she was anticipating her calling so she would know if she had to work that night or not. Another example that portrayed this theme was captured when she was thinking about the Christmas card she had made for her ex-boyfriend and wondering what he might think when he sees it.

Figure 13: Experience of Unsymbolized Thought for Emily

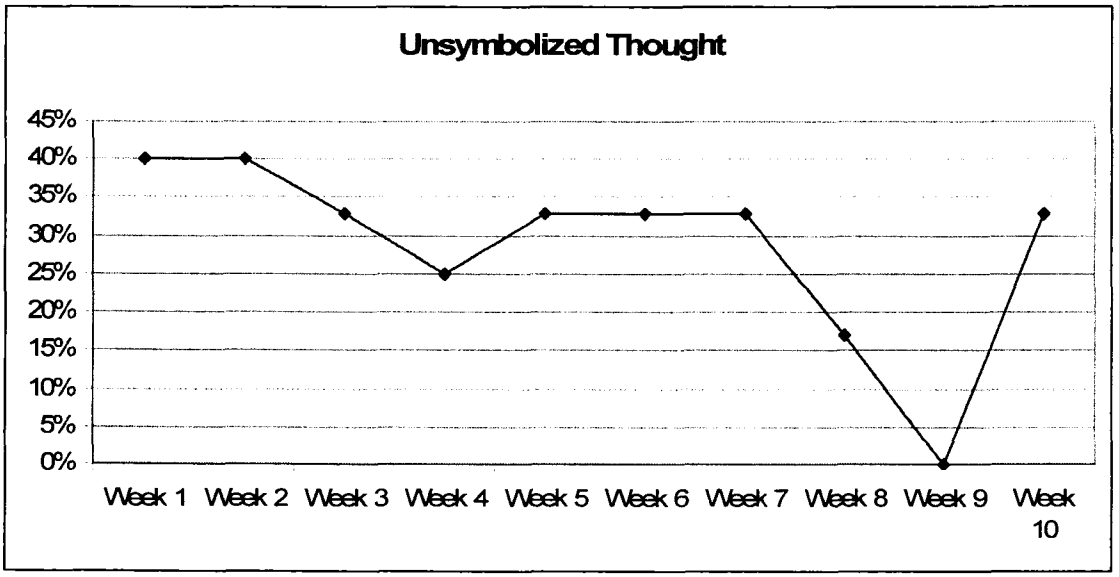
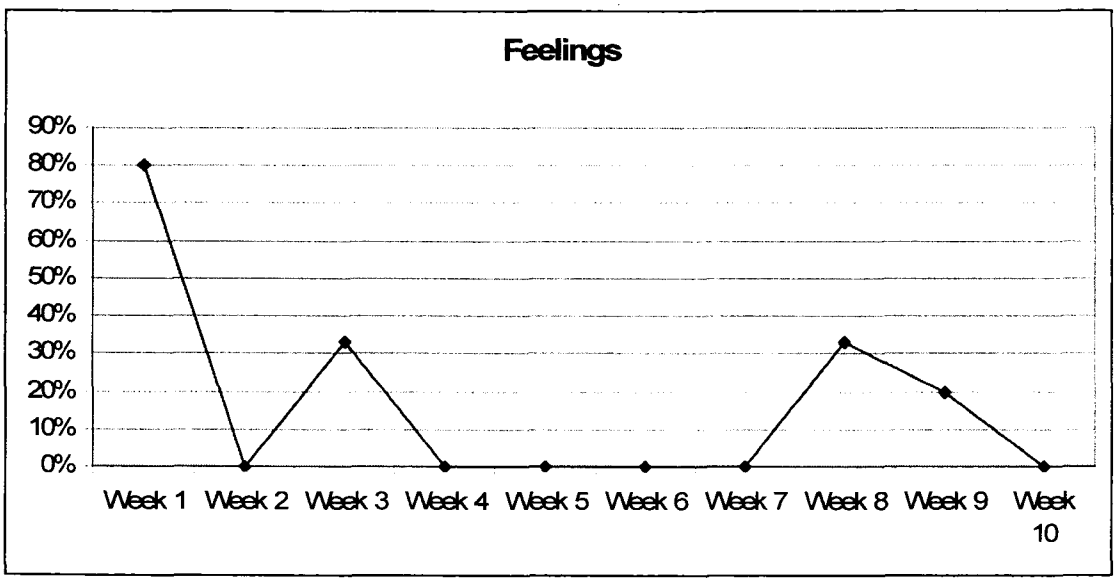


Figure 14 shows the percentage of sampled moments each week which contained an experience of a feeling. The highest frequency of feelings were observed during the first week of study, and only sporadically afterward. The types of feelings experienced by Emily were indicative of her primary complaints of anxiety and included frustration, uneasiness, fear, anger, anticipation, and nervousness. These anxiety-related feelings tended to be accompanied by bodily sensations that are commonly associated with anxiety. A typical experience of feelings was:

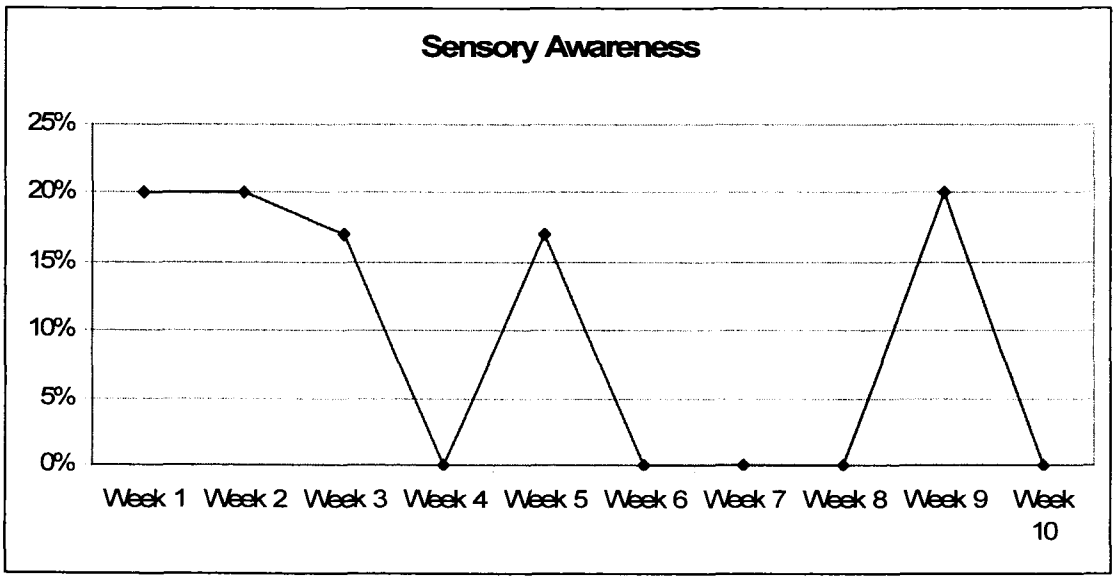
> She was talking to her ex-boyfriend on the phone. He was talking at the moment in a way that was inconsistent with them being broken up. At the moment of the beep she was aware of feeling a mixture of confusion, frustration, and uneasiness because she was having a difficult time communicating with him. She was aware of her heart beating fast and her accelerated breathing.

Figure 14: Experience of Feelings for Emily



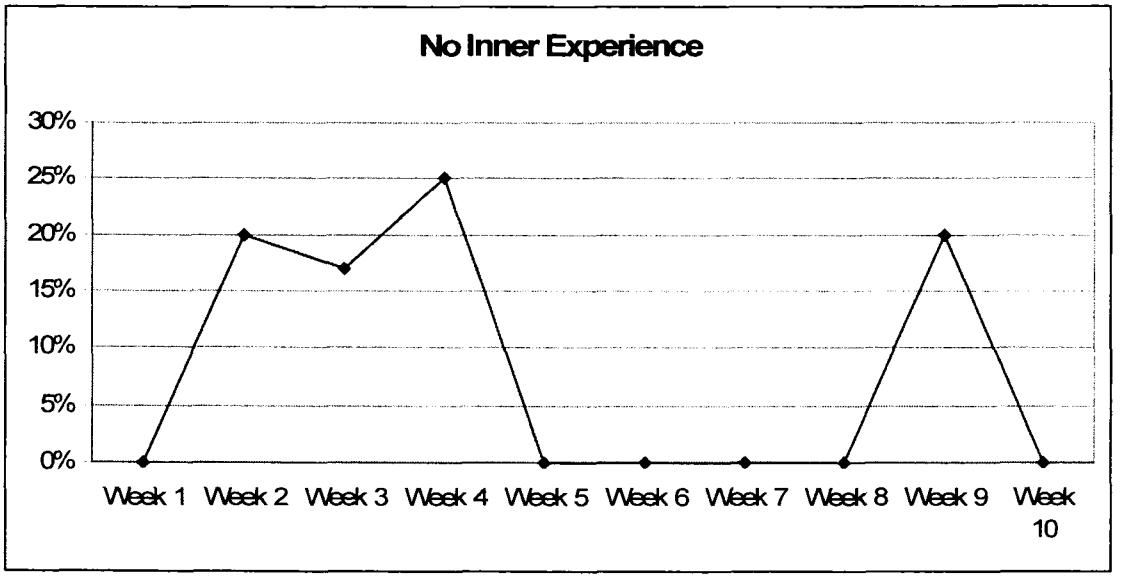
The frequency of Karen's experience of sensory awareness is depicted in Figure 15. Sensory awareness tended to occur on half of the sampling days throughout the study. Emily's sensory experiences most often included sensations related to pain or discomfort. For example, she felt her upset stomach, coldness, headache, and pain from exercise. There was one sensory awareness in which she was focused on the sound of birds singing and another in which she was aware of the smell of her sandwich.

Figure 15: Experience of Sensory Awareness for Emily



Emily had no inner experience during several sampled moments. These moments did not contain any awareness and were distinctly different than moments in which she could not recall her inner experience. These events tended to occur more frequently at the beginning of the study, which suggests the possibility of relation to treatment.

Figure 16: No Inner Experience for Emily



Overview of Emily's Experience. Emily began the study reporting mild-moderate depression on the BDI-II which decreased to the normal range by the end of the study. This decrease in reported depression was also accompanied by a decrease in negative affect as reported on the PANAS-X. Emily's inner experience as revealed by DES tended to be of varied form and, in addition, she had experiences of no inner experience. Her most frequently occurring form of inner experience was images. The waning of her depressive symptoms tended to be accompanied by an increase in images and a decrease in the frequency of moments of no inner experience. Emily did not fit the ideal profile for this study as she reported low levels of depression and instead seemed to suffer more from anxiety and panic disorder

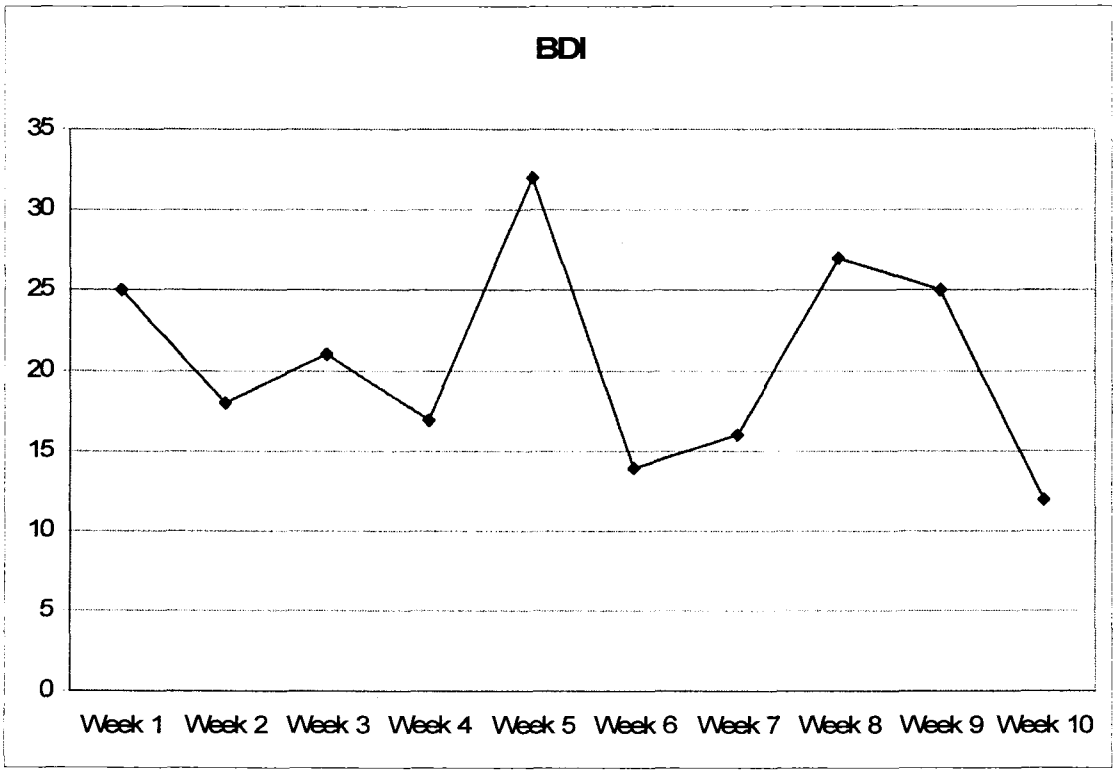
Participant Three: Steven

Referral & Initial Impressions. Our 32-year-old Asian male participant, Steven, first met with us four days before he began treatment with Lexapro. He was a university student studying mathematics and was married. He had been seen by the psychiatrist and prescribed the antidepressant to treat the depression he was experiencing along with features of obsessive compulsive disorder.

Steven was tall and somewhat heavy set. During the meeting he was talkative, energetic, and appeared slightly nervous. He spoke somewhat quickly with a louder than average voice. Although he indicated a previous suicide attempt, he showed no current indication of suicidal ideation or intent. Steven reported currently experiencing continuous arguments in his head that would last for days. He reported that he would become very agitated by these ongoing inner debates that he perceived he had no control over.

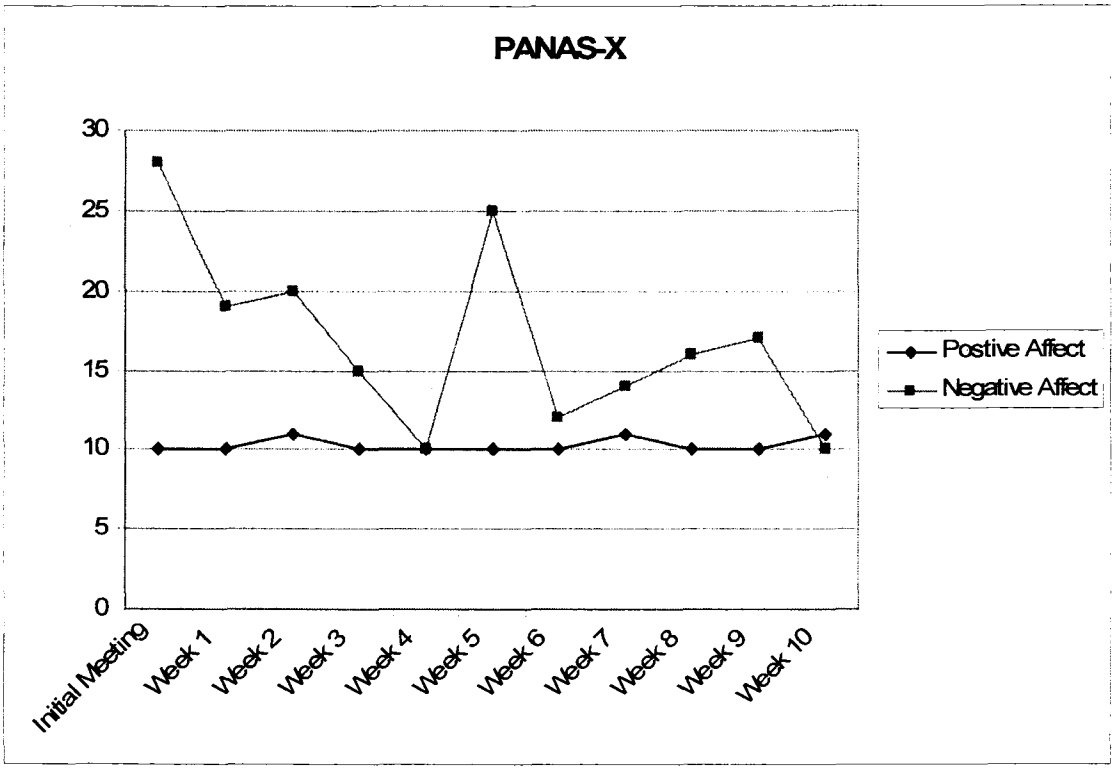
Questionnaire-Based Assessment. Steven's wide variability in report of depressive symptoms on the BDI-II is illustrated in Figure 17. His initial BDI-II score falls within the moderate-severe range of depression. The moderate-severe range of depression scores were also observed during Weeks 3, 8, and 9. Steven's lowest scores on the BDI-II fall in the mild-moderate range and were observed during Weeks 2, 4, 6, 7, and 10. Steven's score of 32 during Week 5 falls in the severe range of depressive symptoms.

Figure 17: BDI-II Scores for Steven



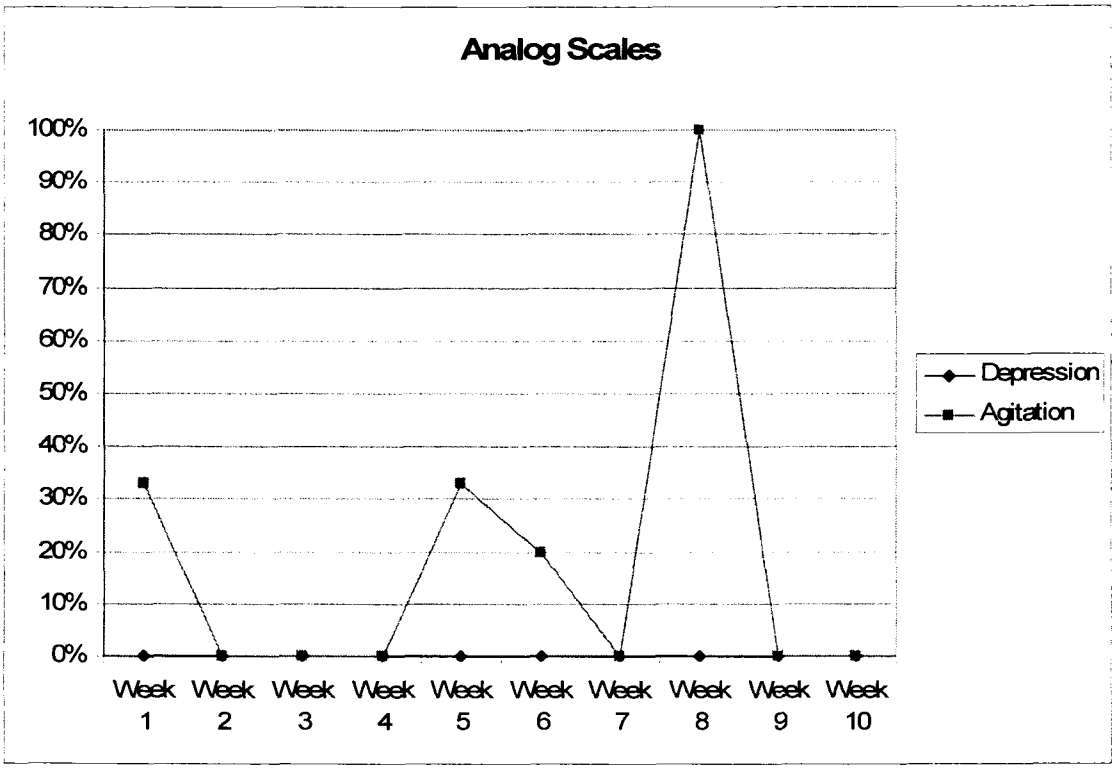
Steven's scores on the positive and negative subscales of the PANAS-X are shown in Figure 18. The sharp increase in during Week 5 compared to surrounding weeks that was seen on the BDI-II can also be seen in negative affect. However, the graph also shows a fairly stable decrease in negative affect from the initial meeting of the study until the fifth week. Similar to the BDI-II, a slight rise in negative affect can be seen between Weeks 6 and 9 with a final low score being observed during the last meeting. Steven's positive affect was maintained at a low level and showed very little change through the course of the study.

Figure 18: PANAS-X Positive and Negative Affect Scores for Steven



Momentary Rating of Depression and Agitation. Figure 19 shows the Steven's analog scale scores of depression and agitation. The figure represents the average percentage of moments that contained awareness of depression and agitation during each week of sampling. Steven reported experiences of agitation sporadically during the study. Agitation was consistently reported in his awareness during all collected moments in Week 8. Steven never reported the momentary experience of depression.

Figure 19: Analog Scale Scores for Steven



Note: Unlike previous graphs, this graph depicts the percentage of moments containing awareness of depression or agitation during each week. Intensity ratings were not provided by the participant.

Descriptive Experience Sampling. During the course of the study Steven collected 56 moments of experience, which are included in Appendix III. He experienced four of the five forms of inner experience common forms of inner experience; including sensory awareness (present in 75% of sampled moments), unsymbolized thought (21%), images (16%), and feelings (16%). He did not experience inner speech. He did, however, experience perceptual awareness (23%). Other forms of inner experience

which were experienced occasionally included talking, detachment, inner hearing, spatial awareness, reading, and watching television.

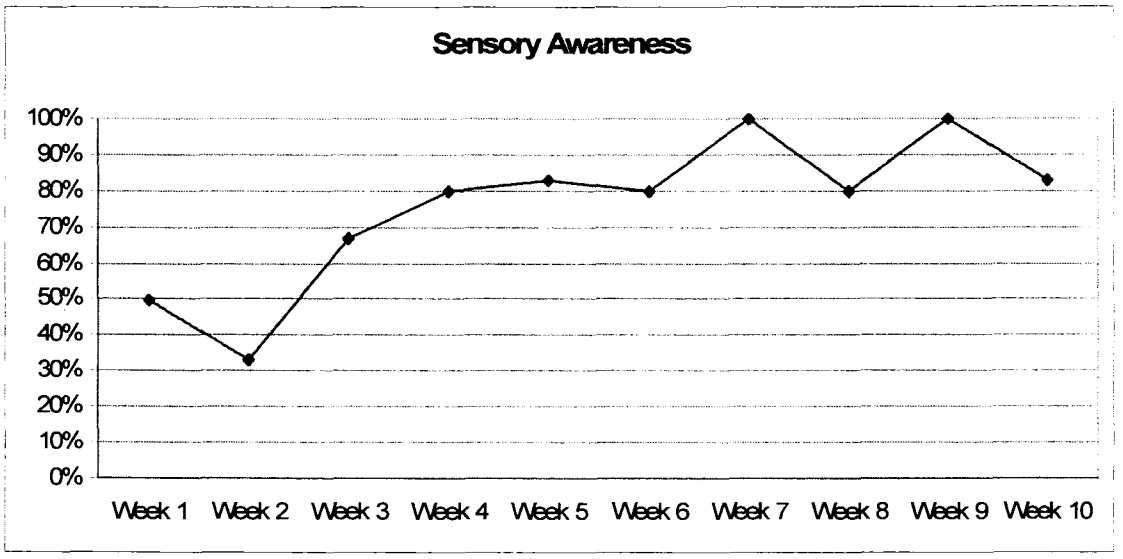
The most characteristic form of inner experience for Steven was sensory awareness, which is represented in Figure 20. Steven spent much of his time visually fixated on inconsequential aspects of the environment. These are several prototypical examples of this type of experience:

> He was lying on his bed on his stomach looking into the mirror of the closet doors. At the moment of the beep his attention was equally divided between two experiences. The first experience was seeing a face in the mirror. In reality, this was his face, but he did not recognize that it was his face. Instead, he was aware of the geometry of his face, particularly the ovals of his glasses and his head. These ovals were experienced as superimposed black circles. To a lesser degree he was aware of the geometry of the other shapes that composed the face in the mirror. The second aspect of his awareness was an experience of the song from the El Pollo Loco commercial. He was aware of hearing the song being sung on the commercial and at the same time he was aware of singing along to the song in his head. This was experienced as a duet in which he heard both the actual song and the internal song in his own voice.

> He was on a political debate website reading about Iraq. At the beep he was scrolling the screen and focused on the letters of the word "Iraq" as they moved up the screen. They were black letters on a white background. He was focused on the visual/sensory aspect of this rather than the meaning or implications of the word.

> He was lying on his bed and watching Hustle & Flow. At the moment of the beep he was seeing a character on the screen. He was seeing the character as a series of geometric shapes on which there was a uniformity of shininess. This was related to the idea that the character was really sweaty/sweatier than he should have been. This thought was not verbalized.

Figure 20: Experience of Sensory Awareness for Steven



Note: This graph depicts the percentage of moments which included sensory awareness. Many of the moments included multiple experiences of sensory awareness, which were only counted as one incident.

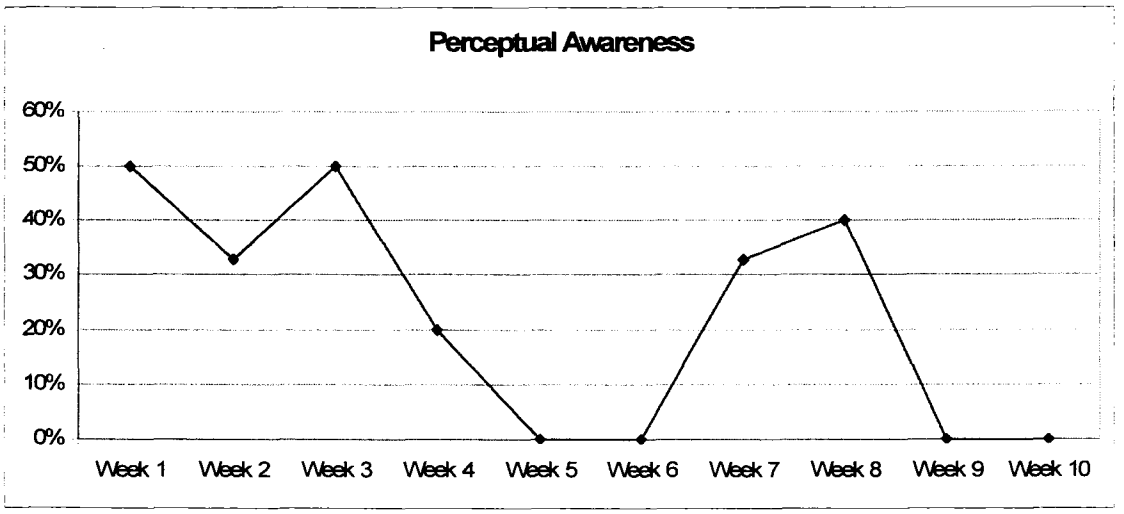
Steven also experienced perceptual awareness during the majority of sampling weeks (see Figure 21). These moments of perceptual awareness indicated a higher level of processing of sensory input than his moments of sensory awareness. Steven's perceptual awareness experiences occurred during moments that included other forms of inner experience as well as on their own. Perceptual awareness was almost exclusively experienced visually. The vast majority of experiences of perceptual awareness occurred while Steven was interacting with a screen, either on the computer, watching television, or playing video games. For example:

> He was still playing the videogame, Destroy All Humans II. At the moment of the beep he was aware of seeing his spaceship which had a smoke trail indicating that he needed to land. He was also aware of looking at the auto-map on the screen which had a symbol indicating where he could land. Seeing these

signs on the screen was associated with the idea that he needed to land the spacecraft. This was an idea not represented by words.

He was watching Futurerama. At the moment of the beep he was visually aware of the image on the screen. It was one of the characters, Jackie Anderson, standing formidably. He was aware of her posture and the fact that her ethnicity was black.

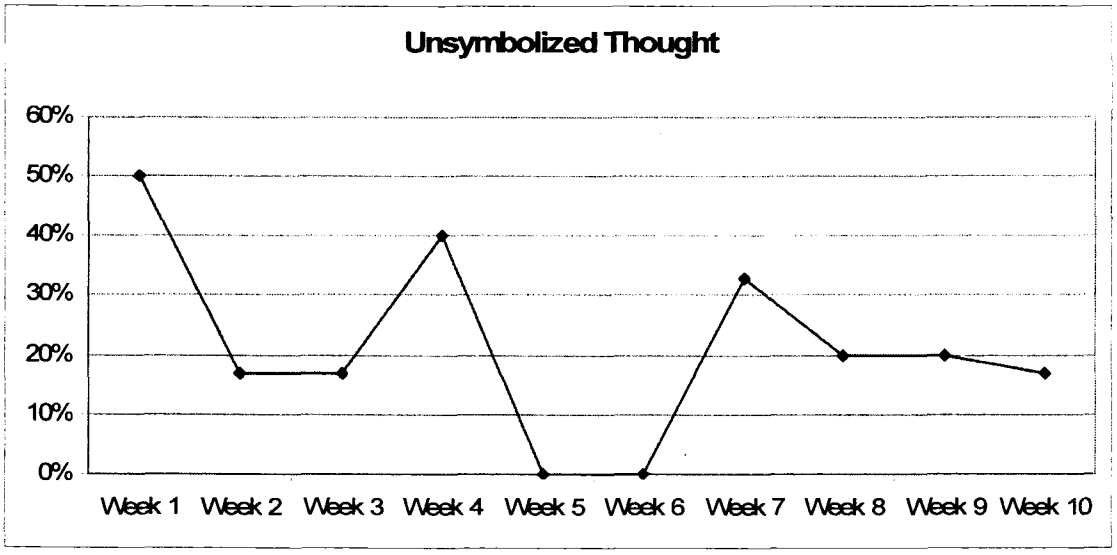
Figure 21: Experience of Perceptual Awareness for Steven



Steven frequently experienced unsymbolized thoughts with the exception of Weeks 5 and 6. This can be seen in Figure 22. Steven's unsymbolized thoughts tended to be reflective thoughts on stimuli he was being presented with at the moment of the beep. There were several instances in which the ideas related to mathematics. For example, he was working on his math homework. He was aware of seeing the equation $1 = -A + B$ written in his own writing on the page. He was more focused on the concept of isolating one of the variables to define the others. Although thoughts related to mathematics were prevalent for Steven, other types of thoughts also occurred. For example, he and his wife were planning to have a baby within the a couple years. A

beep occurred during a related discussion. At the moment of the beep, he had just said, "So you go off the pill." At the moment of the beep he was having an abstract idea about how that was step one and now they needed to figure out the second step. This was a nebulous idea that was not verbalized.

Figure 22: Experience of Unsymbolized Thought for Steven

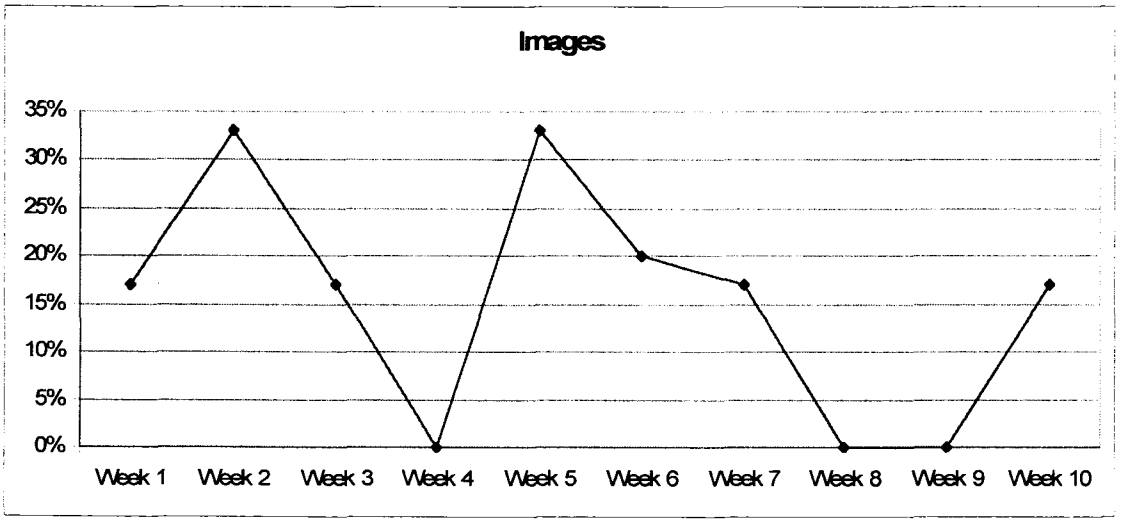


The frequency of Steven's experience of images is represented in Figure 23. This graph indicates images were not uncommon for Steven. Sometimes, Steven's images occurred when he was conveying his ideas to others and illustrated the topic of conversation. For example:

> He was discussing the power steering of his wife's car with his wife. At the moment of the beep he was mentally imagining a representation of power steering. He saw fluid filled tubes and pistons. Different parts were in pastel colors, as though represented in a textbook. Although he didn't actually know how power steering does look, but he was imagining how it might look.

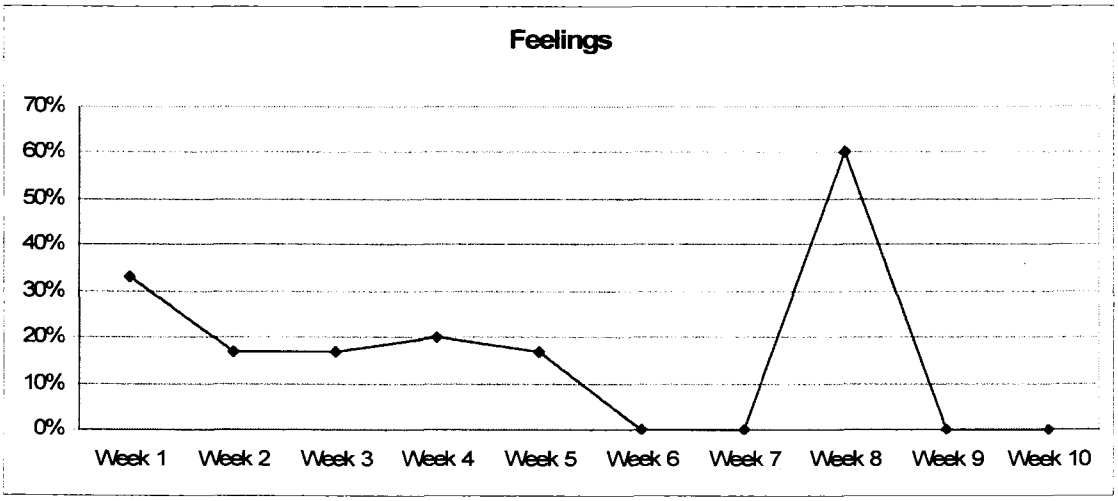
Other images seemed to be related to planning behavior like when he envisioned where he would hang his coat in the closet or where he had to go next in a videogame.

Figure 23: Experience of Images for Steven



Steven reported feelings throughout the first half of the study as indicated by Figure 24. During the second half of the study there were no feelings reported except in week 8 when the peak level of feelings were experienced. This peak corresponded with the peak in his momentary experience of agitation. On this day, the feelings reported were frustration, stress, and a diffuse positive feeling. Overall, frustration was the most frequently occurring feeling.

Figure 24: Experience of Feelings for Steven



Overview of Steven's Experience. The most prominent aspect of Steven's inner experience was his frequent experience of sensory awareness. Additionally, Steven also experienced perceptual awareness, primarily of visual phenomenon. Thus Steven's experience was predominantly sensory and to a lesser extent, perceptual. Many of his experiences of sensory awareness, in particular, involved a focus on minute, arbitrary aspects of his sensory experience. Steven's level of depression, as indicated by the BDI-II, positive and negative affect as measured by the PANAS-X, and momentary experiences of agitation, varied substantially over the 10 weeks of the study. There was no apparent correspondence between these measures of Steven's experience. The rigidity of thought and focus on details characterized in obsessive-compulsive disorder were mirrored in our observations of his momentary experience; primarily in his tendency to focus on and elaborate minute, insignificant details in his environment. In addition, his tendency to engage ruminatively in internal arguments was occasionally observed. At the conclusion of the study Steven acknowledged the

amount of time he found himself focused on minute visual aspects of his environment. He stated that this dedication of time was largely wasteful and that his energies could be better directed. Although Steven had reported experiencing inner arguments for days at a time, he was surprised that these arguments were rarely in his awareness at the moment of the beep even though he experienced them as continuous. This was particularly true in Week 5 when he appeared worn out and haggard at an interview which he attributed to a particularly intense inner argument that had lasted longer than usual. On this sampling day, only one of the six collected moments contained an inner experience related to the argument, much less than he had expected. Although he experienced these obsessive-compulsive related, intruding thoughts as very distressing, he appeared relieved when he realized that they were not occurring as continuously as he had estimated.

CHAPTER 5

DISCUSSION

This study provides a detailed view of the individual experience of three people over the first ten weeks of their treatment with antidepressant medication. The most striking finding was that the profiles that emerged from each of the three participants varied substantially from one another in meaningful ways in terms of their symptom profiles, the nature of their inner experience, and changes that occurred over the course of the treatment. Due to the richness of each of the profiles, the first step in considering these results will be a summary of each of the individual profiles.

Participant Profiles

Our first participant, Karen, showed an initial decrease in depressive experience which was followed by an increase during the final weeks of the study. During the last week of the study, Karen's score on the BDI-II was near the score on her initial meeting. The initial decrease followed by the increase in depression was observed in her BDI-II scores, her positive and negative affect scores on the PANAS-X, and her momentary ratings of agitation. This pattern tended to mirror a pattern in life events, namely her school schedule. Her least depressed weeks fell during a time when she was on break from her nursing program. The steady increase in depression began to occur once school had resumed. In regard to corresponding inner experience as

observed through descriptive experience sampling, Karen showed an increase in feelings during periods of depression. The feelings that Karen experienced were predominately negative and stress related. This is particularly interesting because Karen tended to exhibit symptoms of Generalized Anxiety Disorder in addition to her depression. Throughout the course of the study, Karen experienced all of the major forms of inner experience (feelings, images, inner speech, sensory awareness, unsymbolized thought) with feelings occurring most often and images the least.

Our second participant, Emily, sought a psychiatric consultation due to distress caused by symptoms of Panic Disorder and she was concurrently diagnosed with Major Depressive Disorder. She began this study with mild-moderate depression and showed a generally consistent decrease in depression related experience over the course of the study. This steady decrease was observed in her BDI-II scores and the negative affect score of the PANAS-X. By the end of the study, her BDI-II score was within the normal range. However, her weekly positive affect score on the PANAS-X showed variations which did not seem to correspond with other observations. In addition, she reported momentary experience of agitation and/or depression only during the first week of sampling. Emily experienced a variety of forms of inner experience; images were the most prominent form. The frequency of Emily's inner experience of images roughly corresponded in an inverse manner with her self-reported depression, in that her frequency of images increased over the course of the study. Emily also had some moments in which she had no inner experience. These moments of no inner experience tended to occur while Emily was more depressed. Although this means that occasions of no inner experience predominately occurring during the first weeks of sampling, it is

unlikely that the periods of no inner experience were a result of unfamiliarity with the experience sampling task; Emily was clear and confident when reporting the lack of experience during these moments. Another interesting aspect of Emily's profile is that she experienced a variety of forms of inner experience with the exception of inner speech.

Our last participant, Steven, showed substantial weekly variations in affect, reported depressive symtomotology, and inner experience across all measures. Steven's inner experience was largely characterized by moments of sensory awareness and/or perceptual awareness. These experiences were predominately visual and often focused on minute details of his surrounding environment. It seemed that Steven spent most of his time and mental energy focused on these insignificant details. This finding was particularly interesting because during general conversations surrounding his expositional interviews, Steven reported distress related to his experience of drawn out, intrusive internal arguments, a symptom of Obsessive-Compulsive Disorder. To his surprise, these internal arguments were rarely captured during sampled moments. However, his obsessive-compulsive features may have been reflected in his routine devotion of awareness to studying minute perceptual details in his environment. Steven did experience the other forms of inner experience with the exclusion of inner speech. Correspondence between questionnaire data, descriptive experience data, and momentary analog scales were difficult to discern due to the numerous fluctuations on each of these measures that were observed from week to week.

Patterns across Participants

Analog Scales. A surprising pattern emerged across participants on momentary ratings of depression. Momentary awareness of depression was reported only during the first sampling meeting or not at all by all three participants. Given that this study was an examination of depression, we expected to see more momentary reports of depression. Although this is a small sample and an exploratory study, suggesting extreme caution is called for regarding drawing conclusions from the data, we can speculate about several possible reasons for these findings. Any more solid conclusions would require replication of the basic finding and additional steps to determine the meaning of this result.

One possible reason for this finding is the fact that our sample included participants with co-morbid anxiety and the salient feature of their inner experience was the anxiety. This would be consistent with our findings in that participants reported momentary experiences of agitation more frequently throughout the study.

Another potential reason for the lack of reports of momentary experience of depression after the first sampling day is that depression may a diffuse experience that is unlikely to occur clearly during a very specific moment. Depression may color our inner experience without being directly experienced. Research has shown correlations between observable experience-related behavior and depression. For example, depressed people exhibited more intrusive thoughts of failure when instructed not to think about a test they had just taken during a think aloud procedure (Conway, Howell, and Giannopoulos, 1991). It is important to note that this type of research does not implicate the actual awareness of "depression." It is possible that the mechanism

through which depression affects inner experience is indirect, causing retrospective bias and negative self thoughts, while the "depression" itself remains largely out of ongoing awareness. In this case, depression might be considered a construction rather than a directly experienced phenomenon.

Related to this idea is another possible explanation: depression may be best represented as a cluster of experiences that occur overtime. For example, someone who often experiences frustration, confusion, and uses self-destructive inner statements may score high on a scale of depression. However, it may be unlikely that this person reports momentary experience of depression, but rather experiences moments of frustration, moments of confusion, and moments of self-destructive statements. Overtime these experiences may be cognitively summed to lead to the conclusion that one is depressed.

A fourth possibility that should be considered is related to methodology. Descriptive Experience Sampling teaches participants to attend to the primary aspects of their inner experience which the observer can confidently say were present at the moment of the beep. It is possible that depression exists at an extremely low level of awareness and is therefore is unable to be captured by this method. If this were the case, however, it would raise the issue of how it could exist at such a low level of awareness and yet be reported as being frequently present using common retrospective methods such as the BDI-II.

Lastly, it is possible that the antidepressants have an immediate effect on momentary awareness of depression. Perhaps this effect is not detectable by traditional questionnaire and interview methods. If this were the case, then the decrease in

momentary awareness of depression over time could take about four to six weeks to accumulate and influence awareness of the symptoms that are detected in traditional questionnaire and interview observations, thus producing the commonly reported pattern of antidepressant treatment effects.

Although the present data do not allow us to determine which of these possible explanations is correct, the observed lack of reports of momentary experiences of depression suggest that reports of inner experience may be highly sensitive to methodological variations.

No Inner Speech. Another noteworthy finding in this study was that two of the three participants did not experience inner speech. The small sample size of the current study makes it impossible to rule out random sampling fluctuations as an explanation for this occurrence. In addition, previous studies have found lack of inner speech in normal participants and have failed to consistently find a lack of inner speech in depressed participants. However, Heavey and Hurlburt (under review) found that inner speech is a frequently occurring form of inner experience in normal populations. In their sampling of ten randomly selected moments of inner experience from 30 normal participants, inner speech occurred in 26% of sampled moments. The importance of inner speech as related to depression should not be overstated however, because in this same sample five participants had no experience of inner speech. However, because this finding is based on a rather small subset of randomly selected moments for each person, it is unclear if these participants truly had a complete lack of inner speech. In addition, Perlotto's review of three depressed participants and five non-depressed participants, inner speech occurred at a similar rate in the depressed group (23%) as the

controlled group (27%). Examination of the individual experience of these participants revealed that a complete absence of inner speech did not occur in any of her participants. One participant from the depressed group had a low rate of inner speech as did one from the control group (4% and 5% respectively). Lastly, Cavenagh (2003) conducted sampling with six participants and only one reported no experiences of inner speech. However, this individual scored low on the Attributional Styles Questionnaire and the SCL-90-R, indicating an absence of depression. In general, Hurlburt (1993) found that increases in depression were related to decreases in inner symbolization, but this result was not specific to inner speech. In light of previous findings, it is difficult to place too much significance on the lack of inner experience that was found in two of the three participants in the current study. However, collection of inner experience from more people may reveal if lack of inner speech is common in a subset of people with depression or some other characteristic.

Relationship to Previous DES Findings. Hurlburt (1993) used descriptive experience sampling to examine the experience of four individuals whose moods varied from dysphoria to mild depression to deep depression. Sampling occurred during periods of both normal mood and depressed moods for each participant. He found two primary patterns related to depressed mood; 1) an increase in inner symbolization was associated with a decrease in depression; and 2) a decrease in clarity of inner experience occurred with an increase in depression. In addition to a general lack of clarity, Hurlburt found three particular types of unclearness in his participant's; 1) difficulty distinguishing a perception from a cognition; 2) different experience of a common form of inner experience when depressed; and 3) the occurrence of emotional

processing outside of awareness. This pattern was not clearly indicated in this study. In general, participants were able to clearly describe their inner experience. Only one participant, Emily, had moments in which she had difficulty capturing the moment of the beep, and this experience did not coincide with other measures of her depressive symptoms. Although Emily did tend to have more moments of no inner experience while she was depressed, she was able to clearly articulate that at the moment of the beep her inner experience was blank or empty. This study indicates that changes in inner experience that occur may be highly individualized.

Perlotto (2001) observed that depressed persons' inner experience often included feelings, sensory awareness, and unsymbolized thought, although the rates of these inner experiences did not differ greatly from the control group. Cavanagh (2003) found frequent sensory awareness and infrequent images in her depressed participants. Although a pattern of feelings emerged with one participant, and another showed high rates of sensory awareness, it would be a mistake to compound the three participants in this study to make general conclusions about depression and form of inner experience due to the variability between participants that has been discussed. One participant, Emily, tended to experience images more frequently than other forms of inner experience throughout the study. Due to the fact that she was the least depressed participant in the study as indicated by multiple measures, the inner experience of images in depression may be worth further examination. This study did confirm Perlotto's finding that depressed people tend to experience a high ratio of negative feelings compared to positive feelings. This was observed in all three participants.

Idiographic vs. Nomothetic Approaches. Examination of the three cases in this study suggests the importance of careful and comprehensive examination of the individual. If the findings of the three participants in this study were averaged, the results would be misleading. For example, when we average the BDI-II scores for the three participants, we see a pattern emerge that is considerably different than any of the single case patterns. In addition, it is important to consider the prototypical medication "responder" profile and compare our profiles to that. Responders in clinical trials show a 50% reduction in a measure of depression severity. Due to the mechanism of antidepressants, the appearance of clinical evidence for improvement should take three to five weeks (Nemeroff & Schatzberg, 2002). Therefore, the pattern predicted by clinical trials would be minimal to no change during the first three to five weeks, followed by a steady decrease in depression to the a point in which measured depressive symptoms are at 50% of the initial level by the eighth week. A substantial finding in our results is that this profile would not adequately fit a single one of our three participants.

Furthermore, research on antidepressants has indicated that one out of three patients treated with antidepressants fails to respond. This has prompted researchers to consider the importance of examining subtypes of depression that will better predict response to antidepressant medications. This research has generally focused on a search for biological markers of subtypes of depression, which has been a largely disappointing endeavor (Stahl, 2000). Consideration of these issues suggests the need for other approaches to detecting individual variation and leads to a primary issue in choosing appropriate research methodology. In particular more research employing an

idiographic approach rather than the typical nomothetic approach may be worthwhile. Idiographic approaches focus on exploring and describing characteristics of individuals while nomothetic approaches attempt to discern universal characteristics (Hurlburt & Knapp, 2006). A balanced incorporation of both idiographic and nomothetic approaches, termed the idiothetic approach, was proposed by Lamiell (1981). In the idiothetic approach, idiographic data is collected from studies of individuals over time. This information is used to formulate principles and/or theories which can then be confirmed by studies across individuals. The information gleamed from the current study using an idiographic approach has the potential to the largely nomothetic data that comprises current understanding of antidepressant treatment. Therefore, further idiographic examinations of the experience are encouraged and seem particularly relevant to exploring phenomenon that occur over the course of antidepressant treatment. These endeavors may lead to the production of idiothetic theories of depression and antidepressant treatment. In addition to looking at these data using an idiographic perspective, it is important to remember that many other individual variables and life circumstances can have overriding effects on the personal experience of depression. For example, the pattern of depression observed in Karen would initially suggest the typical course of antidepressants and reduction in depressive symptoms. However, by continuing to monitor Karen we saw that her depression increased significantly during the final weeks of the study. This pattern coincided closely with her school schedule; her least depressive weeks occurred while she was on a semester break from her nursing program. Unfortunately, without a careful, holistic examination of Karen, this information would be lost and it is likely that her data would have

indicated the efficacy of her antidepressant medication. Research in psychopharmacology further validates the importance of the environment on mechanisms in the brain that regulate mood and produce depression.

Lastly, another issue in psychopharmacological treatment of depression is the issue of remission of depression. Long-term treatment of depression with antidepressants results in full remission of depressive symptoms in only half of patients. In addition, 20 to 30% of people that initially respond to antidepressants cease to continue response after 18 months of treatment. These issues become further complicated when comorbidity is considered (Stahl, 2002). Research has not been able to identify the types of people that fall into either of these unsuccessful categories. Perhaps supplementing the current knowledge of antidepressant treatment with idiographic research will help to inform these and other issues.

Conclusions

The individual differences in symptom profile and comorbidity found in this study mirror the complexity of depressive profiles that have previously been discussed (Koscis, 2003). High rates of comorbidity and difficulty differentiating between depressive disorders indicate limitations of the current DSM-IV-TR classification system. Major depression often occurs with symptoms of anxiety, panic disorder, and obsessive-compulsive disorder, as found in the current study, as well as with substance related disorders, anore

xia nervosa, bulimia nervosa, and borderline personality disorder (APA, 2000). In addition, depression is the most widely occurring comorbid disorder as often results

from distress related to other factors (Beutler & Harwood, 2000). This knowledge combined with the results of this study suggest that they pattern of diagnosable disorders may have an influence on the treatment profile of an individual. Due to the commonality of comorbidity in patients treated with antidepressants, it makes sense to include these participants in studies and investigate the influence of comorbidity. The limited number of participants in this study prevents conclusions about the influence of the observed anxiety disorders on depression and treatment. However, further research that is in-depth to a similar degree as this study may benefit from an examination of comorbid disorders to see if patterns on treatment emerge.

The overriding finding of this study is that depression is a complex disorder and that its experience across individuals is highly variable. This raises the issue of whether or not a single type of treatment can be uniformly administered to all people as is common practice today. The field has also been perplexed by the paradoxical increase in suicidality that occurs in some people when antidepressant treatment is initiated. The common approach to exploring depression and its treatment from a purely nomothetic approach may have difficulty addressing these unexplained phenomena. Clinicians have recognized the importance of prescriptive approaches to treatment. These approaches take into account the individual's response to various techniques to tailor the treatment to that individual. The current study suggests that such an approach is useful to consider in the experience and psychopharmacological treatment of depression as well. Unfortunately, the limited number of participants in this study makes it difficult to draw conclusions that address these issues. However,

the significance of the preliminary findings indicates the usefulness of further studies with increased sample sizes.

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