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Mood distinction for a non-clinical population addressed at risk for cyclothymic temperament

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For Helga and Bill

Table of Contents

Cyclothymic Temperament & Bipolar Mood Disorders - Brief history, contemporary thinking and findings

1.1. Introduction

A deviation from what is known as "normal" and "typical" human behaviour has prompted a keen interest amongst many individuals throughout the course of history and time. The ancient Greeks were some of the first to concern themselves with human behaviour and made reference to melancholia as having a biological origin (Goodwin & Jamison, 1990; Marneros, 2001). Hippocrates and his followers supported the notion that melancholia serves as a form of "madness" and a condition "associated with an aversion to food, despondency, sleeplessness, irritability, and restlessness" (Jackson, 1986). This same group held the belief that a form of mental conflict and/or disorder was not the result of "supernatural or magical forces" (Goodwin & Jamison, 1990). In one of the first references to the existence of alternating forms of behaviour consisting of depression and mania (Roccatagliata, 1986), it was Aretaeus of Cappadocia (2nd century A.D.) who contended that "mania was an end-stage of melancholia" (Goodwin & Jamison, 1990; Angst & Marneros, 2001). Despite a long period of research dormancy concerning the behavioural aspects of mania and melancholia, this topic once again resurfaced in the 16th century in which leading physicians proposed mania and melancholia as one entity (a compounded disorder). Further support for this argument was later expressed at the end of the 18th century. It was said that mania and melancholia remained as a constant disorder consisting of two sides of a coin, i.e., one associated with "audaciousness and fury," the other half with "sadness and fear" (Jamison, 1993).

Kraepelin (1921) proclaimed the term *manic-depressive illness,* comprising of mixed states, suggesting a coexistence between manic and depressive symptoms, also known as an

affective illness. In a further attempt to solidify the understanding of an affective illness, a departure from the traditional medical disease model preferred by Europeans in the 20th century was made by Adolf Meyer (Meyer, 1950-1952). Although his views concerning manic-depressive illness did not drastically deviate from those of Kraepelin, his approach created an alternative understanding to the complexities of this issue. Not only seen as a positive diversion in the traditional portrayal of manic-depressive illness, this construct (and comprehension of such) could also apply to other forms of psychological disorders. Meyer (1950-1952) asserted that psychopathology develops through the individual's biological and psychological characteristics, as well as biological and genetic factors being susceptible to specific psychological and social influences (Goodwin & Jamison, 1990).

1.2. A description of affective temperament

Temperament within the context of human behaviour can be summarized as a specific, relatively constant manner reflecting feelings, expressions, interactions with other individuals, and the reaction to comments and events (Hofstätter, 1986). Secondly, temperaments "emerge as broader, more general dispositional constructs that subsume various emotional traits, along with other associated cognitive and behavioural characteristics," (Watson, 2000). It is also known that the constructs of temperament are partially heritable and as such already present at the birth of an individual (Buss & Plomin, 1984; Watson, 2000). The spectrum of temperament, when placed into the context of an *affective temperament* emphasizes the various dispositions closely affiliated with the biological characteristics of drive, affect, and emotion (Akiskal, 1996).

Kraepelin (1921) as well as Kretschmer (1936) emphasized the necessity of an *affective temperament* in supporting the manic-depressive issue. The link serving as a pivotal

importance in the long chain of manic-depressive dispositions (Goodwin & Jamison, 1990), is exemplified by the four temperament types suggested by Kraepelin (1921): 1) a *depressive temperament* characterized by gloomy and emotional stress, 2) a *manic temperament* portrayed as "superficial, desultory, incoherent and accompanied by a mood which is permanently exalted, careless and confident," 3) an *irritable temperament* seen as a less subtle form of the manic temperament, and 4) a *cyclothymic temperament* sized up as a "frequent, more or less regular fluctuation of the psychic state to the manic or to the depressive side." Further, it was Kraepelin who stated that manic and depressive episodes develop and/or originate from an already existing affective temperament supplying the basis for the cyclical development of a disorder (Goodwin & Jamison, 1990).

Akiskal (1981 & 1994c) also supports Kraepelin's "classical" view, i.e., the 4 temperament types serving as the subclinical foundation for the possible development of an affective disorder. Since the existence of a "cyclothymic temperament" is seen as a risk factor for the development of an affective disorder (e.g., Bipolar Disorder II), (Akiskal & Akiskal, 1992) it is this reason why the term and its significance play such a pivotal role in the current doctoral dissertation. Secondly, since the current study does not include patients from a hospital already diagnosed with "cyclothymia" or "cyclothymic disorder," it seemed appropriate to "label" one group of the participating subjects as those "addressed at risk for cyclothymic temperament."

1.2.1 What precisely is Cyclothymic Temperament?

One of the first precursors used in the assistance of understanding cyclothymic temperament can be associated with "cycloid personality," Kretschmer (1936). According to Brieger & Marneros (1997) debate still exists concerning proper classification of this psychological

condition (*DSM-IV* advocating "Cyclothymic Disorder" and *ICD-10* supporting "Cyclothymia"), as well as contextual differences amongst researchers (see Table 1.1). Aside from the differences within the realm of the diagnostic classification of this mental health issue, a cyclothymic temperament could possibly be regarded as a bipolar dysregulation forcing the individual to experience abrupt changes in behaviour, but not completely fulfilling the criteria for a manic-depressive illness (Akiskal, 1996). Symptoms of this condition first appear in late adolescence or early adulthood. Unlike the characteristics of a full-blown bipolar disorder, cyclothymia entails symptoms of hypomania, but this never results in a complete hypomanic episode (Hantouche et al., 2003). Symptoms of depression are also part of cyclothymia, but are never extensive enough to be classified as a major depressive disorder (see Table 1.2). Cyclothymic temperament can therefore be seen as a manifestation from the bipolar spectrum serving as a possible springboard for the development of an affective disorder (Howland & Thase, 1993; Akiskal, 2001). The characteristics of this temperament resemble those of a personality disorder (according to the views of Kretschmer), but is not a personality disorder according to ICD-10. The individual classified as having a cyclothymic temperament could experience a sense of lethargy in day-to-day functioning and a short time thereafter, exhibit signs of accentuated thinking marked by extensive proportions of creativity. Further, such individuals can become extremely quiet and docile, and later exhibit signs of overtly gregarious behaviour (Jamison, 1995). A better understanding of cyclothymic temperament in regards to research and clinical purposes is aided by specific diagnostic

Table 1.1
Various Interpretations of "Cyclothymia"

Term	**"Cyclothymic"**	**"Cyclothymia"**	**"Cyclothymic Temperament"**
Source:	K. Schneider	ICD-10	E. Kretschmer K. Leonhard
Significance:	Bipolar Affective Disorder (ICD-10)	An ongoing affective disorder with subdepressive and hypo-manic fluctuations	Kretschmer: A "Biotype of the average person." Leonhard: "abnormal or accentuated personality"
Nosological position:	Endogenous psychosis	Affective disorder	Temperament and personality type
Relationship to bipolar affective disorders	Synonym. The term is used to some extent due to the neglect of the bipolar/uni-polar difference for all affective psychosis'	"Cyclothymia" is a separate diagnosis within the spectrum of bipolar disorders. A comorbidity with other bipolar affective disorders is possible.	Both authors describe a flowing transition to a manic-depressive psychosis. Leonhard also considered the difference concerning the course of bi and monopolar
Relationship to the personality disorders	In principle there is no existing relationship between psychosis and personality	In principle Cyclothymia is not seen as a personality disorder. There is however, a high comorbidity with personality disorders.	Cyclothymic Temperament is primarily seen as a personality Characteristic
Commentary and criticism	This term should no longer be used in this context as it is unclear and incomprehensible	Up to now this diagnosis can not be seen as sufficiently and empirically validated. Due to its position in the ICD-10 and as a "Cyclothymic Disorder" in DSM-IV, this term should be used in contemporary thinking.	Kretschmer's constitutional typology is seen as being overhauled. Lacking is the empirical validation and international awareness of this concept.

Source: Brieger & Marneros (1997). Translation from the German.

manuals, e.g., American Psychiatric Association (1994) and World Health Organization (1994), (see Tables 1.3 and 1.4). A review of the classification and description of this "disorder" indicates a difference (ICD10 - "Cyclothymia," vs. DSM-IV - "Cyclothymic Disorder"). Secondly, whereas the ICD10 states this "disorder" is characterized by a persistent instability of mood with numerous periods of mild depression and mild elation, DSM-IV suggests numerous periods marked by hypomanic and depressive symptoms. Interestingly enough, however, both are in accordance with the amount of time required to

Table 1.2
Clinical Expressions of Cyclothymic Temperament

Biphasic dysregulation since teenage or early adult years and characterized by abrupt endoreactive shifts from one phase to the other, each phase lasting for a few days at a time, with infrequent euthymia

Behavioural Manifestations

- Hypersomnia versus decreased need for sleep
- Introverted self-absorption versus uninhibited people seeking
- Taciturn versus talkative behaviour
- Unexplained tearfulness versus buoyant jocularity
- Psychomotor inertia versus buoyant jocularity

Subjective Manifestations

- Lethargy and somatic discomfort versus eutonia
- Dulling of senses versus keen perceptions
- Slow-witted versus sharpened thinking
- Shaky self-esteem alternating between low self-confidence and overconfidence
- Pessimistic brooding versus optimism and carefree attitude

Source: Akiskal et al., (1996)

Table 1.3
Diagnostic Criteria for Cyclothymia, ICD 10: F34.0

A persistent instability of mood, involving numerous periods of mild depression and mild elation. This instability usually develops early in adult life and pursues a chronic course, although at times the mood may be normal and stable for months at a time. The mood swings are usually perceived by the individual as being unrelated to life events. The diagnosis is difficult to establish without a prolonged period of observation or an unusually good account of the individual's past behaviour. Because the mood swings are relatively mild and the periods of mood elevation may be enjoyable, cyclothymia frequently fails to come to medical attention. In some cases this may be because the mood change, although present, is less prominent than cyclical changes in activity, self-confidence, sociability, or appetitive behaviour. If required, age of onset may be specified as early (in late teenage or the twenties) or late.

Diagnostic Guidelines

The essential feature is a persistent instability of mood, involving numerous periods of mild depression and mild elation, none of which has been sufficiently severe or prolonged to fulfill the criteria for bipolar affective disorder or recurrent depressive disorder. This implies that individual episodes of mood swings do not fulfill the criteria for any of the categories described under manic episode or depressive episode.
Includes:

Affective Personality Disorder
Cycloid Personality
Cyclothymic Personality

Differential Diagnosis

This disorder is common in the relatives of patients with bipolar affective disorder and some individuals with cyclothymia eventually develop bipolar affective disorder themselves. It may persist throughout adult life, cease temporarily or permanently, or develop into more sever mood swings meeting the criteria for bipolar affective disorder or recurrent depressive disorder.

Source: World Health Organization, ICD 10, (1994)

Table 1.4
DSM-IV Criteria for Cyclothymic Disorder, 301.13

A) For at least 2 years, the presence of numerous periods with hypomanic symptoms and numerous periods with depressive symptoms that do not meet the criteria for a Major Depressive Episode. Note: In children and adolescents, the duration must be at least 1 year.
B) During the above 2-year period (1 year in children and adolescents), the person has not been without the symptoms in Criterion A for more than 2 months at a time.
C) No Major Depressive Episode, Manic Episode, or Mixed Episode has been present during the first 2 years of the disturbance. Note: After the initial 2 years (1 year in children and adolescents) of Cyclothymic Disorder, there may be superimposed Manic or Mixed Episodes (in which case both Bipolar I Disorder and Cyclothymic Disorder may be diagnosed) or Major Depressive Episodes (in which case both Bipolar II Disorder and Cyclothymic Disorder may be diagnosed).
D) The symptoms in Criterion C are not better accounted for by Schizoaffective Disorder and is not superimposed on Schizophrenia, Schizophreniform Disorder, Delusional Disorder, or Psychotic Disorder not otherwise specified.
E) The symptoms are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., hyperthyroidism).
F) The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

Source: American Psychiatric Association (1994), Diagnostic and Statistical Manual of Mental Disorders.

fulfill the criteria of the diagnosis. Both publications also imply the criteria for either a bipolar affective disorder and major depressive and manic episode go beyond the cyclothymic spectrum. The ICD10 does suggest, however, the realm of cyclothymia also includes affective personality disorder, cycloid personality, and cyclothymic personality. These diagnostic components are significant and helpful for the purposes of the current doctoral dissertation as they fuel the importance and significance of cyclothymic temperament. Additionally, both manuals suggest cyclothymia can later be diagnosed as a bipolar disorder, namely BP II. Cyclothymia can be the "end station" for some individuals or it can transition itself from a subsyndromal affective condition to a complete bipolar affective condition (most likely BP II), (Akiskal, 1996; Lewinsohn et al., 1995). According to Akiskal et al. (1996) BP II is classified by recurrent major depressions, hypersomnia and hyperphagia, tension and restlessness, mood lability and switching during depressive episodes, a history of hypomanic episodes or lifelong cyclothymia, attractive or flamboyant appearance, and a tempestuous biography. Conversion to BP I is remotely possible for cyclothymic individuals and rarer as it encapsulates an acute, severe, and psychotic

depression, as well as a major manic episode (Strober & Carlson, 1982; Akiskal et al., 1983; Akiskal, 2003). Additionally, BP I is characterized by a greater likelihood of undergoing hospitalization.

A major argument supporting the cyclothymic conversion to BP II rather than to BP I is the temperamental profile of "mood lability." Coryell et al. (1984) and Endicott et al. (1985) have found that mood lability is virtually absent in BP I converters and is "the very mechanism that underlies the ease with which switching into hypomania occurs," (Akiskal et al., 1996). This finding proves to be highly noteworthy as it enhances the significance of moods and mood swings in cyclothymic temperament. A further look into the defining characteristics of moods and its importance for the purposes of the current doctoral dissertation will be discussed in the following section.

1.2.2. Moods as a Pivotal Role in Cyclothymia

Genetics play a crucial role in the development of cyclothymia and with the bipolar mood disorders. Individuals sufferring from an affective disorder or schizophrenia act as potential conduits in passing on "bad genes" to their offspring. This of course can result in an averse mental health condition, detrimental for family members of a subsequent generation. Although genetics play a major role in the development of an individual's mental status, the intensity of various moods can exacerbate the severity of an existing bipolar mood disorder.

Since the variability of mood and cognitions is greater and more evident amongst cyclothymic subjects than in non-affective cases (Depue et al., 1981; Lovejoy & Steuerwald, 1992), its impact on the affective disorders is worthy of considerable attention. Because the role of moods in cyclothymia is prominent in the development and course of this disorder,

cyclothymia per se, formerly known as a personality disorder, was changed to a mood disorder by the DSM-III in 1980 (Russell & Carroll, 1999). Kraepelin (1921) made reference to moods within the context of the manic experience as being "predominately exalted and cheerful, influenced by the feeling of heightened capacity for work" as well as exhibiting a strong tendency to feel irritable, dissatisfied, intolerant, and fault-finding. Within the context of depression, Kraepelin (1921) describes a mood as being "sometimes dominated by a profound inward dejection and gloomy hopelessness, sometimes more by indefinite anxiety and restlessness with the individual feeling solitary, indescribably unhappy, and unwilling to experience pleasure." With the assistance of a contemporary approach aiding the understanding of moods within the context of "mania" and "depression", Watson (2000) suggests that episodes alluding to mania are portrayed by heightened levels of energy, activity, interest, and alertness, all of which reflect a subjective mood state encompassing elation, euphoria, and "elevated feelings." Likewise, the depressed component is marked by sadness, depression, and a low mood.

A "mood," as known in common terminology is defined as a "conscious state of mind or predominant emotion or feeling," (Webster's Dictionary, 1980). Within the confines of the psychological arena, however, a mood is also characterized as being a "transient episode of feeling or affect," (Watson, 2000), strongly influenced by external experiences and also by various internal processes. Mood states exhibit noticeable cyclic patterns of variation and "refer to all transient feeling states, not simply those feelings that accompany specific, discrete emotions such as fear, anger, and joy" (Watson, 2000). A quick reference to the moods and emotions argument suggests that moods encompass all transient feeling states, whereas emotions embody distinct, psychophysiological response systems representing a structured reaction to a particular experience or external event (Ekman & Davidson, 1994;

Ekman & Friesen, 1975). Other distinguishing factors between moods and emotions specify the length of their respective existence, i.e., moods can last for hours during a day whereas emotions, due to their high intensity and activation tend to be brief in manner lasting for only a matter of seconds (Izard, 1991). Emotions can, however, last for a longer period of time, but extended emotional reactions are considered dysfunctional in nature and can often lead to manifestations of psychopathology (Clark & Watson, 1994). In identifying certain affective states which an individual experiences on a daily basis, mood states (e.g., negative mood states - disenchanted, unsatisfied, distressed; positive mood states - enthralled, captivated, active) are more comprehensive than emotions in portraying the actual mental state of an individual (Watson, 2000). Secondly, mood states are readily more observable on a daily basis, whereas emotions are encountered to a much lesser degree and cannot be experienced in a pure state (Izard, 1972, 1977, 1991; Plutchik; 1980). These distinctions and examples supporting the significance of mood within the arena of cyclothymic temperament are explained in greater detail in *Research objectives of current study.*

1.3. Research Methods Involved in High-Risk Research

Different objectives and strategies amongst research scientists have led to a more comprehensive understanding of the causes and development of bipolar mood disorders. Two particular approaches have thus far dominated (and continue to do so), within the arena of contemporary research. *Biological high-risk research* places an exclusive emphasis on genetics and as a result, concerns itself with the offspring and family members of the subject in locating the causes and development of a bipolar mood disorder. Secondly, *psychometric high-risk research* favours the exploration of the subject's immediate psychosocial environment and behavioural aspects by implementing a variety of instruments (e.g., questionnaires, interviews, self-reports) in pinpointing a predisposition to a bipolar mood

disorder. Both approaches, with examples from research findings will be explained in the following paragraphs.

1.3.1. Biological high-risk research

Family history and genetics per se play an overwhelmingly significant role as risk factors in determining the causes of a bipolar mood disorder. Therefore, a biological approach is optimal in exploring the aspects pertaining to genetic causes. Central topics and major findings supporting this branch of research and its role within bipolar mood disorders will be portrayed in the subsequent section.

1.3.1.1. The role of genetics in bipolar mood disorders

Although a vast array of genetic-epidemiological research has focused on the "manic-depressive" spectrum very little has distinctly channelled its efforts towards cyclothymia or a cyclothymic temperament. It has been found, however, that cyclothymia affects 0.5% of the north American (excluding México) population (Miklowitz & Goldstein, 1997), (in the Federal Republic of Germany, 1 in 100 or in total 800,000 to one million, Meyer & Hautzinger (2000)), and is known to be chronic, lasting for many years without "switching" to either BP I or BPII. Should the transition occur, Ramirez-Basco & Rush (1996) indicate a 15% - 25% turnover resulting in the development of either BPI or BPII. Once this has manifested, 0.8% are diagnosed with BPI and 0.5% with BPII (Soreff & McInnes, 2002). BPI occurs equally in both sexes, however, rapid-cycling bipolar disorder (4 or more episodes a year) is more common in women than in men. It has been reported that BPII is found more frequently in females than in males. Approximately 10% of BPII individuals go on to become BPI over the first 5 years of their illness (Ramirez-Basco & Rush, 1996;

Goodwin & Jamison, 1990), which then results in 0.6% - 1% (1 in 100) of the U.S. populace (Karno et al., 1987; Miklowitz & Goldstein, 1997).

Evidence suggests that a cyclothymic personality or temperament may be associated with the bipolar mood disorder spectrum as it is found more frequently in the relatives of bipolar patients than in the family members of unipolar or "normal" persons (Akiskal et al., 1977; Depue et al., 1981; Dunner et al., 1982). In addition to this finding, children of bipolar parents have a much greater likelihood of exhibiting features of clinically diagnosable cyclothymia than those whose parents are not suffering from a form of bipolar disorder (Klein et al., 1986). Twelve percent of all children who have parents afflicted by a form of bipolar mood disorder will go on to develop either a bipolar mood or major depressive disorder (Miklowitz & Goldstein, 1997; Rush et al., 1991). Children who are more susceptible in developing a bipolar mood disorder due to a greater genetic disposition have shown to develop cyclothymia as early as between the ages of 12 and 14 (Klein et al., 1985; Akiskal et al., 1985b; Depue et al., 1981).

Bipolar Disorder is a genetic disease (i.e., highly heritable) encompassing a modest risk for first-degree relatives of afflicted individuals, (Jamison, 1993; McGuffin et al., 2003). A bipolar "type" condition can also result from neurological disorders, e.g., multiple sclerosis, brain tumors, head injury, thyroid or adrenal diseases (Ramirez - Basco & Rush, 1996; Bowden, 1996). It has been found in first-degree relatives that 1 in 12 individuals (ca. 8%) will go on to develop a form of a bipolar mood disorder (Miklowitz & Goldstein, 1997; Gershon, 1990; Goodwin & Jamison, 1990) and the children of such patients possess a greater tendency to develop a form of depression as well as other forms of psychopathology (Decina et al., 1983). Since genetic-epidemiological studies are highly dependent upon the

off-spring of a particular group, contemporary research has therefore placed a high emphasis on twin (identical as they are more concordant for an affective disorder), family, and adoption studies. With regard to the bipolar mood disorder spectrum, a genetic-epidemiological approach displays some disadvantages as the "mode" for genetic transmission in the bipolar mood disorders cannot be identified, nor defects in genes or the recognition of the pathophysiological inherited process (Gershon et al., 1987a). In contrast to these findings a study focusing on bipolar development in an Amish community in southeastern Pennsylvania discovered a link between a dominant gene which conferred a predisposition to bipolar mood disorders and chromosome 11 (Egeland et al., 1987). A similar study focusing on an Israeli group found a strong gene linkage on the X chromosome (Baron et al., 1987), but much speculation and doubt has been cast on the identification of a specific gene(s) as the causal agent for a bipolar mood disorder (Gershon et al., 1987b; Jamison, 1993; Goodwin & Jamison , 1990).

The development of a mental illness amongst first degree relatives of bipolar patients is not necessarily confined to a type of a bipolar mood disorder. In a 3-year follow-up study, Hamman, Burge, Burney & Adrian (1990) discovered that the children of a bipolar parent also have very good chances of developing a mental illness not associated with a bipolar mood disorder. After examining the children of ***bipolar mothers,*** 72% were diagnosed with a mental health condition, e.g., affective disorders, behavioural disorders, or significant anxiety disorders. Further, 43% of the children of ***medically ill mothers*** went on to develop a different psychiatric diagnosis and 32% of the children of ***healthy mothers*** also experienced a psychiatric diagnosis at least once in their lifetime. Additional investigative work also revealed that 82% of the children of ***unipolar depressed mothers*** later developed a severe psychiatric diagnosis. Findings from Winters et al. (1981) and Conners et al. (1979)

provided a more substantial dysfunction of symptoms associated with the offspring of unipolar patients. Other family studies conducted in the 1980's revealed that the children of unipolar depressed parents possess a higher likelihood of developing an affective illness, (see Table 1.5). Within the arena of bipolar mood disorders various studies have found that the off-spring and extended relatives of unipolar depressed probands have the highest likelihood of developing a mental illness, (see Table 1.6).

Table 1.5
Studies Pertaining to the Development of an Affective Illness Amongst First-Degree Relatives of Either Bipolar, Unipolar or Normal Subjects

	Relatives at Risk	Morbid Risk %	
	N	BP	UP
BP Subjects			
Rice et al., 1987b	838	10.6	24.3
Angst, 1986b	1,441	5.60	6.20
Tsuang et al., 1985	608	3.90	9.10
Coryell et al., 1984	389	7.0	22.4
UP Subjects			
Rice et al., 1987b	1,176	5.40	28.6
Angst, 1986b	1,300	1.70	6.40
Tsuang et al., 1985	1,366	2.20	11.0
Coryell et al., 1984	572	2.80	29.4
Normal Subjects			
Tsuang et al., 1985	1,140	0.2	4.8
Weissman et al., 1984a	442	1.8	5.6
Gershon et al., 1982a	217	0.5	5.8

Note. *N=Number of subjects, BP=bipolar, UP=unipolar*

Family studies (controlled examinations involving first-degree relatives of individuals suffering from a mental illness) have been highly pivotal in conveying the importance of the genetic component for bipolar mood disorders. Likewise, ***Twin Studies*** concentrate on the development and existence of a bipolar mood disorder amongst one of the two, i.e., if one twin has been classified with a BP disorder, what are the chances of the second developing the same or another type of a psychological disorder? Pulver (9.2.2000; Lecture at the Manic-Depressive & Depressive Association of Boston), explained the frequency

Table 1.6
Comparison Studies of Affective Disorders in Relatives of Bipolar I & II and Unipolar Patients

		Prevalence in Relatives %		
	N	BPI	BPII	UP
BPI Probands				
Gershon et al., 1982a	441	4.5	4.1	14.0
Fieve et al., 1984	760	3.6	1.5	6.4
Coryell et al., 1984	278	2.9	2.5	22.7
Angst, 1986b	657	5.0	0.9	5.5
BPII Probands				
Gershon et al., 1982a	157	2.6	4.5	17.3
Fieve et al., 1984	549	0.7	4.2	11.1
Coryell et al., 1984	111	0.9	9.8	21.4
Angst, 1986b	276	4.0	0.7	8.0

Note: *N=Number of subjects, BP* = Bipolar, *UP* = Unipolar
Source: Goodwin & Jamison (1990)

amongst identical (monozygotic) twins to be 60% whereas if one fraternal (dizygotic) twin has developed a bipolar disorder, chances are the second twin will develop the same or similar disorder just 10% of the time. Further, twin studies demonstrate a concordance of 33-90% for BPI in identical twins. A Danish study focusing on MZ and DZ twins concluded a concordance rate of 0.67 for MZ twins, whereas that for DZ twins only reached 0.20 (Bertelsen et al., 1977). Additionally, if one MZ twin had been diagnosed with a BPI disorder, 80% of the identical twins were also classified as having a psychiatric disorder. In the case of BPII 78% of identical twins also had a psychiatric disorder if one twin had already been diagnosed.

An example illustrating the distinction in concordance rates amongst MZ and DZ twins in contemporary genetic research for bipolar disorder was explored shortly after World War II. Research findings from Kallmann (1946) report a 93% concordance rate for bipolar disorder amongst identical twins suggesting that gene etiology is more significant for this population than for schizophrenics. Although more recent studies provide a lower concordance rate for bipolar disorder in identical twins (as established by Bertelsen et al., 1977), the factual proof

remains worthy of attention. In a study from Torrey et al. (1994) involving identical twins with bipolar disorder (N=8) and a second group compromising of schizophrenics (N=27), 4(50%) of the identical bipolar twins as compared to 7(27%) of the identical schizophrenic twins stemmed from families with a history of psychosis. In addition to the genetic origins, this study also found identical bipolar twins as being less impaired both clinically and neuropsychologically than schizophrenic twins. However, 25% of the affected twins from both groups reported to have perinatal complications and behavioural problems as children.

The genetic argument receives further support from ***Adoptive Studies.*** This particular form of research has shown that a "separate" environment does not diminish the chances of potentially developing a bipolar disorder within families. According to Soreff & McInnes (2002) and Hudson & Pope (2003) adopted children of biological parents suffering from either a BPI disorder or a major depressive disorder remain at a very high risk of also acquiring a bipolar disorder even if they are raised within a "new and healthy family environment free from psychological disorders." Although adoption studies are useful in supporting prenatal events such as an individual's predisposition to a form of psychological illness, it remains difficult to ascertain this information as adoption placements and regulations in western countries remain stringent. However, other research findings (Schulsinger et al., 1979; Wender et al., 1986; Mendlewicz & Rainer, 1977) support the feasibility of the genetic argument concerning adopted individuals not raised by their biological ill parents, in a neutral environment free from the scars of mental illness.

1.3.2. Psychometric High-Risk Research

The flip side of the coin to traditional biological/genetic research within the scope of contemporary psychology focuses for example on moods and behaviours shaped by

interactions with other individuals or in response to an event or a collection of events (e.g., home and/or work environment, social life, adaptability to daily stressors and demands). The identification of cyclothymia and other bipolar mood disorders can usually be accomplished without necessitating a confined reliance on familial/genetic information, i.e., only examining the off-spring of those patients/individuals already diagnosed with a form of a bipolar mood disorder.

The playing field for the identification of a bipolar mood disorder can be vastly enlarged by distributing a valid and reliable inventory to an extensive *non-clinical population* (as was done for the purposes of this doctoral dissertation). Such groups can be readily found on university campuses (e.g., Freshman level introductory courses to psychology, biology, sociology, economics, etc.) or within the arena of training programmes in large, established companies. The vast majority of those individuals registered in such courses or participating in company sponsored training programmes are between the ages of 18 and 22, thus "meeting" the appropriate age requirements for the development of cyclothymia or a cyclothymic temperament. Secondly, as cyclothymia (as with all bipolar mood disorders) manifests itself within individuals exhibiting an average to above average level of intelligence, as well as a disorder found predominately amongst the more established socio-economic circles of society (Miklowitz & Goldstein, 1997; Akiskal, 1996; Depue et al., 1981), students and training participants have shown to be ideal subjects for first-stage screening procedures. The distribution of an inventory with a large subject pool tends to be economical in nature as incurred costs are minimal. The advantages of such a procedure are as follows: the obtained results allow for the proper identification of a disorder and placement into a specific group for potential interviews and the obtainment of extensive data. Secondly, the diagnosis acquired from the evaluated inventory is based upon the individual's

current psychological construct, rather than the immediate reliance on an already established diagnosis of a parent and/or family member.

1.3.2.1. Psychometric inventories used to identify bipolar mood disorders

A first-stage screening process solely and exclusively used for the identification of cyclothymia and or cyclothymic temperament for a clinical and non-clinical population is by and large limited according to the knowledge of the current author. However, when attempting to locate cyclothymia within the boundaries of a bipolar mood disorder, i.e., also testing per se for mania, dysthymia or BP II, the ***General Behavior Inventory*** appears to be highly appropriate (Depue et al., 1981; Depue, Kleiman, Davis, Hutchinson & Krauss, 1985; Klein, Depue, and Slater, 1985; Lovejoy & Steuerwald, 1997; Reilly-Harrington et al., 1999). The uniqueness of this inventory, as its name implies, is its easy distribution to a very large group of subjects (e.g., in a lecture hall at an university) at one time. A very detailed description of this testing instrument can be found in the Methods section. A second example of a first-stage identification process for bipolar mood disorders, in the form of a structured interview is the ***DIA-X*** (Wittchen & Pfister, 1997). This testing instrument is a revised and expanded version of the Composite International Diagnostic Interview (M-CIDI), originally developed under the auspices of a joint project by the World Health Organization (WHO) and the United States Alcohol, Drug Abuse and Mental Health Administration (ADAMHA). The revised version can be carried out as either a computerized or pencil coded interview and fulfills the research criteria for both the ICD-10 and DSM-IV. The DIA-X structured interview can be used as a diagnostic tool in the identification of most bipolar mood disorders, as well as 100 other clinical diagnoses. Since this interviewing instrument possesses the capability to identify an array of disorders, only the section(s) pertaining to the interests of the researcher and/or clinician need to be used

rather than carrying out a very long and lengthy interview. According to Wittchen & Pfister (1997) the DIA-X Interview contains very high interrater reliability Kappa values between .81 and 1.0, as well as for the placement of a diagnosis (diagnostic interrater reliability: .82 - .98). In three different test-retest reliability studies involving a 1-14 test day period lag, Wittchen & Pfister (1997) recorded Kappa values of .47 and .45 for BP I (N=9; ICD 10: F30/F31) and BP II (N=5; ICD 10: F30/F31), respectively. Kappa values of .77, .69, and .62 were obtained for a Major Depression (N=59; ICD 10: F32/F33), Depressive Episodes (N=31; ICD 10: F32), and Major Depression Recurrent (N=28; ICD 10: F33), respectively. A closer look at the validity of this screening instrument revealed Kappa values ranging from .39 for psychotic disorders up to .82 for panic disorders. The DIA-X was used as a testing instrument during the interview session with the subjects (please see the Methods section for further details). Although the results of the DIA-X Interview were not incorporated into this doctoral dissertation, Kappa values of .65 and .51 were recorded for the groups Depressed and Cyclothymic Temperament, respectively.

Psychometric research also entails the importance of assessing and measuring symptoms of a particular behaviour or mood, independent of familial and/or genetic information. In addition to the already discussed first-stage identification instruments, a self-rated questionnaire such as the ***Self-Rating Mania Scale (SRMS)***, Shugar et al. (1992) (German version from Krüger et al., 1997) and two observer-related interviews such as the ***Bech-Rafaelsen Mania Scale (BRMS),*** (Bech, Bolwig, Kramp & Rafaelsen, 1978) and the ***Mania Rating Scale (MRS)*** (Young, Biggs, Ziegler & Meyer, 1978) are useful instruments in detecting existing symptoms for mania.

The Bech-Rafaelsen Mania Scale (Bech, Bolwig, Kramp & Rafaelsen, 1978) is an observer-related 15 - 30 minute interview used in conjunction with the Hamilton Depression Scale to capture symptoms of the entire affective spectrum (Meyer & Hautzinger, 2000). The interview consists of 11 items (motor activity, verbal activity, flight of thoughts, voice/noise level, hostility/destructiveness, mood (feelings of well-being), self-esteem, contact with others, sleep changes, sexual interest, and work activities), which are then rated on a 5-point scale (Bech et al., 1986; Goodwin & Jamison, 1990). In comparison with other observer rating scales (e.g., Manic State Scale, Beigel et al., (1971); Petterson Scale, Petterson et al., (1973); Mania Rating Scale, Young et al., (1978); Manic Diagnostic and Severity Scale, Secunda et al., (1985)), the Bech-Rafaelsen Mania Scale measures respectable item content within the categories of sleep, speech, overall behaviour, aggression/hostility, hypersexuality, and seeking out others (Goodwin & Jamison, 1990). This measure has established an interrater reliability of .95 as assessed by carrying out Spearman correlation coefficients (Bech et al., 1978), (however, usually ranging between .88 and .94 across various studies), and has also achieved an intraclass correlation of .93 (Hlastala et al., 2000) and .92 (Johnson et al., 1999). The Bech-Rafaelsen Mania Scale appears to be most effective with less severely ill patients and a non-clinical population (Goodwin & Jamison, 1990).

A second observer rating scale also employing subject reports with the objective of covering the core symptoms of mania has been designed by Young, Biggs, Ziegler & Meyer (1978). The Mania Rating Scale (MRS) can be administered to both patients and a non-clinical population. It is not intended to be used as a diagnostic instrument, but rather as an assessment of current manic states. This clinically administered interview lasts anywhere from 15-30 minutes and consists of 11 items (e.g., elevated mood, increased motor activity-energy, sexual interest, sleep, irritability, speech, language thought disorder, content,

disruptive-aggressive behaviour, appearance, and insight). Like the previously described Bech-Rafaelsen Mania Scale, the Mania Rating Scale also contains a 5-point rating scale, modeled on the Hamilton Depression Rating Scale. According to Young et al. (1978) the MRS contains a broader scope and more defined sensitivity than the Petterson Scale, and is "shorter and more explicit in its rating of item severity than the Beigel Scale." In comparing the different inventories, interrater reliability using Spearman rank-order correlation coefficients established the following results: Global Rating Scale 0.77, Beigel Scale 0.60, Petterson Scale 0.88, and Mania Rating Scale 0.93. Concurrent validity and its relationship with the other scales was also observed (the MRS correlated highly with the Global Rating Scale (0.88) and the Petterson Scale (0.89)). A slightly less promising score was established with the Beigel Scale (0.71). The usage of this scale for bipolar mood disorders does not appear to be widespread according to the knowledge of the author of this doctoral dissertation.

1.4. Research Objectives of Current Doctoral Dissertation

The primary objective of this study concerns itself with the identification of moods most distinguishable for cyclothymic temperament. Moods serve as a major component in the understanding and development of affective as well as for subsyndromal disorders (Akiskal et al., 1985; Watson, 2000). The course of this particular study will not emphasize the origins and intensity of those moods most identifiable for cyclothymic temperament, nor will it elaborate on the "chances" of switching to Bipolar I or II. Rather, the purpose is to identify the moods which distinguish cyclothymic temperament from depressed temperament and "normal" individuals (control group).

Much research has already been carried out concerning the subject matter of bipolar disorder (e.g., Goodwin & Jamison, 1990; Akiskal, 1999; Akiskal et al., 1988; Depue et al., 1981; Jamison, 1995; Hantouche et al., 1998), primarily focusing on individuals afflicted with BP I or II. In addition the genetic causes, and therapeutic breakthroughs consisting of medication have also received noteworthy attention. In a more limited context, contemporary research has also involved itself with a commonly known precursor to bipolar disorder, i.e., cyclothymia (e.g., Akiskal et al., 1977; Brieger & Marneros, 1997; Akiskal, 1996). The latter has, to a great extent, concentrated its efforts on a population already experiencing this disorder on a day-to-day basis. The results of completed research and potential "gaps" within the spectrum of bipolar mood disorders have fueled the objectives of the current doctoral dissertation to carry out a research study involving a random, *non-clinical population* consisting of older adolescents (17-19) and young adults (20-24). Research from Placidi et al. (1998) and Depue et al. (1981) have indicated that such undertakings can be pivotal in identifying the existence of a subsyndromal disorder, namely cyclothymia or a cyclothymic temperament.

Since the vast majority of the subjects in this research project are under the age of 24 and were randomly selected from the general population, (i.e., non-hospitalized patients), they were appropriately assigned to one of the three groups (depending upon the results of the initial screening process), i.e., to either a *cyclothymic temperament, depressed temperament or control group*. Cyclothymia per se is labelled as an ongoing affective disorder (for at least two years) incorporating subdepressive and hypomanic fluctuations, (American Psychiatric Association, 1994). Since the subjects in this study were selected from a non-clinical population and are not currently undergoing psychotherapy for cyclothymia or a bipolar mood disorder, the decision was therefore made to focus on *temperament.* According

to Akiskal et al. (1979;1998b) and Akiskal and Mallya (1987), the cyclothymic temperament (or a biphasic dysregulation stemming in teenage or early adult years) consists of behavioural manifestations (e.g., hypersomnia versus a decreased need for sleep, psychomotor inertia versus buoyant jocularity) and subjective manifestations (dulling of senses versus keen perceptions, shaky self-esteem versus overconfidence). These temperamental attributes persist over time and possess some continuity and stability, thereby making it possible to anticipate the emotional and behavioural reactions of an individual, (Prior, 1992; Placidi et al., 1998). The "unpredictability of mood swings in cyclothymes can therefore offset these manifestations as well as undermine the sense of self," (Akiskal, 2001). Mood states are readily more observable on a daily basis and can be experienced in a pure state, (Plutchik, 1980). Hence, the necessity to study the impact of moods within the context of the affective disorders.

The initial screening process was carried out by the General Behavior Inventory (GBI). The GBI (Depue et al., 1981) was initially intended to be used as an instrument to identify bipolar disorder on a lifetime basis. It has already been proven that the GBI can identify persons with a non-clinical, affective condition and its corresponding family history (Depue et al., 1981; Klein et al., 1986), as well as the development of a subsyndromal to completely developed affective disorders (Depue et al., 1981; Klein et al., 1986), for individuals belonging to either a non-clinical or psychiatric group (Klein et al., 1986; Depue & Klein, 1988). The five dimensions of the GBI (core behaviours, intensity, length, rapid delay, and frequency) assist in the identification of the following affective disorders: depression, hypomania/mania and bipolar disorder (Depue et al., 1989). The GBI also possesses the ability to identify those predisposed for cyclothymia and/or a cyclothymic temperament.

A thorough evaluation of moods can be achieved with the use of a standardized diary. A diary can reliably examine daily behaviour and moods over an extended period of time (personal communiqué with T. Meyer, 7.10.1997). A diary consisting of 28 adjectives and 7 sub-scales borrowed from the original EWL adjective checklist of Janke & Debus (1978), as well as a later modified version of the EWL-M by Meyer (1992) was implemented to examine the participating subject's moods. It was hoped that the completion of a standardized diary over a 28-day period (4 weeks) would better identify the moods more prevalent for those subjects with cyclothymic temperament.

2. Methods

2.1. Subject screening group from 1997

In the Spring and Fall of 1997 the General Behavior Inventory (GBI) was administered as a first-stage screening instrument to approximately 500 "Auszubildende" (participants in company-sponsored training programmes) in the Rhein-Main/Rhein-Neckar area as well as to undergraduate students at the Johannes Gutenberg University in Mainz. To examine socio-demographic information and determine continued participation in the research study, an additional form requesting personal information (i.e., name, address, telephone #, etc.), was also enclosed. A total of 389 questionnaires were completed by either subjects in companies or by students at the University of Mainz. The average age was 20.16 and the ages of the subjects ranged from 16 to 45 (see Table 2.3). 53.5% of the completed questionnaire forms came from women and 46.5% from men. All participating subjects indicated their gender at the initial screening process. Additional information pertaining to family status and educational background was also recorded. Subjects were also requested to answer a question regarding sibling status ("Do you have a twin brother or sister?"). Information concerning personal status was captured for 179 persons as the additional form

was not handed out until the Fall of 1997(second phase of the initial screening process). 167 (93.3%) persons stated their personal status as single, 11 (5.1%) as married and 1 (1.6%) as divorced, (see Table 2.1). Regarding educational background 6 (3.4%) had completed an undergraduate program, 143 (79.8%) graduated from the Gymnasium with Abitur, 24 (13.4%) had acquired the Mittlere Reife and 6 (3.4%) fulfilled the requirements for a Hauptschulabschluß. Concerning the family make-up of the participating subjects the following question was asked: "Do you have a twin brother or sister?" 355 (90.3%) subjects responded with "no," 5 (1.3%) with "yes" and 33 persons (8.4%) failed to answer the question. Data pertaining to educational background is displayed in Table 2.1. (see Appendix C).

Table 2.2
Sociodemographic Description of the Subjects at the Screening Process

Total subject pool for the GBI	**N**	%
Gender		
• **Male**	**173**	**44**
• **Female**	**210**	**53.4**
• **Missing data**	**10**	**2.60**
Family Status		
• **Single**	**167**	**93.3**
• **Married**	**11**	**5.10**
• **Divorced**	**1**	**1.60**
Educational background		
• **Undergraduate degree**	**6**	**3.40**
• **Abitur**	**143**	**79.8**
• **Mittlere Reife**	**24**	**13.4**
• **Hauptschulabscluß**	**6**	**3.40**
Twin sister/brother		
• **Yes**	**5**	**1.30**
• **No**	**355**	**90.3**
• **Missing data**	**33**	**8.40**

2.1.1. Control and risk groups for the diary

At the conclusion of the 2 - 3 hour interview process all subjects (N=66) were asked if they wished to further participate in the research project. If they agreed to do so the objectives and purpose of the 4-week diary were explained to them. In addition, instructions on how to

Table 2.3
Subject Pool Age Data at the GBI Screening Process in 1997

Age Group	N	%
15-19	150	39.3%
20-23	215	56.4%
24-28	10	2.6%
29-33	4	1.04%
39-45	2	.24%
	Total = N=381	

Note: *N* = Number, *SD* = 3.07, *M* = 20.2, *Min age* = 16, *Max age* = 45

complete the diary were also conveyed (please see *Interview Process* for a more thorough explanation). The subjects were also informed about financial remuneration (DM 70,-) after completing the diary booklets over a period of 4 weeks (28 days in total), i.e., one booklet per week. Financial constraints within the Department of Clinical Psychology at the University of Mainz could only allow 48 (73%) of the 66 interviewed subjects to further participate in the study. Two individuals declined to continue due to personal reasons and the 4 week time commitment. This then resulted in 46 (70%) subjects involved in the participating groups. The composition of the subject groups completing the 4 week diary is as follows:

Control Group (N = 24)

Cyclothymic Temperament (N = 15)

Depressed Temperament (N = 7)

Total number of participating subjects (N = 46)

At the conclusion of the interview session all subjects were informed about the second component of the study (completing a quantitative diary containing the same questions for each day during the 4-week period), the amount of time required to answer the questions for each day, the importance of taking each question into consideration and reflecting on one's moods and feelings during the course of the day, and of course, financial compensation for

completing the task (DM 70,-). This process proved to be pivotal as it revealed that those who expressed to continue with the study, i.e., filling out a total of 4 diary booklets, were slightly younger than those who refused (t(262.9 = - 2.16, p < .05: age 19.83 (SD = 2.03) vs. 20.53 (SD = 3.89). Gender differences, however, did not play a significant role between those who decided to continue with the study (CHI2(1, n=383) = 0.97; n.s.). A further distinction was made between those who continued with the study. Subjects who expressed no desire to fill-out the diary had lower scores on the Depression sub-scale (t(386.8) = 4.01, p < .001: 5.03 (SD = 4.48) vs. 3.28 (SD = 4.14). Those who selected not to continue with the study: (t(387) = -4.47, p <.001): 7.04 (SD = 4.57) vs. 5.02 (SD = 4.34) also had lower scores on the Hypomanic-Biphasic sub-scale.

2.1.1.1. Control Group (N = 24)

This group is represented by 8 men (30%) and 16 women (66%). In terms of educational level a vast majority of the subjects possess the Abitur, 17 (71%), whereas the Mittlere Reife is held by 7 (29%). A more substantial number of female subjects 13 (81%) have achieved Abitur status as compared to 4 males (50%). Greater consistency is displayed in the gender distinction amongst Mittlere Reife recipients, 4 men (50%) and 3 women (18%). The difference between participating university students 9 (37%) and Lehrlinge 15 (62%) is not so extreme, but a closer look at gender representation exhibits a greater number of women, 6 (25%) as compared to men, 3 (13%). Likewise, the Lehrlinge contingent comprises of more women, 10 (42%) than men, 5 (21%). Table 2.4 exhibits the gender and education make-up of the Control Group.

Table 2.4
Gender and Education Status of the Control Group

Control Group (N=24)	Men (N=8)	(% =33)	Women (N=16)	(%=66)
Abitur	**4**	**50**	**13**	**81**
Mittlere Reife	**4**	**50**	**3**	**18**
University Students	**3**	**37**	**6**	**37**
Lehrlinge	**5**	**62**	**10**	**62**

Note: N = Number of participating subjects

2.1.1.2. Cyclothymic Temperament Group (N=15)

A look at the gender representation of this group displays the following: 11 women (73%) and 4 men (27%). The overwhelming majority of the participating women have completed the Abitur, 8 (73%) and this number paints the same picture for those who went on to university. A smaller number of women completed the Mittlere Reife, 3 (27%) which also represents the same number of subjects who are now classified as Lehrlinge. When considering the male group, the same can also be said for them, i.e., a higher number have completed the Abitur, 3 (75%) and have started with their university studies, 3 (75%). One (25%) participating male subject completed the Mittlere Reife and is pursuing his training interests as a Lehrling.

Table 2.5
Gender and Education Status of the Cyclothymic Temperament Group (N=15)

Cyclothymic Temperament (N = 15)	Men (N = 4)	(% = 27%)	Women (N = 11)	(% = 73%)
Abitur	**3**	**75**	**8**	**73**
Mittlere Reife	**1**	**25**	**3**	**27**
University Students	**3**	**75**	**8**	**73**
Lehrlinge	**1**	**25**	**3**	**27**

Note: N = Number of participating subjects

2.1.1.3. Depressed Temperament Group (N=7)

Although smaller in number the overall gender representation is almost equal, 4 men (57%) and 3 women (43%). All female subjects completed Abitur and are currently enrolled in undergraduate study, 3 (100%). The majority of the male subjects have also completed Abitur and are also undergraduate students, 3 (75%). One male subject completed Mittlere Reife and is now participating in an Ausbildung, 1 (25%).

Table 2.6
Gender and Education Status of the Depressed Temperament Group (N=7)

Depressed Temperament (N = 7)	**Men (N=4)**	**(%=57)**	**Women (N=3)**	**(%=43)**
Abitur	**3**	**75**	**3**	**100**
Mittlere Reife	**1**	**25**	**0**	**0**
University Students	**3**	**75**	**3**	**100**
Lehrlinge	**1**	**25**	**0**	**0**

Note: N = Number of participating subjects

2.2 Measures

2.2.1. General Behavior Inventory (GBI)

The GBI was initially intended to be used as an instrument to identify bipolar disorder on a lifetime basis. It has already been proven that the GBI can identify persons with a non-clinical, affective condition and its corresponding family history (Depue et al.,1981; Klein et al., 1986), as well as the development of a subsyndromal to completely developed affective disorder (Depue et al., 1981; Klein et al., 1986), for individuals belonging to either a non-clinical or psychiatric group (Klein et al., 1986; Depue & Klein, 1988). The GBI was initially constructed with 69 items to capture the following details: differentiate between bipolar and unipolar disorders, the intensity of the affective condition and the evaluation of affective symptoms on a trait rather than a current state basis (Depue & Klein, 1988; Depue

et al., 1981). In order to precisely examine this "pathology," Depue et al. (1981) opted for the construction of an *exophenotypic* rather than an *endophenotypic* paradigm. The endophenic version is considered more of a biological index which can also identify a risk group. This procedure, however, is usually not advocated since a large subject pool is required to submit blood and urine samples. In contrast, the exophenotypic paradigm is considered more practical and economically feasible in identifying a risk group. A large subject pool is predominately required and this particular process only involves the distribution of questionnaires. Blood and urine samples are not needed.

The "behavioural paradigm" (Chapman, Chapman & Raulin, 1976), has been used several times to identify a disposition to a psychotic disorder (Chapman, Edell & Chapman, 1980). Although Meehl (1973) has also expressed the potential problems pertaining to a behavioural indicator in identifying risk group disorders, this is nevertheless considered economical and suitable in identifying a risk group from the general public. As a result a behavioural indicator is considered an appropriate measure in determining first-stage case identification (Chapman, Chapman & Raulin, 1976). According to Depue et al. (1981) the behavioural paradigm pursues the specific purpose of calculating the risk index in identifying the differences between a subsyndromal phenotype and a "normal" phenotype. The diversity of the subsyndromal phenotype can be better determined if a behavioural indicator consisting of several core behaviours which clearly characterize a subsyndromal disorder and the non-behavioural dimensions of the illness describing the development of the disorder are used. When designing a behavioural indicator it is important to keep in mind that the corresponding characteristics of a developed subsyndromal disorder can be applied to the subjects of a risk group. In addition to this belief Depue et al. (1981) emphasized that the subsyndromal behaviour can be differentiated from a clearly developed syndromal disorder

only in terms of ***quantity and not in the quality of an ostentatious disorder***, i.e., the episodic features as well as the behaviour which illustrate the symptoms of a subsyndromal disorder are ***qualitatively*** similar to the features and behaviour of a full-blown syndromal disorder.

The GBI in its original format consisted of five dimensions (Depue et al., 1981): core behaviours, intensity, length, rapid delay, and frequency. The revised version of the GBI focuses on three types of pathological behavior: depression, hypomania/mania and bipolar disorder (Depue et al., 1989). The inventory also captures symptomatic behaviour with an equal emphasis on somatic, vegetative, psychomotor, affective and cognitive components, as well as on mood. Substantive validity for the GBI was determined by Loevinger (1957) and Jackson (1970, 1971). In order to precisely measure the authenticity of a dimension (e.g., "frequency"), the GBI was designed with a 4-point scoring scale. For the purposes of the current doctoral dissertation, fifty-one items from the original GBI were used (German translation), in addition to six items from the Chapman questionnaire form (short-HSL, numbers 3, 17, 32, 51, 67 and 79), (German version from Meyer & Hautzinger, 1997) and two items from the Thalbourne questionnaire, numbers 5 and 16), (unpublished questionnaire, University of Adelaide, Australia). Please see Table 2.7 in Appendix C for a breakdown of the item numbers used in the GBI. These items were added to the GBI to better "capture" a cyclothymic disposition. The use of a scale with even and uneven points has the following advantages: a) the application of a multiple-response design partially reduces a predetermined tendency associated with a bimodal response scale (Goldberg, 1972) and b) an even numbered scale avoids the error of central tendency, i.e., subjects will not frequently cross-off numbers located on the middle of the scale (Guilford, 1954). Since many symptoms pertaining to a bipolar mood disorder will appear in either early to late youth (or within the last 12 months), the subjects can more or less correctly estimate the

frequency of these behaviours as they were experienced for the first time. If the behaviour is associated with a "major upsetting life event," e.g., death, separation from spouse or significant other, number "1" (never) or number "2"(sometimes) should be checked-off (Depue et al., 1981). Although this particular event for the individual could be quite tumultuous, the chances of the behaviour repeating itself are minimal. Since the frequency of an occurring behaviour is relatively important, death and situational depression are not considered extremely relevant in this situation; external elements in general don't repeat themselves quite often (Depue & Munroe, 1978a) and have little influence in identifying a potential risk group for a bipolar mood disorder (syndromal disorder). By selecting "3" (frequently) or "4" (very frequently) the subject has stated that the behaviour occurs quite often and therefore makes it easier to separate those with subsyndromal features (Depue et al., 1981). This method was used to examine the emergence of a subsyndromal disorder instead of simply and falsely diagnosing the subject with cyclothymia. In this regard when one takes the scoring system of the GBI into consideration, one has to remember that the total point count describes the corresponding and displayed behaviour on a subsyndromal level which is associated with intensity, length, and frequency (Depue et al., 1981). Tables 2.8 through 2.11 (see Appendix C) contain statistical as well as frequency distributions for the GBI items. Descriptive statistics and Pearson Correlations for the different GBI Scales are also included. Tables 2.12 through 2.16 (see Appendix C) display the frequency distributions for the GBI Scales: GBIMANIA (Mania/Bipolar Scale), GBIMAN (Mania Scale), GBIBIP (Bipolar Scale), GBIDEP (Depression Scale), and THALCHAP (Thalbourne/Chapman).

The GBI employs a "case scoring method." According to this strategy only numbers "3" and "4" are calculated and not"1" and "2." This particular scoring procedure can successfully

detect cases from noncases (Depue et al., 1981; Goldberg, 1972). The cut-off system is as follows with the GBI:

GBI cut-off system

0 - 19 points (noncase)

19 - 27 points (noncase)

27 - 61 points (case)

27 and higher serves as the cut-off point for cases

It has already been determined that subjects with a corresponding cyclothymia and proven bipolar disorder will meet and/or exceed the required 27 points on the cut-off scale. In addition to this persons diagnosed with a depressive disorder lacking manic and/or hypomanic symptoms will also obtain more than 27 points.

The current study concerned itself with a non-clinical subject group, i.e., Auszubildende and university students. It was decided to employ the GBI as a general screening instrument since it contains solid reliability and validity. According to Depue et al. (1989) the GBI is suitable for a non-clinical population for the following reasons: a) a non-clinical group contains subjects with a personal history which might reflect an affective disorder whose symptoms are not noticeable, i.e., the possibility of having an affective disorder exists, but it hasn't completely developed and b) within a non-clinical group all variances of either a subsyndromal or syndromal disorder can be found. Because of these reasons the GBI (as a measurement tool) has the ability to identify a completely developed affective disorder (e.g., bipolar disorder), as well as a subsyndromal condition (e.g., cyclothymia and dysthymia). Students and Auszubildende (a non-clinical group between the ages of 18 and 24) represent an optimal research group since this particular age range does not exceed the age requirements for the appearance of a subsyndromal disorder (Akiskal, 1983; Depue et al.,

1981). As a result the subject's age can be instrumental in determining an affective disorder, e.g., sub-and syndromal (Depue & Munroe, 1978a). Akiskal, Khani & Scott-Strauss (1979) have also found with respect to the age of the subject a syndromal disorder can develop from a subsyndromal one.

In order to maximize the effectiveness of a non-clinical group, the GBI has the ability to precisely differentiate between affective and non-affective cases. Since the GBI not only contains behavioural content items which are connected with an affective disorder, non-behavioural dimensions are also included which can define clinical-episodic dimensions. In order to replace the experience of a current form of behaviour in a "non-normal" situation, the GBI makes it possible to separate affective and non-affective cases (Depue et al., 1989). Item number 18 from the GBI explains this more clearly: **"Have there been times of several days or more when you were not physically ill that you were so tired and worn out it was very difficult or even impossible to do your normal everyday activities?"**
Further, GBI items possess a low clinical floor, i.e., the item intensity (the impairment of the behaviour) and the criterion for the minimal duration of a behaviour (at least 3 days or more) are closely tied with a subsyndromal level in order to better identify the person.

The effectiveness of the GBI with a clinical subject group has also been tested. In a study from Mallon, Klein, Bornstein and Slater (1986), the GBI correctly classified 88% of the patients (N=81) in a psychiatric facility of a health maintenance organization (HMO). In a second study Klein et al., (1989) distributed the GBI to two different groups (patients from a clinic and patients in a mental health center). The following results were obtained: **PPP ("Positive Predictive Power")** for bipolar disorder = ***85%* for the patients in the clinic and *77%* for the mental health center.** The second aspect of the study focused in on **NPP**

("Negative Predictive Power") and the following results were produced: **NPP for bipolar disorder, 99% for the patients in the clinic, 98% for the patients in the mental health center.** The entire **PP ("Positive Prediction")** resulted in the following: **99% for clinic patients and 97% for mental health center patients.**

2.2.2. Diary (Tagebuch)

The diary used in the second half of the research project consists of three sections and its ultimate purpose was to measure daily mood fluctuations as well as social/personal aspects of behaviour (bouts of conflict, usage of alcohol, work/study patterns, etc.), throughout a 28-day period (one month). One section of the diary consists of 28 adjectives and 7 sub-scales borrowed from the original "Eigenschaftswörterliste" (EWL) (Adjective Checklist) of Janke & Debus (1978) and secondly from a later modified version (EWL-M) for a Master's thesis by Meyer (1992). The original EWL is a quantitative questionnaire form which attempts to summarize the subject's current mood state and condition. The EWL is broken down into 16 categories which are then measured by a corresponding rating scale. The objective of the EWL is to capture and summarize current mood states of participating subjects. It also has the ability to locate changes and deviations, independent of implemented interventions. Interestingly enough the EWL can be used on a repeated basis during an experimental investigation, e.g., completion of the EWL before and after a lengthy interview or examining process, (personal communiqué with T. Meyer, 5.10.1997). Most importantly, the effectiveness and reliability of the EWL is acquired through a standardized and stable test setting (Janke & Debus, 1978).

For the purposes of the current doctoral dissertation 28 adjectives pertaining to 7 corresponding sub-scales were taken from the original EWL and modified EWL-M to construct a section of the diary. Unlike the EWL-M which contains 16 sub-scales, each of which comprising of 4 adjectives (Meyer, 1992) (e.g., verärgert (*annoyed),* gereizt (*irritated),* ungehalten (*peeved),* and ärgerlich *(upset,cross)*), instructing the individual to rate his current mood pertaining to the described adjectives on a scale from **0 ("gar nicht zu"/not at all)** to **9 ("stark zu"/very much indeed)**, differs from the layout of the selected adjectives in the current study. Each diary booklet (see Appendix B) contains a testing questionnaire for each day of the week (7 in total) and lists the adjectives from the EWL and EWL-M in a sequential order (1-28). After each adjective the subject is asked to rate to what extent his/her mood and/or disposition was affected during the course of the day according to the following scale (personal communiqué with T. Meyer, 5.10.1997):

gar nicht/*not at all*
etwas/*somewhat*
ziemlich/*considerably*
stark/*very much indeed*

The scoring system of the rating scale ranges from "0" (gar nicht/*not at all)* to "3" points (stark/*very much indeed*). The participating subjects were instructed after the interview process to complete the diary at the end of each day and also to include the time indicating when the diary was filled-out.

Seven of the original 16 sub-scales from the EWL were selected for testing purposes in the current doctoral dissertation. Since the work of Janke & Debus (1978) found that the sub-scales "Aktiviertheit" (*Activation),* "Desaktiviertheit" (*General Inactivity),* "Gehobene Stimmung" (*Elevated, Positive Mood),* "Erregtheit" (*Excitement*) and "Deprimiertheit"

(*Depression*) contain high reliability and are primarily similar to the psychological characteristics of subsyndromal affective conditions (Akiskal, 1996; Lovejoy & Steuerwald, 1992; Ambelas, 1979), they were selected as scales for the diary. In addition "Extravertiertheit" (*Extroversion*) and Ärger (*Anger*) were also included. Although there is no empirical evidence suggesting a significant correlation between the 16 sub-scales of the EWL and subsyndromal affective disorders (personal communiqué with T. Meyer, 7.10.1997), they do, however, contain the essential features which vividly portray mood fluctuations found in those individuals afflicted with a bipolar mood disorder (Goodwin & Jamison, 1990). The 7 scales selected for the current diary along with their corresponding adjectives are listed in the following section of the dissertation. Content specificity and clarification pertaining to the scales of the diary are also described in detail in the following pages.

2.2.2.1. Activation

Activation is supported in the diary by the adjectives "energisch" (*energetic*), "aktiv" (*active*), "eifrig" (*ardent*), and "tatkräftig" (*industrious, energetic),* and is equated with motion and movement suggesting in most instances productive performance oriented behaviour. When engaged in this mode goals can be more realistically planned and timely achieved. An activated individual is one who is able to reach an optimal level of productivity and efficiency, thus establishing a positive sense of well-being. Cyclothymic individuals can often be regarded as "active," but frequently do not possess a form of goal directed behaviour. Activity, in regards to cyclothymic temperament can be seen as erratic with little orientation to goals.

2.2.2.2. Anger

Anger, within the realms of the diary, is synonymous with the following adjectives: “gereizt” (*irritated),* “ärgerlich” (*angry, scornful),* “verärgert” (*annoyed*) and “wütend” (*furious*). The term “anger” conveys episodes of aggressive behaviour, often causing irrational thinking and resulting in regrettable consequences. The cyclothymic individual can experience bouts of heightened to severe anger.

2.2.2.3. Depression

As aufgeregt and energiegeladen better describe the individual experiencing a bout of “mania,” “betrübt” (*gloomy, somber*), “elend” (*misery*), “traurig” (*sadness*), and “sorgenvoll” (*full of worries*) precisely portray the condition of a depressed person. The willingness to project a more positive affect is clearly absent as is the motivation to restore vitality and enthusiasm. Commitment and involvement with others (and also with him/herself) is both physically and emotionally limited.

2.2.2.4. Elevated, Positive Mood

The confines of this particular mood generally convey a healthy and content existence closely supported by “lustig” (*amusing, funny*), “heiter” (*cheerful*), “freudig” (*joyful),* and “froh” (*happy*). Persons possessing and exhibiting these characteristics are perceived by others as pleasant, at ease with their surroundings, and readily willing to provide assistance and complete tasks. A profoundly exaggerated and continual sense of happiness and/or joy is not perceived as being shocking or threatening.

2.2.2.5. Excitement

A closer look at Excitement reveals that adjectives such as "erregt" (*highly upset*), "zappelig" (*fidgety),* "nervös" (*nervous)* and "aufgeregt" (*to be shaken up)* help to paint a better picture of this mood state. In contrast to Activation, persons displaying features of this mood might react illogically and unreasonably, and could easily become side-tracked when trying to carry out tasks in an effective and concentrated manner. Persons labelled as "erregt" are considered to be "over aroused," often equated with a state of indignation and acrimony.

2.2.2.6. Extroversion

The adjectives "zutraulich" (*trusting),* "gesprächig" (*talkative, chatty),* "kontaktfreudig" (*approachable, jovial*), and "gesellig" (*gregarious, sociable)* represent a sense of overtness and describe the behaviour of individuals extending themselves from "outside the self." In contrast to introversion, extroversion produces and fosters social initiative (superficial or constructive in manner), with the objective of being involved externally. Social and personal inhibitions are seldom experienced and exhibited.

2.2.2.7. General Inactivity

Persons experiencing chronic inactivity are usually described as being "energielos" (*without energy),* "lasch" (*slack, limp*), "lahm" (*lame, listless)*, and "kraftlos" (*weak, feeble*). Individuals with a strong or exacerbated disposition to depression frequently exhibit these characteristics which are also a component of a subsyndromal affective condition.

The second section of the diary created by Pheasant & Meyer (1997) consists of 3 short-response questions, 9 yes/no questions and a concluding question requesting the subject to report on other significant events from the day (see Appendix B). These questions, used to

determine the potential differences between the three groups serve the following functions. Since manic and cyclothymic individuals exhibit a decreased need for sleep and relaxation (Goodwin & Jamison, 1990; Bond, 1980), it seemed worthwhile to monitor the amount of hours slept for the subjects in each participating group. Likewise, manic and cyclothymic individuals frequently display mercurial behaviour often resulting in increased temperament and excessive conflicts (both verbal and physical in nature) with individuals in close proximity (Cassano et al. 1992). In addition, manic and cyclothymic persons have a higher proclivity to substance and chemical abuse as compared to control subjects (Goodwin & Jamison, 1990; Zisook & Schuckit, 1987; Reich et al., 1974; Estroff et al., 1985; Weiss & Mirin, 1986). The often exaggerated preoccupation and absorption with contested political events and personal projects exhibited by manic individuals (Ramirez-Basco & Rush, 1996; Goodwin & Jamison, 1990; Jamison, 1995), necessitates the inclusion of questions 8 and 9 in the statistical evaluation of the participating groups. As with the results of the first half of the diary, these results will also be concisely explained.

The shorter, however, equally as important third section of the diary consists of 4 statements. A rating scale from "3" (Stimmt) to "0" (Stimmt nicht) is used to evaluate the subject's responses. The German statements (see Appendix B) have been translated as follows into English for the purposes of this doctoral dissertation: *Fluctuations in Mood, Fluctuations in Drives, Impulses, Loneliness, and Agitated.*

2.3 Interview Process

The current research study was advertised as "Mood and Performance Related Behaviour of Young Adults." Each interview session took place in the Psychological Institute at the Johannes Gutenberg University in Mainz, Germany and lasted for approximately 2-3 hours.

Each particpating subject received DM 30,-. Several other questionnaires and interviews were used for the purposes of additional projects. Those subjects who expressed an interest to further participate in the study after the screening process later received a personalized invitation to the Psychological Institute. A list with appointment dates and times were also sent with the request to select the most convenient time for an interview. If the subject did not return the list with a selected interview time, an appointment was made later with him/her over the telephone. After which all participating subjects received an appointment confirmation as well as a campus map of the University of Mainz. If the subject did not live in the Rhein-Main area (or had no automobile or access to public transportation), the author of this doctoral dissertation offered to travel to their home address. This was done on two occassions: for a handicapped subject living in Frankfurt and for a second subject who lived 80 km away from Mainz. All interview sessions were conducted in the German language.

In order to guarantee that the interviewer remained "blind" to the diagnostic status of the participating subjects, the composition of the groups (Cyclothymia, Depressed and Control Groups) was made directly by the doctoral supervisor of the current author. The corresponding diagnoses of the subjects were made available to the interviewer ***after*** the completion of all interview sessions. The interview sessions (N=66) were conducted by only one interviewer (the author of this doctoral dissertation). Before each interview session the interviewer completed the modified version of the Eigenschaftswörterliste (EWL) (Janke & Debus, 1986), to examine his current state of well-being and mood. Upon arrival in the Institute each subject was cordially greeted and informed about the course of the interview process. The subjects were requested to read through and sign the Einwilligungserklärung.

The first component of the interview process was the completion of the **Münchner Ereignisliste (MEL)** (Maier-Diewald et al., 1983) followed by the **Chapman Questionnaire Form (short-HSL)** (German version, Meyer & Hautzinger, 1997). Thirdly, the **DIA-X Interview** from Wittchen & Pfister (1997) was conducted by the author of this dissertation. The DIA-X is an expanded and improved version of the former Composite International Diagnostic Interview (CIDI) which can successfully detect psychological disorders according to the classification systems of DSM-IV and ICD-10. After this interview the subjects were requested to fill-out the **Self-Rating Mania Scale (SRMS)**, (Shugar et al., 1992) as well as the **SCID-II Questionnaire Form (**Spitzer, Williams & Gibbon, 1986). After a 15-minute break (in most instances the subjects continued the process without a break), the **SCID-II Interview,** DSM-IV, Axis II - Personality Disorders (Spitzer, Williams & Gibbon, 1986) was carried out. The last component of the interview process consisted of the completion of the State-Trait-Anxiety Inventory (Laux et al., 1981). After the interviewed subjects had left the Institute, the interviewer filled out the **Complete Global Assessment Scale,** as well as the EWL-M for a second time. The purpose of this particular assignment was to rate the subjects objectively and to compare the "well-being" of the interviewer before and after the interview process. Potential subject influences on the interviewer, as well as general mood during the interview process, and noticeable behavioural deviations were taken into consideration. Finally, a subjective and immeasurable rating scale, designed by the author was filled-out to place a temporary diagnosis at the end of the interview session. Please see Table 2.17 concerning the course of the interview process.

At the end of the 2-3 hour interview process most of the participating subjects were asked if they wished to further participate in the study by completing a 4-week diary booklet

(Pheasant & Meyer, 1997) (DM 70,- was given to those subjects who completed the diary each week during the 4 week period). Those subjects who expressed an interest to further participate in the study immediately received a diary booklet for the first week. The diary booklets for the following three weeks were sent each consecutive week to the subject's home address. The subjects were then requested to send the completed diary booklet back to the University of Mainz in the self-addressed and self-stamped envelope. The SRMS was enclosed with the diary booklet for the fourth week. The completed SRMS was mailed along with the 4th diary booklet to the University of Mainz.

Table 2.17
Subject Screening Interviewing Process

T1 **Fall 1997**	**T2** **Winter - Summer 1998**	**T3** **Winter - Fall 1998**
General Behavior Inventory (GBI) **Initial screening process**	**1) Münchener Ereignisliste (MEL)** **2) Chapman Fragebogen (short HSL)** **3) DIA-X Interview** **4) Self-Rating Mania Scale (SRMS)** **5) SKID-II (Questionnaire)** **6) SKID-II Interview** **7) State-Trait Angst Inventory (STAI)**	**1) Diary** **Week 1** **Week 2** **Week 3** **Week 4** **2) SRMS** **Second version**
N = 389	**N = 66**	**N = 46**

Note: N = Number of participating subjects

2.4. Evaluation Procedures

The methods, procedures, and "guiding" constructs used to evaluate and analyze the data in the diaries will be elaborated on in this particular section and serve as a formal introduction to the interpretation of the statistical results.

As mentioned previously a 28-day testing period (4 weeks) was selected so that positive and negative moods could be more reliably and substantially differentiated between the three groups (Control Group, Cyclothymic Temperament and Depressed Temperament). The

construct of the diary was fueled by the notion that diaries in general help to resolve the recall bias problem by enabling individuals to report on experienced events and symptoms near the time they occur, in order to provide more fine-grained information about the dynamics of event-symptom, moods/emotions relations (Goplerud & Depue, 1985). A diary, either containing an "open slate," allowing for the transcription of free and cathartic expressions or one resembling that of a questionnaire format (as in the case of this doctoral dissertation) enables the individual to mentally process critical life events (Seiffge-Krenke, 1997) and reflect on personal development or decompensation. In many ways, a diary can serve as a conduit for more enhanced introspection on the development of a negatively (or positively) accentuated mental disposition (or the identification of an already existing proneness to a depressed or "excitable" mood).

In the case of this particular study the diary is divided into three sections (as mentioned previously) allowing each participating subject to thoroughly consider and reflect on daily moods and activities. The first part of the diary, comprising of 28 descriptive adjectives belonging to seven mood and emotionally-related dimensions serves as the catalyst in pinpointing noticeable differences or emerging trends within the three, participating groups. Borrowing the working notion from Alloy et al., (1997), that attributionally vulnerable individuals (in this case Cyclothymic and Depressed Temperament) exhibit more profound and exacerbated levels of negative moods and emotions on an *across-days* symptom variability than attributionally invulnerable individuals (the Control Group of the current doctoral study will represent those considered "invulnerable"), will serve as the guiding hypothesis in identifying the most significant changes in mood variability. A *within-days* variability between the three groups cannot be explored as the mean, median, and mode were not captured on a daily basis.

According to Janke and Debus (1978) the dimensions "Activation," "Extroversion," and "Elevated, Positive Mood" all indicate a positive and healthy mental condition creating the way for optimal and predominately high-levels of performance oriented activity. In addition this also presupposes a vigor to take social initiative amongst a group of individuals, self-confidence and assurance, and an overall representation of a positive well-being. The dimensions "General Inactivity," "Excitement," "Anger," and "Depression" portray negative and non-positive mental conditions suggesting a substantial decrease in performance-related activity, highly accelerated and impulsive appearing physical movement (e.g., unable to remain still, walking exceptionally fast and being "committed" to too many tasks at one time). Overly assertive and unnecessarily aggressive behaviour, and a demonstrable decrease in wholesome, mental welfare also belong to these dimensions. Individuals such as Goodwin & Jamison, (1990) and Miklowitz & Goldstein (1997), allude to the fact that the following described dimensions help to systematically distinguish between those who are more predisposed to developing and later exhibiting cyclothymic temperament.

In order to truly capture the variance between the groups a Oneway Analysis of Variance (ANOVA) was executed. The three different groups served as "the independent variable" whereas the various scores from the Eigenschaftswörter will serve as the "dependent variable." The *null hypothesis* for the ANOVA therefore states that there is no difference in mood variation amongst the three groups over a period of time (in the case of this doctoral dissertation, 4-weeks), whereas *the alternative hypothesis* suggests a significant difference between the groups. The necessity of conducting *t-tests* is eliminated as this particular study entails more than two groups (n=3) and is also concerned in measuring variance. Further, this subject matter emphasizes that significance tests are based on the assumption of only one

test being carried out. Phrased differently, the actual probability tables are based on the assumption that one group has been randomly selected. Therefore, if a series of t-tests are conducted the groups are no longer considered to be randomly selected because all the subsequent tests are made up of the same subjects indicating that all are related. The execution of more than one test will indicate that the significance table isn't quite accurate. Most likely, the difference will be quite small, but the error will continue to increase with each additionally related test. Therefore, the greater the number of t-tests, the greater the probability of accepting a result as being significantly based on incorrect tables.

In rejecting the null hypothesis in ANOVA (or worded differently, accepting the *alternative hypothesis* in ANOVA), it has been demonstrated that at least one group has a mean which is different from the others (Howell, 1997). To correctly convey this empirical notion in the interpretation of the results in the current doctoral study, this implies a difference within the means of the three groups in mood variations. To obtain a more concise and specific assessment of the existing differences within the means, multiple comparisons (a form of *post-hoc analysis*) or range tests were also administered. A closer examination of *Scheffé* (Daniel & Lehmann, 1979) tests will substantiate the differences between the three groups. Since this test is most optimal when there are different numbers of subjects in various groups, it can be applied to the data in the current doctoral study. Although this test tends to exhibit more conservative results than the Tukey Test, it possesses the ability to compute the limits of confidence intervals for each difference between the means.

3. Results

3.1. Screening Subjects Groups

3.1.1. Differences amongst Control, Cyclothymic and Depressed Temperament

In the first step of the analysis, descriptive statistics were carried out on the results of the three groups involved in the study pertaining to the seven categories of the 4-week diary. A one-way analysis of variance (ANOVA) determined if significance was recorded amongst the groups. A post hoc test (Scheffé) was also implemented to establish *where* statistical significance was reached amongst the groups. Table 3.1 displays the means and standard deviations recorded by the three groups for the seven categories of the diary on a weekly basis over a period of 4 weeks. A quick and concise overview of the data reveals that Cyclothymic Temperament registered the highest means in the following categories: Anger, Depression, General Inactivity and Excitement. On the other side of the coin, the Control group obtained the highest mean scores in Activation, Extroversion and Elevated, Positive Mood. The Depressed Temperament group failed to achieve significant mean scores in any of the seven categories of the diary. An initial interpretation of the descriptive statistics pertaining to the analysis of the seven categories supports Janke and Debus'(1978) assertion concerning the differences between positive and negative mood states. However, the captured means for each group overlap without sizable differences, thus necessitating further testing to record noticeable significance. The execution of a one-way analysis of variance (ANOVA) and post-hoc tests can determine if mood differs for a non-clinical population addressed at risk for cyclothymic temperament. A one-way ANOVA tests differences in a single interval dependent variable amongst two, three, or more groups formed by the categories of a single categorical independent variable. This design deals with one independent variable and one dependent variable. It tests whether the groups formed by the categories of the independent variable seem similar (specifically that they have the same pattern of dispersion as measured by comparing estimates of group variances), Anastasi (1988). If the groups seem different, then it is concluded the independent variable has an effect on the dependent.

The data interpretation of the diary will first concern itself with the 7 mood categories, secondly with the four items ranging from mood fluctuation to loneliness, and lastly with the 11 questions pertaining to sleep, work, alcohol/drug consumption, and familial/relationship disputes.

Table 3.1
Means and Standard Deviations for the Three Groups Recorded from the Diary over 4 Weeks

Diary (Tagebuch) ***Weeks 1 – 4*** ***Days 1 – 28***		***Control Group*** ***N = 24***		***Depressed Temperament*** ***N = 7***		***Cyclothymic Temperament*** ***N = 15***	
		M	***SD***	***M***	***SD***	***M***	***SD***
Activation							
	Week 1 (1-7)	**5.53**	**0.31**	**3.71**	**0.58**	**4.33**	**0.38**
	Week 2 (8-14)	**5.08**	**0.31**	**4.24**	**0.61**	**4.54**	**0.40**
	Week 3 (15-21)	**5.04**	**0.37**	**3.87**	**0.71**	**4.43**	**0.47**
	Week 4 (22-28)	**4.76**	**0.41**	**4.49**	**0.77**	**4.21**	**0.51**
Anger							
	Week 1 (1-7)	**1.36**	**0.28**	**2.14**	**0.52**	**3.42**	**0.34**
	Week 2 (8-14)	**1.34**	**0.24**	**1.67**		**2.75**	**0.30**
	Week 3 (15-21)	**1.44**	**0.22**	**0.41**	**0.41**	**3.00**	**0.27**
	Week 4 (22-28)	**1.12**	**0.30**	**1.71**	**0.56**	**3.30**	**0.37**
Depression							
	Week 1 (1-7)	**1.00**	**0.31**	**1.28**	**0.57**	**3.28**	**0.38**
	Week 2 (8-14)	**1.48**	**0.35**	**1.20**	**0.68**	**3.08**	**0.45**
	Week 3 (15-21)	**1.54**	**0.39**	**2.20**	**0.74**	**3.58**	**0.49**
	Week 4 (22-28)	**1.13**	**0.34**	**1.73**	**0.65**	**3.58**	**0.43**
General Inactivity							
	Week 1 (1-7)	**1.14**	**0.22**	**2.16**	**0.41**	**3.24**	**0.27**
	Week 2 (8-14)	**1.51**	**0.30**	**1.38**	**0.58**	**2.70**	**0.38**
	Week 3 (15-21)	**1.74**	**0.35**	**1.79**	**0.66**	**3.69**	**0.43**
	Week 4 (22-28)	**1.49**	**0.29**	**1.98**	**0.55**	**3.19**	**0.36**
Excitement							
	Week 1 (1-7)	**1.86**	**0.39**	**1.57**	**0.73**	**4.00**	**0.48**
	Week 2 (8-14)	**1.67**	**0.31**	**1.69**	**0.60**	**3.59**	**0.39**
	Week 3 (15-21)	**1.98**	**0.41**	**2.10**	**0.78**	**3.68**	**0.52**
	Week 4 (22-28)	**2.89**	**0.38**	**2.61**	**0.72**	**3.43**	**0.47**
Extroversion							
	Week 1 (1-7)	**5.64**	**0.30**	**4.49**	**0.57**	**4.42**	**0.37**
	Week 2 (8-14)	**5.60**	**0.35**	**5.00**	**0.69**	**4.00**	**0.45**
	Week 3 (15-21)	**5.52**	**0.34**	**3.98**	**0.64**	**4.10**	**0.42**
	Week 4 (22-28)	**5.20**	**0.41**	**3.87**	**0.78**	**4.25**	**0.51**
Elevated, Positive Mood							
	Week 1 (1-7)	**6.34**	**0.39**	**4.02**	**0.73**	**3.94**	**0.48**
	Week 2 (8-14)	**5.78**	**0.35**	**4.89**	**0.68**	**4.42**	**0.45**
	Week 3 (15-21)	**6.00**	**0.34**	**4.14**	**0.64**	**3.89**	**0.42**
	Week 4 (22-28)	**5.64**	**0.38**	**3.71**	**0.72**	**3.94**	**0.47**

Note: *N = Number of participating subjects, M = mean, SD = standard deviation*

3.2. The Seven Mood Categories

As a standard statistical procedure for all 7 mood categories an univariate ANOVA was carried out to locate existing differences in means and dispersion amongst the risk and control groups over an entire 28-day period. Secondly, a comparison of group variance estimates was also examined. Since the mood categories were reviewed in an alphabetical manner, ***ACTIVATION*** (incorporating the EWL adjectives *energetic, active, ardent* and *industrious*) serves as the first item of consideration. The investigative process began with the examination of mean scores for the 3 groups on a purely descriptive basis and are exhibited in Table 3.2.

Table 3.2
Mean level and intraindividual variability of Activation (Mean and Standard Deviation Scores) for the Three Subject Groups over an entire 28-Day Period

Overall 28-day period	**Control Group N = 24**		**Cyclothymic Temperament N = 15**		**Depressed Temperament N = 7**	
Mood Category	**M**	**SD**	**M**	**SD**	**M**	**SD**
Activation	**5.20**	**1.60**	**4.40**	**1.40**	**4.10**	**1.20**
	2.20	**0.50**	**2.30**	**0.53**	**2.12**	**0.30**

Note: N = Number of participating subjects; M = Mean, SD = Standard Deviation

The mean scores for both risk groups are somewhat lower than those of the Control Group, thus exhibiting minimal differences. Since group effects play a substantial role in this study, tests of between subjects have also been examined. A closer look at the data shows that a significant group effect was not achieved over the 28-day period, $F(2,44) = 2.30$, n.s. On account of this finding it was not necessary to further review the obtained post-hoc Scheffé results to locate existing differences amongst the groups.

Intraindividual variability for the entire 28-day period was examined and revealed almost identical mean scores for the 3 groups with slight differences (see Table 3.2). An executed ANOVA produced a non-significant score, $F(2,44) = 0.40$, n.s., therefore eliminating the

necessity to pinpoint further differences amongst the groups with the assistance of a post-hoc Scheffé test.

The mood category ***ANGER*** (incorporating the EWL adjectives *irritated, scornful, annoyed,* and *furious*) was examined in the same manner as Activation and also employed an univariate ANOVA. The mean scores for the 3 groups were also reviewed on a purely descriptive basis and can be found in Table 3.3.

Table 3.3
Mean level and intraindividual variability of Anger (Mean and Standard Deviation Scores) for the Three Subject Groups over an entire 28-Day Period

Overall 28-day period **Mood Category**	**Control Group** **N = 24**		**Cyclothymic Temperament** **N = 15**		**Depressed Temperament** **N = 7**	
	M	**SD**	**M**	**SD**	**M**	**SD**
ANGER	**1.40** **1.60**	**0.91** **0.70**	**3.12** **2.70**	**1.03** **0.52**	**1.80** **2.30**	**1.00** **0.74**

Note: N = Number of participating subjects, M = Mean, SD = Standard Deviation

The results for the 4-week testing period display higher mean scores for both risk groups (especially for Cyclothymic Temperament) over the Control Group. Since group effects are of pivotal importance in this study, tests of between subjects were also taken into consideration. The results display a significant group effect for the entire 28-day period, $F(2,44) = 16.80$, $p < .05$. To establish where the differences amongst the groups exist, a post-hoc Scheffé test was carried out. The results from this test show significant differences between Cyclothymic Temperament and the Control Group, as well as between Cyclothymic and Depressed Temperament.

In the same manner as with group variances, the intraindividual variability for Anger over the extent of the 28-day period was also taken into account (see Table 3.3). A review of the mean scores for all three groups shows higher values for both risk groups over the control group. Intraindividual variability over the 28-day period was significantly achieved, F(2,44)

= 14.80, $p < .05$. A post-hoc Scheffé test was executed and exhibited significance between the Cyclothymic Temperament and Control groups conveying a potentially higher propensity for cyclothymic individuals to manifest aspects of "angry" behaviour reflecting the adjectives found in the diary, ("irritated," "scornful," "annoyed," and "furious").

The third mood category examined was ***DEPRESSION*** (incorporating the EWL adjectives *gloomy, misery, sadness,* and *worrisome*). As with the previous categories, an univariate ANOVA was also conducted and the mean scores for the 28-day period were reviewed (see Table 3.4).

Table 3.4
Mean level and intraindividual variability of Depression (Mean and Standard Deviation Scores) for the Three Subject Groups over an entire 28-day period

Overall 28-day period **Mood Category**	**Control Group** **N = 24** **M**	**SD**	**Cyclothymic Temperament** **N = 15** **M**	**SD**	**Depressed Temperament** **N = 7** **M**	**SD**
DEPRESSION	**1.30** **1.43**	**1.30** **1.00**	**3.40** **2.51**	**1.50** **0.73**	**1.60** **2.20**	**0.90** **1.04**

Note: N = Number of participating subjects; M = Mean, SD = Standard Deviation

The obtained mean scores from the ANOVA are substantially higher for the risk groups, most notably for Cyclothymic Temperament. These marked differences in scores warranted a more compelling examination for potential group effects. A close scrutinization of the data identified a significant group effect, $F(2,44) = 12.9$, $p < .05$ which prompted post-hoc testing. Scheffé results indicate significant differences between Cyclothymic Temperament and the Control Group, as well as between Cyclothymic and Depressed Temperament. The significance achieved in the post-hoc test suggests the subjects of the risk groups have a greater tendency in becoming more depressed than those of the Control Group.

Intraindividual variability over the 28-day period was also observed and first examined mean scores which proved to be slightly higher for the risk groups (see Table 3.4). Intraindividual

variability was achieved, $F(2,44) = 7.40$, $p < .05$, and allowed for post-hoc testing. Scheffé results reveal significant differences between Cyclothymic Temperament and the Control Group implying once again that subjects from this risk group have a higher proneness to depression than those from the Control Group.

ELEVATED MOOD (incorporating the EWL adjectives *amusing, cheerful, joyful,* and *happy*), the fourth mood category of the diary produced the following mean scores after testing (see Table 3.5).

Table 3.5
Mean level and intraindividual variability of Elevated Mood (Mean and Standard Deviation Scores) for the Three Subject Groups over an entire 28-Day Period

Overall 28-day period **Mood Category**	**Control Group** **N = 24** **M**	**SD**	**Cyclothymic Temperament** **N = 15** **M**	**SD**	**Depressed Temperament** **N = 7** **M**	**SD**
ELEVATED MOOD	**6.00** **2.24**	**1.51** **0.60**	**4.05** **2.30**	**1.11** **0.42**	**4.20** **2.11**	**1.82** **0.34**

Note: N = Number of participating subjects; M = Mean, SD = Standard Deviation

Both risk groups recorded noticeably lower mean scores than the Control Group over the 28-day period resulting in a significant group effect, $F(2,44) = 10.40$, $p < .05$. Post-hoc results (Scheffé) indicate significance over both risk groups, in favour of the Control Group, suggesting that subjects from both risk groups possess a lower propensity in being amusing and cheerful, as well as joyful and happy.

Intraindividual variability produced minimally different mean scores between the three groups over the 28-day period (see Table 3.5) and could not obtain a significant score, $F(2,44) = 0.31$, n.s. Therefore, the further review of the post-hoc results (Scheffé) was not necessary to determine additional differences.

As in the same manner with the previous mood categories, an univariate ANOVA was carried out with ***EXCITEMENT*** (incorporating the EWL adjectives *upset, fidgety, nervous,* and *shaken up*) and established the following mean scores for the three groups over an entire 28-day period, (see Table 3.6).

Table 3.6
Mean level and intraindividual variability of Excitement (Mean and Standard Deviation Scores) for the Three Subject Groups over an entire 28-Day Period

Overall 28-day period	**Control Group N = 24**		**Cyclothymic Temperament N = 15**		**Depressed Temperament N = 7**	
Mood Category	**M**	**SD**	**M**	**SD**	**M**	**SD**
EXCITEMENT	**2.12** **2.00**	**1.41** **0.64**	**3.70** **2.53**	**1.53** **0.82**	**2.00** **1.80**	**1.45** **0.70**

Note: N = Number of participating subjects; M = Mean, SD = Standard Deviation

A careful examination of the collected mean scores shows a higher outcome for Cyclothymic Temperament over Depressed Temperament and the Control Group. A further examination of the data clearly indicates a significant group effect, $F(2,44) = 6.34$, $p < .05$ calling for a more involved review of the data by implementing a post-hoc Scheffé test. The outcome of this test exhibits a significant difference between Cyclothymic and Depressed Temperament, as well as between the Control Group thus suggesting a more substantial tendency for cyclothymic individuals to possess more "excitable" aspects of behaviour.

Mean scores posted under intraindividual variability are much higher for Cyclothymic Temperament and also resulted in a significant outcome, $F(2,44) = 4.20$, $p < .05$. In spite of this positive conclusion, an executed post-hoc Scheffé test could only indicate a potentially significant tendency between Cyclothymic and Depressed Temperament as well as between the Control Group.

The diary also focused on the mood category ***EXTROVERSION*** (incorporating the EWL adjectives *talkative, approachable, jovial, and gregarious*) and the results of the univariate

ANOVA show both risk groups capturing just slightly lower mean scores than the Control Group over the 28-day period (see Table 3.7).

Table 3.7
Mean level and intraindividual variability of Extroversion (Mean and Standard Deviation Scores) for the Three Subject Groups over an entire 28-Day Period

Overall 28-day period **Mood Category**	**Control Group N = 24**		**Cyclothymic Temperament N = 15**		**Depressed Temperament N = 7**	
	M	**SD**	**M**	**SD**	**M**	**SD**
EXTROVERSION	**5.60** **2.30**	**1.70** **0.70**	**4.20** **2.22**	**1.40** **0.51**	**4.33** **2.20**	**0.94** **0.50**

Note: N = Number of participating subjects; M = Mean, SD = Standard Deviation

A review of the data exhibits a significant group effect over the 28-day period, $F(2,44) = 4.70$, $p < .05$, thus inciting the implementation of a post-hoc Scheffé test. Significant differences were established, however, in favour of the Control Group over Cyclothymic Temperament. Further significance amongst the groups was not found.

Concerning intraindividual variability, minimal differences in mean scores were posted (see Table 3.7), and a non-significant group effect was obtained, $F(2,44) = 0.045$, n.s. A post-hoc Scheffé test could therefore not record further significant difference amongst the groups.

The last mood category of the diary comprises of ***GENERAL INACTIVITY*** (incorporating the EWL adjectives *slack, limp, lame, and feeble*), in which Cyclothymic Temperament posted a substantially higher mean score in comparison with Depressed Temperament and the Control Group (see Table 3.8).

Table 3.8
Mean level and intraindividual variability of General Inactivity (Mean and Standard Deviation Scores) for the Three Subject Groups over an entire 28-Day Period

Overall 28-day period **Mood Category**	**Control Group N = 24**		**Cyclothymic Temperament N = 15**		**Depressed Temperament N = 7**	
	M	**SD**	**M**	**SD**	**M**	**SD**
GENERAL INACTIVITY	**1.50** **1.91**	**1.00** **0.80**	**3.20** **2.60**	**1.30** **0.80**	**1.83** **1.90**	**1.13** **0.52**

Note: N = Number of participating subjects; M = Mean, SD = Standard Deviation

An univariate ANOVA produced a significant group effect, $F(2,44) = 12.10$, $p < .05$ which then called for the examination of the post-hoc Scheffé results. Cyclothymic Temperament recorded a significant difference between the Control Group. Further indications of significance amongst the groups was not established. Intraindividual variability recorded slightly differentiating mean scores with Cyclothymic Temperament on top. Statistical significance was achieved between the subjects, $F(2,44) = 4.1$, $p < .05$, as well as a post-hoc result exhibiting significance between Cyclothymic Temperament and the Control Group.

3.3. Variations in Mood

The second section of the diary concerns itself with **4** separate statements reflecting aspects of mood. An univariate ANOVA was also carried out with the data from these statements and examined group effect and intraindividual variability amongst the three groups.

The first statement from the section "variations in mood" focuses exclusively on ***MOOD FLUCTUATIONS,*** ranging from elation to sadness. An univariate ANOVA produced higher mean scores for Cyclothymic Temperament over Depressed Temperament and the Control Group, (see Table 3.9). A further review of the data displays a significant group effect over the 28-day period, $F(2,44) = 12.62$, $p < .05$ with additional significance in favour of Cyclothymic Temperament over Depressed Temperament and the Control Group as obtained by a post-hoc Scheffé test.

Table 3.9
Mean level and intraindividual variability of Mood Fluctuations (Mean and Standard Deviation Scores) for the Three Subject Groups over an entire 28-Day Period

Overall 28-day period **Variations in Mood**	**Control Group** **N = 24**		**Cyclothymic Temperament** **N = 15**		**Depressed Temperament** **N = 7**	
	M	**SD**	**M**	**SD**	**M**	**SD**
MOOD FLUCTUATIONS	**0.60** **0.70**	**0.40** **0.31**	**1.20** **0.90**	**0.40** **0.20**	**0.53** **0.63**	**0.47** **0.40**

Note: N = Number of participating subjects, M = Mean, SD = Standard Deviation

Concerning intraindividual variability, stark differences were not found in the mean scores amongst the three groups and a non-significant outcome was obtained, $F(2,44) = 2.92$, n.s. Since significance was not achieved, the examination of post-hoc Scheffé results was not necessary to locate further significance amongst the groups.

Further consideration was given to the second statement, ***FLUCTUATIONS IN DRIVES/IMPULSES.*** A first hand look at the collective mean scores for all three groups over the entire 28-day period shows a higher value for Cyclothymic Temperament (see Table 3.10).

Table 3.10
Mean level and intraindividual variability for Fluctuations in Drives/Impulses (Mean and Standard Deviation Scores) for the Three Subject Groups over an entire 28-Day Period

Overall 28-day period **Variations in Mood**	**Control Group N = 24**		**Cyclothymic Temperament N = 15**		**Depressed Temperament N = 7**	
	M	**SD**	**M**	**SD**	**M**	**SD**
FLUCTUATIONS IN	**0.60**	**0.41**	**1.30**	**0.54**	**0.51**	**0.40**
DRIVES/IMPULSES	**0.72**	**0.30**	**0.90**	**0.14**	**0.70**	**0.40**

Note: N = Number of participating subjects; M = Mean, SD = Standard Deviation

After a review of the data, it was determined that a group effect had been established, $F(2,44) = 12.40$, $p < .05$, thus prompting the necessity to review the post-hoc Scheffé results . The outcome indicates Cyclothymic Temperament as possessing a significant tendency in greater fluctuations in drives/impulses over Depressed Temperament and the Control Group.

A review for potential intraindividual variability shows little difference amongst the mean scores for the three groups, (see Table 3.10). Since a significant intraindividual variability was not obtained, $F(2,44) = 2.50$, n.s., a post-hoc Scheffé test could not determine where further significance amongst the groups might exist.

The participating subjects were asked to respond to the statement ***LONELINESS*** and to what extent they had experienced this mood over the course of the day. Collected mean scores for the three groups over the entire 28-day period are somewhat higher for both risk groups (see Table 3.11).

Table 3.11
Mean level and intraindividual variability of Loneliness (Mean and Standard Deviation Scores) for the Three Subject Groups over an entire 28-Day Period

Overall 28-day period **Variations in Mood**	**Control Group** **N = 24** **M**	**SD**	**Cyclothymic Temperament** **N = 15** **M**	**SD**	**Depressed Temperament** **N = 7** **M**	**SD**
LONELINESS	**0.40** **0.60**	**0.42** **0.33**	**0.90** **0.83**	**0.54** **0.23**	**0.70** **0.80**	**0.50** **0.40**

Note: N = Number of participating subjects; M = Mean, SD = Standard Deviation

A careful examination of the collected data over the entire 28-day period indicates that a group effect was achieved, $F(2,44) = 5.60$, $p < .05$, warranting the review of the post-hoc Scheffé data. These results show Cyclothymic Temperament exhibiting a much greater tendency in becoming more lonely than the Control Group.

A significant intraindividual variability was also obtained in the examination of the data, $F(2,44) = 4.11$, $p < .05$. This allowed for further examining by implementing a post-hoc Scheffé test resulting in significance, favouring Cyclothymic Temperament over the Control Group.

The last statement pertains to ***AGITATED*** behaviour. A review of the mean scores for all three groups over the entire 28-day period shows only slight differences (see Table 3.12).

Table 3.12
Mean level and intraindividual variability of Agitated (Mean and Standard Deviation Scores) for the Three Subject Groups over an entire 28-Day Period

Overall 28-day period **Variations in Mood**	**Control Group** **N = 24** **M**	**SD**	**Cyclothymic Temperament** **N = 15** **M**	**SD**	**Depressed Temperament** **N = 7** **M**	**SD**
AGITATED	**0.60** **0.63**	**0.50** **0.31**	**0.90** **0.84**	**0.43** **0.21**	**0.70** **0.70**	**0.60** **0.41**

Note: N = Number of participating subjects; M = Mean, SD = Standard Deviation

After careful examination of the data a non-significant group effect was established, F(2,44) = 2.0, n.s., therefore eliminating the need to locate additional significance between the groups.

A look at intraindividual variability also shows slight differences in mean scores captured for the three groups over the 28-day testing period. Although a significant intraindividual variability was not obtained F(2,44) = 2.43, n.s., a tendency suggesting potential significance was achieved between Cyclothymic Temperament and the Control Group. The implementation of a post-hoc Scheffé test could not determine if differences amongst the three groups were to be found.

3.4. Work, Sleep, Conflict Situations, Alcohol Intake and Drug Consumption

The third and last section of the diary consists of 3 questions requiring a numeric answer, as well as 9 short questions requiring a yes/no response. Each question will be approached and examined in the same manner as with the two, previous sections.

Each participating subject was asked to indicate the number of hours slept for the previous night during the entire 28-day period. The data shows, based on mean scores, that both risk groups slept longer than the subjects from the Control Group over the 28-day testing period (see Table 3.13).

Table 3.13
Mean level and intraindividual variability of Hours Slept (Mean and Standard Deviation Scores) for the Three Subject Groups over an entire 28-Day Period

Overall 28-day period	**Control Group N = 24**		**Cyclothymic Temperament N = 15**		**Depressed Temperament N = 7**	
	M	**SD**	**M**	**SD**	**M**	**SD**
Hours Slept	**7.32**	**5.31**	**9.33**	**8.00**	**8.13**	**7.58**
	7.20	**9.80**	**11.6**	**9.91**	**11.5**	**9.46**

Note: N = Number of participating subjects; M = Mean, SD = Standard Deviation

The data reveals that both risk groups slept on average more than the Control Group over the 28-day period, however, a significant group effect was not obtained, $F(2,44) = 0.32$, n.s. As a result, a conducted post-hoc Scheffé test could not locate further significance amongst the groups.

Concerning intraindividual variability the obtained mean scores were once again higher for the risk groups, but a non-significant outcome was achieved, $F(2,44) = 0.30$, n.s. Since this was the case the administered post-hoc Scheffé test could not determine significance amongst the three groups.

A second sleep-related question in the diary asked all subjects to indicate when they woke up in the morning. A glance at the captured mean scores shows that the subjects from Depressed Temperament woke up on average later in the day as compared to the other two groups, Cyclothymic Temperament and the Control Group (see Table 3.14). An univariate ANOVA reveals that a significant group effect was obtained, $F(2,44) = 4.40$, $p < .05$. This prompted a closer examination of the Scheffé results which shows the subjects from Depressed Temperament to have woken up significantly later in the day than the subjects from both Cyclothymic Temperament and the Control Group.

Table 3.14

Mean level and intraindividual variability for Wake-Up Time (Mean and Standard Deviation Scores) for the Three Subject Groups over an entire 28-day period

Overall 28-day period	**Control Group N = 24**		**Cyclothymic Temperament N = 15**		**Depressed Temperament N = 7**	
	M	**SD**	**M**	**SD**	**M**	**SD**
Wake-up Time	**7.25**	**0.80**	**7.30**	**1.00**	**10.00**	**2.15**
	7.20	**0.90**	**7.10**	**0.72**	**9.40**	**2.52**

Note: N = Number of participating subjects; M = Mean, SD = Standard Deviation

Intraindividual variability also reveals a significant outcome, $F(2,44) = 3.32$, $p < .05$, thus necessitating a careful review of the Scheffé results. Actual significance was not achieved,

however, Depressed Temperament recorded a tendency for potential significance over Cyclothymic Temperament and the Control Group.

The third question in the diary concerned itself with the number of *hours worked* per day (either as the number of hours spent at the university or in the "Ausbildung"). The mean scores show the subjects from both risk groups were somewhat less occupied with work/studies than the Control Group over the entire 28-day period, (see Table 3.15).

Table 3.15
Mean level and intraindividual variability of Hours Worked (Mean and Standard Deviation Scores) for the Three Subject Groups over an entire 28-Day Period

Overall 28-day period	**Control Group N = 24**		**Cyclothymic Temperament N = 15**		**Depressed Temperament N = 7**	
	M	**SD**	**M**	**SD**	**M**	**SD**
Hours Worked	**6.30**	**2.02**	**3.40**	**1.80**	**3.00**	**1.72**
	5.80	**3.70**	**3.00**	**1.04**	**3.00**	**1.30**

Note: N = Number of participating subjects, M = Mean, SD = Standard Deviation

All participating subjects recorded the number of hours either worked or spent studying during the day. Although both risk groups were less engaged, a significant group effect for the entire 28-day period was not reached, $F(2,44) = 0.83$, n.s. In light of this outcome a post-hoc Scheffé test could therefore not identify where additional differences amongst the groups may exist.

The same non-significant outcome is reported for intraindividual variability, $F(2,44) = 0.83$, n.s. also indicating a lack of significance between the three groups.

The following four, yes/no questions pertain to conflict situations and arguments with colleagues, family members, and partner (girl/boyfriend). The first conflict situation focuses on the *workplace*. A look at the acquired mean scores display lower results for both risk groups over the Control Group, (see Table 3.16).

Table 3.16
Mean level and intraindividual variability for Conflict Situation: Workplace (Mean and Standard Deviation Scores) for the Three Subject Groups over an entire 28-day period

Overall 28-day period **Conflict Situation**	**Control Group N = 24** **M**	**SD**	**Cyclothymic Temperament N = 15** **M**	**SD**	**Depressed Temperament N = 7** **M**	**SD**
Workplace	**0.90** **0.83**	**0.30** **0.14**	**0.70** **0.13**	**0.91** **0.15**	**0.12** **0.11**	**0.11** **0.20**

Note: N = Number of participating subjects, M = Mean, SD = Standard Deviation

In line with the other sections of the diary, the potential for a group effect was taken into consideration. After careful review of the data a non-significant group effect was established, $F(2,44) = 0.60$, n.s. Due to this outcome, a post-hoc Scheffé test could not determine which group had a higher proclivity to engage in conflict situations in the workplace.

In the same manner as with group variance, the intraindividual variability over the span of the 28-day period was also taken into account (see Table 3.16). A first-hand look at the mean scores for all three groups shows lower values for both risk groups. Significant intraindividual variability was not achieved, $F(2,44) = 0.60$, n.s., therefore eliminating the necessity to locate further differences amongst the three groups.

Conflict situations were further examined by focusing on the interactions between the participating subjects and their respective *parents*. As with the previously described conflict situation the obtained mean scores for the three groups differ only slightly, (see Table 3.17).

Table 3.17
Mean level and intraindividual variability for Conflict Situation: Parents (Mean and Standard Deviation Scores) for the Three Subject Groups over an entire 28-day period

Overall 28-day period **Conflict Situation**	**Control Group N = 24** **M**	**SD**	**Cyclothymic Temperament N = 15** **M**	**SD**	**Depressed Temperament N = 7** **M**	**SD**
Parents	**0.34** **0.14**	**0.74** **0.16**	**0.92** **0.19**	**0.11** **0.19**	**0.13** **0.23**	**0.16** **0.22**

Note: N = Number of participating subjects, M = Mean, SD = Standard Deviation

An univariate ANOVA was not able to identify a significant group effect, F(2,44) = 1.91, n.s. A post-hoc Scheffé test was carried out, but differences between the three groups were not captured.

Intraindividual variability was also taken into consideration, but likewise with group variance a significant outcome could not be reached, F(2,44) = 0.80, n.s. As a result potential significant differences between the subject groups could not be found as reported by a Scheffé test.

The third conflict situation in the diary concerns itself with the subject's interactions with *friends*. Based on an univariate ANOVA the mean scores are noticeably higher for the risk groups over the Control Group during the entire 28-day testing period, (see Table 3.18).

Table 3.18

Mean level and intraindividual variability for Conflict Situation: Friends (Mean and Standard Deviation Scores) for the Three Subject Groups over an entire 28-Day Period

Overall 28-day period **Conflict Situation**	**Control Group** **N = 24**		**Cyclothymic Temperament** **N = 15**		**Depressed Temperament** **N = 7**	
	M	**SD**	**M**	**SD**	**M**	**SD**
Friends	**1.90** **0.40**	**3.11** **0.11**	**5.35** **0.20**	**5.83** **0.13**	**3.60** **0.15**	**2.91** **0.11**

Note: N= Number of participating subjects, M = Mean, SD = Standard Deviation

A review of the data indicates a significant group effect amongst the three groups, F(2,44) = 3.44, $p < .05$. A further review of the data by means of a post-hoc Scheffé test shows significance between Cyclothymic Temperament and the Control Group suggesting the participating subjects from this risk group are more prone to argue with their friends.

Significant intraindividual variability was also achieved, F(2,44) = 3.80, $p < .05$ which prompted further consideration of the results by a post-hoc Scheffé test. A significant outcome between Cyclothymic Temperament and the Control Group was also obtained, once

again suggesting the subjects from this risk group and not from the Control Group are more compelled to engage in a conflict situation with their friends.

The last conflict situation in the diary deals with the *partner*. Both risk groups obtained somewhat higher mean scores over the Control Group (see Table 3.19). The obtained data exhibits a non-significant group effect, $F(2,44) = 1.00$, n.s., as a result the conducted post-hoc Scheffé test could not locate an additional statistical significance between the three groups over the 28-day period.

Table 3.19
Mean level and intraindividual variability for Conflict Situation: Partner (Mean and Standard Deviation Scores) for the Three Subject Groups over an entire 28-Day Period

Overall 28-day period **Conflict Situation**	**Control Group N = 24** **M**	**SD**	**Cyclothymic Temperament N = 15** **M**	**SD**	**Depressed Temperament N = 7** **M**	**SD**
Partner	**0.33** **0.15**	**0.14** **0.15**	**0.82** **0.20**	**0.13** **0.20**	**0.70** **0.17**	**0.11** **0.18**

Note: N = Number of participating subjects; M = Mean, SD = Standard Deviation

A review of the mean scores for intraindividual variability shows slight differences amongst the three groups and also resulted in non-significance, $F(2,44) = 0.26$, n.s. A post-hoc Scheffé test could therefore not identify statistical significance between the three groups.

Another objective of the diary was to examine alcohol intake amongst the participating subjects in the study. The captured mean scores reveal minimal differences between the three groups over the 28-day testing period (see Table 3.20).

Table 3.20
Mean level and intraindividual variability for Alcohol Intake (Mean and Standard Deviation Scores) for the Three Subject Groups over an entire 28-Day Period

Overall 28-Day Period	**Control Group N = 24**		**Cyclothymic Temperament N = 15**		**Depressed Temperament N = 7**	
	M	**SD**	**M**	**SD**	**M**	**SD**
Alcohol Intake	**0.30** **0.40**	**0.17** **0.11**	**0.20** **0.32**	**0.18** **0.16**	**0.20** **0.31**	**0.16** **0.22**

Note: N = Number of participating subjects, M = Mean, SD = Standard Deviation

In line with the other statements from the diary, group effect was also taken into consideration. A review of the data shows a non-significant outcome, $F(2,44) = 1.20$, n.s., as well as non-significant differences amongst the three groups.

Intraindividual variability was also assessed, but resulted in a non-significant outcome, $F(2,44) = 1.70$, n.s. Since significance was not obtained, a post-hoc Scheffé test could not locate further significance amongst the three groups.

An additional component of the diary examined the frequency of meeting and socializing with friends and acquaintances. The mean scores for the three groups are displayed in Table 3.21.

Table 3.21
Mean level and intraindividual variability for Socializing with Friends (Mean and Standard Deviation Scores) for the Three Subject Groups over an entire 28-Day Period

Overall 28-day period	**Control Group N = 24**		**Cyclothymic Temperament N = 15**		**Depressed Temperament N = 7**	
	M	**SD**	**M**	**SD**	**M**	**SD**
Socializing with Friends	**0.60** **0.44**	**0.21** **0.33**	**0.54** **0.50**	**0.20** **0.42**	**0.63** **0.41**	**0.30** **0.11**

N = Number of participating subjects; M = Mean, SD = Standard Deviation

The obtained data reveals a non-significant group effect amongst the participating groups, $F(2,44) = 0.40$, n.s. As a result post-hoc scores could not determine if significant differences amongst the groups existed.

A significant outcome for intraindividual variability was also not obtained, F(2,44) = 1.0, n.s. Therefore, it could not be determined if the subjects from Cyclothymic Temperament socialized more or less with their friends than the subjects from the other two groups.

Another item of relevance from the diary deals with *drug consumption*. Mean scores for the overall 28-day period exhibit minimal differences amongst the three groups (see Table 3.22). A group effect was also examined, but a significant outcome was not achieved, F(2,44) = 0.50, n.s. As a result an administered post-hoc Scheffé test could not locate if differences in drug consumption existed between the participating groups.

Table 3.22
Mean level and intraindividual variability for Drug Consumption (Mean and Standard Deviation Scores) for the Three Subject Groups over an entire 28-Day Period

Overall 28-day period	**Control Group N = 24**		**Cyclothymic Temperament N = 15**		**Depressed Temperament N = 7**	
	M	**SD**	**M**	**SD**	**M**	**SD**
Drug Consumption	**1.00** **0.60**	**0.14** **0.12**	**0.70** **0.82**	**0.94** **0.82**	**0.60** **0.11**	**0.70** **0.11**

Note: N = Number of participating subjects; M = Mean, SD = Standard Deviation

In the same manner as with the previous items the data was examined to determine significance amongst intraindividual variability. A significant outcome was not obtained, F(2,44) = 1.60, n.s., thus eliminating the possibility to locate further differences in drug consumption between the subjects of the three participating groups.

The second to last item in the diary attempted to examine if the participating subjects differed in personal occupation with *projects.* Once again the captured mean scores show slight differences amongst the three groups, however, Cyclothymic Temperament obtained the highest value (see Table 3.23).

Table 3.23

Mean level and intraindividual variability for Projects (Mean and Standard Deviation Scores) for the Three Subject Groups over an entire 28-Day Period

Overall 28-day period	**Control Group N = 24**		**Cyclothymic Temperament N = 15**		**Depressed Temperament N = 7**	
	M	**SD**	**M**	**SD**	**M**	**SD**
Projects	**0.20** **0.30**	**0.23** **0.20**	**0.32** **0.34**	**0.30** **0.20**	**0.10** **0.30**	**0.10** **0.20**

Note: N = Number of participating subjects; M = Mean, SD = Standard Deviation

A significant group effect was not established, F(2,44) = 2.60, n.s., however, a positive indication for the potential likelihood of significance for Cyclothymic Temperament over Depressed Temperament and the Control Group was concluded. This prompted a keen review of the Scheffé results, but this outcome could not establish further significance amongst the three groups.

The data was reviewed once again to determine significant intraindividual variability. This was, unfortunately, not the case as non-significance was discovered, F(2,44) = 1.12, n.s. as well as additional non-significance between the subjects in the three groups.

The last statement of the diary asks the participating subjects if they were stimulated by either an *economic* or *political topic* during the course of the day. The generated mean scores (see Table 3.24) for the three groups only show slight differences. Since a significant group effect was not captured, F (2,44) = 0.50, n.s., it could not be determined where one group might differ from another in terms of an interest in this subject matter.

Intraindividual variability mean scores were also taken into consideration (see Table 3.24). A non-significant outcome was obtained, F(2,44) = 1.43, n.s. and a conducted post-hoc test was not able to identify statistical differences amongst the participating subjects.

Table 3.24

Mean level and intraindividual variability for Economic/Political Topic(Mean and Standard Deviation Scores) for the Three Subject Groups over an entire 28-Day Period

Overall 28-day period	**Control Group N = 24**		**Cyclothymic Temperament N = 15**		**Depressed Temperament N = 7**	
	M	**SD**	**M**	**SD**	**M**	**SD**
Economic/Political Topic	**0.10** **0.15**	**0.20** **0.20**	**0.14** **0.17**	**0.14** **0.17**	**0.14** **0.30**	**0.14** **0.17**

Note: N = Number of participating subjects; M = Mean, SD = Standard Deviation

4. Discussion

4.1. The Seven Mood Categories

Cyclothymic temperament is regarded as a bipolar dysregulation exposing an individual to experience abrupt changes in behaviour, but not completely fulfilling the criteria for a manic depressive illness (Akiskal, 1996). Cyclothymic temperament, as discussed elsewhere in this dissertation, has strong biological and genetic origins, and can also be further influenced by moods experienced through the course of the day. The objective of the diary was to identify differences in mood between Cyclothymic and Depressed Tempermanet as well as between the Control Group. Activation, as mentioned elsewhere in the dissertation, implies a type of mobility often reflecting increased goal-directed behaviour, (Biederman, 2003). This also exhibits a form of movement expressing the wish "to get something done." Differences in activation levels amongst the three groups were not found, therefore implying Cyclothymic Temperament as neither more or less "active" than the subjects from Depressed Temperament and the Control Group.

The relationship between individuals characterized by a cyclothymic temperament and an angered mood state demonstrates the existence of irritable and angry explosive outbursts which might alienate friends and family members (Akiskal et al., 1979). Additionally, the individual with cyclothymic temperament can exhibit low tolerance or understanding of different points of view or lifestyles, and may disregard rules and responsibilities leading to regrettable consequences with the police and/or authorities (Kelly, 1998). The outcome of this study shows Cyclothymic Temperament as manifesting significant aspects of angry behaviour over Depressed Temperament and the Control Group. Further, these results support the views of Miklowitz & Goldstein (1997) suggesting that modes of behaviour

reflecting anger are more indicative of those persons possessing the characteristics of a manic and/or cyclothymic disorder. The frequency and intensity of exhibiting an angry mood as well as the tendency to become unnecessarily upset and/or agitated is more often displayed in a social situation by an individual more predisposed to mania and/or cyclothymia (Reilly-Harrington et al. 1999). The aspects of angry behaviour which differentiate Cyclothymic Temperament over the other groups in the study cannot be elaborated on as this was not the objective of the current doctoral dissertation. However, it can be said Cyclothymic Temperament is significantly more prone to anger than the other groups (Depressed & Control) based upon the results of the diary.

Individuals exhibiting a cyclothymic temperament and/or afflicted by a bipolar mood disorder are known to be mercurial in nature, i.e., one aspect of behaviour is depicted by brash and furious outbursts whereas the other half is exhibited in a more docile and somber manner, (Akiskal & Akiskal, 1992). The latter half of this explanation is fully supported by the results of the current study. It was found that Cyclothymic Temperament is more prone to depression and also displayed a significant likelihood in being more depressed than Depressed Temperament and the Control Group during the 28-day testing period. The frequency of depression experienced by the participating subjects was not measured in this study nor were the components which identify depression as a form of mood. However, the captured results indicate Cyclothymic Temperament subjects as feeling more gloomy, sad, and miserable as well as being more worried than the subjects from Depressed Temperament and the Control Group.

Individuals displaying an elevated, positive mood (a mood category from the diary) possess a positive and healthy disposition allowing them to maintain consistent mood patterns and

stable levels of self-esteem and self-confidence (Akiskal et al., 1979; Brieger & Marneros, 1979). Despite a high-spirited buoyancy in mood resembling a form of "elevation," this does not necessarily reflect a positive condition (Newman et al. 2001). With regard to the diary, elevated, positive mood is supported by the adjectives *amusing, cheerful, joyful* and *happy*, all of which could possibly describe a "normal" individual or one with cyclothymic temperament. However, since the cyclothymic person functions according to an all-or-none principle, his elation and sadness are related to anticipatory states (Kelly, 1998). Further, when positive anticipation prevails, the laws of probability are discarded and he acts as if failure or disappointment were not among the possible outcomes of an enterprise or hope. The results of the current study support these findings as an elevated, positive mood was not prevalent for Cyclothymic Temperament during the 28-day testing period. Constructs which help to better define and support an elevated, positive mood were not investigated in this study, but rather if general differences existed amongst the three groups.

The adjectives which comprise the mood category *Excitement* (e.g., upset, fidgety, nervous and shaken up) are more negative in nature and more prone to describe individuals afflicted by cyclothymic temperament or a bipolar mood disorder (Akiskal & Akiskal, 1992; Janke & Debus, 1986). A person labelled as being excited and/or over-aroused is one who allows himself to be "side-tracked" from the focal point of concentration, thus potentially reacting illogically und superficially. The results of the diary exhibit differences amongst the three groups regarding levels of excitement. The data also shows significant differences between Cyclothymic Temperament and Depressed Temperament, as well as between the Control Group. A potential tendency for significance was also achieved for Cyclothymic Temperament over Depressed Temperament and the Control Group. The results of these findings are not surprising as the cyclothymic individual tends to exhibit more characteristics

and behavioural patterns associated with a mercurial nature and exaggerated displays of exhilaration (Jamison, 1993). Likewise, impulsive behaviour is a component of a bipolar mood disorder (Alan et al., 2003) often accentuated when an individual reacts in an excitable and incalculable manner. Further, excitable behaviour hinders the development of future orientation and prolongs impetuous action (Henry et al., 2001; McElroy et al., 1996).

The adjectives representing extroverted behaviour, as taken from the implemented diary (e.g., trusting, talkative, approachable, and gregarious), represent a sense of positive overtness and the ability to foster social initiative. The results from the diary indicate significant differences amongst the three groups and also show both risk groups as being relatively less extroverted than the control group. These differences are based upon the adjectives used to define the meaning of extroversion. The results of these findings are more indicative of a healthy individual, i.e., one who is more gregarious, activity oriented, and projects a stable form of self-confidence and assurance. Although the cyclothymic individual displays characteristics of "energized" behaviour, increased psychomotor activity, and overconfidence, these are considered negative and cannot be equated with the "positive" behaviour of an extroverted individual (Carlson & Goodwin, 1973). The flip-side of overt and gregarious behaviour is represented by a sense of general inactivity supported by the following adjectives from the diary: lack of energy, limp, lame, and feeble. The results from the study show Cyclothymic Temperament as being significantly less active than those subjects from the Control Group. The significant group effect unearthed in this mood category compliments the findings from Goodwin & Jamison (1990). Both declare that cyclothymic subjects experiencing a "phase" of depression or discontent will refrain from full participation in activities, and exhibit more observable manifestations of lethargy than control subjects. Additionally, the cyclothymic individual is unable to maintain a sense of

enthusiasm, resulting in a greater level of activity due to abrupt mood changes (Benazzi, 2003).

4.2. Variations in Mood

Research findings pertaining to fluctuations in mood (Akiskal et al., 1979; Akiskal, 1983; Ramirez-Basco & Rush, 1996), imply the cyclothymic individual can experience different moods in a rather irregular manner lasting for short periods of time. Further, such individuals are often unaware of the events leading to a change in mood, nor can the affected person describe the "essence or content" of such moods. With regards to fluctuations in drives and impulses, Hirschfeld et al. (1983) and Goodwin & Jamison (1990) have found that cyclothymic individuals have the proclivity to be highly impulsive and flippant in decision making whether it pertains to a work-related project, spending money or a sexual relationship. This feature is one distinction which sets such persons apart from those who are able to exercise more "rational" thinking and implement behavioural strategies in a given situation. The results of this study indicate Cyclothymic Temperament has more significant mood fluctuations over Depressed Temperament and the Control Group. With regards to fluctuations in drives and impulses a tendency for potential significance favouring Cyclothymic Temperament over Depressed Temperament and the Control Group was recorded. These findings are further supported by a study from Perugi et al. (2003) stating that patients with a cyclothymic temperament exhibit a more "maximum mood reactivity" as well as more dramatic impulsive behaviour.

The concept of loneliness was also examined amongst the three groups over the 28-day testing period. It was found that Cyclothymic Temperament was more lonely than the Control Group over this 4-week period. Although the obtained results indicate Cyclothymic Temperament as being significantly more lonely than the controls, it is not clear if this is a

predominant and distinguishing feature within the realms of clinical expressions for cyclothymic temperament. Differences between Cyclothymic and Depressed Temperament were not found. According to the research efforts of Akiskal (1996), cyclothymic individuals experience "subjective manifestations" resulting in lethargy, dulling of the senses, and pessimistic brooding. Additionally, while experiencing a depressed episode the cyclothymic individual is often fatigued and social contacts amongst acquaintances becomes limited (McElroy et al., 1992). The term "lonely" is absent from the classification and diagnostic outline of cyclothymic temperament. However, the already mentioned features pertaining to the more docile side of this disorder could remotely suggest that loneliness is also experienced as a "secondary" form of behaviour due to a depressed mood or episode.

Individuals with a cyclothymic temperament display a more animated and mercurial manner than "normal" individuals (Kupfer et al., 1988; Cassano et al., 1992; Jamison, 1993). In addition such persons become easily irritated, exhibit angry-explosive outbursts and have a tendency to "pull-close or push away" with emotions, (McCrae, 1994). It was therefore expected that Cyclothymic Temperament would achieve a significant difference in agitated behaviour over the other groups. On the contrary, differences in agitated behaviour were not found amongst Cyclothymic and Depressed Temperament, and the Control Group.

4.3. Work, sleep, conflict situations, alcohol intake and drug consumption

Sleep difficulties are quite evident in persons with a cyclothymic temperament resulting in little sleep for those during hypomania as well as the desire to remain longer in bed during depression. The decreased need for sleep alternates with hypersomnia (Akiskal, Khani & Scott-Strauss, 1979). Social isolation, psychomotor retardation and other behavioural changes accompany a phase of depression for the cyclothymic individual, however, changes

in sleep patterns are the most pervasive (Goodwin & Jamison, 1990). Marked dysregulations in sleep (e.g., crossing time zones or staying up too late) can maintain or exacerbate a hypomanic episode (Ramirez-Basco & Rush, 1996), as well as worrying, racing thoughts or physical illness (Wehr & Wirz-Justice, 1982). The results from the study display no significant differences in terms of the amount of hours slept by the subjects of the three groups (i.e., the number of hours slept by a cyclothmic subject did not differ significantly from the depressed and controls). However, differences in wake-up time were established. It was found that the subjects from Depressed Temperament woke-up later in the day than the subjects from Cyclothymic Temperament and the Control Group. Specific wake-up times were not taken into consideration. The findings of the current study support other forms of research by indicating depressed individuals as having a propensity to stay longer in bed as well as wanting to sleep more than "normal" persons.

An individual with cyclothymic temperament and a bipolar mood disorder is known to change jobs quite frequently in addition to pursuing new career interests (Akiskal et al., 1979). A marked unevenness in the quality and quantity of work is also exhibited as well as carrying out unusual working hours (Jamison, 1995). The amount of work achieved is often impressive and during an episode of hypomania levels of creativity can reach new heights (e.g. the composition of poetry, the writing of books and the completion of projects) Jamison (1993). Additionally cyclothymic individuals are often enticed by current events pertaining to economics and politics. However, interests in these domains are also dwarfed by a shaky sense of self-esteem alternating from an inflated overconfidence to minimal levels of self-confidence. Another aspect of the implemented diary focused on the number of hours worked per day, the willingness to carry out new projects and an overall interest in current political and economic events. Work hours for the purposes of the current dissertation relate

to the number of hours completed during the training programme or the number of hours used for studying and preparing for tests. The results of the study reveal no significant differences in total number of hours worked between Depressed Temperament and the Control Group. Cyclothymic Temperament displayed no significant differences over the other two groups in the creation of new projects (both personally and professionally). Additionally, statistical significance was not recorded for Cyclothymic Temperament preferring a more engaged interest in current economic or political events.

As already mentioned in the previous sections of the Discussion (e.g., mood category "anger" and "agitated behaviour"), cyclothymic temperament is also defined by a mercurial manner, angry-explosive outbursts of behaviour, very impulsive and often "difficult to read." Based on this information interactions with such individuals on a daily basis could be rather uncomfortable and very challenging. The diary also concerned itself with four aspects of conflict (i.e., in the workplace with colleagues, with parents, friends and sexual partner (boyfriend/girlfriend)). Surprisingly, the results of this study show cyclothymic individuals experience more significant conflict with their friends compared with Depressed Temperament and the Control Group. Significant differences between the three groups were not found concerning conflict situations with colleagues, parents and the sexual partner. Which elements (either internal or external) responsible for the conflict with friends is not known as the objectives of this study focused on group effects between the three groups, i.e., does one group have a higher proclivity to engage in conflict over another group?

The issue of alcohol and illegal drugs is common to cyclothymia. Individuals with a cyclothymic temperament and/or full bipolar mood disorder may engage in excessive alcohol drinking as well as consuming drugs to control negative and unpleasant moods (Kelly, 1998;

Perugi et al., 1999; Perugi et al., 2003). Substance abuse occurs in 30-60% of individuals diagnosed with a bipolar mood disorder and the continued abuse of alcohol and drugs by these persons may contribute significantly to treatment resistance and poor outcome, Brady (14-17 November, 1996; Lecture at the 9th annual U.S. Psychiatric & Mental Health Congress). Continuous consumption of alcohol disrupts sleep (deep stages), exacerbates already existing levels of depression and "allows" an individual to better socialize with unknown persons at parties or social gatherings (inhibition breaker), (Ramirez-Basco & Rush, 1996). Substance abuse also leads to increased levels of impulsiveness and poor decision making. Contrary to existing research findings, the results of this study indicate non-significant differences in alcohol and drug consumption amongst Cyclothymic and Depressed Temperament as well as for the Control Group. As a matter of fact, the amount of alcohol consumed on a daily level was lower for the subjects in both risk groups. Intake of illegal drugs resulted in only occasional cannabis use amongst the subjects in the study.

4.4. Closing Comments

The objective of the self-designed diary used in the current study was to identify differences in mood and mood states between the participating subjects, i.e., Cyclothymic and Depressed Temperament, as well as the Control Group. The diary consists of three, separate sections (see Appendix B), one of which containing 28 adjectives pertaining to 7 corresponding sub-scales taken from the original EWL. Although the EWL has been used as a testing measurement on different occasions and possesses a substantial level of reliability and validity (Janke & Debus, 1978), the usage of this "condensed" format (7 as compared to the original 16 sub-scales) was "pioneer" in nature and warrants further elaboration.

The diary, as it appears in its current contextual structure and format has not been used in other arenas of psychological testing (with the exception of the adjectives and sub-scales selected from the EWL). Janke & Debus (1978) found that the sub-scales are a reliable indicator for existing moods and reflect the characteristics of a subsyndromal affective condition (Akiskal, 1996; Lovejoy & Steuerwald, 1992; Ambelas, 1979). Further, the adjectives from the EWL can be readily ascribed to individuals afflicted with cyclothymic temperament and a bipolar mood disorder (Goodwin & Jamison, 1990). The other components of the diary (e.g., mood fluctuations, loneliness, hours slept, conflict situations, and alcohol consumption) also pertain to the sphere of cyclothymic temperament and confirmed many of the existing observations relating to the differences between cyclothmic, depressed and control (Akiskal et al., 1979; Akiskal, 1983; Ramirez-Basco & Rush, 1996; McElroy et al., 1992; Akiskal, Khani & Scott-Strauss, 1979; Kelly, 1998; Perugi et al., 1999; Perugi et al., 2003). An important aspect which deserves noteworthy attention is the

relationship between the selected inventory for testing purposes and the participating groups. The subjects from Cyclothymic and Depressed Temperament (the vast majority under the age of 23 and either students or "Lehrlinge") were not previously diagnosed with a clinical disorder prior to the time of initial testing for the current study, nor were they undergoing inpatient therapy (or outpatient therapy) in a mental health facility. Because of these reasons it seemed appropriate and to some extent "advantageous" to use the self-designed diary from Pheasant & Meyer (1997) on a non-clinical population described as being "addressed at risk" for cyclothymic temperament.

Interestingly enough the results from the diary captured many of the known mood states pertaining to individuals addressed at risk for cyclothymic temperament (see Discussion and Summary). The simplicity and genuineness of the diary allowed each participating subject to complete both pages on a daily basis without requiring a major time commitment (no more than 10 minutes to respond to the questions). A drawback, however, to the implementation of a standardized instrument over an extended period of time (in this case 28 days), is the repetition of the same statements and questions potentially leading to a lackadaisical approach in answering the questions thoroughly on a daily basis. An attractive financial remuneration also fuels the completion of such tasks in a hastened manner rather than carefully planned self-introspection. How this particular instrument compares to other similar measurements cannot be determined as other testing instruments of this nature are not known to the author of the current dissertation. The effectiveness, reliability and validity of the diary could be further substantiated by carrying out a long-term study once again employing the subjects from the initial study as well as incorporating

inpatients from a mental health facility already diagnosed with a form of a bipolar mood disorder or a major depression.

5. Overview of Dissertation

The current study concerned itself with the sphere of the bipolar mood disorders, heavily focusing on the moods most readily associated with a cyclothymic temperament. A self-designed diary from Pheasant & Meyer (1997) containing adjectives from the EWL as well as statements and questions more diagnostically relating to a cyclothymic temperament were used for the purposes of the study. The objective of the current dissertation was to measure if mood states significantly differed between cyclothymic and depressed temperament as well as between control subjects. The participating subjects involved in the study were not undergoing a form of either inpatient or outpatient therapy (i.e., a non-clinical population) nor were they selected from a subject pool with an already existing diagnosis.

The diary proved to be instrumental in its effectiveness. The results after the 28 days of testing showed significant differences for Cyclothymic Temperament over the other two groups (Depressed Temperament and Control Group) in the following mood and behavioural categories: anger, depression, excitement, general inactivity, mood fluctuations, loneliness as well as in conflict situations with friends. A tendency for potential significance for Cyclothymic Temperament over the other two groups was recorded in fluctuations in drives/impulses and agitation. The participating subjects from Depressed Temperament woke up later in the day than those from Cyclothymic Temperament and the Control Group. The results from the diary could not establish further significance in the mood categories and behavioural modes between Cyclothymic Temperament and the other groups. The objective of

the diary was not to determine to what extent and why differences in mood states existed, but rather if basic differences could be established.

The diary was used for the first time as a measuring instrument in the current study. Given the fact that the participating subjects stem from a non-clinical population without a previous "psyche history" the diary substantially confirmed current research findings in detecting many of the existing mood states and modes of behaviour (e.g., anger, mood fluctuations, loneliness, general inactivity, etc) ascribed to cyclothymic temperament. The effectiveness of the implemented diary could be further supported in terms of a long-term study involving the subjects from the initial study as well as inviting persons already diagnosed with a form of a bipolar mood disorder . The results from a long-term study employing the diary could help to establish its reliability as a tool of measurement. Distributing the diary to a group of patients already diagnosed with a form of a bipolar mood disorder could identify the diary's credibility as a valid instrument in pinpointing mood differences between clinically diverse groups.

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Appendix

Table of Contents

Appendix A

General Behavior Inventory (GBI)

JOHANNES GUTENBERG-UNIVERSITÄT MAINZ
Psychologisches Institut
Abteilung Klinische Psychologie
Prof. Dr. Martin Hautzinger

Allgemeiner Fragebogen

ANLEITUNG

Im folgenden sind einige Fragen bezüglich Gefühle und Verhaltensweisen formuliert, wie sie bei Menschen auftreten. Wir bitten Sie, die Fragen dahingehend zu beantworten, wie Sie sich seit *dem möglichen ersten Eintreten dieser Erlebens und Verhaltensweisen im allgemeinen gefühlt haben.*

Auf jeder Seite befindet sich:

1	2	3	4
nie, kaum jemals	*manchmal*	*häufig*	*sehr häufig*

Wählen Sie bitte jene Zahl, die am besten beschreibt, wie oft Sie die bezeichneten Gefühle erleben. Manche Verhaltensweisen kennen Sie vielleicht noch aus Ihrer Jugendzeit, andere sind Ihnen erst jetzt aufgefallen. In jedem Fall sollten Sie den Zeitraum nach dem ersten Auftreten beurteilen, z.B., wenn Sie ein Gefühl seit Ihrem 14. Lebensjahr wiederholt empfunden haben, wäre die "3" oder "4" anzukreuzen. Dieselbe Einschätzung wäre aber auch gegeben, wenn das Gefühl erst seit kurzem und dabei häufig vorkommt. Sind Ihnen Gefühle oder Verhaltensweisen jedoch nur aus einer einmaligen besonders belastenden Lebensperiode bekannt, wäre die "1" oder "2" angebracht. Es ist zu beachten, daß einige Fragen eine Zeitangabe (mehrere Tage) bezüglich der unteren Auftretenshäufigkeit enthalten. Diese Angabe zur Dauer ist nur ein Richtwert, der mehr oder weniger stark von dem von Ihnen persönlich erlebten Zeitraum abweicht. Liegt der eigene Erfahrungszeitraum unter dem angegebenen, so wäre "1" oder "2" zu wählen. Ihre Aufgabe besteht also darin, die Auftretenshäufigkeit eines Verhaltens oder Gefühls für den in der Frage formulierten Zeitabschnitt anzugeben. Dabei geht es uns nicht darum, ob Sie diese Gefühle loswerden können, wenn Sie auftreten, sondern nur darum, ob sie überhaupt vorgekommen sind. Auch wenn es Ihnen gelingt, die besagten Gefühle oder Gedanken abzuschütteln, sollten Sie die Auftretenshäufigkeiten einschätzen. Lesen Sie bitte jede Frage aufmerksam durch und beantworten Sie diese gemäß der genannten Skala:

1	2	3	4
nie, kaum jemals	*manchmal*	*häufig*	*sehr häufig*

Vielen Dank für Ihre Bemühungen und Mitarbeit!

A-3

1	2	3	4
nie, kaum jemals	*manchmal*	*häufig*	*sehr häufig*

1. Werden Sie oft für einen Zeitraum von mehreren Tagen oder länger traurig, depressiv oder reizbar, ohne, daß es eine für Sie erkennbare Ursache dafür gibt?
1 2 3 4

2. Gab es Phasen in Ihrem Leben, in denen Ihnen selbst unwichtige Entscheidungen sehr schwer fielen, auch wenn das sonst eigentlich gar nicht auf Sie zutrifft?
1 2 3 4

3. Gibt es extreme Schwankungen in Ihrem Bedürfnis nach sozialen Aktivitäten, d.h., von ausgeprägter Gesellschaft bis zu weitgehenden sozialen Rückzug?
1 2 3 4

4. Haben Sie eine Neigung, in Unfälle verwickelt zu sein?
1 2 3 4

5. Kennen Sie Perioden von einigen Tagen oder länger, in denen Sie ein gesteigertes Schlafbedürfnis hatten, bzw. sind Sie tagsüber oft eingenickt trotz an sich ausreichender nächtlicher Schlafenzeit?
1 2 3 4

6. Haben Ihnen andere Leute gesagt, Sie würden traurig oder einsam aussehen?
1 2 3 4

7. Sind Sie oft so aufgedreht, daß Ihre Freunde Sie im Spass fragen, was für Drogen Sie nehmen?
1 2 3 4

8. Hatten Sie Zeiten von mehreren Tagen oder länger, in denen Sie sich nur wenige Augenblicke lang auf eine Sache konzentrieren konnten und Ihre Gedanken von einem Punkt zum anderen sprangen?
1 2 3 4

9. Gab es Zeiträume von einigen Tagen, in denen Sie jegliches Interesse an anderen Menschen, die Ihnen nahestehen, verloren haben und Sie sich sehr lange mit sich allein beschäftigt haben ?
1 2 3 4

1	2	3	4
nie, kaum jemals	*manchmal*	*häufig*	*sehr häufig*

10. Sind solche Zeiträume vorgekommen, in denen Sie trotz grosser Müdigkeit länger als eine Stunde brauchten, um einzuschlafen?

1 2 3 4

11. Sind Sie oft in einer Stimmung, in der Sie sich so kraftvoll und optimistisch fühlen, daß Sie glauben, Sie könnten fast jeden bei allen Dingen übertreffen?

1 2 3 4

12. Gab es Zeiten, in denen Sie fast jedes Interesse an Dingen verloren, die Sie gewöhnlich gern tun?

1 2 3 4

13. Gab es Lebensphasen, die zwei oder mehr Tage andauerten, in denen Ihnen Ihre Familie oder Freunde sagten, Sie wirken viel glücklicher und aufgedrehter als normalerweise deutlich unterscheidbar von Ihrer sonstigen Art und von einer typischen guten Stimmung?

1 2 3 4

14. Kennen Sie Zeiten erheblicher Gedächtnis-und Konzentrationsschwäche, so das es Ihnen, auch wenn Sie sich angestrengt haben, z.B., schwerfiel zu lesen oder Fernsehen zu gucken?

1 2 3 4

15. Gab es Zeiten, in denen Sie für mindestens zwei Tage kein Schlafbedürfnis verspürten und länger wach bleiben konnten als gewöhnlich, da Sie sich wie ein Bündel Energie fühlten?

1 2 3 4

16. Scheinen Sie jemand zu sein, dessen Stimmungen sehr leicht hoch und runter gehen?

1 2 3 4

17. Hatten Sie längere Lebensperioden, in denen es Ihnen schwerer als anderen Menschen fiel, das Leben zu geniessen?

1 2 3 4

18. Sind Phasen von mehreren Tagen oder mehr vorgekommen, in denen Sie nicht organisch krank waren und dennoch so müde und schlapp waren, daß es sehr schwierig bzw. fast unmöglich war, Ihren alltäglichen Pflichten nachzukommen?

1 2 3 4

1	2	3	4
nie, kaum jemals	*manchmal*	*häufig*	*sehr häufig*

19. Hatten Sie deutliche Stimmungs- oder Antriebsschwankungen zwischen glücklich und traurig oder hoch und niedrig gestimmt?
1 2 3 4

20. Sind Perioden von mehreren Tagen oder länger aufgetreten, in denen Sie so traurig waren, daß Sie es als schmerzlich empfanden oder das Gefühl hatten, es nicht aushalten zu können?
1 2 3 4

21. Haben Sie schon einmal erlebt, daß Sie sich physisch von anderen oder von sich selbst abgeschnitten fühlten oder sich wie in einem Traum vorkamen oder den Eindruck hatten, die Welt sähe irgendwie verändert aus bzw. hätte sich de facto verändert
1 2 3 4

22. Ändert sich Ihre Freude am Essen von Phasen (2 oder mehr Tage) extremen Geniessens, deutlich besser als gewöhnlich, zu Phasen nur geringen Interesse an der Nahrung bzw. sogar Appetitverlust?
1 2 3 4

23. Waren Sie jemals so niedergeschlagen, daß selbst Sprechen zu viel Energie erforderte?
1 2 3 4

24. Gab es Phasen, in denen Sie nicht körperlich krank waren, die durch mehr als eines der folgenden Symptome für Sie belastend waren: a) Kopfschmerzen oder Druckgefühle oder "Verwirrung" im Kopf; b) Schwindelgefühle; c) Verstopfung oder Durchfall; d) Schmerzen und Leiden; e) Übelkeit, Erbrechen oder Bauchweh; f) verschwommene Sicht; g) Zittern oder Handtremor; h)Hitze-oder Kältegefühle
1 2 3 4

25. Gab es Perioden (2 oder mehr Tage), in denen Sie sich viel Aufregung wünschten und Sie auch tatsächlich eine Menge neuer und unterschiedlicher Dinge unternahmen?
1 2 3 4

26. Haben Sie schon einmal alles nervös oder erregbar und ärgerlich (ausgenommen Menstruationsbeschwerden) gemacht?
1 2 3 4

27. Gab es Zeiten, wo Sie auf Ihr Leben zurückblickten und den Eindruck hatten, Sie sehen nur Fehler und Schwierigkeiten?
1 2 3 4

1	2	3	4
nie, kaum jemals	*manchmal*	*häufig*	*sehr häufig*

28. Gab es Perioden von mindestens einem Tag Dauer, wo Ihnen das Laufen, Sprechen oder Handbewegungen verlangsamt erschienen und schwer fielen, daß Sie nur schwer zu Ihren alltäglichen Tätigkeiten zurecht kamen?
1 2 3 4

29. Hatten Sie schon einmal Probleme, nachts durchzuschlafen oder frühmorgens wach zu werden und nicht wieder einschlafen zu können?
1 2 3 4

30. Kommt es Ihnen so vor, daß angenehme und schmerzliche Gefühle von Ihnen intensiver empfunden als von anderen Menschen?
1 2 3 4

31. Gab es Phasen von mehreren Tagen, in denen Sie sich sehr viel ängstlicher oder angespannter fühlten als gewöhnlich (ausgenommen Menstruationsbeschwerden)?
1 2 3 4

32. Gibt es Zeiten, in denen Sie intensiver und lebendiger sehen, hören, schmecken oder tasten?
1 2 3 4

33. Haben Sie bei sich festgestellt, daß Ihre Stimmung oder Energie eher "himmelhoch" jauchzend zu Tode betrübt" als im mittleren ausgeglichenen Bereich angesiedelt ist?
1 2 3 4

34. Verspüren Sie hin und wieder den starken Drang, etwas Verletzendes oder Schockierendes zu tun?
1 2 3 4

35. Gab es Zeiten von mehreren Tagen, wo Sie sich wertlos fühlten?
1 2 3 4

36. Gab es Zeiten, in denen Sie andere angeschrien haben und hinterher ein schlechtes Gewissen wegen Ihrer "Explosion" hatten?
1 2 3 4

37. Sind Zeiten von einigen Tagen oder länger in Ihrem Leben eingetreten, in denen Sie davon überzeugt waren, eine sehr wichtige Person zu sein oder, dass Sie über Fähigkeiten und Talente verfügten, die weit über denen anderer liegen?
1 2 3 4

1	2	3	4
nie, kaum jemals	*manchmal*	*häufig*	*sehr häufig*

38. Haben Sie sich zeitweilig schon einmal selbst gehaßt oder hatten das Gefühl, Sie seien dumm, hässlich, unbeliebt oder nutzlos?
1 2 3 4

39. Kommen Sie oft in solche Erregungszustände, daß es fast unmöglich für Sie ist, nicht weiter zu reden?
1 2 3 4

40. Finden Sie, Ihr Denken ändert sich rasch, so daß Sie manchmal tagelang glauben, bessere Denkfähigkeiten als andere zu besitzen, und dann wieder finden, daß Ihr Kopf überhaupt nicht gut arbeitet?
1 2 3 4

41. Haben Sie schon mal für einen Zeitraum von einem oder mehreren Tagen gar keine Gefühle oder Empfindungen verspürt oder fühlten sich von Ihrer Umwelt abgeschnitten?
1 2 3 4

42. Gab es Zeiten, in denen Sie Dinge getan haben, die Sie später bereut haben, wie sinnlos Geld ausgeben, rücksichtlos fahren, sexuell aktiver sein, in Prügelein verwickelt sein, fremden Besitz zerstören oder mit dem Gesetz in Konflikt geraten?
1 2 3 4

43. Sind Ihnen Phasen von mehreren Tagen bekannt, in denen Sie sehr depressiv und verzweifelt waren und dann wieder Tage, in denen Sie sich in Hochstimmung befanden und energiegeladen waren?
1 2 3 4

44. Wenn Sie ein Gefühl erleben, verspüren Sie es gewöhnlich mit extremer Intensität?
1 2 3 4

45. Sind Ihnen schon einmal quälende oder schlechte Gedanken durch den Kopf gegangen, die Sie nicht abstellen konnten?
1 2 3 4

46. Haben Sie schon Phasen von mehreren Tagen erlebt, wo Sie sich überaktiv fühlten unfähig waren, still zu sitzen oder von einer Sache zur anderen sprangen?
1 2 3 4

1	2	3	4
nie, kaum jemals	*manchmal*	*häufig*	*sehr häufig*

47. Hatten Sie jemals gedanklichen Leerlauf (Bewusstseinslücken), in denen Ihre Tätigkeiten unterbrochen waren und Sie nicht wussten, was um Sie herum passiert?
1 2 3 4

48. Sind bei Ihnen in kurzen Zeitabschnitten (3 Wochen oder weniger) Gewichts- veränderungen (Ab-oder Zunahme oder beides) von 3 Kilo oder mehr aufgetreten?
1 2 3 4

49. Gab es Zeiten von einem oder mehr Tagen, in denen Ihre Gedanken ausschliesslich um sexuelle Dinge kreisten und Sie an nichts anderes denken konnten?
1 2 3 4

50. Haben Sie Perioden erlebt, in denen Ihnen die Zukunft hoffnungslos und unveränderbar erschien?
1 2 3 4

51. Gab es Zeiten, in denen Sie Wutgefühle oder ein Verlangen, Dinge zu zerstören oder zu zerschmeissen, nur mit Mühe kontrollieren konnten?
1 2 3 4

52. Kommt es Ihnen manchmal so vor, daß Ihre Gedanken so schiessen, daß Sie denen nicht mehr nachkommen oder, daß andere Personen sich beschwert haben, Sie könnten Ihren Gedankengängen nicht folgen?
1 2 3 4

53. Gab es Phasen, in denen Sie viele neue Aktivitäten mit grosser Begeisterung in Angriff genommen haben und dann sehr schnell das Interesse daran wieder verloren?
1 2 3 4

54. Gab es Zeiten, in denen Sie Gedanken oder Träume hatten, in denen Sie selbst oder Ihnen nahestehende Personen umgebracht, verletzt oder verstümmelt wurden?
1 2 3 4

55. Sind bei Ihnen Phasen von mehreren Tagen vorgekommen, in denen Sie sich anstrengen mussten, einen Drang zu weinen zu unterdrücken oder Weinkrämpfe sich häuften oder Sie erlebten, wie Sie weinten, ohne recht zu wissen, weshalb?
1 2 3 4

1	2	3	4
nie, kaum jemals	*manchmal*	*häufig*	*sehr häufig*

56. Haben Sie Zeiten erlebt, in denen Sie das Gefühl hatten, Sie wären besser tot?

1 2 3 4

57. Haben Sie oft Freunde überredet, etwas Abenteuerliches oder Verrücktes zu tun?

1 2 3 4

58. Sind Sie oft in einer frustrierenden Lage gewesen, in der Sie total ausgeflippt sind?

1 2 3 4

59. Sind Sie gelegentlich in Ihrem Gedanken und Gefühle so vertieft, daß Sie unabsichtlich vergessen haben, sich zu duschen (oder baden) und Ihre Kleidung zu wechseln?

1 2 3 4

BITTE VERGEWISSERN SIE SICH NOCH EINMAL, DAß SIE DIE FRAGEN AUF ALLEN SEITEN AUSGEFÜLLT HABEN

Bitte machen Sie jetzt noch einige Angaben zu Ihrer Person.

Alter:_____

Geburtstag (Monat;Jahr): _____ _____
Monat Jahr

Geschlecht: ○= weiblich ○= männlich

Familienstand: ○= ledig ○= verheiratet

○= geschieden ○= verwitwet

Schulabschluβ: ○= Hochschulstudium ○= Gymnasium (Abitur)

○= Realschule (Mittlere Reife) ○= Hauptschulabschluß

○= Anderer Abschluß _____

○= Kein Abschluß

Anzahl der Schuljahre:_____

Beruf/Ausbildung:_____

Wieviele Brüder haben Sie?:_____

Wieviele Schwestern haben Sie?:_____

Haben Sie ein(e) Zwillingsbruder (Schwester)?:_____

○= Bruder ○= Schwester

Bitte diese letzte Seite ausfüllen wenn Sie weiter an dieser Befragung teilnehmen möchten

Dieser Fragebogen ist der erste Teil einer längeren Untersuchung. Wir möchten Sie gerne persönlich zum zweiten Teil der Untersuchung gegen Honorar in unserem Institut an der Universität Mainz einladen. Damit wir Sie anschreiben und ansprechen können, bitten wir Sie um die folgenden Angaben. Wir versichern Ihnen, daß wir die Regeln des Datenschutzes strengstens beachten. Diese persönlichen Daten werden niemals zusammen mit Ihnen anderen Angaben gespeichert oder anderen Personen als den (auf den Datenschutz verpflichteten) Projektmitarbeitern zugänglich sein.

Name:_____

Straße:_____

Wohnort:_____

Telefon:_____

Falls Sie nicht möchten, daß wir nochmals Kontakt zu Ihnen aufnehmen, brauchen Sie uns Ihre Adresse nicht mitzuteilen.

Wir bedanken uns herzlich für Ihre Mitarbeit.

Prof. Dr. M. Hautzinger
Brian L. Pheasant - Master of Science (M.S.)

Appendix B

Diary (Tagebuch)

JOHANNES GUTENBERG-UNIVERSITÄT MAINZ
Psychologisches Institut
Staudingerweg 9
55099 Mainz

S T B

(Stimmungs - Tagebuch)

Probandennummer:_____

Kalenderwochen Nr.:_____

Datum: **vom_____** **bis_____**

Vp-Nr.:_____

_____, den _____._____._____
Wochentag Tag Monat Jahr

Uhrzeit: _____ . _____
Stunde(0-24) Minuten

Bitte kreuzen Sie im folgenden an, inwieweit das jeweilige Eigenschaftswort auf Ihre Stimmung heute "gar nicht", "etwas", "ziemlich" oder "stark" zutrifft. Falls ein Wort auf Ihre Stimmung nicht passen scheint, entscheiden Sie sich bitte für die Antwortalternative, die noch am ehesten zutrifft. **Lassen Sie bitte kein Wort aus!**

	gar nicht	**etwas**	**ziem-lich**	**stark**		**gar nicht**	**etwas**	**ziem-lich**	**stark**
1. energisch	☐	☐	☐	☐	15. eifrig	☐	☐	☐	☐
2. zutraulich	☐	☐	☐	☐	16. kontakt-	☐	☐	☐	☐
3. erregt	☐	☐	☐	☐	freudig				
4. gereizt	☐	☐	☐	☐	17. nervös	☐	☐	☐	☐
5. energielos	☐	☐	☐	☐	18. verärgert	☐	☐	☐	☐
6. lustig	☐	☐	☐	☐	19. lahm	☐	☐	☐	☐
7. betrübt	☐	☐	☐	☐	20. freudig	☐	☐	☐	☐
8. aktiv	☐	☐	☐	☐	21. traurig	☐	☐	☐	☐
9. gesprächig	☐	☐	☐	☐	22. tatkräftig	☐	☐	☐	☐
10. zappelig	☐	☐	☐	☐	23. gesellig	☐	☐	☐	☐
11. ärgerlich	☐	☐	☐	☐	24. aufgeregt	☐	☐	☐	☐
12. lasch	☐	☐	☐	☐	25. wütend	☐	☐	☐	☐
13. heiter	☐	☐	☐	☐	26. kraftlos	☐	☐	☐	☐
14. elend	☐	☐	☐	☐	27. froh	☐	☐	☐	☐
					28. sorgenvoll	☐	☐	☐	☐

Bitte entscheiden Sie jetzt, inwieweit die folgenden Aussagen auf Ihre Stimmung heute zutrafen:

	Stimmt	**Stimmt eher**	**Stimmt eher nicht**	**Stimmt nicht**
Ich hatte heute deutliche Stimmungsschwankungen von glücklich und traurig, hoch und runter	☐	☐	☐	☐
Ich hatte heute deutliche Antriebsschwankungen	☐	☐	☐	☐
Ich habe mich heute einsam gefühlt	☐	☐	☐	☐
Ich fühlte mich heute völlig aufgedreht	☐	☐	☐	☐

Vp-Nr.:_____

_____, den _____ . _____. _____
Wochentag Tag Monat Jahr

Im folgenden sind einige Dinge aufgeführt, die Einfluß auf die Stimmung haben können. Machen Sie jetzt deswegen bitte noch einige Angaben zum heutigen Tag bzw. zu den *letzten 24 Stunden:*

- **Wieviel Stunden haben Sie vergangen Nacht geschlafen? _____**
- **Um wieviel Uhr sind Sie heute morgen aufgewacht? _____**
- **Wieviel Stunden haben Sie heute gearbeitet oder waren in der Schule? _____**

• **Hatten Sie heute Streit/Auseinandersetzungen am Arbeitsplatz oder in der Schule?**	**□ ja**	**□ nein**
• **Hatten Sie heute Streit/Auseinandersetzungen mit Ihren Eltern?**	**□ ja**	**□ nein**
• **Hatten Sie heute Streit/Auseinandersetzungen mit Freunden?**	**□ ja**	**□ nein**
• **Hatten Sie heute Streit/Auseinandersetzungen mit Ihrem Partner?**	**□ ja**	**□ nein**
• **Haben Sie heute Alkohol getrunken?**	**□ ja**	**□ nein**
• **Haben Sie sich heute mit Freunden/Bekannten privat getroffen?**	**□ ja**	**□ nein**
• **Haben Sie heute Drogen zu sich genommen?**	**□ ja**	**□ nein**
• **Haben Sie sich heute alleine mit einem neuen Projekt intensiv beschäftigt?**	**□ ja**	**□ nein**
• **Waren Sie heute von einem wirtschaftlichen oder politischen Thema außerordentlich begeistert?**	**□ ja**	**□ nein**

Falls Sie das Gefühl haben, es gäbe etwas, was Sie von heute gerne noch berichten wollen, oder etwas, das Ihnen sehr wichtig wäre, können sie hier entsprechende Bemerkungen/Anmerkungen machen:

Appendix C

Frequency distribution and descriptive statistics of GBI items and groups

Table 2.7
Categorical Breakdown of GBI Items

Depression	***Mania***	***Bipolar***	***Chapman***	***Thalbourne***
GBI 01	**GBI 04**	**GBI 03**	**GBI 07(CHAP 03)**	**GBI 58(THAL 05)**
GBI 02	**GBI 08**	**GBI 19**	**GBI 11(CHAP 32)**	**GBI 59(THAL 16)**
GBI 05	**GBI 13**	**GBI 22**	**GBI 16(CHAP 67)**	
GBI 06	**GBI 15**	**GBI 33**	**GBI 39(CHAP 79)**	
GBI 09	**GBI 25**	**GBI 43**	**GBI 44(CHAP 17)**	
GBI 10	**GBI 26**	**GBI 48**	**GBI 57(CHAP 51)**	
GBI 12	**GBI 29**			
GBI 14	**GBI 30**			
GBI 17	**GBI 31**			
GBI 18	**GBI 32**			
GBI 20	**GBI 34**			
GBI 21	**GBI 36**			
GBI 23	**GBI 37**			
GBI 24	**GBI 40**			
GBI 27	**GBI 42**			
GBI 28	**GBI 46**			
GBI 35	**GBI 47**			
GBI 38	**GBI 49**			
GBI 41	**GBI 51**			
GBI 45	**GBI 52**			
GBI 50	**GBI 53**			
GBI 54				
GBI 55				
GBI 56				
N = 24	***N = 21***	***N = 6***	***N = 6***	***N = 2***

Source: Depue et al. (1981)

Table 2.8
Statistical Description of GBI Items

GBI Items	Valid	Missing	Mean	Standard Deviation	Min.	Max.
GBI01 Item 1	393	0	1.73	0.78	1.00	4.00
GBI02 Item 2	393	0	1.76	0.68	1.00	4.00
GBI03 Item 3	392	1	2.10	0.88	1.00	4.00
GBI04 Item 4	392	1	1.32	0.68	1.00	4.00
GBI05 Item 5	393	0	2.10	0.90	1.00	4.00
GBI06 Item 6	393	0	1.64	0.71	1.00	4.00
CHAP03 Item 7	393	0	1.83	0.87	1.00	4.00
GBI08 Item 8	393	0	2.21	0.76	1.00	4.00
GBI09 Item 9	393	0	1.82	0.79	1.00	4.00
GBI10 Item 10	393	0	2.09	0.91	1.00	4.00
CHAP32 Item 11	390	3	2.15	0.74	1.00	4.00
GBI12 Item 12	392	1	1.73	0.65	1.00	4.00
GBI13 Item 13	391	2	1.79	0.71	1.00	4.00
GBI14 Item 14	392	1	1.76	0.76	1.00	4.00
GBI15 Item 15	392	1	1.81	0.88	1.00	4.00
CHAP67 Item 16	392	1	2.42	1.01	1.00	4.00
GBI17 Item 17	392	1	1.97	0.86	1.00	4.00
GBI18 Item 18	391	2	1.81	0.78	1.00	4.00
GBI19 Item 19	391	2	1.95	0.85	1.00	4.00
GBI20 Item 20	392	1	1.74	0.79	1.00	4.00
GBI21 Item 21	392	1	1.66	0.78	1.00	4.00
GBI22 Item 22	391	2	1.82	0.85	1.00	4.00
GBI23 Item 23	392	1	1.42	0.67	1.00	4.00
GBI24 Item 24	393	0	1.89	0.88	1.00	4.00
GBI25 Item 25	392	1	2.20	0.77	1.00	4.00
GBI26 Item 26	393	0	1.89	0.72	1.00	4.00
GBI27 Item 27	392	1	1.83	0.82	1.00	4.00
GBI28 Item 28	392	1	1.35	0.62	1.00	4.00
GBI29 Item 29	392	1	2.10	0.90	1.00	4.00
GBI30 Item 30	391	2	2.12	0.93	1.00	4.00
GBI31 Item 31	393	0	1.92	0.72	1.00	4.00
GBI32 Item 32	391	2	1.97	0.81	1.00	4.00
GBI33 Item 33	392	1	1.98	0.92	1.00	4.00
GBI34 Item 34	392	1	1.69	0.86	1.00	4.00
GBI35 Item 35	393	0	1.80	0.82	1.00	4.00
GBI36 Item 36	392	1	2.26	0.88	1.00	4.00
GBI37 Item 37	392	1	1.86	0.82	1.00	4.00
GBI38 Item 38	393	0	2.00	0.85	1.00	4.00
CHAP79 Item 39	393	0	1.56	0.76	1.00	4.00
GBI40 Item 40	393	0	1.62	0.75	1.00	4.00
GBI41 Item 41	393	0	1.45	0.71	1.00	4.00
GBI42 Item 42	393	0	1.94	0.82	1.00	4.00
GBI43 Item 43	393	0	2.13	0.86	1.00	4.00
CHAP17 Item 44	392	1	2.45	0.83	1.00	4.00
GBI45 Item 45	393	0	2.27	0.79	1.00	4.00
GBI46 Item 46	393	0	2.15	0.83	1.00	4.00
GBI47 Item 47	392	1	1.43	0.66	1.00	4.00
GBI48 Item 48	391	2	1.61	0.87	1.00	4.00
GBI49 Item 49	391	2	1.86	0.87	1.00	4.00
GBI50 Item 50	393	0	1.89	0.84	1.00	4.00
GBI51 Item 51	392	1	1.84	0.87	1.00	4.00
GBI52 Item 52	392	1	1.85	0.87	1.00	4.00
GBI53 Item 53	392	1	1.99	0.76	1.00	4.00
GBI54 Item 54	392	1	1.53	0.76	1.00	4.00
GBI55 Item 55	393	0	1.68	0.88	1.00	4.00
GBI56 Item 56	392	1	1.57	0.82	1.00	4.00
CHAP51 Item 57	393	0	2.06	0.86	1.00	4.00
THAL05 Item 58	393	0	1.68	0.80	1.00	4.00
THAL16 Item 59	393	0	1.20	0.52	1.00	4.00

Table 2.9

Frequency Distribution of GBI Items

Frequency for each GBI Item	**1.00 kaum** *hardly ever*	**2.00 manchmal** *sometimes*	**3.00 häufig** *often*	**4.00 sehr häufig** *very often*
GBI01 Item 1	**174/44.3%**	**164/41.7%**	**42/10.7%**	**13/3.3%**
GBI02 Item 2	**141/35.9%**	**212/53.9%**	**31/7.9%**	**9/2.3%**
GBI03 Item 3	**109/27.7%**	**158/40.2%**	**99/25.2%**	**26/6.6%**
GBI04 Item 4	**301/76.6%**	**67/17%**	**12/3.1%**	**12/3.1%**
GBI05 Item 5	**108/27.5%**	**170/43.3%**	**80/20.4%**	**35/8.9%**
GBI05 Item 6	**189/48.1%**	**158/40.2%**	**41/10.4%**	**5/1.3%**
CHAP03 Item 7	**169/43%**	**138/35.1%**	**67/17%**	**19/4.8%**
GBI08 Item 8	**61/15.5%**	**209/53.2%**	**101/25.7%**	**22/5.6%**
GBI09 Item 9	**153/38.9%**	**170/43.3%**	**57/14.5%**	**13/3.3%**
GBI10 Item 10	**117/29.8%**	**155/39.4%**	**89/22.6%**	**32/8.1%**
CHAP32 Item 11	**62/15.8%**	**225/57.3%**	**83/21.1%**	**20/5.1%**
GBI12 Item 12	**147/37.4**	**207/52.7%**	**34/8.7%**	**4/1%**
GBI13 Item 13	**143/36.4%**	**190/48.3%**	**53/13.5%**	**5/1.3%**
GBI14 Item 14	**162/41.2%**	**167/42.5%**	**55/14%**	**8/2%**
GBI15 Item 15	**175/44.5%**	**136/34.6%**	**60/15.3%**	**21/5.3%**
CHAP67 Item 16	**80/20.4%**	**138/35.1%**	**102/26%**	**72/18.3%**
GBI17 Item 17	**133/33.8%**	**157/39.9%**	**82/20.9%**	**20/5.1%**
GBI18 Item 18	**152/38.7%**	**167/42.5%**	**63/16%**	**9/2.3%**
GBI19 Item 19	**129/32.8%**	**173/44%**	**66/16.8%**	**23/5.9%**
GBI20 Item 20	**174/44.3%**	**153/38.9%**	**55/14%**	**10/2.5%**
GBI21 Item 21	**200/50.9%**	**130/33.1%**	**54/13.7%**	**8/2%**
GBI22 Item 22	**165/42%**	**148/37.7%**	**59/15%**	**19/4.8%**
GBI23 Item 23	**257/65.4%**	**110/28%**	**17/4.3%**	**8/2%**
GBI24 Item 24	**153/38.9%**	**152/38.7%**	**65/16.5%**	**23/5.9%**
GBI25 Item 25	**65/16.5%**	**202/51.4%**	**104/26.5%**	**21/5.3%**
GBI26 Item 26	**118/30%**	**207/52.7%**	**59/15%**	**9/2.3%**
GBI27 Item 27	**157/39.9%**	**155/39.4%**	**66/16.8%**	**14/3.6%**
GBI28 Item 28	**278/70.7%**	**93/23.7%**	**16/4.1%**	**5/1.3%**
GBI29 Item 29	**109/27.7%**	**163/41.5%**	**88/22.4%**	**32/8.1%**
GBI30 Item 30	**113/28.8%**	**152/38.7%**	**89/22.6%**	**37/9.4%**
GBI31 Item 31	**109/27.7%**	**214/54.5%**	**61/15.5%**	**9/2.3%**
GBI32 Item 32	**122/31%**	**167/42.5%**	**90/22.9%**	**12/3.1%**
GBI33 Item 33	**141/35.9%**	**147/37.4%**	**74/18.8%**	**30/7.6%**
GBI34 Item 34	**205/52.2%**	**121/30.8%**	**47/12%**	**19/4.8%**
GBI35 Item 35	**165/42%**	**157/39.9%**	**55/14%**	**16/4.1%**
GBI36 Item 36	**78/19.8%**	**171/43.5%**	**105/26.7%**	**38/9.7%**
GBI37 Item 37	**145/36.9%**	**171/43.5%**	**59/15%**	**17/4.3%**
GBI38 Item 38	**116/29.5%**	**187/47.6%**	**63/16%**	**27/6.9%**
CHAP79 Item 39	**230/58.5%**	**112/28.5%**	**44/11.2%**	**7/1.8%**
GBI40 Item 40	**204/51.9%**	**143/36.4%**	**37/9.4%**	**9/2.3%**
GBI41 Item 41	**256/65.1%**	**102/26%**	**27/6.9%**	**8/2%**
GBI42 Item 42	**127/32.3%**	**182/46.3%**	**64/16.3%**	**20/5.1%**
GBI43 Item 43	**96/24.4%**	**175/44.5%**	**94/23.9%**	**28/7.1%**
CHAP17 Item 44	**45/11.5%**	**166/42.2%**	**138/35.1%**	**43/10.9%**
GBI45 Item 45	**56/14.2%**	**202/51.4%**	**106/27%**	**29/7.4%**
GBI46 Item 46	**84/21.4%**	**188/47.8%**	**96/24.4%**	**25/6.4%**
GBI47 Item 47	**252/64.1%**	**115/29.3%**	**18/4.6%**	**7/1.8%**
GBI48 Item 48	**234/59.5%**	**95/24.2%**	**41/10.4%**	**21/5.3%**
GBI49 Item 49	**156/39.7%**	**152/38.7%**	**61/15.5%**	**22/5.6%**
GBI50 Item 50	**142/36.1%**	**172/43.8%**	**58/14.8%**	**21/5.3%**
GBI51 Item 51	**165/42%**	**145/36.9%**	**61/15.5%**	**21/5.3%**
GBI52 Item 52	**162/41.2%**	**147/37.4%**	**61/15.5%**	**22/5.6%**
GBI53 Item 53	**103/26.2%**	**200/50.9%**	**76/19.3%**	**13/3.3%**
GBI54 Item 54	**240/61.1%**	**106/27%**	**36/9.2%**	**10/2.5%**
GBI55 Item 55	**213/54.2%**	**110/28%**	**50/12.7%**	**20/5.1%**
GBI56 Item 56	**235/59.8%**	**105/26.7%**	**35/8.9%**	**17/4.3%**
CHAP51 Item 57	**107/27.2%**	**181/46.1%**	**78/19.8%**	**27/6.9%**
THAL05 Item 58	**197/50.1%**	**135/34.4%**	**49/12.5%**	**12/3.1%**
THAL16 Item 59	**330/84%**	**49/12.5%**	**10/2.5%**	**4/1%**

Table 2.10
Descriptive Statistics for GBI Scales

GBI Scales	Mean	Std. Deviation	N
GBIMANIA (Mania/Bipolar) ***27 items***	**6.05**	**4.56**	**389**
GBIDEP (Depression) ***24 items***	**4.17**	**4.39**	**389**
GBIMAN (Mania) ***21 items***	**4.58**	**3.50**	**389**
GBIBIP (Bipolar) ***6 items***	**1.47**	**1.58**	**389**
THALCHAP ***8 items***	**1.97**	**1.63**	**389**

Note: N = Number of subjects

Table 2.11
Pearson Correlations for the GBI Scales

Correlations between GBI scales	GBIMANIA	GBIDEP	GBIMAN	GBIBIP	THALCHAP	N
GBIMANIA ***27 items***	**1.00**	**0.71****	**0.95****	**0.76****	**0.65****	**389**
GBIDEP ***24 items***	**0.71****	**1.00**	**0.62****	**0.67****	**0.45****	**389**
GBIMAN ***21 items***	**0.95****	**0.62****	**1.00**	**0.54****	**0.61****	**389**
GBIBIP ***6 items***	**0.76****	**0.67****	**0.54****	**1.00**	**0.50****	**389**
THALCHAP ***8 items***	**0.65****	**0.45****	**0.61****	**0.61****	**1.00**	**386**

**: Correlation is significant at the 0.01 level (2-tailed)
Note: N = Number of subjects

Table 2.12

Frequency Distribution for GBIMANIA (Mania/Bipolar Scale) 27 Items

Valid items	Frequency	Percent	Valid Percent	Cumulative Percent
.00	37	9.4	9.5	9.5
1.00	21	5.3	5.4	14.9
2.00	42	10.7	10.8	25.7
3.00	38	9.7	9.8	35.5
4.00	32	8.1	8.2	43.7
5.00	35	8.9	9.0	52.7
6.00	25	6.4	6.4	59.1
7.00	31	7.9	8.0	67.1
8.00	17	4.3	4.4	71.5
9.00	22	5.6	5.7	77.1
10.00	24	6.1	6.2	83.3
11.00	17	4.3	4.4	87.7
12.00	11	2.8	2.8	90.5
13.00	9	2.3	2.3	92.8
14.00	3	0.8	0.8	93.6
15.00	6	1.5	1.5	95.1
16.00	10	2.5	2.6	97.7
17.00	4	1.0	1.0	98.7
18.00	2	0.5	0.5	99.2
19.00	1	0.3	0.3	99.5
20.00	1	0.3	0.3	99.7
23.00	1	0.3	0.3	100.0
Total	**389**	**99.0**	**100.0**	
System Missing	**4**	**1.0**		
Total	**4**	**1.0**		
Overall Total	**393**	**100**		

Table 2.13
Frequency Distribution for GBIMAN (Mania Scale) 21 Items

Valid Items	Frequency	Percent	Valid Percent	Cumulative Percent
.00	42	10.7	10.8	10.8
1.00	35	8.9	9.0	19.8
2.00	49	12.5	12.6	32.4
3.00	54	13.7	13.9	46.3
4.00	35	8.9	9.0	55.3
5.00	38	9.7	9.8	65.0
6.00	32	8.1	8.2	73.3
7.00	30	7.6	7.7	81.0
8.00	19	4.8	4.9	85.9
9.00	15	3.8	3.9	89.7
10.00	14	3.6	3.6	93.3
11.00	11	2.8	2.8	96.1
12.00	3	0.8	0.8	96.9
13.00	5	1.3	1.3	98.2
14.00	3	0.8	0.8	99.0
15.00	2	0.5	0.5	99.5
16.00	1	0.3	0.3	99.7
19.00	1	0.3	0.3	100.0
Total	**389**	**99.0**	**100.0**	
System Missing	**4**	**1.0**		
Total	**393**	**100.0**		

Table 2.14

Frequency Distribution for GBIBIP (Bipolar Scale) 6 Items

Valid items	Frequency	Percent	Valid Percent	Cumulative Percent
.00	150	38.2	38.6	38.6
1.00	80	20.4	20.6	59.1
2.00	66	16.8	17.0	76.1
3.00	34	8.7	8.7	84.8
4.00	41	10.4	10.5	95.4
5.00	12	3.1	3.1	98.5
6.00	6	1.5	1.5	100
Total	**389**	**99.0**	**100.0**	
System Missing	**4**	**1.0**		
Total	**393**	**100.0**		

Table 2.15

Frequency Distribution for GBIDEP (Depression Scale) 24 Items

Valid items	Frequency	Percent	Valid Percent	Cumulative Percent
.00	86	21.9	22.1	22.1
1.00	55	14	14.1	36.2
2.00	41	10.4	10.5	46.8
3.00	40	10.2	10.3	57.1
4.00	32	8.1	8.2	65.3
5.00	21	5.3	5.4	70.7
6.00	21	5.3	5.4	76.1
7.00	13	3.3	3.3	79.4
8.00	14	3.6	3.6	83
9.00	10	2.5	2.6	85.6
10.00	15	3.8	3.9	89.5
11.00	9	2.3	2.3	91.8
12.00	8	2.0	2.1	93.8
13.00	7	1.8	1.8	95.6
14.00	5	1.3	1.3	96.9
15.00	1	0.3	0.3	97.2
16.00	3	0.8	0.8	97.9
17.00	3	0.8	0.8	98.7
18.00	2	0.5	0.5	99.2
19.00	2	0.5	0.5	99.7
21.00	1	0.3	0.3	100
Total	389	99.0	100	
System Missing	4	1.0		
Total	393	100		

Table 2.16

Frequency Distribution for THALCHAP (Thalbourne/Chapman) 8 Items

Valid items	Frequency	Percent	Valid Percent	Cumulative Percent
.00	81	20.6	20.8	20.8
1.00	94	23.9	24.2	45.0
2.00	84	21.4	21.6	66.6
3.00	60	15.3	15.4	82.0
4.00	40	10.2	10.3	92.3
5.00	18	4.6	4.6	96.9
6.00	9	2.3	2.3	99.2
7.00	1	0.3	0.3	99.5
8.00	2	0.5	0.5	100.0
Total	389	99.0	100.0	
System Missing	4	1.0		
Total	393	100.0		

Table 2.1
GBI Item Results According to Educational Background

Educational level 1997	Statistical measures	GBIDEP Depression scale (24 items)	GBIMAN Mania scale (21 items)	GBIBIP Bipolar scale (6 items)	THALCHAP Thalbourne/ Chapman (8 items)
University Degree (undergraduate)	Mean	3.66	4.16	1.66	2.16
	Number	*6*	*6*	*6*	*6*
	Std. Deviation	2.25	2.31	1.36	1.47
	Median	3.50	4.50	1.50	2.50
Abitur	Mean	4.18	4.48	1.51	1.84
	Number	*143*	*143*	*143*	*143*
	Std. Deviation	4.52	3.54	1.63	1.49
	Median	3.00	4.0	1.0	2.0
Mittlere Reife	Mean	4.83	4.91	1.0	2.07
	Number.	*24*	*24*	*24*	*24*
	Std. Deviation	4.44	3.26	1.20	1.49
	Median	3.50	4.5	1.0	2.0
Hauptschulabschluß	Mean	9.00	7.0	3.0	4.0
	Number	*6*	*6*	*6*	*6*
	Std. Deviation	7.81	5.29	2.64	3.60
	Median	13.0	9.0	4.0	3.0