AFFECTIVE PERSONALITY EXPRESSED IN PSYCHIATRIC PATIENTS

MADELEINE E.T. ZÖLLER

UNIVERSITY OF GOTHENBURG

Department of Psychology

Sweden, 2009

Printed in Sweden
Department of Psychology
University of Gothenburg
Gothenburg, 2009
ISSN 1101-718X

ISRN GU/PSYK/AVH--222--SE

AFFECTIVE PERSONALITY EXPRESSED IN PSYCHIATRIC PATIENTS

MADELEINE E.T. ZÖLLER

UNIVERSITY OF GOTHENBURG

Department of Psychology

Sweden, 2009

To Christer

DEGREE OF LICENTIATE IN PSYCHOLOGY

Abstract

Zöller, M.E. (2009) Affective Personality expressed in psychiatric patients. Department of Psychology, Göteborg University, Sweden.

In **Study I**, the influence of an affective personality type upon psychological health was examined in 100 psychiatric patients. Factors predicting positive and negative affect were studied in a comparison of the patients with a healthy norm group of 1925 individuals. The patient group showed strong associations between affective personality, energy, optimism and self-reported health as well as stress indisposition. Positive affect was predicted significantly from dispositional optimism whereas stress was counter-predictive. Negative affect was predicted significantly from stress, whereas dispositional optimism, energy and pulse rate were counter-productive. Within both populations, individuals expressing the self-fulfilling affective profiles showed healthiest profiles compared with those expressing self-destructive affective profiles. The patients differed markedly from the norm group with regard to all health variables. Stress appears less detrimental for health in comparison to negative affect itself which is expressed by a self-destructed symptom profile.

In **Study II** the aim was to study to what extent affective state and mood are predictive of the stress experience. The study examined the relationship of affective status, mood and stress in both a psychiatric patient group and a healthy volunteer group, as well as evidence of a gender effect. One hundred patients treated within general psychiatry aged 21–71 years and 101 healthy volunteers aged 20–67 years participated. Clinical instruments, including Positive Affect (PA) and Negative Affect (NA), Stress and Energy (SE), Dispositional optimism (LOT),

Comprehensive Psychopathological Rating Scale (CPRS) self rating scale and the DSM-IV and ICD-10 Personality Questionnaire (DIP-Q) were used. Psychiatric disease had a detrimental effect on Stress, Energy and Optimism. The results indicated that stress was predicted by NA and that PA was counter-predictive for stress. Men and women were affected differently with NA predicting stress both for men and woman whereas DIP-Q general criteria was predictive only for stress among men and PA was counter-predicted for stress among men. Stress as dependent variable was not significantly predicted by either DIP-Q general criteria, CPRS-depression, CPRS-compulsion and CPRS-anxiety. Stress was predicted by negative affect and counter-predicted by positive affect. The data suggest that negative affect was the most important item predicting stress. The healthy controls were less affected by stress.

Keywords: Affective state; affective personality; psychiatric patients; psychiatric symptoms; mood; stress; energy; dispositional optimism; gender.

ISSN 1101-718X ISRN GU/PSYK/AVH--222--SE

Madeleine E. Zöller; Sahlgrenska University Hospital; Department of Psychiatry; Mellanvårdsteamet, Lilla Badhusgatan 2, SE 41121 Göteborg, Sweden; Telephone +46 707 256 447, Fax: +46 31 132 594
E-mail: madeleine.zoller@ psy.gu.se

Preface

This thesis is based on the following original studies, which will be referred to in the text by their Roman numerals:

I. Zöller, M.E., Karlsson, E., and Archer, T. (2009). Self-Rated Affect Among Adults Presenting Psychiatric Diagnosis. *Individual Differences Research, 7*(1), 14-28.

II. Zöller, M., and Archer, T. (2009). Predicting Stress in Male and Female Psychiatric Patients and Healthy Volunteers. *Social Behavior and Personality*, 37(8), 1081-1094.

Populärvetenskaplig svensk sammanfattning av studien

Personlighet är bland de mest grundläggande egenskaperna hos människan. Avhandlingens syfte är att studera "normala" uttryck för affektiv personlighet bland psykiatriska patienter och att undersöka dess roll i relation till stress.

Affektiv personlighet i meningen "state dependency" dvs. känslomässigt tillstånd används i motsats till skattningar av "trait dependency" dvs. personlighetsegenskaper som används i traditionella personlighetsmodeller. Affektiv personlighet har presenterats i studier av Norlander, Archer och medarbetare. Modellen bygger på en mätning av negativt och positivt känslomässigt tillstånd, som görs med ett instrument, PANAS (Positive and Negative Affect Scales), som är en "checklista för adjektiv" med tio negativa (Skrämd, Rädd, Upprörd etc.) och tio positiva adjektiv (Entusiastisk, Engagerad, Bestämd etc.). Norlander, Archer och medarbetare har med utgångspunkt från de individuella relationerna mellan NA och PA formulerat en teori om den affektiva personlighetens varianter: Självdestruktiv (låg PA, hög NA); Självförverkligande (tvärtom); Högaffektiv (högt på båda), samt Lågaffektiv (lågt på båda).

Studie I: ***Självskattat affektivt tillstånd hos vuxna med psykiatriska diagnoser.*** Etthundra patienter jämförs med en "normgrupp" av 1925 personer. De fyra personlighetstyperna bland patienterna jämförs i en rad indikatorer på "psykologisk hälsa", däribland de två PANAS-skalorna, samt självskattningar av stress, energi och optimism. I samtliga avseenden visar sig de fyra "personlighetstyperna" åtskilda. Vidare görs statistiska analyser för att söka "prediktorer" för negativ affekt och positiv affekt bland de tillgängliga variablerna. Till sist jämförs de två grupperna, varvid patientgruppen visar sig ligga mer "negativt" till i alla självskattningsvariabler. Patientgruppen uppvisar

starka associationer mellan affektiv personlighet, energi, optimism, självrapporterad hälsa liksom stress. Positiv affekt samvarierar med optimism så att mer positiv affekt visar på mer optimism medan mindre positiv affekt samvarierar med högre grad av stress. Slutsatsen är fynd av sämre psykologisk hälsa bland patienterna, möjlig att tolka som ökad sårbarhet, samt skillnader mellan de fyra personlighetstyperna . Vid alla jämförelser har personer med självdestruktiv PANAS-profil minst uttryck för hälsa mätt som energi, icke-stress, icke-negativ affekt, kvot mellan energi och stress liksom optimism, medan den självförverkligande PANAS-profilen visar största uttrycket för psykisk hälsa.

Studie II: Förutsägelse av stress hos kvinnliga och manliga patienter och friska frivilliga. Etthundra psykiatriska patienter från första studien studeras nu tillsammans med en kontrollgrupp om 101 personer. De använda metoderna inkluderar PANAS med sina skattningar av negativ (NA) och positiv affekt (PA), tillsammans med samma skattningar av stress, energi och optimism som användes i den första delstudien. Dessutom används för båda grupperna två självskattningsskalor dels, CPRS, som bl.a. mäter upplevelse av ångest, tvång, depression och psykos samt DIP-Q som mäter personlighetsstörning och funktionsnivå. De två grupperna jämförs i samtliga dessa variabler och visar sig, genomgående, statistiskt åtskilda. Psykisk sjukdom har en skadlig effekt på stress, energi och optimism. Resultaten visar att stress prediceras av negativ affekt och "motprediceras" av positiv affekt. Gruppskillnaderna består när materialet uppdelas på kön, alltså mellan kvinnliga patienter och kvinnliga kontroller.

Data antyder att negativ affekt var den viktigaste variabeln för att predicera stress. De friska kontrollerna var mindre påverkade av stress.

ACKNOWLEDGMENTS

I wish to express my sincere gratitude to:

Professor Trevor Archer, my supervisor, for his extraordinary interest, support and encouragements;

Docent Jan Svedlund, Sahlgrenska University Hospital, for support and encouragements;

Professor Sven Carlsson, for carefully reading my thesis and for giving me useful feedback on the manuscript;

Erica Karlsson, research collaborator in Study I, for her contributions;

Peter Pagles, who developed the Hexagon for presenting results in Study I;

Ricardo Berrio, IT- technician, always happy to help me;

Annelie Dufmats, psychologist and friend, my best discussion partner;

Christer Zöller, for help in adding numerous data to my computer programs and suggesting valuable programs;

Per Holmer, for discussions pertaining to the spirit of research;

All the patients and the persons that served as volunteers and controls, for their generous contributions to this study.

CONTENTS

INTRODUCTION

1. Personality and classification systems

Personality is one of the most important traits of the human being, as it constitutes its very essence. In this study affective disorders in psychiatric patients are studied in relation to the affective personality state. Affective state is the feelings presented by an individual whereas personality state is a basic and stable trait in the personality of the individual. In a study of the affective personality expressed in psychiatric patients it is important to discuss how normal and abnormal personality is distinguished in the American Psychiatric Association´s (APA) *Diagnostic and Statistical Manual of Disorders (DSM- IV).* DSM IV gives a number of options for recording the presence of maladaptive personality traits. Among the most familiar are borderline, histrionic, antisocial and paranoid. Important to observe is that it also gives the option of personality disorder not otherwise specified (PDNOS). Most semi-structured interviews and systematical empirical studies fail to consider this presence of PDNOS (Verheul & Widiger, 2004) even as it is the most common among diagnosis in clinical practice (Fabrega, Ulrich, Pilkonis, & Mezzich, 1991). A rationale for the personality disorder diagnostic thresholds might be obtained through a consideration of the conceptualization of both mental disorders in general and personality disorders provided in *DSM-IV.* A conceptional difference between normal and abnormal personality is thus achievable. *DSM-IV* does also rely on the determination of a clinically significant level of impairment for distinguishing between normal and abnormal psychological functioning. Personal distress is a very fallible threshold for the diagnosis of a personality disorder (Walker, 1994). The absence of distress can also be quite imperfect in signifying significant impairment. Individuals might be significantly impaired by particular personality traits as mistrust, low empathy and antagonism but

not find them distressing. Very few persons seek treatment for an antisocial or psychopathic personality disorder. The effects of serotonergic reuptake blockade on personality and social behavior has been studied by (Knutson et al., 1998). Administration of SSRI significantly reduced the scores on a self-report measure of the personality trait of neuroticism and increased scores on a laboratory measure of social affiliation.

The effect on self-rated scores was correlated with the plasma levels of SSRI even in the absence of baseline depression other psychopathology. As the personality functioning and dysfunction exists on a continuum ranging from adaptive to maladaptive states it is considered that abnormal functioning is a matter of degree.

A comprehensive classification of personality traits have been suggested as a Five-Factor Model (FFM) (Digman, 1990) and (McCrae, 1992). The five broad personality dimensions are neuroticism (N), extraversion (E), openness to experience (O), agreeableness (A) and conscientiousness (C). Strong links have been shown between the FFM (Costa & Widiger, 2002) and measures of psychopathology any researchers have found that the FFM can be a uniquely valuable tool for understanding the *DSM-IV* personality disorders in psychiatric patients. It has been suggested that normal and abnormal personality not only are related phenomena, but equivalent in the sense that the personality disorders in *DSM-IV* are not qualitatively new forms of personality but just descriptions of individual differences in personality as they are seen in psychiatric patients. McCrae and Costa has suggested a theory of personality traits conceived as biologically based basic tendencies that interact with external influences over time to form distinguishing adaptations, which include skills, interests, roles, habits, and attitudes. Personality disorders are defined as "inflexible and maladaptive". The *DSM-IV* uses a set of ten disorders thought to meet this definition.

As will be demonstrated in this thesis the self-rating ***DSM-IV and ICD-10 Personality - Questionnaire (DIP-Q)*** is constructed to function in the same way as the *DSM-V* diagnostic manual.

2. Affective Personality

Norlander, Bood and Archer tested the notion that different combinations of PA- and NA-values, may contribute to the 'affective personality type' for different individuals whereby a procedure was developed through which four types of affective personality were distinguished: those individuals that expressed high PA- and low NA-values ("Self-actualization", but now modified to "Self-fulfillment"), low PA and low NA ("Low affective"), high PA and high NA ("High affective"), and low PA and high NA ("Self-destructive") (Norlander, Bood, & Archer, 2002). It was found that performance during stress, assessed with the Stroop Color and Word Test (SCWT), (Stroop, 1935) and resting systolic blood pressure was related to the affective personality of subjects from a range of occupations. Thus, individuals with a "Self-fulfillment" type of affective personality performed best under stress whereas "Low affective" individuals performed at the lowest level. "High affective" individuals showed the lowest levels of resting systolic blood pressure whereas the "Self-destructive" individuals showed the highest levels. Recent studies have found that individuals distinguished by the four types of affective personality differed in their experience of stress, their levels of dispositional optimism and in certain other aspects of personality (Bood, Archer, & Norlander, 2004). Thus in this study, the "Self-fulfillment" type of affective personality showed a higher level of responsibility, more emotional stability and original thinking, less stress and more dispositional optimism than the "Self-destructive" group (and in certain cases the "High affective" group, too). The "Low affective" group expressed more responsibility and better personal relations

than the "Self-destructive" group. Thus, it appears that personal characteristics necessary for a normal individual's adequate functioning in everyday life bear some relationship to the four types of affective personality.

As yet the affective personality structure pursues the design and set of constructs that is relatively novel. The purpose behind this construction is derived from the requirement to present a continuum of affect and to establish the state dependency as opposed to the trait dependency of traditional personality-defining models. Thus the ten adjectives describing positive affect provide one dimension whereas the ten adjectives describing negative affect describe a second dimension. By utilizing both positive and negative dimensions a dichotomy maybe avoided and instead a variation of continuum is provided (Archer et al., 2007, 2008; Bood et al., 2004; Norlander et al., 2002).

3. Optimism and Pessimism as affective states

Much research on optimism and pessimism has made use of the Life Orientation Test (LOT) to establish individual differences in dispositional optimism (Beck, Steer, Kovacs, & Garrison, 1985; Reker & Wong, 1983; Scheier & Carver, 1985). Gray has described optimism and pessimism as dependent upon an individual's extroversion, whereby individuals expressing a high degree of extroversion showed a higher degree of positive affect concerning the type of outcome of a situation (Gray, 1981, 1987). An individual expressing a lower level of positive affect views a given situation from a negative perspective and expects a worse outcome. High levels of pessimism are not only associated with negative affect (Watson, Clark, & Tellegen, 1988) but also with neuroticism (Costa & McCrae, 1989). Individuals expressing high levels of positive affect also possess the highest potential for survival (Sapolsky, 2005; Shulz, Bookwala, Knapp, Scheier, & Williamson, 1996). Furthermore, individuals with

optimistic and positive attitudes presented the highest levels of general health during health controls (Mroczek, Spiro, Aldwin, Ozer, & Bossé, 1993). A study of chronic skin disease indicated that a higher level of acceptance was reached by those patients with increased optimism and a reduced conviction that their own health depended on the efforts of others (Zalewska, Miniszewska, Chodkiewicz, & Narbutt, 2007). It is of interest to ascertain whether or not optimism/pessimism may contribute better/worse to health and the mediator role of affect. The ability to cope with stress may vary considerably as a function of optimism and affective profile, or expressed differently affective personality.

4. Affective Personality self-reported data concerning Stress

Stress is a commonly used word that generally refers to experiences that cause feelings of anxiety and frustration because they push us beyond our ability to successfully cope (McEwen, 2006). It is well-known that stress involves the whole person, body and mind. The brain is the organ that determines what is stressful and decides the behavioral and physiological responses, be it health-promoting or health-damaging. The brain is a biological organ that changes under acute and chronic stress, and directs many systems of the body. Both metabolic, cardiovascular, the immune system and other systems are involved in the short- and long-term consequences of being stressed. Adrenocortical hormones enter the brain and produce a wide range of effects upon it expressing emotional arousal and psychic disorganization rather than a specific disorder per se (Sachar et al., 1973).

5. Neuroanatomical aspects

In recent years new discovers have emphasized the negative effect of prolonged major depressive illness as well as a low self-esteem, which in stress-related conditions may cause a decreasing of the hippocampal volume. Furthermore, initially

hypertrophy and later atrophy in amygdala and also atrophy in prefrontal cortex are also confirmed. The result of this can be altered behavioral and physiological responses. When the body responds to stress in releasing chemical mediators i.e. catecholamines and cortisol these can be helpful in acute situations but be harmful if continued chronically, thus the body tries to find and maintain a homeostasis that is an achievement through change. This process has been named "allostasis" (Sterling & Eyer, 1988). The "allostatic load or overload" can be caused by too much stress, inefficient management of allostasis or also a failure to turn off a response when not needed. Alterations in brain function by chronic stress can have direct and indirect effects on the cumulative allostatic overload . There are huge individual differences in the response to stress. Having a positive outlook on life, good self-esteem and good social support appear to have long-lasting health consequences being a positive influence on the allostatic load (Pressman & Cohen, 2005; Seeman, Singer, Ryff, Dienberg, & Levy-Storms, 2002) .

Moreover, there are a variety of other anxiety-related disorders, such as PTSD and borderline personality disorder (Bremner, 2002; Driesen, Hermann, & Stahl, 2000) in which atrophy of the hippocampus has been reported, suggesting that this is a common process reflecting chronic imbalance in the activity of adaptive systems, such as the hypothalamo-pituitary-adrenocortical (HPA) axis, but also including endogenous neurotransmittors such as glutamate.

Affective personality self-reported data concerning stress may be associated with affective states (D Watson, Pennebaker, & Folger, 1987) and both positive affect (PA) and negative affect (NA) may possess explanatory value (Clark & Watson, 1988), despite these scales being correlated with different factors. Nevertheless, it appears that both PA and NA influence individuals' relations to

stressors, situations associated with stress and the experience of stress (Aldwin, 1994; Melvin & Molly, 2000). It is possible that the 'affective profile' of individuals predisposes them to confront stressful situations with different propensities.

Psychosocial stress may exert negative influences upon physical health (Watson & Pennebaker, 1989).Negative stress has been described as dysregulation in melancholic and atypical depression involving high vs. low corticotrophin releasing hormone/noradrenalin (Gold & Chrousos, 2002). Even positive stress may induce negative reactions if maintained chronically without intervals for rest and recuperation (McEwen, 2006; Sapolsky, 2005). The dangers of chronic stress are expressed in a multitude of behavioral and somatic factors (Farmer et al., 2008; Ljung & Friberg, 2004). It has also been observed that negative affect and positive affect are associated closely with personality characteristics such as optimism and pessimism (Peterson & Bossio, 1991; Scheier & Carver, 1982). Several different sources have indicated that dispositional optimism enhances both physical and psychological well-being (Aspinwall & Taylor, 1992; Scheier et al., 1989). It is suggested that the differences in results are due to the different types of coping behaviors that optimists and pessimists apply whereby optimists generally present stable coping tendencies in hypothetical situations (Carver, Scheier, & Weintraub, 1989). Individuals expressing positive or negative affect may be differentiated both during serious illness (Friedman et al., 1992) and during specific threats to health. Optimists tend to employ more problem-focused (Carver et al., 1993) coping strategies and, if this is impossible, are able to find adaptive emotion-focused strategies. Pessimists tend to employ denial and separate themselves from the objective both mentally and behaviorally, independent of whether they can solve the problem or not (Watson, Clark, & Tellegen, 1988). When a sufficient

goal-oriented outcome is obtained affect is positive but hindrance of this outcome induces negative affect (Carver & Scheier, 1990).

Several variables such as Body Mass Index (BMI), pulse and blood-pressure, that pertain to psychophysiological variables, have been included in the studies. The original purpose for including these variables was to ascertain the physiological status of the patients who were participating with regard to anorexia/bulimia and hypertonia.

AIMS

General and specific aims

Study I

The aim of the study was to examine the influence of an affective personality type upon self-reported indicators of psychological health in adult patients presenting psychiatric symptoms. Further, to identify the factors predicting positive and negative affect respectively. Finally, to compare self-rated affect as indexed by stress, energy and dispositional optimism as life orientation among patients with a healthy norm group.

Study II

The aim of the study was to examine to what extent affective state and mood is predictive of the stress experience in both a psychiatric patient group and a healthy volunteer group. An ancillary purpose was to observe whether or not gender effects were present.

METHOD AND MATERIALS

Participants

Study I

The patient group

100 psychiatric patients, 42 women and 58 men, with age M = 38.9 years (SD = 12.4; *range* = 21-71) were investigated consecutively over a 1-year period at an out-patient ward at the Sahlgrenska University Hospital, Göteborg, Sweden by one of the authors (M. Zöller). The DSM-IV axis 1 criteria met for the patients were 54% major depressive disorder, 37% anxiety disorder and 9 % was a mixed group of bulimia nervosa, polymorph psychosis (1%), psychosomatic disorder (2%), ADHD (attention deficit hyperactivity dysfunction) (1%) and organic personality disorder (3%), (American Psychiatric Association, 1994). The severity of the psychiatric symptoms was measured using the self-assessment scale CPRS (The Comprehensive Psychopathological Rating Scale) (Svanborg & Åsberg, 1994, 2001). The patient score for depression was M = 23.4 (SD = 10.6; *range* 1-46) for anxiety M = 23.4 (SD = 10.2; *range* = 0-45) for compulsion M = 16.5 (SD = 12.4; *range* 0-43) and psychoses M = 5,2 (SD = 6,4; *range* = 0-29). Eighty-seven subjects were treated with antidepressive and/or anxiolytic medication. Personality disorder was measured with DIP-Q, a self-report questionnaire for personality disorders in DSM-IV and ICD-10 (Bodlund, Grann, Ottosson, & Svanborg, 1998; Ottosson, 1999; Ottosson et al., 1998; Ottosson, Grann, & Kullgren, 2000). Eighty-three percent fulfilled the criteria for personality disorder according to DIP-Q with the number of general criteria M = 1.8 (SD = 1.8; *range* = 0-5), GAF (last year) M = 56.5 (SD = 18.6; *range* = 1-100). The patients' physical status was examined by a physician. Systolic blood pressure measured M = 126 mmHg (SD = 21,9; *range* = 110-180), diastolic M = 81 mm Hg (SD = 9,3 range = 60-110), pulse rate

M = 73,0 (*SD* = 10,8 *range* = 54-97) and body mass index (BMI) *M* = 25,6 (*SD* = 4,8; *range* = 15,6-44,7). Background variables for the patients were described in terms of heredity from parents for psychiatric disease = 34%, employment = 37%, sick leave = 36%, early retirement pension = 27%, weekly physical activity = 59% and daily cigarette smoking = 38%. All except two patients used alcohol less than two times a week.

The Norm Group

The patients were compared with a norm group consisting of 1925 non-clinical individuals who completed the PANAS (Positive Affect and Negative Affect Scales) instrument as well as the SE Stress and Energy questionnaire by filling it in anonymously. At the time of testing each individual was a non paid healthy volunteer. The individuals were included by one of the authors (Karlsson & Archer, 2007). Working people and students otherwise engaged in educational pursuits were included. A few of the persons were form Norway living not far from the Swedish border and the rest were Swedes. The volunteers were later included in a lager study.

Study II

Patients

The present results have been obtained by following the usual routines for 100 patients treated in general psychiatry that consecutively over a 1-year period started treatment at an out-patient psychiatric clinic at the Sahlgrenska University Hospital (Gothenburg, Sweden). All patients agreed to the collection of data and were informed to stop the partaking in the study at any time without any affect of the treatment. The procedure was approved of by the Swedish Ethical Committee. The age for the whole group was M = 38.9 (SD = 12.4; range 21 - 71) for the 42 men, with age M = 39.3 years (SD = 11.9; range = 21 - 65) and for the 58 women age M = 38.5 years

(SD = 12.8; range 21-71). Diagnostic according to the DSM-IV axis 1 was major depressive disorder (54%), anxiety disorder (40%), psychosomatic disorder (2%), bulimia nervosa (1%), polymorph psychosis not acute state (1%), ADHD (attention deficit hyperactivity dysfunction) (1%) and low degree of mental retardation (1%), (American Psychiatric Association, 1994). The severity of the psychiatric symptoms was measured using the self-assessment scale CPRS (The Comprehensive Psychopathological Rating Scale) (Svanborg & Åsberg, 1994, 2001). Eighty-seven patients were treated with antidepressive and/or anxiolytic medication for at least 8 weeks before the study and they also had obtained a steady state of the treatment. Personality disorder was measured with DIP-Q, a self-report questionnaire for personality disorders in DSM-IV and ICD-10 (Bodlund, Grann, Ottosson, & Svanborg, 1998; Ottosson, 1999; Ottosson et al., 1998; Ottosson, Grann, & Kullgren, 2000). The questionnaire includes the Global Assessment of Functioning (GAF) scale. Eighty-eight patients fulfilled the criteria for personality disorder according to DIP-Q Global Assessment of Functioning for last year combined with $\geq$ 2 general criteria. Systolic blood pressure measured was M = 126 mmHg (SD = 21,9; range = 110 -180), diastolic M = 81 mm Hg (SD = 9,3 range = 60 - 110), pulse rate M = 73,0 (SD = 10,8 range = 54 - 97) and body mass index (BMI) M = 25,6 (SD = 4,8; range = 15,6 - 44,7). These results were judged as falling within normal values for the group. Thirty-four of the patients had heredity for psychiatric disease. Background variables for the patients were: years of education after 9-year of high school M = 2.1 (SD = 1.6; range = 0 - 6), employment = 37%, sick leave and/or early retirement pension = 63%, alcohol use less than two times a week = 98%, daily cigarette smoking = 38% and weekly physical activity = 59%.

The Control Group

The patients were compared with a control group consisting of 101 persons who completed the same instruments as the patient group. The partakers were recruited on a volunteer bases from the Volvo factory and other private companies. The control group was different from the patient group psychiatric diagnose and had no known heredity for psychiatric disorder, and medication was less than once a year. The age for the healthy control group was M = 38,3 years (SD = 13,7; range = 20 – 67), 51 persons were men (M = 38,1; SD =12,8; range 20 - 67) and 58 were women (M = 38,5; SD = 12,8; range 21-71). Background variables were: education after high school M = 3.6 years (SD = 3.6; range 0 - 12), employment = 100%, alcohol as beer/wine less than one time a week, spirits four times a week, cigarette smoking = 27%, and physical exercise 3 times a week.

Design and procedure

Study I

The patients from an outpatient ward and were consecutively recruited for the study by an experienced psychiatrist as well as psychologist (M. Zöller). All the patients accepted the study and were informed about the study, and that they could leave the study at any time. After having filled in the questionnaires CPRS and DIP-Q, they visited the psychiatrist and were diagnosed according to DSM-IV. Then they completed the PANAS-instrument, the SE-instrument and the LOT-instrument. The background data were collected by way of an interview following a questionnaire providing information about their age, sex, weekly exercise, nicotine use, and employment status. The patients were examined physically according to clinic standards including pulse rate, blood pressure (BP), heart rate (HR), weight, length and

neurological status. Medication was recorded. After this the patients were given the three self-rating questioners PANAS, SE and LOT.

All the individuals in the norm group were met in groups of 3-to-8 by the researcher and asked to complete a formula. They were unpaid and were recruited in the classroom or workplace. At the time of the data collection, the norm group was not involved in any other type of study. The persons in the norm group, in which all reported themselves as healthy, were given the same questionnaires, PANAS, SE and LOT, as the patients.

Design

Two groups were compared, a psychiatric patient group and a healthy norm group. The study consisted of the dependent variables: "stress and energy" and "dispositional optimism". The independent variables of the study were Affective personality, gender, age, psychiatric DSM IV diagnosis, CPRS self rating (Svanborg & Åsberg, 1994) including GAF, SE (Kjellberg & Iwanowski, 1989), PANAS (Kercher, 1992) and LOT. The between-group factors in the study were the type of affective personality (consisting of the four types of affective personality: self-fulfilling, low affective, high affective, and self-destructive), gender (male and female participants). The four types of personality were derived through the application of the two Positive and Negative Affect Scales (PANAS)(Watson & Clark, 1994), positive affect (PA) and negative (NA) affect, respectively (Bood, Archer, & Norlander, 2004; Norlander, Bood, & Archer, 2002). Thus four types of affective personality included: one group consisting of 36 patients with a self-fulfilling affective personality (modified from self-actualizing personality), one group consisting of 14 patients with a low affective personality, one of 16 high affective participants, and finally one group consisting of 34 patients with destructive type of affective personality.

Study II

The patients from an outpatient general psychiatry ward were consecutively recruited for the study by an experienced psychiatrist as well as psychologist. All the patients accepted the study and informed that they could leave the study at any time. The patients were diagnosed according to DSM-IV and were examined physically. Patients completed the following questionnaires: CPRS, DIP-Q, the PANAS-instrument, the SE-instrument and the LOT-instrument. The background data were collected by way of a questionnaire providing information about age, sex, employment status, nicotine use and weekly exercise.

The two independent variables of the study were Group (Patients and Healthy volunteers) and Gender (Male and Female participants). The dependent variables of the study were PA, NA, Stress, Energy, optimism (LOT), DIP-Q General criteria, DIP-Q GAF-Year, CPRS-Depression, CPRS-Compulsion and CPRS-Anxiety. Linear regression analysis was used to estimate which variables predicted stress in the total population and in the male and female participants separately.

Instruments

Study I and II

Positive Affect- and Negative Affect Scales.

The PANAS instrument estimates the degree of affectiveness, whether as negative or positive affectiveness (Kercher, 1992; Varg, 1997; Watson, Clark, & Tellegen, 1988). In the test manual, it is indicated that the adjectives describe feelings (affect) and mood level (Watson & Clark, 1994). Response alternatives were presented on a 5-grade Likert scale, extending from 1 = not at all, to 5 = very much. The test person was to tell how he felt the last week. The negatively charged adjectives were

summated to provide a total NA result and the positively charged adjectives were summated to a total result for positive affect. The PANAS instrument has been validated by studies aimed at general aspects of psychopathology as well as a multitude of other expressions of affect (Huebner & Dew, 1995; David Watson & Clark, 1994). Authors have shown that no significant correlation exists between the extent of positive and negative affectiveness, which implies that divergent validity appears to be the case (Wilson, Gullone, & Moss, 1998). Previous studies have modified and developed the PANAS instrument further through a subject response-based derivation of the four types of affective personality (Bood, Archer, & Norlander, 2004; Norlander, Bood, & Archer, 2002; Palomo, Beninger, Kostrzewa, & Archer, 2007). This procedure was implemented in the present study through dividing the results on the PA-scale into two parts thereby distributing the participants into one group with high PA and another group with low PA (cutoff point = 53.2%). The same procedure was implemented for the participants' responses on the NA-scale (cut-off point = 48.9%). Following this, the results from these two scales were combined according to the procedure that assigned each one of the participants into one of the four affective personality groups, as follows: individuals showing high PA and low NA (self-fulfilling), high PA and high NA (high affective), low PA and low NA (low affective) and low PA and high NA (self-destructive). In the present sample internal reliabilities (Cronbach's *alpha*) were 0.88 for PA and 0.82 for NA.

Stress-Energy (SE).

The SE-instrument is a self-estimation scale that assesses individuals' experience of their own stress and energy (Kjellberg & Iwanowski, 1989), during the preceding ten minutes. The test is divided into two sub-scales that express each participant's level of mood in two dimensions: "experienced stress" and "experienced

energy". Response alternatives are ordered within six-graded scales that extend from 0 = not at all to 5 = very much. The instrument has been validated through studies concerning occupational burdens and pressures (Kjellberg & Iwanowski, 1989). The SE-scale has been constructed from the earlier used checklist, Mood Adjective Check-List (Nowlis, 1965), which was modified by Kjellberg and Bohlin (Kjellberg & Bohlin, 1974) and Sjöberg, Svensson and Persson (Sjöberg, Svensson, & Persson, 1979). Kjellberg and Iwanowski reduced the list to 12 adjectives in the two dimensions, stress and energy, which provides the latest version applied here. The experienced 'neutral-point' within the Stress scale (i.e. neither stressed nor calm) lies, on average, on a scale value of 2.4, whereas the equivalent point for energy is on a scale value of 2.7. Cronbach´s testing showed Alfa= 0.07644 (Kjellberg & Iwanowski, 1989).

Study II

Life Orientation Test (LOT)

The LOT-instrument is a self-estimation instrument that assesses an individual's degree of dispositional optimism. The instrument is based on a general model, regarding self-regulated behavior, which indicates that optimism exerts meaningful behavioral consequences (Scheier & Carver, 1982, 1985). It was constructed originally to study the extent to which the personality trait optimism was associated with the ability to develop suitable 'coping-strategies' in connection with severe psychological and physical handicaps (Norlander, Bood, & Archer, 2002). The instrument has eight items, plus four filler items. The task for each respondent is to decide on a scale anchored by 0: strongly disagree and 4: strongly agree. The test measures dispositional optimism, defined in terms of generalized outcome expectancies. According to Scheier and Carver (Scheier & Carver, 1985), LOT is a suitable scientifically prepared test with an estimated internal consistency of 0.76

(Cronbach's *alpha*) and a test-retest reliability of 0.79 (Pearsons´*r*) indicating that the test result is stable over time.

The Comprehensive Psychopathological Rating Scale (CPRS).

The CPRS was constructed in Sweden to provide an instrument for the estimation of a number of psychopathological variables that may be sensitive for change in connection with psychiatric treatment (Åsberg, Perris, Schalling, & Sedvall, 1978). The instrument is intended to comprehensively cover all aspects of psychopathology or as a pool of variables/items, from which sub-scales for specific psychiatric syndromes may be constructed (Svanborg & Åsberg, 1994, 2001). Several sub-scales regarding different psychiatric syndromes have been constructed from the CPRS. The CPRS-self-report consists of 25 variables that measure self-estimates of depression, compulsion, anxiety and psychosis, respectively, on a scale of 0-3, half steps are used. Each variable and each scale step in CPRS is operationally defined.

DSM-IV and ICD-10 Personality - Questionnaire (DIP-Q).

DIP-Q is a patient self-estimation scale (Ottosson, 1999; Ottosson et al., 1998; Ottosson, Grann, & Kullgren, 2000). The construction of the questions is directed by DSM-IV and ICD-10 (Socialstyrelsen, 1996). The scale consists of 140 statements, each of which is responded to with the alternatives 'agree' or 'do not agree'. All the 161 criteria defining the 18 personality disturbances comprised by DSM-IV and ICD-10 have been converted to self-report statements. Five statements were constructed to assess the so-called general criteria for personality disturbances. A personality disturbance is registered only if there is evidence of significant suffering or a significant dysfunction with regard to work and/or social relations.

RESULTS

Results show that besides the Axis I psychiatric diagnose diagnosed by a psychiatrist in all the patients also a second Axis I DSM-IV psychiatric disturbance was diagnosed in as many as 32% of the patients (men = 15%, women =17%) i.e. these patients had a double diagnosis. Furthermore, 39 % of the patients (36 % men, 42 % women) had a first degree hereditary (parents or siblings) psychiatric disorder of the same kind as the patients. These data help to understand the results found in the study.

Personality disturbances and gender

There are different personality theories that try to describe how the human person functions psychologically and psychiatrically. Methods focus partly on the person as a whole individual and partly as a complex individual. All human beings have a personality with different properties. When the personality traits become too rigid or too extreme they confine the functionality of the person. These traits are detected in the person's way of thinking, way of dealing with feelings, control of impulses, relations to other individuals, further these traits form

the personality structure and may give loss of function in many areas such as work, social relations and relations to the own self. The use of self-rating formulas such as the DIP-Q questionnaire has been validated by al large number of studies (Bodlund, 1998; Ottosson, 1999, 2000).

The results indicate that more than one personality disturbance was common for the patients and when divided into different clusters it was found that some patients fell in two different clusters. This marks the complexity of the disturbances of the personality disorders in the patient group.

To study the differences of the patient group and the healthy controls as well as the gender distribution in these group different ways of presentation have been

used. First the Global Assessment of Functioning was considered and GAF < 70 was used according to normal procedure (Ottosson, 2002). The general criteria with at least 2/5 points were used to study the personality disorders. The greater number of general criteria the more probable is a personality disturbance. Less than two points is considered not to indicate any personality disorder in se. Then the most common procedure is to combine these two measures with the criteria that either the first or the second criteria are to be met. Having done this it is also interesting to use a more strict way to study the personality disturbance which is to ask for GAF < 70 and at least 2 general criteria at the same time. The results indicate that within the patient group there are no significant gender difference, among the healthy controls there are no differences in the clinically used measure i.e. GAF <70 or general criteria ≤ 2. (See Table 1 for the results).

Table 1

GAF and DIP-Q general criteria, as measures of the personality, combined in different ways.

Participants number	**GAF <70**	**DIP-Q general criteria ≥2**	**GAF < 70 and general criteria ≥2**	**GAF < 70 or general criteria ≥2**
Patients Men = 42 Women = 58 **n= 100**	M = 47 W = 36 **All = 82**	M = 22 W = 27 **All = 49**	M = 20 W = 23 **All = 43**	M = 37 W = 49 **All = 86**
Healthy Controls Men = 51 Women = 50 **n=101**	M = 12 W = 5 **All = 17**	M =8 W =8 **All = 16**	M = 6 W = 1 **All = 7**	M = 11 W = 12 **All = 23**

The greater the number of personality diagnoses the worse is the personality disturbance. When related to the number of men and women in the patient

group the result are that women seem to have a slight overrepresentation in all the number of diagnoses. (See table 2).

Table 2

Number of personality diagnoses for the patient group according to DIP-Q self-rating

DIP-Q Number of personality disorders patients	**1 Diagnose**	**2 Diagnoses**	**3 Diagnoses**	**4 diagnoses**
Men, n = 42	31 (73.8%)	19 (45.2%)	15 (35.7%)	11 (26.1)
Women, n = 58	46 (79.3%)	35 (60.3%)	28 (48.35)	15 (25.9%)
All patients n= 100	77	54	43	26

Another measure of the severity of personality disturbance is the number of general criteria. The men seem to have more severe personality disturbance according to the distribution of grade of general criteria than women. (See table 3).

Table 3

Number of general criteria according to DIP-Q, men and women respectively

DIP-Q number of general criteria	**2**	**3**	**4**	**5**	**Sum**
Patients, men/women	5/13	3/9	4/2	10/3	**22/27**
All patients	18	12	6	13	**49**
Healthy controls, men/women	2/5	2/3	2/0	2/0	**8/8**
All healthy controls	7	5	2	2	**16**

It is important to note the difference between personality traits and personality disorders. The personality disorders coded on DSM-IV axis II in the DIP-Q are divided into three different clusters. To Cluster A belongs eccentric and odd personality traits as paranoid, schizoid and . schizotypal disorders. Cluster B is characterized by "acting out" and dramatic personality traits as antisocial-, borderline-, histrionic- and narcissistic personality disturbance. Cluster C is defined by withdrawal and anxiety in the personal traits as well as phobic-, dependent-, and compulsion-disturbances.

To know the patient group further the results of the self-ratings from DIP-Q was divided into clusters A, B and C. Although among those found in the clusters A, B and C only Most of the patients were found in Cluster B and this was also the Cluster to which as many men as women had rated themselves. In Cluster A and C more women were found. (See table 4).

Table 4

Personality disturbance among the patients according to the self-rating of DIP-Q divided into the Clusters A, B and C

DIP-Q number	***Cluster A***	***Cluster B***	***Cluster C***	***Total number***
Men	7	19	4	**30**
Women	15	19	9	**43**
All	**22**	**38**	**13**	**73**

Study I

Affective Personality and Gender was studied in the patient group. The group was also studied in detail with the group distributed according to the four types of Affective Personality i.e. SF, HA, LA and SD. An analysis was carried out to identify the factors predicting Positive Affect and Negative Affect in the group. Additional analysis of the results included a comparison between the patient group and the norm group on optimism, energy and stress. Furthermore, the patient group was compared to the norm group to study the AUC (Area Under the Curve) as a measure of health.

To obtain the results concerning Affective Personality and Gender for the patient group Pillai's MANOVA was applied with Affective Personality and Gender as independent variables and Stress, Energy and LOT as dependent variables, one way ANOVA was performed likewise. The analysis indicated a significant effect of Affective Personality but not for Gender or nor any Affective personality x Gender interaction effect. One way ANOVA indicated significant effect of Affective Personality on Positive Affect, Negative Affect, Optimism and AUC (Area under Curve), but not on Pulse and BMI (Body Mass Index).

A second analysis was performed to study Affective Personality for the patient group in its detail with the patients distributed according to types of Affective Personality. Most of the patients belonged to the Self Fulfilling group and the Self-Destructive group. The results found was that the ***SF group*** differed from the HA, LA and the SD group with a *greater AUC*. Differed furthermore from the HA with *less NA and less Stress* and from the SD group with *less NA and less Stress,* but with more *PA and more LOT*. The results also pointed out that the ***LA group*** differed from the HA and SD group with *less NA and less Stress*. As a conclusion it can be emphasized that the healthiest groups were the SF group and the LA group.

A linear regression analysis was performed to examine the extent to which Positive and Negative Affect, respectively, may be predicted from Stress, Energy, Anxiety and LOT. The analysis indicated that Positive Affect could be predicted significantly from Energy and LOT, whereas Stress was counter-predictive for Positive Affect. It was observed that Negative Affect could be predicted significantly from Stress, while Energy, LOT and Pulse Rate were counter-predictive for Negative Affect. Important to note is that PA did not counter-predict NA and NA nor did it counter-predict PA. Another discovery is that NA did not interact with BMI or Blood Pressure.

A nonparametric χ^2 was carried out to compare between the patient population $n = 100$ and the norm group $n = 1925$ with regard with to the dependent variables: PA, Stress, Energy, NA and LOT, resulting in a significant overall effect. Follow-up ANOVAs were conducted on the respective variables. There were between-group effects for the following variables: PA, Energy, LOT, NA and Stress.

In order to study the health of the norm group and the patient group a hexagon with Area Under the Curve (AUC) was constructed. The AUC consisted in

six variables *i.e.* PA, Non-negative Affect, Energy, Energy/Stress-quotient, Non-Stress and LOT. The two groups differed significantly. We could also conclude that the pattern of the AUC of the Self-fulfilling profile, the High Affective profile, the Low Affective profile and the Self-Destructive profile were very similar with the SF profile always being the largest, LA higher than the HA-profile and that the SD-group always was the group with the smallest AUC as a description of health.

Study II

In this study different questions were asked. To what extent is Affective State and Mood predictive of the stress experience in a patient group and a healthy volunteer group? Is self-rated Affect different among a psychiatric patient group and a healthy norm group? To answer these questions the influence of psychiatric disease on Affective state and Mood was studied in order to understand to what degree these variables would predicate stress. To analyze the question in more detail type of group, (i.e. male patients and controls and female patients and controls) was examined as dependent variable. Additional results were obtained by studying the whole population in order to examine to what extent stress could be predicted from various variables. It was also studied to what degree stress according to gender may be predicted from the same variables as on the first question.

The first issue was answered in the following way. One - hundred psychiatric patients were compared to one - hundred and one healthy controls. One way ANOVAs indicated significant influence of psychiatric disease on PA, Energy, Optimism, DIP-Q GAF (year), DIP-Q general criteria, NA, Stress, CPRS-depression, CPRS- anxiety and CPRS- compulsion. The means for the patients were lower on PA, Energy, Optimism and DIP-Q GAF i.e. Global Assessment of Functioning and the

means were higher on DIP-Q genera criteria, i.e. a measure of personality disorder, NA, Stress, CPRS-depression, CPRS-anxiety and CPRS-compulsion.

Now we come to the second issue. The results for the patients and the controls were studied with Pillai's MANOVA applied to the type of group (male patients, female patients, male controls and female controls) with these groups as dependent variables and with PA, Optimism, NA, and CPRS-anxiety as independent variables. A significant effect was found for group an all items. The above relationship is similar in both the psychiatric patient group and the healthy volunteer group. Female controls expressed significantly more CPRS-anxiety than male controls whereas no differences between male and female patients were obtained. Thus gender seemed important only for healthy persons.

To perform a thorough investigation on the third point a linear regression analysis was performed, upon the total population of patients and controls, to examine the extent to which stress may be predicted from NA, DIP-Q general criteria, CPRS-depression, CPRS-compulsion, CPRS-anxiety and DIP-Q GAF (year), PA and LOT. The analysis indicated that stress could be predicted significantly from NA and that PA was counterpredictive for stress over all the participants. Affective personality but not depressive and anxious mood may thus be said to be predictive of the self-reported stress experience.

A linear regression analysis was performed to examine the extent to which stress according to gender may be predicted from PA, LOT, DIP-Q GAF (year), NA, DIP-Q general criteria, CPRS-depression, and CPRS-anxiety CPRS-compulsion. The analysis indicated that NA predicts Stress among both men and women. On the other hand, DIP-Q general criteria predicted stress only among the male participants. PA was counterpredictive for stress among men only.

DISCUSSION

In both Study I and Study II measures of affective personality from NA and PA scores have been applied to provide estimations of "state" or "mood" thereby reflecting the essential state dependency of this approach. Although to some extent the estimations of mood with the affective personality approach confirm the findings derived from "trait-dependency" instruments such as Gordon´s Inventary (cf. Karlsson and Archer, 2007), the state-dependency of the instruments applied here is emphasized. For example, the items upon which individuals respond pertain to judgements regarding current status.

Study I

One of the aims of the study was to examine the influence of affective personality type upon self-reported indicators of psychological health in adult patients presenting psychiatric symptoms. The main finding indicates that the influence of affective personality type upon self-reported indicators of psychological health as stress, energy and dispositional optimism is substantial. It appears that both NA and stress are expressed overwhelmingly in patients presenting psychiatric symptoms. Positive and negative expectancies concerning the future are associated with both physical and psychological expressions of well-being (Robinson-Whelen, Kirn, MacCallum, & Kiecolt-Glaser, 1997). No gender differences of the measures used in the AUC health profile were observed in the patient group. Assignment of the patients to the four different affective personality types brought forth large differences between the groups (see Table 1).

Regarding positive affect, patients of the "self-fulfilling" and "high affective" types differed markedly from the "low affective" and "self-destructive" types. Regarding negative affect, the "self-fulfilling" differed markedly from the "high

affective" and "self-destructive", but not the "low affective". Dispositional optimism was markedly greater in the "self-fulfilling" individuals in comparison to the "low affective", "high affective" and "self-destructive". Stress was greater in the "high affective" and "self-destructive" groups in comparison with "low affective" and "self-fulfilling", whereas energy was greater in the "self-fulfilling" and "high affective" types in comparison to the "low affective" and "self-destructive" types. One interpretation of this pattern may be that the "low affective" patients, though lacking in high levels of positive affect yet expressing low levels of negative affect, stress and pessimism, seem not to be as vulnerable as the "high affective" patients, despite the high level of positive affect in the latter (note the slightly higher health AUC by the former).

A secondary purpose of the study was to identify factors that may predict positive and negative affect in the patient group. Linear regression analysis indicated that positive affect was predicted by dispositional optimism and energy whereas stress was counter-predictive (see Table 2A). Conversely, negative affect was predicted by stress whereas dispositional optimism, energy and pulse were counter-predictive (see Table 2B). It may be reiterated that optimism, like self-esteem, has been shown to predict expected challenges and are associated with somatic health (Scheier & Carver, 1982). The present results are in agreement with studies confirming that dispositional optimism is directed towards expectancies and the future and in combination with lower levels of stress offers important markers for psychological health (Robinson-Whelen, Kirn, MacCallum, & Kiecolt-Glaser, 1997; Scheier, Carver, & Bridges, 1994). The patients' health status was assessed through analysis of the AUCs with regard to positive affect and 'non-negative' affect, energy and 'non-stress', energy-stress quotient and dispositional optimism (see Figure 2). This health hexagon

demonstrates the markedly greater AUC of the "self-fulfilling" in the patient group, particularly 'non-negative' affect and 'non-stress'. Reductions in the health AUC, as exemplified in patients presenting the "self-destructive" profile, are notable with particular regard to 'non-negative' affect and 'non-stress'.

The final purpose of the study was to compare self-reported affect as assessed through self-estimated stress, energy and dispositional optimism among psychiatric patients with a healthy volunteer norm group. The present study indicated that the patient group and norm group differed considerably over all the variables assessed, particularly regarding self-reported energy. All the patients met with the DSM IV, axis I criteria for affective disorder and /or depression and a large proportion were undergoing CNS medication with compounds affecting serotonergic neurotransmission. It is interesting to note that mood states and affect are associated with serotonergic systems (Coccaro, 1989; Tranter, Healy, & Cattell, 2002; Verkes, Hengeveld, van der Mast, Fekkes, & van Kempen, 1998). Other studies have indicated that serotonergic functioning correlates with positive and negative affect in healthy male individuals (Zald & Depue, 2001). Flory et al. showed that brain serotonergic functioning was related to estimates of positive affect (Flory, Manuck, Matthews, & Muldoon, 2004).Taken together, the results of the open ward patient group and norm group are reconcilable with several other observations in illustrating the complex associations between affective personality, stress, energy and dispositional optimism, not least in possibly underlying comorbidity (Palomo, Beninger, Kostrzewa, & Archer, 2007). It is possible that, as shown above, the ability to achieve 'non-negative' affect and 'non-stress' states, i.e. inhibiting negative affect and stress, bears greater health outcome than positive affect. Optimism appears to function as a protective factor, as implied previously.

Study II

The clinical implications of the present findings appear to be as follows: The clear associations between, stress, affect and mood state, despite modulation through pharmacotherapeutic agents, are more serious in the patient group. It is interesting to note that mood states and affect are associated with serotonergic systems (Coccaro, 1989; Peirson & Heuchert, 2000; Tranter, Healy, & Cattell, 2002; Verkes, Hengeveld, van der Mast, Fekkes, & van Kempen, 1998). It has been shown too that serotonergic functioning correlates with positive and negative affect in healthy male individuals (Zald & Depue, 2001). Flory et al. showed that brain serotonergic functioning was related to estimates of positive affect (Flory, Manuck, Matthews, & Muldoon, 2004). The present study indicated clearly that patients with psychiatric diagnosis differ from healthy controls with regard to the levels of PA, NA, depression, compulsion, anxiety and Dip-Q general criteria and Dip-Q GAF-year, as well as stress, energy and optimism that they express. PA, energy and optimism were less and stress was higher in the patient group. These results are to be expected from the trends of other studies focusing on mood in both psychiatric patients and healthy volunteers.

The present results indicated that the values expressed by the different groups may have been expected both from a patient group presenting psychiatric symptoms in a General Psychiatric Department and from a healthy volunteer control group; these findings are consistent with those obtained previously (M. Zöller, Rembeck, & Bäckman, 1997; M. T. Zöller, 1997) wherein both patients presenting dysthymia at a similar level of severity as the present patient group and a healthy control group were investigated. The present results indicated that the patients presented a GAF-year mean value of 56.49 (±18.64), thereby placed in the group 51-60 which implies moderate symptoms or moderate difficulty in social, occupational or

school functioning; in contrast, the healthy control group presented a mean value of 82.62 (±16.85), thereby placed in the group 81-90 which implies transient symptoms, if any, and expectable reactions to psychosocial stress, and no more than slight impairment, if any, in social, occupational or school functioning. The number of GAF-general criteria presented by the patient group lay at an expected level with a mean value below 2 (1.77 ± 1.52) whereas the control group presented a mean value under 1 (0.60 ± 1.15). The patients' results pertaining to mean values for CPRS-Depression (23.36 ± 10.63), CPRS-Compulsion (16.50 ± 12.36) and CPRS-anxiety (23.43 ± 10.17) also indicated the expected levels for a psychiatric General Psychiatry out-patient group and lie within a light-to-moderate symptom level. It should be noted that the means for CPRS-Depression, CPRS-Compulsion and CPRS-Anxiety obtained from the healthy controls markedly lower than those of the patient group (see Table 1). Taken together, the groups were considered representative for the present study. Interestingly, a significant influence of presenting psychiatric disease symptoms was observed upon expressions of stress, and lack of energy and optimism.

The only 'direct' significant effect of gender found within the two groups, i.e. patient group and control group, pertained to CPRS-anxiety expressed by the healthy controls wherein the female participants evidenced more than twice as much anxiety as the males (see Table 2). Independent of gender, patients otherwise showed markedly greater negative affect and anxiety than the healthy control concurrent with markedly lower levels of positive affect and optimism.

A major focus of this study was to ascertain witch personal attributes contributed to patients and healthy controls experience of stress. It indicated that to a marked extent only two attributes contributed; negative affect was directly predictive whereas positive affect was counter predictive (see Table 3). This important result that

stress could be predicted from negative affect has been observed quite regularly (Andersson-Arntén, Jansson, & Archer, 2008; T. Archer, Adolfsson, & Karlsson, 2008; Trevor Archer, Adrianson, Plancak, & Karlsson, 2007; Karlsson & Archer, 2007; Palomo, Beninger, Kostrzewa, & Archer, 2007). Although stress also was counter-predicted from positive affect optimism measured as life orientation was found not to affect stress. In other studies positive and negative expectancies concerning the future are associated with both physical and psychological expressions of well-being (Robinson-Whelen, Kirn, MacCallum, & Kiecolt-Glaser, 1997).

Recently, in an investigation incorporating three distinct studies (T. Archer, Adolfsson, & Karlsson, 2008), all three studies provide plausible links between negative affect, anxiety and depression and lack of self-esteem, assessed through applications of linear regression analysis, which fits remarkably with earlier observations (Dua, 1993). In the study by Archer et al. stress was the major contributor to NA, anxiety, depressiveness, as well as being the major obstacle to PA, self-esteem and motivation. PA was counterpredicted by depression, NA was predicted by anxiety and depression, and counterpredicted by self-esteem. Interestingly, self-esteem was predicted by optimism and energy but counterpredicted by anxiety, depression and stress.

The variables that predicted stress were different between men and women thereby providing another type of gender effect (see Table 4). For men, both negative affect and the DIP-Q criteria predicted stress whereas positive affect was counter-predictive for stress. The female participants experienced stress to a lesser degree and stress was only predicted by negative affect. This notion implies that the predictors of stress ought to have a direct bearing based upon the regression analyses. Accordingly, the observation that only NA predicted stress among female participants

(patients and controls) whereas NA, DIP-Q general criteria predicts stress in the male participants, with PA counter predictive as well as, brings into question the status and properties of stress over gender.

It may be argued that there are problems derived from the present use of regression analyses with regard to individual's response tendencies associated with the applications of self-report questionnaires. These problems are inherent to these types of design and in forthcoming studies we are pursuing methods that allow a manipulation whereby independent variables provide levels of performance by the participants. Hopefully, the objectiveness of the measurements may be optimized. It is evident that certain aspects of the present results are of lesser magnitude than others. For example, that estimations of NA and PA differ between the four different affective personality types is to be expected.

Conclusion

Taken together, the results of the psychiatric patient group and healthy control group are reconcilable with several other observations in illustrating the complex associations between affective personality, stress, energy and dispositional optimism, not least in possibly underlying comorbidity (Palomo, Beninger, Kostrzewa, & Archer, 2007).

References

Aldwin, C. M. (1994). *Stress, coping and development: an Integrative Perspective*. New York: Guilford.

American Psychiatric Association. (1994). *Diagnostic and Statistical Manual of Mental Disorders* (Fourth Edition ed.). Washington, DC: American Psychiatric Association.

Andersson-Arntén, A. C., Jansson, B., & Archer, T. (2008). Influence of Affective Personality oncognition-mediated emotional processing. Need for empowerment. *Individual Differences Research, 6*(139-168).

Archer, T., Adolfsson, B., & Karlsson, E. (2008). Affective Personality as Cognitive-emotional Presymptom Profiles Regulatory for Self-reported Health Predispositions. *Neurotoxicity Research, 14*, 1-15.

Archer, T., Adrianson, L., Plancak, A., & Karlsson, E. (2007). Influence of affective personality on cognition-mediated emotional processing: Need for impowerment. *The European journal of psychiatry, 21*(4), 248-262.

Aspinwall, L. G., & Taylor, S. E. (1992). Modeling Cognitive Adaptation: A Longitudinal Investigation of the Impact of Individual Differences and Coping on College Adjustment and Performance [elektronic version]. *Journal of Personality and Social Psychology, 63*, 989-1003.

Beck, A. T., Steer, R. A., Kovacs, M., & Garrison, B. (1985). Hopelessness and eventual suicide: A 10 year perspective study of patients hospitalized with suicidal ideation. *American Journal of Psychiatry., 142*, 559-563.

Bodlund, O., Grann, M., Ottosson, H., & Svanborg, C. (1998). Validation of the self-report questionnaire DIP-Q in diagnosing DSM-IV personality disorders: A comparison of three psychiatric samples. *Acta Psychiatrica Scandinavica, 97*(4), 33-43.

Bood, S. Å., Archer, T., & Norlander, T. (2004). Affective personality in relation to general personality, self-reported stress, coping and optimism. *Individual Differences Research, 2*, 26-37.

Bremner, J. D. (2002). Neuroimaging studies in post-traumatic stress disorder. *Curr Psychiat Reports, 2002*(4).

Carver, C. S., Pozo, C., Harris, S. D., Noriega, V., Scheier, V., & Clark, C. (1993). How coping mediates the effects of optimism on distress: A study of women with early stage breast cancer. *Journal of Personality and Social Psychology, 65*, 375-390.

Carver, C. S., & Scheier, M. F. (1990). Origins and functions of positive and negative affect: A control-process view. *Psychological Review, 97*, 19-35.

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretical based approach. *Journal of Personality and Social Psychology, 56*, 267-283.

Clark, L., & Watson, D. (1988). Mood and the mundane: Relations between daily life events and self-reported mood. *Journal of Personality and Social Psychology, 54*, 296-308.

Coccaro, E. F. (1989). Central serotonin and impulsive aggression. *The British Journal of Psychiatry, 155*, 52-62.

Costa, P. T., & McCrae, R. R. (1989). *NEO Five-Factor Inventory Form.* Odessa, FL.

Costa, P. T., & Widiger, T. A. (2002). *Personality disorders and the Five-Factor Model of personlaity* (2 ed.). Washington, DC.

Digman, J. M. (1990). Personality structure: Emergence of the Five-Factor Model. *Annual Review of Psychology, 41*, 417-440.

Driesen, M., Hermann, J., & Stahl, K. (2000). Magnetic resonance imaging volumes of the hippocampus and the amygdala in women with borderline personality disorder and early tramatization. *Arch Gen Psychiatry, 57*(1115-1122).

Dua, J. (1993). The role of negative affect and positive affect in stress, depression, self-esteem, assertiveness. *Genetic, Social, and General Psychology Monographs, 119*, 517.

Fabrega, H., Ulrich, R., Pilkonis, P., & Mezzich, J. E. (1991). Personality disorders diagnosed at intake at a public psychiatric facility. *Hospital and Community Psychiatry, 44*, 159-162.

Farmer, A., Korzun, A., Owen, M. J., Craddock, N., Jones, L., Jones, I., et al. (2008). Medical disorders in people with recurrent depression. *The British Journal of Psychiatry, 192*, 351-355.

Flory, J. D., Manuck, S. B., Matthews, K. A., & Muldoon, M. F. (2004). Serotonergic function in the central nervous system is associated with daily ratings of positive mood. *Journal of Psychiatric Research, 129*, 11-19.

Friedman, L. C., Nelson, D. V., Baer, P. E., Lane, M., Smith, F. E., & Dworkin, R. (1992). The relationship of dispositional optimism, daily life stress, and domestic environment to coping methods used by cancer patients. *Journal of Behavioral Medicine, 15*, 127-142.

Gold, P. W., & Chrousos, G. P. (2002). Organization of the stress system and its dysregulation in melancholic and atypical depression: high vs low CRH/NE states. *Molecular Psychiatry, 7*, 254-275.

Gray, J. A. (1981). A critique of Eysenck's theory of personality. In H. J. Eysenck (Ed.), *A model for personality.* (pp. 246-276). Berlin, Germany: Springer-Verlag.

Gray, J. A. (1987). Perspectives on anxiety and impulsivity: A commentary. *Journal of Research in Personality, 2*, 493-509.

Huebner, E. S., & Dew, T. (1995). Preliminary validation of the positive and negative affect schedule with adolescents. *Journal of Psychoeducational Assessment, 13*, 286-293.

Karlsson, E., & Archer, T. (2007). Relationship between Personality characteristics and Affect: Gender and Affective Personality. *Individual Differences Research, 5*, 44-58.

Kercher, K. (1992). Assessing, subjective well-being in the old-old: the PANAS as measure of orthogonal dimensions of positive and negative affect. *Research on Aging 14*, 131-168.

Kjellberg, A., & Bohlin, G. (1974). Self-reported arousal: Further development of a multifactorial inventory. *Scandinavian Journal of Psychology 15*, 285-292.

Kjellberg, A., & Iwanowski, S. (1989). *Stress/energiformuläret: Utveckling av en metod för skattning av sinnesstämning i arbetet [The stress/energy questionnaire: Development of a method for assessing mood at the work place].* (Vol. 26). Solna: Enheten för psykofysiologi, Arbetsmiljöinstitutet.

Knutson, B., Wolkowitz, O. M., Cole, S. W., Chan, T., Moore, E. A., Johnson, R. C., et al. (1998). Selective alteration on personality and social behavior by serotonergic intervention. *American Journal of Psychiatry, 155*, 373-379.

Ljung, T., & Friberg, P. (2004). Biology of stress reactions (Swedish). *Läkartidiningen, 12*, 1089-1094.

McCrae, R. R. (1992). The Five-Factor Model: Issures and applications [Special issue] *Journal of Personality, 60.*

McEwen, B. S. (2006). Protective and damaging effects of stress mediators:central role of the brain. *Dialogues in Clinical Neuroscience, 8*(4), 367-381.

Melvin, G. A., & Molly, G. N. (2000). Some psychometric properties of the Positive and Negative Affect Schedule among Australian youth. *Psychological Reports, 86*, 1209-1212.

Mroczek, D. K., Spiro, I. A., Aldwin, C. M., Ozer, D. J., & Bossé, R. (1993). Construct Validation of Optimism and Pessimism in Older Men: Findings From the Normative Aging Study. *Health Psychology, 12*, 406-409.

Norlander, T., Bood, S. A., & Archer, T. (2002). Performance during stress: Affective personality, age and regularity of physical exercise. *Social Behavior and Personality 30*, 495-508.

Nowlis, V. (1965). Research with the mood adjective checklist. In S. S. Tomkins & C. E. Izard (Eds.), *Affect, Cognition and Personality* (pp. 352-389). New York: Springer.

Ottosson, H. (1999). *Validation of a self-report questionnaire for personality disorders in DSM-IV and ICD-10.*, Umeå University, Umeå.

Ottosson, H., Bodlund, O., Ekselius, L., Grann, M., von Knorring, L., Kullgren, G., et al. (1998). DSM-IV and ICD-10 Personality Disorders: A comparison of a self-report questionnaire (DIP-Q) with a structured interview. *European Psychiatry 13*, 246-253.

Ottosson, H., Grann, M., & Kullgren, G. (2000). Testretest reliability of a self report questionnaire for DSM-1V and ICD-10 personality disorders. *European Journal of Psychological Assessment, 16*, 53-58.

Palomo, T., Beninger, R. J., Kostrzewa, R. M., & Archer, T. (2007). Comorbidity implications in brain desease: neuronal substrates of symptom profiles. *Neurotoxity Research, 12*(1), 1-15.

Peirson, A. R., & Heuchert, J. W. (2000). Correlations for serotonin levels and measures of mood in a nonclinical sample. *Psychological Reports, 87*(3), 707-716

Peterson, C., & Bossio, L. M. (1991). *Health and optimism.* New York: Free Press.

Pressman, S. D., & Cohen, S. (2005). Does positive affect influence health? *Psychol Bull., 131*, 925-971.

Reker, G. T., & Wong, P. T. P. (1983, April). *The salutary effects of personal optimism and meaningfulness on the physical and psychological well-being of the elderly.* Paper presented at the 29th Annual Meeting of the Western Gerontological Society, Albuquerque, NM.

Robinson-Whelen, S., Kirn, C., MacCallum, R. C., & Kiecolt-Glaser, J. K. (1997). Distinguishing optimism from pessimism in older adults: Is it more important to be optimistic or not to be pessimistic? *Journal of Personality and Social Psychology, 71*, 1345-1353.

Sachar, E. J., Hellman, L., Roffwarg, H. P., Halpern, F. S., Fukushima, D. K., & Gallagher, T. F. (1973). Disrupted 24-hour patterns of cortisol secretion in psychotic depression. *Arch Gen Psychiatry, 28*, 12-24.

Sapolsky, R. M. (2005). The influence of social hierarchy on primate health. *Science, 308*, 648-652.

Scheier, M. F., & Carver, C. S. (1982). Self-consciousness, outcome expectancy, and persistence. Journal of Research in Personality *Journal of Research in Personality 16*, 409-418.

Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: assessment and implication of generalized outcome expectancies. *Health Psychology, 4*, 219-247.

Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism: A revaluation of the Life Orientation Test. *Journal of Personality and Social Psychology, 67*, 1063-1078.

Scheier, M. F., Matthews, K. A., Owens, J., Magovern, G. J. S., Lefebvre, R. C., Abbott, R. A., et al. (1989). Dispositional optimism and recovery from coronary artery bypass surgery: The beneficial effects on physical and psychological well-being. *Journal of Personality and Social Psychology, 57*, 1024-1040.

Seeman, T. E., Singer, B. H., Ryff, C. D., Dienberg, G., & Levy-Storms, L. (2002). Social relationships, gender, and allostatic load across two age cohorts. *Psychosom Med., 64*, 395-406.

Shulz, R., Bookwala, J., Knapp, J. E., Scheier, M., & Williamson, G. M. (1996). Pessimism, age, and cancer mortality. *Psychology and Aging, 11*, 304-309.

Sjöberg, L., Svensson, E., & Persson, L. O. (1979). The measurement of mood. *Scandinavian Journal of Psychology, 20*(1), 1-18.

Socialstyrelsen. (1996). *Klassifikation av sjukdomaar och hälsoproblem 1997. Systematisk förteckning. Svensk version av International Statistical Classification of Disease and Related Health Problems, Tenth Revision (ICD).* Uppsala: Almqvist & Wiksell Tryckeri.

Stroop, J. R. (1935). Studies of interference in several verbal reactions. *Journal of Experimental Psychology 18*, 622-643.

Svanborg, P., & Åsberg, M. (1994). A new self-rating scale for depression and anxiety states based on the Comprehensive Psychopathological Rating Scale. *Acta Psychatrica Scandinavica, 89*, 21-28.

Svanborg, P., & Åsberg, M. (2001). A comparison between the Beck Depression Inventory (BDI) and the self rating version of the Montgomery Åsberg Depression Rating Scale (MADRS). *Journal of Affective Disorders, 64*, 203-216.

Tranter, R., Healy, H., & Cattell, D. (2002). Functional effects of agents differentially selective to noradreneergic or serotonergic systems *Psychological Medicine, 32*, 517-524.

Walker, L. E. A. (1994). Are personality disorders gender biased? In S. A. Kirk (Ed.), *Einbinder, S.D.* (pp. 22-29). New York: Allyn & Bacon.

Varg, N. (1997). *Negativ affektivitets inverkan på svarsbeteende i enkätformulär [The influence of negative affect upon responding to questionnaires].* Stockholm.

Watson, D., & Clark, L., Anna. (1994). *The PANAS-X, Manual for the Positive and Negative Affect Scedule - Expanded form.* Iowa: The University of Iowa reports

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect. The PANAS scale.... *Journal of Personality and Social Psychology, 54*(6), 1063-1070.

Watson, D., & Pennebaker, J. W. (1989). Health Complaints, Stress, and Distress: Exploring the Central Role of Negative Affectivity. *Psychological Review, 96*(2), 234-254.

Watson, D., Pennebaker, J. W., & Folger, R. (1987). Beyond negative affectivity: Measuring stress and satisfaction in the workplace. *Journal of Organizational Behavior Management, 8*, 141-157.

Verheul, R., & Widiger, T. A. (2004). A meta-analysis of the prevalence and usage of the personality disorder not otherwise specified (PDNOS). *Journal of Personality Disorders, 18*, 309-319.

Verkes, R. J., Hengeveld, M. W., van der Mast, R. C., Fekkes, D., & van Kempen, G., M. J. (1998). Mood correlates with blood serotonin, but not glucose measures in patients with recurrent suicide behaviour. *Psychiatry Research, 80*, 239-248.

Wilson, K., Gullone, E., & Moss, S. (1998). The youth version of the positive and negative affect schedule: a psychometric validation. *Behaviour Change 15*, 187-193.

Zald, D. H., & Depue, R. A. (2001). Serotonergic functioning correlates with positive and negative affect in psychiatrically healthy males. *Personality and Individual Differences 30*, 71-86.

Zalewska, A., Miniszewska, J., Chodkiewicz, J., & Narbutt, J. (2007). Acceptance of chronic illness in psoriasis vulgaris patients. *Journal of the European Academy of Dermatology and Venereology, 21*, 235-242.

Zöller, M., Rembeck, B., & Bäckman, L. (1997). Neuropsychological deficits in adults with neurofibromatosis type I. *Acta Neurologica Scandinavica, 95*, 225-232.

Zöller, M. T. (1997). *Neurofibromatosis I. Psychiatric and somatic aspects: A 12-year follow-up of adult patients in Sweden.* Göteborg University, Göteborg.

Åsberg, M., Perris, C., Schalling, E., & Sedvall, G. (1978). The CPRS: development and application of a psychiatric rating scale. *Acta Psychiatica Scandinavica, 291 (suppl)*, 285-292.

Study I

Individual Differences Research
2009, Vol. 7, No. 1 , pp. 14-28

www.idr-journal.com
ISSN: 1541-745X

Self-Rated Affect Among Adults Presenting Psychiatric Diagnosis

Madeleine E. Zöller*
University of Göteborg
Sahlgrenska University Hospital, Göteborg

Erica Karlsson & Trevor Archer
University of Göteborg

**Madeleine E. Zöller; Sahlgrenska University Hospital; Department of Psychiatry; Mellanvårdsteamet; Lilla Badhusgatan 2, SE 41121 Göteborg, Sweden; madeleine.zoller@psy.gu.se (email).*

ABSTRACT - The influence of an affective personality type upon psychological health was examined in 100 psychiatric patients. Factors predicting positive and negative affect were studied in a comparison of the patients with a healthy norm group of 1925 individuals. The patient group showed strong associations between affective personality, energy, optimism and self-reported health as well as stress indisposition. Positive affect was predicted significantly from dispositional optimism whereas stress was counter-predictive. Negative affect was predicted significantly from stress, whereas dispositional optimism, energy and pulse rate were counter-productive. Within both populations, individuals expressing the self-fulfilling affective profiles showed healthiest profiles compared with those expressing self-destructive affective profiles. The patients differed markedly from the norm group with regard to all health variables. Stress appears less detrimental for health in comparison to negative affect itself which is expressed by a self-destructed symptom profile.

Affective personality self-reported data concerning stress may be associated with affective states (Watson, Pennebaker, & Folger, 1987) and both positive affect (PA) and negative affect (NA) may possess explanatory value (Clark & Watson, 1988), despite these scales being correlated with different factors. Nevertheless, it appears that both PA and NA influence individuals' relations to stressors, situations associated with stress and the experience of stress (Aldwin, 1994; Melvin & Molly, 2000). It is possible that the 'affective profile' of individuals predisposes them to confront stressful situations with different propensities.

Consequently, Norlander, Bood and Archer tested the notion that different combinations of PA- and NA-values, may contribute to the 'affective personality type' for different individuals whereby a procedure was developed through which four types of affective personality were distinguished: those individuals that expressed high PA- and low NA-values ("Self-actualization", but now modified to "Self-fulfillment"), low PA and low NA ("Low affective"), high PA and high NA ("High affective"), and low PA

and high NA ("Self-destructive") (Norlander, Bood, & Archer, 2002). It was found that performance during stress, assessed with the Stroop Color and Word Test (SCWT), (Stroop, 1935) and resting systolic blood pressure was related to the affective personality of subjects from a range of occupations. Thus, individuals with a "Self-fulfillment" type of affective personality performed best under stress whereas "Low affective" individuals performed at the lowest level. "High affective" individuals showed the lowest levels of resting systolic blood pressure whereas the "Self-destructive" individuals showed the highest levels. Recent studies have found that individuals distinguished by the four types of affective personality differed in their experience of stress, their levels of dispositional optimism and in certain other aspects of personality (Bood, Archer, & Norlander, 2004). Thus in this study, the "Self-fulfillment" type of affective personality showed a higher level of responsibility, more emotional stability and original thinking, less stress and more dispositional optimism than the "Self-destructive" group (and in certain cases the "High affective" group, too). The "Low affective" group expressed more responsibility and better personal relations than the "Self-destructive" group. Thus, it appears that personal characteristics necessary for a normal individual's adequate functioning in everyday life bear some relationship to the four types of affective personality.

Psychosocial stress may exert negative influences upon physical health (Watson & Pennebaker, 1989). Negative stress has been described as dysregulation in melancholic and atypical depression involving high vs. low corticotrophin releasing hormone/noradrenalin (Gold & Chrousos, 2002). Even positive stress may induce negative reactions if maintained chronically without intervals for rest and recuperation (McEwen, 2006; Sapolsky, 2005). The dangers of chronic stress are expressed in a multitude of behavioral and somatic factors (Farmer et al., 2008; Ljung & Friberg, 2004). It has also been observed that negative affect and positive affect are associated closely with personality characteristics such as optimism and pessimism (Peterson & Bossio, 1991; Scheier & Carver, 1982). Several different sources have indicated that dispositional optimism enhances both physical and psychological well-being (Aspinwall & Taylor, 1992; Scheier et al., 1989). It is suggested that the differences in results are due to the different types of coping behaviors that optimists and pessimists apply whereby optimists generally present stable coping tendencies in hypothetical situations (Carver, Scheier, & Weintraub, 1989). Individuals expressing positive or negative affect may be differentiated both during serious illness (Friedman et al., 1992) and during specific threats to health. Optimists tend to employ more problem-focused (Carver et al., 1993) coping strategies and, if this is impossible, are able to find adaptive emotion-focused strategies. Pessimists tend to employ denial and separate themselves from the objective both mentally and behaviorally, independent of whether they can solve the problem or not (Clark & Watson, 1988). When a sufficient goal-oriented outcome is obtained affect is positive but hindrance of this outcome induces negative affect (Carver & Scheier, 1990).

Much research on optimism and pessimism has made use of the Life Orientation Test (LOT) to establish individual differences in dispositional optimism (Beck, Steer, Kovacs, & Garrison, 1985; Reker & Wong, 1983; Scheier & Carver, 1985). Gray has described optimism and pessimism as dependent upon an individual's extroversion, whereby individuals expressing a high degree of extroversion showed a higher degree of positive

affect concerning the type of outcome of a situation (Gray, 1981, 1987). An individual expressing a lower level of positive affect views a given situation from a negative perspective and expects a worse outcome. High levels of pessimism are not only associated with negative affect (Watson, Clark, & Tellegen, 1988) but also with neuroticism (Costa & McCrae, 1989). Individuals expressing high levels of positive affect also possess the highest potential for survival (Peterson, Seligman, & Vaillant, 1988; Shulz, Bookwala, Knapp, Scheier, & Williamson, 1996). Furthermore, individuals with optimistic and positive attitudes presented the highest levels of general health during health controls (Mroczek, Spiro, Aldwin, Ozer, & Bossé, 1993). A study of chronic skin disease indicated that a higher level of acceptance was reached by those patients with increased optimism and a reduced conviction that their own health depended on the efforts of others (Zalewska, Miniszewska, Chodkiewicz, & Narbutt, 2007). It is of interest to ascertain whether or not optimism/pessimism may contribute better/worse to health and the mediator role of affect. The ability to cope with stress may vary considerably as a function of optimism and affective profile, or expressed differently affective personality.

Aim of the Study

The aim of the study was to examine the influence of an affective personality type upon self-reported indicators of psychological health in adult patients presenting psychiatric symptoms. Further, to identify the factors predicting positive and negative affect respectively. Finally, to compare self-rated affect as indexed by stress, energy and dispositional optimism as life orientation among patients with a healthy norm group.

Method

Ethical Approval

This study was a continuation of a study of psychiatric comorbid drug-addicted patients where in this second part all drug-addicted patients were excluded. The study was approved of the Swedish Ethical Committee.

The Patient Group

100 psychiatric patients, 42 women and 58 men, with age $M = 38.9$ years ($SD = 12.4$; *range* = 21-71) were investigated consecutively over a 1-year period at an out-patient ward at the Sahlgrenska University Hospital, Göteborg, Sweden by one of the authors (M. Zöller). The DSM-IV axis I criteria met for the patients were 54% major depressive disorder, 37% anxiety disorder and 9 % was a mixed group of bulimia nervosa, polymorph psychosis (1%), psychosomatic disorder (2%), ADHD (attention deficit hyperactivity dysfunction) (1%) and organic personality disorder (3%), (American Psychiatric Association, 1994). The severity of the psychiatric symptoms was measured using the self-assessment scale CPRS (The Comprehensive Psychopathological Rating Scale) (Svanborg & Åsberg, 1994, 2001). The patient score for depression was $M = 23.4$ ($SD = 10.6$; *range* 1-46) for anxiety $M = 23.4$ ($SD = 10.2$; *range* = 0-45) for compulsion $M = 16.5$ ($SD = 12.4$; *range* 0-43) and psychoses $M = 5{,}2$ ($SD = 6{,}4$; *range* = 0-29). Eighty-seven subjects were treated with antidepressive and/or anxiolytic medication. Personality disorder was measured with DIP-Q, a self-report questionnaire for

personality disorders in DSM-IV and ICD-10 (Bodlund, Grann, Ottosson, & Svanborg, 1998; Ottosson, 1999; Ottosson et al., 1998; Ottosson, Grann, & Kullgren, 2000). Eighty-three percent fulfilled the criteria for personality disorder according to DIP-Q with the number of general criteria $M = 1.8$ ($SD = 1.8$; *range* = 0-5), GAF (last year) $M = 56.5$ ($SD = 18.6$; *range* = 1-100). The patients' physical status was examined by a physician. Systolic blood pressure measured $M = 126$ mmHg ($SD = 21,9$; *range* = 110-180), diastolic $M = 81$ mm Hg ($SD = 9,3$ range = 60-110), pulse rate $M = 73,0$ ($SD = 10,8$ *range* = 54-97) and body mass index (BMI) $M = 25,6$ ($SD = 4,8$; *range* = 15,6-44,7). Background variables for the patients were described in terms of heredity from parents for psychiatric disease = 34%, employment = 37%, sick leave = 36%, early retirement pension = 27%, weekly physical activity = 59% and daily cigarette smoking = 38%. All except two patients used alcohol less than two times a week.

The Norm Group

The patients were compared with a norm group consisting of 1925 non-clinical individuals who completed the PANAS (Positive Affect and Negative Affect Scales) instrument as well as the SE Stress and Energy questionnaire by filling it in anonymously. At the time of testing each individual was a non paid healthy volunteer. The individuals were included by one of the authors (E. Karlsson and co-workers). Working people and students otherwise engaged in educational pursuits were included. A few of the persons were form Norway living not far from the Swedish border and the rest were Swedes. The volunteers were later included in a lager study.

Procedure

The patients from an outpatient ward and were consecutively recruited for the study by an experienced psychiatrist as well as psychologist (M. Zöller). All the patients accepted the study and were informed about the study, and that they could leave the study at any time. After having filled in the questionnaires CPRS and DIP-Q, they visited the psychiatrist and were diagnosed according to DSM-IV. Then they completed the PANAS-instrument, the SE-instrument and the LOT-instrument. The background data were collected by way of an interview following a questionnaire providing information about their age, sex, weekly exercise, nicotine use, and employment status. The patients were examined physically according to clinic standards including pulse rate, blood pressure (BP), heart rate (HR), weight, length and neurological status. Medication was recorded. After this the patients were given the three self-rating questioners PANAS, SE and LOT.

All the individuals in the norm group were met in groups of 3-to-8 by the researcher and asked to complete a formula. They were unpaid and were recruited in the classroom or workplace. At the time of the data collection, the norm group was not involved in any other type of study. The persons in the norm group, in which all reported themselves as healthy, were given the same questionnaires, PANAS, SE and LOT, as the patients.

Design

Two groups were compared, a psychiatric patient group and a healthy norm group. The study consisted of the dependent variables: "stress and energy" and "dispositional

optimism". The independent variables of the study were Affective personality, gender, age, psychiatric DSM IV diagnosis, CPRS self rating (Svanborg & Åsberg, 1994) including GAF, SE (Kjellberg & Iwanowski, 1989), PANAS (Kercher, 1992) and LOT. The between-group factors in the study were the type of affective personality (consisting of the four types of affective personality: self-fulfilling, low affective, high affective, and self-destructive), gender (male and female participants). The four types of personality were derived through the application of the two Positive and Negative Affect Scales (PANAS)(Watson & Clark, 1994), positive affect (PA) and negative (NA) affect, respectively (Bood, Archer, & Norlander, 2004; Norlander, Bood, & Archer, 2002). Thus four types of affective personality included: one group consisting of 36 patients with a self-fulfilling affective personality (modified from self-actualizing personality), one group consisting of 14 patients with a low affective personality, one of 16 high affective participants, and finally one group consisting of 34 patients with destructive type of affective personality.

Instruments

Positive Affect- and Negative Affect Scales. The PANAS instrument estimates the degree of affectiveness, whether as negative or positive affectiveness (Kercher, 1992; Varg, 1997; Watson, Clark, & Tellegen, 1988). In the test manual, it is indicated that the adjectives describe feelings (affect) and mood level (Watson & Clark, 1994). Response alternatives were presented on a 5-grade Likert scale, extending from 1 = not at all, to 5 = very much. The test person was to tell how he felt the last week. The negatively charged adjectives were summated to provide a total NA result and the positively charged adjectives were summated to a total result for positive affect. The PANAS instrument has been validated by studies aimed at general aspects of psychopathology as well as a multitude of other expressions of affect (Huebner & Dew, 1995; Watson & Clark, 1994). Authors have shown that no significant correlation exists between the extent of positive and negative affectiveness, which implies that divergent validity appears to be the case (Wilson, Gullone, & Moss, 1998). Previous studies have modified and developed the PANAS instrument further through a subject response-based derivation of the four types of affective personality (Bood, Archer, & Norlander, 2004; Norlander, Bood, & Archer, 2002; Palomo, Beninger, Kostrzewa, & Archer, 2007). This procedure was implemented in the present study through dividing the results on the PA-scale into two parts thereby distributing the participants into one group with high PA and another group with low PA (cutoff point = 53.2%). The same procedure was implemented for the participants' responses on the NA-scale (cut-off point = 48.9%). Following this, the results from these two scales were combined according to the procedure that assigned each one of the participants into one of the four affective personality groups, as follows: individuals showing high PA and low NA (self-fulfilling), high PA and high NA (high affective), low PA and low NA (low affective) and low PA and high NA (self-destructive). In the present sample internal reliabilities (Cronbach's *alpha*) were 0.88 for PA and 0.82 for NA.

Stress-Energy (SE). The SE-instrument is a self-estimation scale that assesses individuals' experience of their own stress and energy (Kjellberg & Iwanowski, 1989), during the preceding ten minutes. The test is divided into two sub-scales that express each participant's level of mood in two dimensions: "experienced stress" and

"experienced energy". Response alternatives are ordered within six-graded scales that extend from 0 = not at all to 5 = very much. The instrument has been validated through studies concerning occupational burdens and pressures (Kjellberg & Iwanowski, 1989). The SE-scale has been constructed from the earlier used checklist, Mood Adjective Check-List (Nowlis, 1965), which was modified by Kjellberg and Bohlin (Kjellberg & Bohlin, 1974) and Sjöberg, Svensson and Persson (Sjöberg, Svensson, & Persson, 1979). Kjellberg and Iwanowski reduced the list to 12 adjectives in the two dimensions, stress and energy, which provides the latest version applied here. The experienced 'neutral-point' within the Stress scale (i.e. neither stressed nor calm) lies, on average, on a scale value of 2.4, whereas the equivalent point for energy is on a scale value of 2.7. (Kjellberg & Iwanowski, 1989).

Life Orientation Test (LOT). The LOT-instrument is a self-estimation instrument that assesses an individual's degree of dispositional optimism. The instrument is based on a general model, regarding self-regulated behavior, which indicates that optimism exerts meaningful behavioral consequences (Scheier & Carver, 1982, 1985). It was constructed originally to study the extent to which the personality trait optimism was associated with the ability to develop suitable 'coping-strategies' in connection with severe psychological and physical handicaps (Norlander, Bood, & Archer, 2002). The instrument has eight items, plus four filler items. The task for each respondent is to decide on a scale anchored by 0: strongly disagree and 4: strongly agree. The test measures dispositional optimism, defined in terms of generalized outcome expectancies. According to Scheier and Carver (Scheier & Carver, 1985), LOT is a suitable scientifically prepared test with an estimated internal consistency of 0.76 (Cronbach's *alpha*) and a test-retest reliability of 0.79 (Pearsons´*r*) indicating that the test result is stable over time.

The Comprehensive Psychopathological Rating Scale (CPRS). The CPRS was constructed in Sweden to provide an instrument for the estimation of a number of psychopathological variables that may be sensitive for change in connection with psychiatric treatment (Åsberg, Perris, Schalling, & Sedvall, 1978). The instrument is intended to comprehensively cover all aspects of psychopathology or as a pool of variables/items, from which sub-scales for specific psychiatric syndromes may be constructed (Svanborg & Åsberg, 1994, 2001). Several sub-scales regarding different psychiatric syndromes have been constructed from the CPRS. The CPRS-self-report consists of 25 variables that measure self-estimates of depression, compulsion, anxiety and psychosis, respectively, on a scale of 0-3, half steps are used. Each variable and each scale step in CPRS is operationally defined.

DSM-IV and ICD-10 Personality - Questionnaire (DIP-Q). DIP-Q is a patient self-estimation scale (Ottosson, 1999; Ottosson et al., 1998; Ottosson, Grann, & Kullgren, 2000). The construction of the questions is directed by DSM-IV and ICD-10 (Socialstyrelsen, 1996). The scale consists of 140 statements, each of which is responded to with the alternatives 'agree' or 'do not agree'. All the 161 criteria defining the 18 personality disturbances comprised by DSM-IV and ICD-10 have been converted to self-report statements. Five statements were constructed to assess the so-called general criteria for personality disturbances. A personality disturbance is registered only if there is evidence of significant suffering or a significant dysfunction with regard to work

and/or social relations.

Statistics

Pillai's Multivariance Analysis of Variance (MANOVA) was applied with affective personality and gender as independent variables and with stress, energy and LOT as dependent variables, one way ANOVA was performed likewise. A linear regression analysis was performed to examine to which extent positive and negative affect may be predicted from the dependent variables. A nonparametric chi-square was carried out to compare the patient population and the norm group with regard to the dependent variables. Follow-up ANOVAS were conducted on the respective variables.

Results

Pillai's MANOVA was applied with Affective personality and Gender as independent variables and with stress, energy and LOT as dependent variables. The analysis indicated a significant effect of affective personality ($F(24, 26) = 7.35$, $p<0.0001$, *power* = 1.00) but not for gender ($F(8, 85) = 0.63$, $p>0.7$, *power* = 0.28) nor any affective personality x gender interaction effect ($p = 0.44$). One way ANOVA indicated significant affective personality on positive affect, negative affect, LOT and AUC, but not pulse and BMI (see Table 1) for ANOVA, means and *SD*s of the four types of affective personality.

Table 1

Means (± SD) for Positive and Negative Affect Scale (PANAS), Dispositional Optimism (LOT), Stress and Energy, AUC (Area under Curve), Pulse Rate and BMI (Body Mass Index) in 100 Adult Patients, Distributed According to Type of Affective Personality

	SF ($n = 36$)	HA ($n = 16$)	LA ($n = 14$)	SD ($n = 34$)
PA [$F(3,97) = 52.47$ $p< 0.001$]	3.17±0.65*	2.89±0.64*	1.76 ± 0.36	1.71 ±0.36
NA [$F(3,97) = 72.18$ $p< 0.001$]	1.88±0.57[a]	3.48±0.48	2.19±0.42[a]	3.70±0.61
LOT [$F(3,97) = 9,69$ $p< 0.001$]	2.31±0.62*[a]	1.75±0.69	1.93±0.78	1.48±0.54
St. [$F(3,97) = 15,16$, $p< 0.001$]	2.16±1.12*[a]	3.44±1.03	2.65±0.94[a]	3.68±0.85
En. [$F(3,97) = 15.21$, $p< 0.001$]	3.13±0.73*[b]	2.82±0.65	2.24±0.68	1.92±0.81
AUC [$F(3,97) = 2.88$, $p< 0.05$]	293.65±451.86†	100.72±40.92	108.85±47.57	68.67±31.24
PR [$F(3,97) = 2.34$, *ns*]	75.22±11.43	74.50±9.51	76.00 ±10.35	68.88±9.87
BMI [$F(3,97) = 0.42$, *ns*]	25.68±4.67	25.23±4.37	26.66±6.80	25.28±4.12

Note: SF = Self fulfilling; HA = High affective; LA = Low affective; SD = Self-destructive; PA = Positive affect; NA = Negative affect; LOT = Life Orientation Test; Stress = ST.; En. = energy; AUC = Area Under Curve, PR = Pulse rate; BMI = Body Mass Index. $p<0.001$ vs "SD" and "LA" group, Tukey HSD-testing.; † $p<0.001$ vs "SD", "HA" and "LA"; [a] $p<0.05$ vs "SD" and "HA; [b] $p<$ 0.05 vs "SD" and "L

Regression Analysis

A linear regression analysis was performed to examine the extent to which positive and negative affect, respectively, may be predicted from stress, energy (SE), anxiety and LOT. The analysis indicated that Positive affect: (F (7, 91) = 12.97, $p<0.0001$, $adj.R^2$ = 0.46 could be predicted significantly from LOT and energy, whereas stress was counter-predictive for positive affect (see Table 2a). It was indicated that Negative affect: (F (7, 91) = 24.42, $p<0.0001$, $adj.R^2 = 0.63$ could be predicted significantly from stress, while LOT, energy and pulse were counter-predictive for negative affect (see Table 2b).

Table 2

Standardized ß (Standardized Weights) Values for the Linear Regression Analysis with (a) Positive Affect and (b) Negative Affect, Respectively, as Dependent Variables, Dispositional Optimism (LOT), Energy and Stress (SE), Pulse Rate, Body Mass Index (BMI), Systolic Blood Pressure (SBP), Diastolic Blood Pressure (DBP) and Positive and Negative Affect Scale (PANAS) as Independent Variables

(a) Positive Affect

Predicting variables	Standardized Beta (β)
LOT	0.31*
Energy	0.55***
Stress	-0.21**
Negative affect	0.20 *ns*

Note. *p=0.05; **p<0.01; ***p<0.001; $F(8,90) = 11.23$; R^2=0.46

(b) Negative Affect

Predicting variables	Standardized Beta (β)
LOT	-0.32***
Energy	-0.32***
Stress	0.45***
Positive affect	0.14 *ns*
Pulse rate	-0.20 **
BMI	-0.06 *ns*
SBP	0.02 *ns*
DBP	-0.04 *ns*

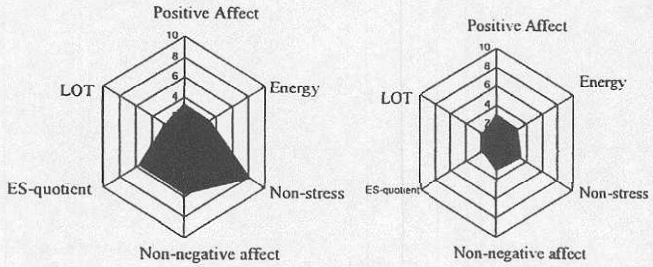
Note. **p<0.01; ***p<0.001; $F(8,90) = 21.21$; R^2=0.62

A nonparametric χ^2 was carried out to compare between the patient population $n = 100$ and the norm group $n = 1925$ with regard with to the dependent variables: PA, NA, Energy, Stress and LOT, resulting in a significant overall effect ($\chi^2 = 216.33$, $df = 55$, p=0.001). Follow-up ANOVAs were conducted on the respective variables. There were between-group effects for the following variables: PA ($F(1, 2021) = 47.27$, p <0.0001), NA ($F(1, 2021)$ =12.50, p<0,0001), Energy ($F(1, 2022)$ = 3,177, p = 0,075), Stress ($F(1, 2022)$ = 37,9, p<0.0001), LOT ($F(1, 2022) = 7.73$, p=0.005). Fig. 1 A presents Area under the Curve (AUC) from the patient population, and Fig 1B from the norm group. AUC consisted in six different measures for health *i.e.* PA, energy, LOT, energy/stress-quotient, non-stress and non-negative affect. In order to obtain a hexagonal health profile non-stress quotients, Energy-Stress (ES) quotients and non-negative quotients were calculated (see Fig. Captions). Fig. 2 presents an overall comparison between the patient population and the norm group with regard to the hexagonal health profile which expressed degree of AUC as its measure. The two groups differed significantly χ^2= 216, 33, df = 55, p = 0.001.

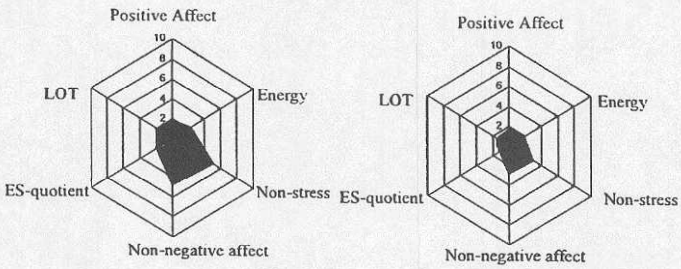
Figure 1A

Affective Personality Profile Among the Patients

PANAS Self-fulfilling Profile **PANAS High Affective Profile**



PANAS Low Affective Profile **PANAS Self- destructive Profile**

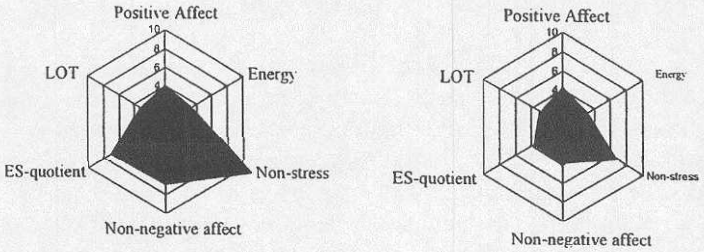


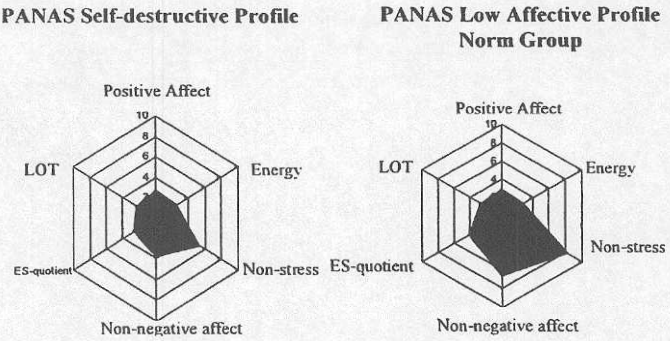
Note. "The Health Hexagon". Areas under Curve (AUCs) for each of the four types of affective personality: 'Self-fulfilling", "High affective", "Low affective" and "Self-destructive". The estimated AUCs for each of the types of affective personality were as follows: 'Self-fulfilling" mean 50.5 ± 57.4 units; "High affective" M = 22.2 ± 6.2 units; "Low affective" M = 25.4 ± 9.7 units; "Self-destructive" M = 16.4 ± 5.0 units. Non- negativity and Non-stress were calculated as the reciprocal of the mean value multiplied by 10, and SE-quotient was calculated as the mean value divided by 50.

Figure 1b

Affective Personality Profile Among the Norm Group

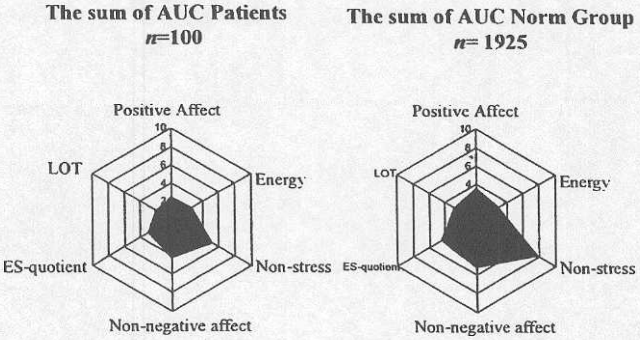
PANAS-Self-fulfilling Profile Norm Group **PANAS High Affective Profile Norm Group**





Note. Areas under Curve (AUCs) for each of the four types of affective personality in the Norm group: The estimated AUCs for each of the types of affective personality were as follows: 'Self-fulfilling" M = 63.0 ± 54.4 units; "High affective" M = 38.4 ± 28.1 units; "Low affective" M = 42.8 ± 30.9 units; "Self-destructive" M = 29.3 ± 18.4 units. Non- negativity (inverted value) and Non-stress (inverted value) were calculated as the reciprocal of the mean value multiplied by 10, and SE-quotient was calculated as the mean value divided by 50.

Figure 2
Psychiatric Patients Versus Healthy Volunteer Norm Group



Note. "The Health Hexagon". Areas under Curve (AUCs), presenting an overall assessment of psychological health for the sum of the 100 patients M = 30.9 ± 37.7 units and for the norm group of 1925 individuals M= 43.4 ± 38.2 units. Non- negativity and Non-stress were calculated as the reciprocal of the mean value multiplied by 10, and SE-quotient was calculated as the mean value divided by 50. The sum of AUC was significantly different between the groups (χ^2 = 216.33; df=55; p = 0.001). When computed for each variable the results were: Positive affect (χ^2 = 93.9; df= 1; p<0.0001), Energy (χ^2 = 5.0; df= 1; p<0.05), Stress (χ^2 = 54.1; df = 1; p<0.0001), Energy/Stress quotient (χ^2 = 45.1; df = 1, p< 0,0001), LOT (dispositional optimism) (χ^2 = 62.4; df =1; p<0.0001), non-negative affect (χ^2 = 38.8; df =1, p<0.0001) and non-Stress (χ^2 = 51.6; df = 1; p<0.0001).

Discussion

One of the aims of the study was to examine the influence of affective personality type upon self-reported indicators of psychological health in adult patients presenting psychiatric symptoms. The main finding indicates that the influence of affective personality type upon self-reported indicators of psychological health as stress, energy and dispositional optimism is substantial. It appears that both NA and stress are expressed overwhelmingly in patients presenting psychiatric symptoms. Positive and negative expectancies concerning the future are associated with both physical and psychological expressions of well-being (Robinson-Whelen, Kirn, MacCallum, & Kiecolt-Glaser, 1997). No gender differences of the measures used in the AUC health

profile were observed in the patient group. Assignment of the patients to the four different affective personality types brought forth large differences between the groups (see Table 1).

Regarding positive affect, patients of the "self-fulfilling" and "high affective" types differed markedly from the "low affective" and "self-destructive" types. Regarding negative affect, the "self-fulfilling" differed markedly from the "high affective" and "self-destructive", but not the "low affective". Dispositional optimism was markedly greater in the "self-fulfilling" individuals in comparison to the "low affective", "high affective" and "self-destructive". Stress was greater in the "high affective" and "self-destructive" groups in comparison with "low affective" and "self-fulfilling", whereas energy was greater in the "self-fulfilling" and "high affective" types in comparison to the "low affective" and "self-destructive" types. One interpretation of this pattern may be that the "low affective" patients, though lacking in high levels of positive affect yet expressing low levels of negative affect, stress and pessimism, seem not to be as vulnerable as the "high affective" patients, despite the high level of positive affect in the latter (note the slightly higher health AUC by the former).

A secondary purpose of the study was to identify factors that may predict positive and negative affect in the patient group. Linear regression analysis indicated that positive affect was predicted by dispositional optimism and energy whereas stress was counter-predictive (see Table 2A). Conversely, negative affect was predicted by stress whereas dispositional optimism, energy and pulse were counter-predictive (see Table 2B). It may be reiterated that optimism, like self-esteem, has been shown to predict expected challenges and are associated with somatic health (Scheier & Carver, 1982). The present results are in agreement with studies confirming that dispositional optimism is directed towards expectancies and the future and in combination with lower levels of stress offers important markers for psychological health (Robinson-Whelen, Kim, MacCallum, & Kiecolt-Glaser, 1997; Scheier, Carver, & Bridges, 1994). The patients' health status was assessed through analysis of the AUCs with regard to positive affect and 'non-negative' affect, energy and 'non-stress', energy-stress quotient and dispositional optimism (see Figure 2). This health hexagon demonstrates the markedly greater AUC of the "self-fulfilling" in the patient group, particularly 'non-negative' affect and 'non-stress'. Reductions in the health AUC, as exemplified in patients presenting the "self-destructive" profile, are notable with particular regard to 'non-negative' affect and 'non-stress'.

The final purpose of the study was to compare self-reported affect as assessed through self-estimated stress, energy and dispositional optimism among psychiatric patients with a healthy volunteer norm group. The present study indicated that the patient group and norm group differed considerably over all the variables assessed, particularly regarding self-reported energy. All the patients met with the DSM IV, axis I criteria for affective disorder and /or depression and a large proportion were undergoing CNS medication with compounds affecting serotonergic neurotransmission. It is interesting to note that mood states and affect are associated with serotonergic systems (Coccaro, 1989; Peirson & Heuchert, 2000; Tranter, Healy, & Cattell, 2002; Verkes, Hengeveld, van der Mast, Fekkes, & van Kempen, 1998). Other studies have indicated that serotonergic functioning correlates with positive and negative affect in healthy male

individuals (Zald & Depue, 2001). Flory et al. showed that brain serotonergic functioning was related to estimates of positive affect (Flory, Manuck, Matthews, & Muldoon, 2004).Taken together, the results of the open ward patient group and norm group are reconcilable with several other observations in illustrating the complex associations between affective personality, stress, energy and dispositional optimism, not least in possibly underlying comorbidity (Palomo, Beninger, Kostrzewa, & Archer, 2007). It is possible that, as shown above, the ability to achieve 'non-negative' affect and 'non-stress' states, i.e. inhibiting negative affect and stress, bears greater health outcome than positive affect. Optimism appears to function as a protective factor, as implied previously.

Acknowledgements

Peter Pagels developed the Hexagon model for presenting total behavioral profiles as Area under Curve.

References

Aldwin, C. (1994). *Stress, coping and development: an Integrative Perspective*. New York: Guilford.

American Psychiatric Association (1994). *Diagnostic and Statistical Manual of Mental Disorders* (4th ed). Washington, DC: Author.

Åsberg, M., Perris, C., Schalling, E., & Sedvall, G. (1978). The CPRS: development and application of a psychiatric rating scale. *Acta Psychiatica Scandinavia, 291 (suppl)*, 285-292.

Aspinwall, L. G., & Taylor, S. E. (1992). Modeling Cognitive Adaptation: A Longitudinal Investigation of the Impact of Individual Differences and Coping on College Adjustment and Performance. *Journal of Personality and Social Psychology, 63*, 989-1003.

Beck, A. T., Steer, R. A., Kovacs, M., & Garrison, B. (1985). Hopelessness and eventual suicide: A 10 year perspective study of patients hospitalized with suicidal ideation. *American Journal of Psychiatry, 142*, 559-563.

Bodlund, O., Grann, M., Ottosson, H., & Svanborg, C. (1998). Validation of the self-report questionnaire DIP-Q in diagnosing DSM-IV personality disorders: A comparison of three psychiatric samples. *Acta Psychiatica Scandinavia, 97*(4), 33-43.

Bood, S. Å., Archer, T., & Norlander, T. (2004). Affective personality in relation to general personality, self-reported stress, coping and optimism. *Individual Differences Research, 2*, 26-37.

Carver, C. S., Pozo, C., Harris, S. D., Noriega, V., Scheier, V., & Clark, C. (1993). How coping mediates the effects of optimism on distress: A study of women with early stage breast cancer. *Journal of Personality and Social Psychology, 65*, 375-390.

Carver, C. S., & Scheier, M. F. (1990). Origins and functions of positive and negative affect: A control-process view. *Psychological Review, 97*, 19-35.

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretical based approach. *Journal of Personality and Social Psychology, 56*, 267-

283.

Clark, L., & Watson, D. (1988). Mood and the mundane: Relations between daily life events and self-reported mood. *Journal of Personality and Social Psychology, 54*, 296-308.

Coccaro, E. F. (1989). Central serotonin and impulsive aggression. *The British Journal of Psychiatry, 155*, 52-62.

Costa, P. T., & McCrae, R. R. (1989). *NEO Five-Factor Inventory Form.* Odessa, FL.

Farmer, A., Korzun, A., Owen, M. J., Craddock, N., Jones, L., Jones, I., et al. (2008). Medical disorders in people with recurrent depression. *The British Journal of Psychiatry, 192*, 351-355.

Flory, J. D., Manuck, S. B., Matthews, K. A., & Muldoon, M. F. (2004). Serotonergic function in the central nervous system is associated with daily ratings of positive mood. *Journal of Psychiatric Research, 129*, 11-19.

Friedman, L. C., Nelson, D. V., Baer, P. E., Lane, M., Smith, F. E., & Dworkin, R. (1992). The relationship of dispositional optimism, daily life stress, and domestic environment to coping methods used by cancer patients. *Journal of Behavioral Medicine, 15*, 127-142.

Gold, P. W., & Chrousos, G. P. (2002). Organization of the stress system and its dysregulation in melancholic and atypical depression: high vs low CRH/NE states. *Molecular Psychiatry, 7*, 254-275.

Gray, J. A. (1981). A critique of Eysenck's theory of personality. In H. J. Eysenck (Ed.), *A model for personality.* (pp. 246-276). Berlin, Germany: Springer-Verlag.

Gray, J. A. (1987). Perspectives on anxiety and impulsivity: A commentary. *Journal of Research in Personality, 2*, 493-509.

Huebner, E. S., & Dew, T. (1995). Preliminary validation of the positive and negative affect schedule with adolescents. *Journal of Psychoeducational Assessment, 13*, 286-293.

Kercher, K. (1992). Assessing, subjective well-being in the old-old: the PANAS as measure of orthogonal dimensions of positive and negative affect. *Research on Aging, 14*, 131-168.

Kjellberg, A., & Bohlin, G. (1974). Self-reported arousal: Further development of a multifactorial inventory. *Scandinavian Journal of Psychology 15*, 285-292.

Kjellberg, A., & Iwanowski, S. (1989). *Stress/energiformuläret: Utveckling av en metod för skattning av sinnesstämning i arbetet [The stress/energy questionnaire: Development of a method for assessing mood at the work place].* (Vol. 26). Solna: Enheten för psykofysiologi, Arbetsmiljöinstitutet.

Ljung, T., & Friberg, P. (2004). Biology of stress reactions (Swedish). *Läkartidiningen, 12*, 1089-1094.

McEwen, B. S. (2006). Protective and damaging effects of stress mediators. *Dialogues in Clinical Neuroscience, 8*(4), 367-381.

Melvin, G. A., & Molly, G. N. (2000). Some psychometric properties of the Positive and Negative Affect Schedule among Australian youth. *Psychological Reports, 86*, 1209-1212.

Mroczek, D. K., Spiro, I. A., Aldwin, C. M., Ozer, D. J., & Bossé, R. (1993). Construct Validation of Optimism and Pessimism in Older Men: Findings From the Normative

Aging Study. *Health Psychology, 12*, 406-409.

Norlander, T., Bood, S. A., & Archer, T. (2002). Performance during stress: Affective personality, age and regularity of physical exercise. *Social Behavior and Personality, 30*, 495-508.

Nowlis, V. (1965). Research with the mood adjective checklist. In S. S. Tomkins & C. E. Izard (Eds.), *Affect, Cognition and Personality* (pp. 352-389). New York: Springer.

Ottosson, H. (1999). *Validation of a self-report questionnaire for personality disorders in DSM-IV and ICD-10.*, Umeå University, Umeå.

Ottosson, H., Bodlund, O., Ekselius, L., Grann, M., von Knorring, L., Kullgren, G., et al. (1998). DSM-IV and ICD-10 Personality Disorders: A comparison of a self-report questionnaire (DIP-Q) with a structured interview. *European Psychiatry, 13*, 246-253.

Ottosson, H., Grann, M., & Kullgren, G. (2000). Testretest reliability of a self report questionnaire for DSM-1V and ICD-10 personality disorders. *European Journal of Psychological Assessment, 16*, 53-58.

Palomo, T., Beninger, R. J., Kostrzewa, R. M., & Archer, T. (2007). Comorbidity implications in brain desease: neuronal substrates of symptom profiles. *European Journal of Psychological Assessment, 12*(1), 1-15.

Peirson, A. R., & Heuchert, J. W. (2000). Correlations for serotonin levels and measures of mood in a nonclinical sample. *Psychological Reports, 87*(3), 707-716

Peterson, C., & Bossio, L. M. (1991). *Health and optimism.* New York: Free Press.

Peterson, C., Seligman, M. E. P., & Vaillant, G. E. (1988). Pessimistic explanatory style is a risk factor for physical illness: A thirty-five-year longitudinal study. *Journal of Personality and Social Psychology, 55*, 23-27.

Reker, G. T., & Wong, P. T. P. (1983, April). *The salutary effects of personal optimism and meaningfulness on the physical and psychological well-being of the elderly.* Paper presented at the 29th Annual Meeting of the Western Gerontological Society, Albuquerque, NM.

Robinson-Whelen, S., Kirn, C., MacCallum, R. C., & Kiecolt-Glaser, J. K. (1997). Distinguishing optimism from pessimism in older adults: Is it more important to be optimistic or not to be pessimistic? *Journal of Personality and Social Psychology, 71*, 1345-1353.

Sapolsky, R. M. (2005). The influence of social hierarchy on primate health. *Science, 308*, 648-652.

Scheier, M. F., & Carver, C. S. (1982). Self-consciousness, outcome expectancy, and persistence. Journal of Research in Personality *Journal of Research in Personality 16*, 409-418.

Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: assessment and implication of generalized outcome expectancies. *Health Psychology, 4*, 219-247.

Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism: A revaluation of the Life Orientation Test. *Journal of Personality and Social Psychology, 67*, 1063-1078.

Scheier, M. F., Matthews, K. A., Owens, J., Magovern, G. J. S., Lefebvre, R. C., Abbott, R. A., et al. (1989). Dispositional optimism and recovery from coronary artery bypass surgery: The beneficial effects on physical and psychological well-being. *Journal of*

Personality and Social Psychology, 57, 1024-1040.

Shulz, R., Bookwala, J., Knapp, J. E., Scheier, M., & Williamson, G. M. (1996). Pessimism, age, and cancer mortality. *Psychology and Aging, 11*, 304-309.

Sjöberg, L., Svensson, E., & Persson, L. O. (1979). The measurement of mood. *Scandinavian Journal of Psychology, 20*(1), 1-18.

Stroop, J. R. (1935). Studies of interference in several verbal reactions. *Journal of Experimental Psychology, 18*, 622-643.

Svanborg, P., & Åsberg, M. (1994). A new self-rating scale for depression and anxiety states based on the Comprehensive Psychopathological Rating Scale. *Acta Psychiatica Scandinavia, 89*, 21-28.

Svanborg, P., & Åsberg, M. (2001). A comparison between the Beck Depression Inventory (BDI) and the self rating version of the Montgomery Åsberg Depression Rating Scale (MADRS). *Journal of Affective Disorders, 64*, 203-216.

Tranter, R., Healy, H., & Cattell, D. (2002). Functional effects of agents differentially selective to noradreneergic or serotonergic systems. *Psychological Medicine, 32(3)*, 517-524.

Varg, N. (1997). *Negativ affektivitets inverkan på svarsbeteende i enkätformulär [The influence of negative affect upon responding to questionnaires]*. Stockholm.

Watson, D., & Clark, L. A. (1994). The PANAS-X, Manual for the Positive and Negative Affect Scedule - Expanded form. *The University of Iowa reports copyright*, 1-24.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect. The PANAS scale. *Journal of Personality and Social Psychology, 54*(6), 1063-1070.

Watson, D., & Pennebaker, J. W. (1989). Health Complaints, Stress, and Distress: Exploring the Central Role of Negative Affectivity. *Psychological Review, 96*(2), 234-254.

Watson, D., Pennebaker, J. W., & Folger, R. (1987). Beyond negative affectivity: Measuring stress and satisfaction in the workplace. *Journal of Organizional Behavior Management, 8*, 141-157.

Verkes, R. J., Hengeveld, M. W., van der Mast, R. C., Fekkes, D., & van Kempen, G., M. J. (1998). Mood correlates with blood serotonin, but not glucose measures in patients with recurrent suicide behaviour. *Psychiatry Research, 80*, 239-248.

Wilson, K., Gullone, E., & Moss, S. (1998). The youth version of the positive and negative affect schedule: a psychometric validation. *Behavior Change, 15*, 187-193.

Zald, D. H., & Depue, R. A. (2001). Serotonergic functioning correlates with positive and negative affect in psychiatrically healthy males. *Personality and Individual Differences, 30*, 71-86.

Zalewska, A., Miniszewska, J., Chodkiewicz, J., & Narbutt, J. (2007). Acceptance of chronic illness in psoriasis vulgaris patients. *Journal of the European Academy of Dermatology and Venereology, 21*, 235-242.

Study II

SOCIAL BEHAVIOR AND PERSONALITY, 2009, 37(8), 1081-1094

DOI 10.2224/sbp.2009.37.8.1081

PREDICTING STRESS IN MALE AND FEMALE PSYCHIATRIC PATIENTS AND HEALTHY VOLUNTEERS

MADELEINE ZÖLLER
Sahlgrenska University Hospital, Göteborg, Sweden
TREVOR ARCHER
University of Göteborg, Göteborg, Sweden

The present study was aimed at examining the relationships between affective status, mood, and stress in both a psychiatric patient group (n = 100) and a healthy volunteer group (n = 101 persons), as well as trying to find evidence of a gender effect. The Positive Affect (PA) and Negative Affect (NA), Stress and Energy (SE), Dispositional optimism (LOT), Comprehensive Psychopathological Rating Scale (CPRS) self-rating scale and the DSM-IV and ICD-10 Personality Questionnaire (DIP-Q) were used. Psychiatric disability had a detrimental effect on stress, energy, and optimism. The results indicated that stress was predicted by NA and that PA was counterpredictive for stress. Different effects were found for males and females, with NA predicting stress for both men and women, while the DIP-Q general criteria were stress predictors for males only and PA was counterpredictive for stress in men. Stress as a dependent variable was not significantly predicted by either DIP-Q general criteria, CPRS-depression, CPRS-compulsion, or CPRS-anxiety. It was predicted by negative affect and counterpredicted by positive affect. Data suggest that negative affect was the most important factor in predicting stress. The healthy volunteer group was found to be less affected by stress than the psychiatric patient group.

Keywords: affect, mood, stress, gender, psychiatric patients versus healthy volunteers.

Self-reported affective personality data concerning stress have been found to be associated with affective state (Watson, Pennebaker, & Folger, 1987) and both

Madeleine E. Zöller, PhD, MD, Department of Psychiatry, Sahlgrenska University Hospital, Göteborg, Sweden; and Trevor Archer, Professor, Department of Psychology, University of Göteborg, Sweden.
Appreciation is due to anonymous reviewers.
Please address correspondence and reprint requests to: Madeleine E. Zöller, Department of Psychiatry, Sahlgrenska University Hospital, Mellanvårdsteamet, Lilla Badhusgatan 2, SE 41121, Göteborg, Sweden. Phone: +46-70-7256447; Fax: +46-31-132594; Email: **madeleine.zoller@psy.gu.se**

positive affect (PA) and negative affect (NA; Clark & Watson, 1988), although these scales are also correlated with other factors. Nevertheless, it appears that both PA and NA influence individuals' relationships with stressors, situations associated with stress, and experiences of stress (Aldwin, 1994; Melvin & Molly, 2000). It is possible that the affective profile of individuals predisposes them to confront stressful situations with varying propensities. Psychosocial stress may exert negative influences upon physical health (Watson & Pennebaker, 1989). Negative stress has been described as dysregulation in melancholic and atypical depression involving high versus low levels of corticotrophin-releasing hormone (noradrenaline; Gold & Chrousos, 2002). Even positive stress can induce negative reactions if maintained chronically without intervals for rest and recuperation (McEwen, 2006; Sapolsky, 2005). The dangers of chronic stress are expressed in a multitude of behavioral and somatic factors (Farmer et al., 2008; Ljung & Friberg, 2004). It has also been observed that negative and positive affect are associated closely with personality characteristics such as optimism and pessimism (Peterson & Bossio, 1991; Scheier & Carver, 1982). Several authors have indicated that dispositional optimism enhances both physical and psychological well-being (Aspinwall & Taylor, 1992; Scheier et al., 1989). It has been suggested that differences in results are due to the different types of coping behaviors that optimists and pessimists apply whereby optimists generally present stable coping tendencies in hypothetical situations (Carver, Scheier, & Weintraub, 1989). Individuals expressing positive or negative affect may be differentiated both during serious illnesses (Friedman et al., 1992) and in the case of specific threats to one's health. Optimists tend to employ more problem-focused coping strategies (Carver et al., 1993) or at least to find adaptive emotion-focused strategies. By contrast, pessimists tend to employ a coping strategy of denial and separate themselves from the objective both mentally and behaviorally, independent of whether they are able to solve the problem (Clark & Watson, 1988). When a sufficient goal-oriented outcome is obtained, affect is positive – hindrance of this outcome, however, induces negative affect (Carver & Scheier, 1990).

Numerous researchers examining optimism and pessimism have made use of the Life Orientation Test (LOT) to establish individual differences in dispositional optimism (Beck, Steer, Kovacs, & Garrison, 1985; Reker & Wong, 1983; Scheier & Carver, 1985). Gray (1981, 1987) described optimism and pessimism as being dependent upon an individual's extroversion, in that individuals expressing a high degree of extroversion showed a higher degree of positive affect concerning the posible outcome of a situation. An individual expressing a lower level of positive affect views a given situation from a negative perspective and expects a worse outcome. High levels of pessimism are associated not only with negative affect (Watson, Clark, & Tellegen, 1988) but also with neuroticism (Costa & McCrae,

1989). Individuals expressing high levels of positive affect have been found to possess the highest potential for survival (Peterson, Seligman, & Vaillant, 1988; Shulz, Bookwala, Knapp, Scheier, & Williamson, 1996). Furthermore, individuals with optimistic and positive attitudes presented the highest levels of general health during health controls in the study by Mroczek, Spiro, Aldwin, Ozer, and Bossé (1993). A study of chronic skin disease indicated that a higher level of acceptance was reached by those patients with increased optimism and reduced belief that their own health depended on the efforts of others (Zalewska, Miniszewska, Chodkiewicz, & Narbutt, 2007). It is of interest to ascertain whether or not optimism and/or pessimism influence health (either positively or negatively) and the mediatory role of affect. Ability to cope with stress can vary considerably as a function of optimism and affective profile; in other words, one's affective personality.

This study was therefore aimed at examining the extent to which affective state and mood are predictive of the stress experience in both psychiatric patients and healthy volunteers.We also wanted to determine whether or not gender effects were present.

METHOD

Participants

Patients The present results have been obtained by following the usual routines for 100 patients who have been consecutively treated in general psychiatry over a 1-year period at an outpatient psychiatric clinic at Sahlgrenska University Hospital in Göteborg, Sweden. All patients agreed to participate and were informed that they could stop participating in the study at any time without any repercussions on their treatment. The procedure was approved by the Swedish Ethical Committee. In terms of age, the group mean was 38.9 (SD = 12.4; range 21-71), while for the 42 men, mean age was 39.3 years (SD = 11.9; range = 21-65), and for the 58 women, the mean age was 38.5 years (SD = 12.8; range 21-71). Diagnostics according to the DSM-IV axis 1 (American Psychological Association, 1994) were major depressive disorder (54%), anxiety disorder (40%), psychosomatic disorder (2%), bulimia nervosa (1%), polymorph psychosis not acute state (1%), ADHD (attention deficit hyperactivity dysfunction; 1%), and low degree of mental retardation (1%). The severity of the psychiatric symptoms was measured using the self-assessed Comprehensive Psychopathological Rating Scale (CPRS; Svanborg & Åsberg, 1994, 2001). Eighty-seven patients had been taking antidepressive and/or anxiolytic medication for at least 8 weeks prior to the study, and were at a stable treatment stage. Personality disorder was measured using the DIP-Q, a self-report questionnaire for personality disorders in the DSM-IV and ICD-10 (Bodlund, Grann, Ottosson, & Svanborg, 1998; Ottosson

et al., 1998; Ottosson, Grann, & Kullgren, 2000). The questionnaire includes the Global Assessment of Functioning (GAF). Eighty-three patients fulfilled the criteria for a personality disorder according to the DIP-Q and GAF for the last year. Mean systolic blood pressure was M = 126 mm Hg (SD = 21.9; range = 110-180), diastolic M = 81 mm Hg (SD = 9.3; range = 60-110), pulse rate M = 73.0 (SD = 10.8, range = 54-97), and body mass index (BMI) M = 25.6 (SD = 4.8; range = 15.6-44.7). These results were judged as falling within normal values for the group. Thirty-four of the patients had a hereditary propensity to psychiatric disease. Background statistics for the patients were: years of education after high school (M = 2.1; SD = 1.6; range = 0-6), employment was at a rate of 37%, sick leave and/or early retirement pension 63%, alcohol use less than two times a week 98%, daily cigarette smoking 38%, and weekly physical activity 59%.

Control Group The patients were compared with a control group consisting of 101 persons who completed the same instruments as the patient group. These participants were recruited on a volunteer basis from the Volvo factory and daughter companies. The control group did not have any psychiatric diagnoses, had no known hereditary propensity to psychiatric disorders, and had taken medication less than once a year. The mean age for the healthy control group was 38.3 years (SD = 13.7; range = 20-67), for the 51 men, mean age was 38.1 (SD = 12.8; range 20-67), and for the 58 women, mean age was 38.5 (SD = 12.8; range 21-71). Background variables were: education after high school at an average of 3.6 years (SD = 3.6; range 0-12), employment was at a rate of 100%, beer/wine consumption less than once a week, spirits four times a week, cigarette smoking = 27%, and physical exercise 3 times a week.

Procedure

The patients from an outpatient general psychiatry ward were recruited for the study by an experienced psychiatrist as well as a psychologist. The patients were diagnosed according to DSM-IV criteria and underwent a physical examination. Patients completed the following questionnaires: CPRS, DIP-Q, PANAS, SE and LOT (described below). The background data were collected by way of a questionnaire assessing information about age, sex, employment status, nicotine use, and frequency of exercise.

Design

The two independent variables of the study were group (patients versus healthy volunteers) and gender (males versus females). The dependent variables of the study were PA, NA, stress, energy, optimism (LOT), DIP-Q General criteria, DIP-Q GAF-Year, CPRS-Depression, CPRS-Compulsion, and CPRS-Anxiety. Linear regression analysis was used to estimate which variables predicted stress in the total population and in the male and female populations separately.

INSTRUMENTS

Positive Affect and Negative Affect Scales The PANAS provide a self-estimation of both positive and negative affect. In the test manual, it is indicated that the adjectives describe feelings (affect) and mood level (Watson & Clark, 1994; Watson et al., 1988). Response alternatives for 10 adjectives for the NA dimension and 10 adjectives for the PA dimension are presented on 5-point Likert scales, ranging from 1 = *not at all*, to 5 = *very much*. An individual responds about how he/she has felt in the last week. The negatively charged adjectives were to provide a total NA result and the positively charged adjectives were to provide a total result for PA. The PANAS have been validated through studies analyzing conditions associated with general aspects of psychopathology, as well as a number of other expressions of affect (Huebner & Dew, 1995; Watson & Clark, 1994).

Stress-Energy (SE) The SE is a self-estimation scale that assesses individuals' experiences of their own stress and energy (Kjellberg & Iwanowski, 1989) during the preceding ten minutes. The test is divided into two subscales that express each participant's level of mood in two dimensions: "experienced stress" and "experienced energy". Response alternatives are scored on 6-point scales ranging from 0 = *not at all* to 5 = *very much*. The instrument has been validated through studies concerning occupational burdens and pressures (Kjellberg & Iwanowski).

Life Orientation Test (LOT) The LOT is a self-estimation instrument that assesses an individual's degree of dispositional optimism. The instrument is based on a general model regarding self-regulated behavior, which indicates that optimism exerts meaningful behavioral consequences based on this model (Scheier & Carver, 1982, 1985). It was originally constructed to study the extent to which optimism, as a personality trait, was associated with the ability to develop suitable coping strategies in connection with severe psychological and physical handicaps (Norlander, Bood, & Archer, 2002). The instrument has eight items, plus four filler items. The task for each respondent is to decide on a scale (anchored by 0 = *strongly disagree* and 4 = *strongly agree*) how well each statement describes him/her as an individual. The test measures dispositional optimism, defined in terms of generalized outcome expectancies. The LOT is a suitable scientifically prepared test with an estimated internal consistency of α = 0.76 and a test-retest reliability of 0.79 indicating that the test result is stable over time. The LOT requires approximately five minutes to complete. The variable pessimism was calculated as the direct reciprocal of each participant's optimism scores.

The Comprehensive Psychopathological Rating Scale (CPRS) The CPRS was constructed in Sweden to provide an instrument for the estimation of a number of psychopathological variables that may be sensitive to change in connection

with psychiatric treatment (Åsberg, Perris, Schalling, & Sedvall, 1978). The instrument is intended to comprehensively cover all aspects of psychopathology from which subscales for specific psychiatric syndromes can be constructed (Svanborg & Åsberg, 1994, 2001). The CPRS is a self-report measure consisting of 25 variables that measure self-estimates of depression, compulsion, anxiety, and psychosis, respectively, on a scale ranging from 0 to 6. Each variable and each scale step in CPRS is operationally defined.

DSM-IV and ICD-10 Personality – Questionnaire (DIP-Q) DIP-Q is a patient self-assessment scale (Ottosson et al., 1998; Ottosson et al., 2000). The scale consists of 140 statements, each of which is responded to with either *agree* or *do not agree*. All of the 161 criteria defining the 18 personality disturbances on the DSM-IV and ICD-10 have been converted to self-report statements. Five statements were constructed to assess the so-called general criteria for personality disturbances. The scale also measures Global Assessment of Functioning (GAF) for the last year. A personality disturbance is registered only if there is evidence of significant suffering or a significant dysfunction with regard to work and/or social relations.

RESULTS

One way analyses of variance (ANOVAs) indicated that there was a significant influence of psychiatric disease (for patients and controls) on PA, NA, stress, energy, optimism, DIP-Q general criteria, DIP-Q GAF (year), CPRS-depression, CPRS-compulsion, and CPRS-anxiety. Table 1 provides the results of ANOVAs showing means, and standard deviations of the different items for patients and controls.

TABLE 1
ANOVA RESULTS AND DESCRIPTIVE STATISTICS FOR PATIENTS AND CONTROL GROUPS

		Patients M (n = 100)	Controls M (n = 101)
Positive Affect	[$F(1, 199) = 84.23, p < 0.001$]	2.43 ± 0.86	3.57 ± 0.91
Negative Affect	[$F(1, 199) = 46.91, p < 0.001$]	2.79 ± 1.00	1.92 ± 0.81
Stress	[$F(1, 199) = 101.55, p < 0.001$]	2.95 ± 1.19	1.27 ± 1.18
Energy	[$F(1, 199) = 20.37, p < 0.001$]	2.52 ± 0.0.90	3.21 ± 1.22
Optimism	[$F(1, 199) = 36.45, p < 0.001$]	1.88 ± 0.71	2.59 ± 0.93
DIP-Q General Criteria	[$F(1, 199) = 31.19, p < 0.001$]	1.77 ± 1.52	0.60 ± 1.15
DIP-Q GAF (Year)	[$F(1, 199) = 108.76, p < 0.001$]	56.49 ± 18.64	82.62 ± 16.85
CPRS-Depression	[$F(1, 199) = 163.18, p < 0.001$]	23.36 ± 10.63	6.45 ± 7.96
CPRS-Compulsion	[$F(1, 199) = 77.81, p < 0.001$]	16.50 ± 12.36	4.50 ± 5.80
CPRS-Anxiety	[$F(1, 199) = 140.65, p < 0.001$]	23.43 ± 10.17	8.23 ± 7.87

Note: For each variable the significance is given between the patient group and the control group.

Pillai's multivariate analysis of variance (MANOVA) was applied with type of group (male patients, female patients, male controls, female controls) as dependent variables and PA, NA, and CPRS-anxiety as independent variables. A significant effect was found for groups on all items. The above relationship was found to be similar in both the psychiatric patient group and the healthy volunteer group. Female controls expressed significantly more CPRS-anxiety than did male controls; however, no differences between male and female patients were obtained (see Table 2).

TABLE 2
DESCRIPTIVE STATISTICS FOR PATIENTS AND CONTROL GROUPS IN RELATION TO GENDER

	Patients		Controls	
	Male ($n = 42$)	Female ($n = 58$)	Male ($n = 51$)	Female ($n = 50$)
Positive Affect				
[$F(1, 199) = 6.42, p < 0.05$]	$2.50 \pm 0.79^{***}$	$2.38 \pm 0.91^{***}$	3.79 ± 0.80	3.35 ± 0.96
Negative Affect				
[$F(1, 199) = 4.20, p < 0.05$]	$2.78 \pm 1.00^{***}$	$2.81 \pm 1.02^{***}$	1.72 ± 0.65	2.10 ± 0.90
Optimism				
[$F(1, 199) = 5.74, p < 0.05$]	$1.93 \pm 0.74^{***}$	$1.85 \pm 0.70^{**}$	2.79 ± 0.88	2.39 ± 0.95
CPRS-Anxiety				
[$F(1, 199) = 7.02, p < 0.001$]	$23.21 \pm 10.70^{***}$	$23.59 \pm 9.85^{***}$	5.39 ± 6.13	11.12 ± 8.45■

$^{***}p < 0.001$; $^{**}p < 0.01$, significance between male patients and male controls, and between female patients and female controls. For each variable the significance is given between the patient group and the control group.
■ $p < 0.001$, versus male control group.

TABLE 3
LINEAR REGRESSION ANALYSIS

Predicting variable	Standardized Beta (β)
LOT	-0.07 *ns*
PA	-0.20^{**}
NA	0.36^{**}
DIP-Q General Criteria	0.09 *ns*
DIP-Q GAF (Year)	-0.08 *ns*
CPRS-Depression	-0.16 *ns*
CPRS-Compulsion	-0.13 *ns*
CPRS-Anxiety	0.08 *ns*

$^{**}p < 0.01$, $^{***}p < 0.001$
Note: $F(8, 192) = 43.03, p < 0.001$; Adjusted $R^2 = 0.627$

A linear regression analysis was carried out for the total population of patients and controls, in order to examine the extent to which stress may be predicted from LOT, PA, NA, DIP-Q general criteria, DIP-Q GAF (year), CPRS-depression,

CPRS-compulsion, and CPRS-anxiety. The analysis indicated that stress could be significantly predicted from NA and that PA was counterpredictive for stress for all the participants (see Table 3 for the regression analysis, in which stress was the dependent variable and the scales used for assessment were predictor variables). Affective personality but not depressive and anxious mood may thus be said to be predictive of the self-reported stress experience.

A linear regression analysis was performed to examine the extent to which stress in relation to gender can be predicted from the LOT, PA, NA, DIP-Q general criteria, DIP-Q GAF (year), CPRS-depression, CPRS-compulsion, and CPRS-anxiety. The analysis indicated that NA predicts stress in both men and women. On the other hand, DIP-Q general criteria predicted stress only among the male participants. PA was counterpredictive for stress among men only (see Table 4a and Table 4b, for the regression analysis with stress as the dependent variable and the scales used for assessment as predictor variables, for male and female participants).

TABLE 4
LINEAR REGRESSION ANALYSIS FOR FEMALES (A) AND MALES (B)

(a) Women

Predicting variable	Standardized Beta (β)
LOT	-0.06 *ns*
PA	-0.17 *ns*
NA	0.36***
DIP-Q general criteria	0.08 *ns*
DIP-Q GAF (year)	-0.14 *ns*
CPRS-depression	0.24 *ns*
CPRS-compulsion	-0.10 *ns*
CPRS-anxiety	0.02 *ns*

*** $p < 0.001$
$F(8, 99) = 17.03, p < = 0.001$; Adjusted $R^2 = 0.545$

(b) Men

Predicting variable	Standardized Beta (β)
LOT	-0.10 *ns*
PA	-0.26**
NA	0.56***
DIP-Q general criteria	0.14*
DIP-Q GAF (year)	0.08 *ns*
CPRS-depression	0.01 *ns*
CPRS-compulsion	-0.18 *ns*
CPRS-anxiety	0.21 *ns*

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$
$F(8, 84) = 37.32, p < 0.001$; Adjusted $R^2 = 0.759$

DISCUSSION

The clinical implications of the present findings appear to be as follows: the clear associations between stress, affect, and mood state, despite modulation through pharmacotherapeutic agents, are more serious in the patient group. It is interesting to note that mood states and affect are associated with serotonergic systems (Coccaro, 1989; Peirson & Heuchert, 2000; Tranter, Healy, & Cattell, 2002; Verkes, Hengeveld, van der Mast, Fekkes, & van Kempen, 1998). It has also been shown that serotonergic functioning correlates with positive and negative affect in healthy male individuals (Zald & Depue, 2001). Flory and colleagues found that brain serotonergic functioning was related to estimates of positive affect (Flory, Manuck, Matthews, & Muldoon, 2004). The present study clearly indicated that patients who have had a psychiatric diagnosis differ from healthy controls with regard to PA, NA, depression, compulsion, anxiety and DIP-Q general criteria and DIP-Q GAF (Year) levels, as well as the stress, energy, and optimism that they express. PA, energy, and optimism were lower and stress was higher in the patient group. These results are to be expected from the trends of other studies focused on mood in both psychiatric patients and healthy volunteers.

The present results indicated that the values expressed by the different groups may have been expected both in a patient group presenting psychiatric symptoms in a General Psychiatric Department and in a healthy volunteer control group; these findings are consistent with those obtained previously (Zöller, 1997; Zöller, Rembeck, & Bäckman, 1997) wherein patients presenting dysthymia at a similar level of severity as the present patient group and a healthy control group were investigated. The present results indicated that the patients presented a GAF (Year) mean value of 56.49 (±18.64), thereby placing them in the 51-60 group which implies moderate symptoms or moderate difficulty in social, occupational, or school functioning; in contrast, the healthy control group presented a mean value of 82.62 (±16.85), thereby placing them in the 81-90 group which implies transient symptoms – if any, predictable reactions to psychosocial stress, and no more than slight impairment, if any, in social, occupational, or school functioning. The number of GAF-general criteria presented by the patient group was at an expected level with a mean value below 2 (1.77 ± 1.52) whereas the control group presented a mean value below 1 (0.60 ± 1.15). The patients' results pertaining to mean values for CPRS-depression (23.36 ± 10.63), CPRS-compulsion (16.50 ± 12.36), and CPRS-anxiety (23.43 ± 10.17) also indicated the expected levels for a General Psychiatry outpatient group and lie within a light-to-moderate symptom level. It should be noted that the means for CPRS-depression, CPRS-compulsion, and CPRS-anxiety obtained from the healthy controls were markedly lower than those for the patient group (see Table 1).

Taken together, the groups were considered representative for the present study. It is interesting that a significant influence of presenting psychiatric disease symptoms was observed for expressions of stress, lack of energy, and lack of optimism.

The only *direct* significant effect of gender found within the two groups pertained to CPRS-anxiety expressed by the healthy controls wherein the female participants evidenced more than twice as much anxiety as the males (see Table 2). Independent of gender, patients otherwise showed markedly greater negative affect and anxiety than the healthy control group, as well as markedly lower levels of positive affect and optimism.

A major focus of this study was to ascertain which personal attributes contributed to patients' and healthy participants' experiences of stress. It indicated that to a marked extent only two of the attributes made a contribution; negative affect was directly predictive whereas positive affect was counter-predictive (see Table 3). This important result – that stress could be predicted from negative affect – has been observed quite regularly (Archer, Adolfsson, & Karlsson, 2008; Archer, Adrianson, Plancak, & Karlsson, 2007; Karlsson & Archer, 2007; Palomo, Beninger, Kostrzewa, & Archer, 2007). Although stress was also counterpredicted from positive affect, optimism – as measured by life orientation – was found not to affect stress. In other studies positive and negative expectancies concerning the future have been found to be associated with both physical and psychological expressions of well-being (Robinson-Whelen et al., 1997).

Recently, in an investigation incorporating three distinct studies (Archer et al., 2008), all three studies provided plausible links between negative affect, anxiety, and depression and lack of self-esteem, assessed through applications of linear regression analysis, which fits closely with earlier observations (Dua, 1993). In the study by Archer et al., stress was the major contributor to NA, anxiety, and depression, as well as being the major obstacle to PA, self-esteem, and motivation. PA was counterpredicted by depression, while NA was predicted by anxiety and depression, and was counterpredicted by self-esteem. It is interesting that self-esteem was predicted by optimism and energy but counterpredicted by anxiety, depression, and stress.

The variables that predicted stress were different for men and women thereby providing another type of gender effect (see Table 4). For men, both negative affect and the DIP-Q general criteria predicted stress, while positive affect was counterpredictive for stress. The female participants experienced stress to a lesser degree and stress was predicted only by negative affect. This notion implies that the predictors of stress ought to have a direct bearing based upon the regression analyses. Accordingly, the observation that only NA predicted stress among female participants (patients and controls), whereas NA and DIP-Q general

criteria predicted stress in the male participants and PA was counterpredictive, brings into question the status and properties of stress over gender.

Taken together, the results of the psychiatric patient group and healthy control group are reconcilable with several other observations in illustrating the complex associations between affective personality, stress, energy, and dispositional optimism, not least in possibly underlying comorbidity (Palomo et al., 2007).

REFERENCES

Aldwin, C. M. (1994). *Stress, coping and development: An integrative perspective*. New York: Guilford.

American Psychological Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

Archer, T., Adolfsson, B., & Karlsson, E. (2008). Affective personality as cognitive-emotional presymptom profiles regulatory for self-reported health predispositions. *Neurotoxicity Research*, **14**, 1-15.

Archer, T., Adrianson, L., Plancak, A., & Karlsson, E. (2007). Influence of affective personality on cognition-mediated emotional processing: Need for empowerment. *The European Journal of Psychiatry*, **21**(4), 248-262.

Åsberg, M., Perris, C., Schalling, E., & Sedvall, G. (1978). The CPRS: Development and application of a psychiatric rating scale. *Acta Psychiatrica Scandinavica*, **291** (suppl), 285-292.

Aspinwall, L. G., & Taylor, S. E. (1992). Modeling cognitive adaptation: A longitudinal investigation of the impact of individual differences and coping on college adjustment and performance. *Journal of Personality and Social Psychology*, **63**, 989-1003.

Beck, A. T., Steer, R. A., Kovacs, M., & Garrison, B. (1985). Hopelessness and eventual suicide: A 10-year perspective study of patients hospitalized with suicidal ideation. *American Journal of Psychiatry*, **142**, 559-563.

Bodlund, O., Grann, M., Ottosson, H., & Svanborg, C. (1998). Validation of the self-report questionnaire DIP-Q in diagnosing DSM-IV personality disorders: A comparison of three psychiatric samples. *Acta Psychiatrica Scandinavica*, **97**(4), 33-43.

Carver, C. S., Pozo, C., Harris, S. D., Noriega, V., Scheier, V., & Clark, C. (1993). How coping mediates the effects of optimism on distress: A study of women with early stage breast cancer. *Journal of Personality and Social Psychology*, **65**, 375-390.

Carver, C. S., & Scheier, M. F. (1990). Origins and functions of positive and negative affect: A control-process view. *Psychological Review*, **97**, 19-35.

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, **56**, 267-283.

Clark, L., & Watson, D. (1988). Mood and the mundane: Relations between daily life events and self-reported mood. *Journal of Personality and Social Psychology*, **54**, 296-308.

Coccaro, E. F. (1989). Central serotonin and impulsive aggression. *The British Journal of Psychiatry*, **155**, 52-62.

Costa, P. T., & McCrae, R. R. (1989). *NEO five-factor inventory form*. Odessa, FL: Sage.

Dua, J. (1993). The role of negative affect and positive affect in stress, depression, self-esteem, assertiveness. *Genetic, Social, and General Psychology Monographs*, **119**, 517.

Farmer, A., Korszun, A., Owen, M. J., Craddock, N., Jones, L., Jones, I., et al. (2008). Medical disorders in people with recurrent depression. *The British Journal of Psychiatry*, **192**, 351-355.

Flory, J. D., Manuck, S. B., Matthews, K. A., & Muldoon, M. F. (2004). Serotonergic function in the

central nervous system is associated with daily ratings of positive mood. *Journal of Psychiatric Research*, **129**, 11-19.

Friedman, L. C., Nelson, D. V., Baer, P. E., Lane, M., Smith, F. E., & Dworkin, R. (1992). The relationship of dispositional optimism, daily life stress, and domestic environment to coping methods used by cancer patients. *Journal of Behavioral Medicine*, **15**, 127-142.

Gold, P. W., & Chrousos, G. P. (2002). Organization of the stress system and its dysregulation in melancholic and atypical depression: High vs low CRH/NE states. *Molecular Psychiatry*, **7**, 254-275.

Gray, J. A. (1981). A critique of Eysenck's theory of personality. In H. J. Eysenck (Ed.), *A model for personality* (pp. 246-276). Berlin, Germany: Springer-Verlag.

Gray, J. A. (1987). Perspectives on anxiety and impulsivity: A commentary. *Journal of Research in Personality*, **2**, 493-509.

Huebner, E. S., & Dew, T. (1995). Preliminary validation of the positive and negative affect schedule with adolescents. *Journal of Psychoeducational Assessment*, **13**, 286-293.

Karlsson, E., & Archer, T. (2007). Relationship between personality characteristics and affect: Gender and affective personality. *Individual Differences Research*, **5**, 44-58.

Kjellberg, A., & Iwanowski, S. (1989). *Stress/energiformuläret: Utveckling av en metod för skattning av sinnesstämning i arbetet [The stress/energy questionnaire: Development of a method for assessing mood at the work place]*. National Institute of Occupation Health (Report): Solna.

Ljung, T., & Friberg, P. (2004). Biology of stress reactions [In Swedish]. *Läkartidningen*, **101**(12), 1089-1094.

McEwen, B. S. (2006). Protective and damaging effects of stress mediators: Central role of the brain. *Dialogues in Clinical Neuroscience*, **8**(4), 367-381.

Melvin, G. A., & Molly, G. N. (2000). Some psychometric properties of the Positive and Negative Affect Schedule among Australian youth. *Psychological Reports*, **86**, 1209-1212.

Mroczek, D. K., Spiro, I. A., Aldwin, C. M., Ozer, D. J., & Bossé, R. (1993). Construct validation of optimism and pessimism in older men: Findings from the normative aging study. *Health Psychology*, **12**, 406-409.

Norlander, T., Bood, S. A., & Archer, T. (2002). Performance during stress: Affective personality, age, and regularity of physical exercise. *Social Behavior and Personality: An international journal*, **30**, 495-508.

Ottosson, H., Bodlund, O., Ekselius, L., Grann, M., von Knorring, L., Kullgren, G., et al. (1998). DSM-IV and ICD-10 Personality Disorders: A comparison of a self-report questionnaire (DIP-Q) with a structured interview. *European Psychiatry*, **13**, 246-253.

Ottosson, H., Grann, M., & Kullgren, G. (2000). Test retest reliability of a self report questionnaire for DSM-IV and ICD-10 personality disorders. *European Journal of Psychiatry*, **16**, 53-58.

Palomo, T., Beninger, R. J., Kostrzewa, R. M., & Archer, T. (2007). Comorbidity implications in brain disease: Neuronal substrates of symptom profiles. *Neutotoxicity Research*, **12**(1), 1-15.

Peirson, A. R., & Heuchert, J. W. (2000). Correlations for serotonin levels and measures of mood in a nonclinical sample. *Psychological Reports*, **87**(3), 707-716.

Peterson, C., & Bossio, L. M. (1991). *Health and optimism*. New York: Free Press.

Peterson, C., Seligman, M. E. P., & Vaillant, G. E. (1988). Pessimistic explanatory style is a risk factor for physical illness: A thirty-five-year longitudinal study. *Journal of Personality and Social Psychology*, **55**, 23-27.

Reker, G. T., & Wong, P. T. P. (1983, April). *The salutary effects of personal optimism and meaningfulness on the physical and psychological well-being of the elderly*. Paper presented at the 29th Annual Meeting of the Western Gerontological Society, Albuquerque, NM.

Robinson-Whelen, S., Kim, C., MacCallum, R. C., & Kiecolt-Glaser, J. K. (1997). Distinguishing optimism from pessimism in older adults: Is it more important to be optimistic or not to be

pessimistic? *Journal of Personality and Social Psychology*, **71**, 1345-1353.

Sapolsky, R. M. (2005). The influence of social hierarchy on primate health. *Science*, **308**, 648-652.

Scheier, M. F., & Carver, C. S. (1982). Self-consciousness, outcome expectancy, and persistence. *Journal of Research in Personality*, **16**, 409-418.

Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: Assessment and implication of generalized outcome expectancies. *Health Psychology*, **4**, 219-247.

Scheier, M. F., Matthews, K. A., Owens, J., Magovern, G. J. S., Lefebvre, R. C., Abbott, R. A., et al. (1989). Dispositional optimism and recovery from coronary artery bypass surgery: The beneficial effects on physical and psychological well-being. *Journal of Personality and Social Psychology*, **57**, 1024-1040.

Shulz, R., Bookwala, J., Knapp, J. E., Scheier, M., & Williamson, G. M. (1996). Pessimism, age, and cancer mortality. *Psychology and Aging*, **11**, 304-309.

Svanborg, P., & Åsberg, M. (1994). A new self-rating scale for depression and anxiety states based on the Comprehensive Psychopathological Rating Scale. *Acta Psychiatrica Scandinavica*, **89**, 21-28.

Svanborg, P., & Åsberg, M. (2001). A comparison between the Beck Depression Inventory (BDI) and the self rating version of the Montgomery Åsberg Depression Rating Scale (MADRS). *Journal of Affective Disorders*, **64**, 203-216.

Tranter, R., Healy, H., & Cattell, D. (2002). Functional effects of agents differentially selective to noradrenergic or serotonergic systems. *Psychological Medicine*, **32**, 517-524.

Verkes, R. J., Hengeveld, M. W., van der Mast, R. C., Fekkes, D., & van Kempen, G. M. J. (1998). Mood correlates with blood serotonin, but not with glucose measures in patients with recurrent suicide behavior. *Psychiatry Research*, **80**, 239-248.

Watson, D., & Clark, L. A. (1994). *The PANAS-X: Manual for the Positive and Negative Affect Schedule - Expanded form.* Iowa: The University of Iowa Reports,

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scale. *Journal of Personality and Social Psychology*, **54**(6), 1063-1070.

Watson, D., & Pennebaker, J. W. (1989). Health complaints, stress, and distress: Exploring the central role of negative affectivity. *Psychological Review*, **96**(2), 234-254.

Watson, D., Pennebaker, J. W., & Folger, R. (1987). Beyond negative affectivity: Measuring stress and satisfaction in the workplace. *Journal of Organizational Behavior Management*, **8**, 141-157.

Zald, D. H., & Depue, R. A. (2001). Serotonergic functioning correlates with positive and negative affect in psychiatrically healthy males. *Personality and Individual Differences*, **30**, 71-86.

Zalewska, A., Miniszewska, J., Chodkiewicz, J., & Narbutt, J. (2007). Acceptance of chronic illness in psoriasis vulgaris patients. *Journal of the European Academy of Dermatology and Venereology*, **21**, 235-242.

Zöller, M. T. (1997). *Neurofibromatosis I. Psychiatric and somatic aspects: A 12-year follow-up of adult patients in Sweden.* Göteborg University, Göteborg.

Zöller, M., Rembeck, B., & Bäckman, L. (1997). Neuropsychological deficits in adults with neurofibromatosis type I. *Acta Neurologica Scandinavica*, **95**, 225-232.