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COURSE OF MENTAL SYMPTOMS IN YOUNG ADULT PATIENTS DIAGNOSED WITH EXHAUSTION DISORDER: ARE THERE ANY PREDICTIVE FACTORS?

Degree Project in Medicine

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Abstract

Introduction: Exhaustion Disorder (ED) was admitted as a disorder in 2005. Much is still unknown concerning risk factors and why the course of illness differs considerably among individuals. Previous research did not find any differences in course of mental symptoms in younger compared to older patients with ED, however young adults have not been exclusively studied.

Aim: The main aim of this study was to investigate the course of mental symptoms in young adults diagnosed with ED.

Methods: Patient data was collected at a stress clinic in the years 2004-2013. 61 participants met the age criterion, 18-30 years. Mental symptoms were assessed by the 18-item Shirom-Melamed Burnout Questionnaire (SMBQ-18) and the Hospital Anxiety and Depression scale (HAD). The patients filled in the questionnaires at baseline and on every follow-up visits after three, six, 12 and 18 months. Statistical testing and analyses were performed to investigate the course of mental symptoms.

Results: Symptoms of burnout was present in 91% of the young adults, anxiety in 79% and depression in 33% at baseline. All three symptoms had significantly diminished after 18 months, and pairwise comparisons confirmed significance in decrease between baseline and three months and baseline and 18 months for all three symptoms. No sex differences could be confirmed. Among investigated factors none was found to be predictive for the course of mental illness.

Conclusions: The burden of mental symptoms among young adults is major while ambulatory ill in ED. There is preponderance in proportion of female patients who suffer from anxiety. Further research on young adults is required since no conclusions can be made from

this study. However, young adults seem to suffer from anxiety to a greater extent and recover faster from their mental symptoms while compared to ED patients in general.

Keywords: Exhaustion disorder, Burnout, Young adults, Sex differences

Introduction

The society is constantly changing and our lifestyle is considerably different from our ancestors. For instance, not much more than a century ago mankind were limited to daylight for everyday activities. As electrification enabled to make use of the twenty-four hours of the day one can imagine it had a determinative impact on civilization, not least in working routine. Over the years working conditions have continued to develop and overall getting work is considered as a protective factor to mental health (1). However the workplace is rapidly changing; increase in workload and job insecurity in combination with less control, high demands and low social support have been recognized to adversely affect employee's well-being and health, physically as well as mentally (2-5). During the last decade of the twentieth century the number of patients on long-term sick leave increased markedly, and especially sick leave due to mental illness (6). This cumulative problem includes many industrialized countries, is commonly related to psychosocial stress (7, 8) and is generally referred to as "burnout" in everyday language.

Burnout syndrome was for a long time exclusively associated with work-related stress; the condition is well known all over the world and frequently studied over the past decades. The perception of burnout as solely work-related has been revised and most agree that burnout may be the result of any emotional demanding situation (9). Though the concept of burnout syndrome is psychological, it lacks diagnostic criteria and furthermore absences a diagnostic code in Statistical Manual of Mental Disorders (DSM-V). Burnout is included in ICD-10 and categorized under "problems related to life-management difficulties". However, it is not classified as a disorder (10).

In the beginning of the new millennium, the Swedish National Board of Health and Welfare took actions on the abovementioned growing mental health problem and its long-term sick

leave manifestation. Patients were by then diagnosed by professionals in greatest concordance of their dominating symptoms (e.g. anxiety, musculoskeletal pain, depression, stress reaction), which resulted in an increasing number of patients suffering from several stress-related diagnoses (e.g. adjustment disorder, acute stress disorder) (6, 11). The Swedish National Board of Health and Welfare initiated an expert panel to investigate the situation due to then prevailing lack of consensus among professionals how to classify the patients seeking for stress-related illness (6, 11). The outcome of this action was the introduction of a new stress-related diagnosis - Exhaustion Disorder (ED). The Swedish National Board of Health and Welfare established diagnostic criteria (Table 1) and admitted ED as a disorder in 2005 (6) and it was assigned the code F43.8A in the Swedish version of the International Classification of Diseases (ICD-10).

Table 1 Diagnostic criteria for Exhaustion Disorder according to ICD-10 F43.8A

Diagnostic criteria for Exhaustion Disorder
A Physical and mental symptoms of exhaustion with minimum two weeks duration. The symptoms have developed in response to one or more identifiable stressors, which have been present for at least 6 months.
B Markedly reduced mental energy, which is manifested by reduced initiative, lack of endurance, or increase of time needed for recovery after mental efforts.
C At least four of the following symptoms have been present most of the day, nearly every day, during the same 2 week period:
<i>1. Persistent complaints of impaired memory</i>
<i>2. Markedly reduced capacity to tolerate demands or to work under time pressure</i>
<i>3. Emotional instability or irritability</i>
<i>4. Insomnia or hypersomnia</i>
<i>5. Persistent complaints of physical weakness or fatigue</i>
<i>6. Physical symptoms such as muscular pain, palpitations, gastrointestinal problems, vertigo or increased sensitivity to sounds</i>
D The symptoms cause clinically significant distress or impairment in social, occupational or other important areas of functioning.
E The symptoms are not due to the direct physiological effects of a substance (e.g. drug abuse, a medication) or a general medical condition (e.g. hypothyroidism, diabetes, infectious disease).
F If criteria for major depressive disorder, dysthymic disorder or generalized anxiety disorder are met, exhaustion disorder is considered a co-morbid condition.

Misperception concerning the concepts of burnout and ED exists since they are related; causes and core components of symptoms are essentially the same. Patients suffering from ED score high in various burnout scales (described below) and burnout may occur as a precursor to ED, which are two actualities confirming an overlap among the syndromes. However the significant difference is the fact that ED is a criterion-based clinical disorder, which unlike burnout requires to be diagnosed by a physician.

ED is accordingly a disorder; characterized by mental and physical symptoms of exhaustion and markedly reduced mental energy. ED develops due to prolonged stress along with inadequate recovery. To be diagnosed with ED symptoms need to have been present for at

any rate two weeks and caused by at least one identifiable stressor, which has been present for minimum six months. The condition typically manifests in; exhaustion, cognitive failures, insomnia/hypersomnia, various somatic symptoms and overreaction to stress load, most often are elements of affective disturbance (e.g. depression, anxiety) associated (11). ED is not necessarily related to work-stress, however according to Hasselberg et. al (12) the majority of patients state that work stressors in combination with non-work ditto underlie their stress-related exhaustion. Most frequent stressors reported in this study were; “quantitative demands at work”, “private relational conflicts” and “emotional demands at work” in that given order.

In contrast to ED, burnout is solely based upon self-reported symptoms in rating scales. However, burnout-scales can be used to follow the course of ED illness since core components of burnout measured in self-report instruments are categories of symptoms ED patients are suffering substantially from. In 2015 Grossi et. al concluded in a literature review that: “The results indicate that exhaustion disorder (ED), as described in the Swedish version of the International Classification of Diseases, seems to be the most valid equivalent of burnout.” (9) In addition, 93% of patients diagnosed with ED scored above cut-off on a burnout-scale in a study exploring the course of the syndrome’s symptoms (13).

Maslach Burnout Inventory (MBI) (14) is the most commonly used instrument to assess severity of burnout. Shirom-Melamed Burnout Measure (SMBM) is another similar instrument (15), likewise its earlier version Shirom-Melamed Burnout Questionnaire (SMBQ) (16). MBI is multidimensionally constructed defining burnout in three core components of symptoms; emotional exhaustion, depersonalization/cynicism and personal accomplishment. Every core component corresponds to a subscale and total sum score determine severity of burnout in a multidimensional manner. SMBM measures burnout similarly to MBI although subscale distribution differ; emotional exhaustion, physical fatigue and cognitive weariness.

SMBQ in turn consists in four subscales; physical fatigue, cognitive weariness, tension and listlessness. SMBQ consists in 22 items and in 2012 a shorter 18-item version, SMBQ-18, was developed (by excluding the tension subscale) to provide a validated psychometric instrument for use in a clinical setting (17).

Based on clinical experience, the manifestation of ED differs considerably among individuals. Duration of symptoms and associated sick leave varies, ranging from a few weeks up to several years. In 2012 Glise et al. (13) studied the course of mental symptoms in ED patients and the result showed that one-third still suffered from symptoms of burnout after 18 months of individualized treatment. Glise et al. did not find that either sex or age significantly correlated with the course of mental illness, however the study concluded that long duration of symptoms before consultation predestined an extended time of recovery from mental symptoms.

Glise et al. examined if the course of mental symptoms diverged in younger, aged 18-39 years, compared to older, aged 40-66 years, where the majority of all patients were 30-50 years old. Hence the real age distribution of the two groups did not differ much and the age ranges were relatively wide, which implies two factors that could hide actual differences. According to this study there is potentially more to explore when it comes to age in relation to ED.

Young adults as a subgroup are infrequently studied in regards to stress-related illness. Nevertheless, the increase in sick leave due to stress-related illness is most prominent among young adults (18). Additionally, the yearly report from Public Health Authority confirms an increase of mental health illness in general among young adults aged 16-29 years compared to seniors aged 65-84 years, in whom mental illness has been constant over the last decade (19). The same report also presents that as much as 43% of young adults suffer from uneasiness or anxiety and 23% from impaired mental well-being.

One theory behind the extended mental health illness among young adults is the rapid development and accompanying increase in the use of information and communication technology (ICT), which has been studied by Thomée (20). The result showed prospective associations between ICT use and stress, sleep disturbances and symptoms of depression among young adults (21). Perceiving accessibility via mobile phone as stressful along with high duration of computer use, high frequency of mobile phone use and computer use without taking any breaks are examples of factors that were found by Thomée et. al to have an impact on mental health symptoms among young adults (22, 23). However, according to Gustafsson et al. the use of information technology (IT) among young adults besides has been shown to be associated with feelings of freedom, independence and unlimited opportunities (24). Gustafsson et al. explored the experience, attitudes and health beliefs regarding IT use by interviewing young adults and beyond positive feelings they additionally expressed misgivings and perceived risks with IT use. Altogether, these findings by Thomée et al. and Gustafsson et al. indicate an ambivalence concerning the impact of ICT use on young adult's mental health.

Clinical experience suggests that young adults may differ in course of mental health illness (personal communication with physicians at the Institute of Stress Medicine). Previous studies have indicated shorter time for recovery in younger patients diagnosed and treated for minor depression in primary care, and also that young age is related to a favorable outcome among patients with probable depression at baseline when undergoing multidisciplinary rehabilitation for chronic musculoskeletal pain (25, 26). In addition high age (> 50 years) has suggested to be a risk factor for long-term sick leave due to mental disorder (27). The question is whether this indication in the event of a discrepancy between young adults and elderly when it comes to mental health illness applies to exhaustion disorder?

Since ED was relatively recently established, much is unknown concerning risk factors. However, tendencies in personality type among patients with work-related exhaustion are shown and a “persistent personality” has been cautiously suggested to be a vulnerability factor for stress-related disease (28). Clinical experience states that this seems to apply to young adults in particular, since it has been noted that ambitious individuals with high demands of themselves are overrepresented in this subgroup (personal communication with physicians at the Institute of Stress Medicine). Health behavior is an additional factor that has shown in a British study to contribute to the risk for young adults to suffer from symptoms of emotional exhaustion (29). In this study Cecil et al. investigated burnout in medical students, i.e. correspondent to a selected group of young adults since a majority of the participants were 18-23 years, and found that low level of physical activity compared to high level predicted emotional exhaustion. However, this study investigates stress-related illness in young adults among a non-clinical group and not in ED patients.

Based on this introduction describing the origin of exhaustion disorder and its impact on individual’s mental health and work ability, there is a need to find risk factors with the purpose of enabling to target preventive interventions. Moreover, studying the course of symptoms in subgroups among patients that already received the diagnosis is valuable in order to find predictive factors for time to recovery. To my knowledge, no previous study has investigated the course of ED specifically in young adults. The aim of this study is hence to describe the course of mental symptoms in young adults and to examine whether there are any factors that might help professionals to predict the course and give plausible prognoses regarding recovery and return to occupation.

Research questions

1. How do the mental symptoms in young adult patients develop during 18 months of individualized treatment?
2. Does the course of mental symptoms in young adult patients differ between women and men?
3. Is it possible to predict recovery from exhaustion disorder in young adults depending on lifestyle, socio-demographic factors and/or duration of mental symptoms before consultation?

Methods

The patient data in this study was obtained by self-assessed questionnaires and was previously collected at a specialist clinic for stress in Gothenburg, the Institute of Stress Medicine (ISM), during the years 2004-2013.

Participants

The present study was focused on patients diagnosed and treated for exhaustion disorder in the age range 18-30 years, referred to as young adults. There is no valid consensus concerning how to define “young adults” as an age group, however the age range in this study was set based on suitability in relation to the age distribution in the entire patient clientele (18-65 years) and in consideration of age distribution in a previous study (referred to in the introduction section) that examines course of mental symptoms in ED patients (13). The complete longitudinal material from ISM consists of 232 patients and of which 61 (46 women and 15 men) met the age criterion.

Patients were remitted from either primary health care centers or occupational service centers located in Västra Götaland to ISM while ambulatory ill, and with a maximum duration of sick leave of six months. None of the patients had received inpatient care as a consequence of their stress-related illness. Patients were remitted on demand by ISM in purpose of research and included the most severe cases in Primary care. The patients received individualized treatment at ISM as if treated in primary care, in line with the guidelines then in force.

Diagnostic procedures and treatment

At ISM two senior physicians confirmed that the patients were actually suffering from ED by the conventional diagnostic procedure for the condition, including an extended anamnesis, a physical examination and blood sampling. Patients were included if they fulfilled the diagnostic criteria for exhaustion disorder in accordance with ICD-10 F43.8A (Table 1).

Patients with any apparent somatic disorder, serious psychiatric disorder and/or alcohol abuse were excluded; due to the knowledge that these sort of disorders share similar symptoms with burnout.

All the patients received individualized treatment during 18 months. The individualized treatment consisted of simple advice of regular life rules including food, sleep and physical activity, lectures in stress management, graded physical activity and when needed cognitive behavioral group therapy for insomnia, antidepressant medication (AD), individual psychotherapy. All patients were followed up until return to work. The treatment was tailored with optimal timing and to the needs of each individual patient; hence did the components included vary.

Measurements

Baseline data including socio-demographics (sex, age, marital status, level of education), lifestyle determinants (physical activity) and duration of symptoms were collected by a postal questionnaire, which was filled in by the patients before their first visit at the clinic. Physical activity (PA) was measured by four groups: physically inactive, some light PA, moderate PA and vigorous PA. Since the number of patients was limited group three and four were merged and PA was defined as: physically inactive, some light PA and moderate-to-vigorous PA. Duration of symptoms was estimated by the patients and based on four options: more than 5 years, 2-5 years, 1-2 years and less than 1 year. Duration of symptoms was dichotomized and defined as ≥ 1 year and < 1 year. Marital status was stated by five optional answers: married or live-in-partner, partner, single, single parent and other. Marital status was dichotomized into married or live-in partner and single or other. The patients reported number of years in elementary school, high school, and college, which obtained educational level. Level of education was dichotomized into higher and lower, where higher was defined as one year or more of college education.

The mental symptoms evaluated in this study were self-reported and involved burnout, depression and anxiety, which were measured on patient's first consultation at ISM (i.e. baseline) and further on every follow-up after three, six, 12 and 18 months. To measure burnout the Shirom-Melamed Burnout Questionnaire (SMBQ) (16) (Appendix 1) was filled in by the patients at ISM. The overall burnout index calculated in SMBQ has shown to correlate with the subscale measuring emotional exhaustion in the most widely used burnout measure instrument; Maslach Burnout Inventory (MBI) (30). SMBQ, and not the upgraded version SMBM or MBI, was chosen to measure burnout since both SMBM and MBI require work-related stress to burnout.

In the present study the revised version of SMBQ (SMBQ-18) was used when analyzing the collected patient data, which was feasible by excluding one of four subscales measuring different components of burnout, i.e. tension subscale. SMBQ-18 has been validated and a cut-off at 4.4 is proposed to discriminate clinical from non-clinical population in accordance with Lundgren-Nilsson et. al (17) and was used in this study. The questionnaire consists of 18 items graded from 1 (almost never) to 7 (almost always) investigating three components of burnout; listlessness, physical fatigue and cognitive weariness.

To measure symptoms of depression and anxiety the validated Hospital Anxiety and Depression scale (HAD) (31, 32) (Appendix 2) was chosen. Several self-reporting mental health scales exist which aim to measure the aforementioned symptoms, however HAD was considered most suitable since it had been used in previous related studies (13, 33, 34). The questionnaire consists of 14 items, including two subscales in which seven items each relates to depression and anxiety respectively. Every item is graded from 0-3 assessing to what extent patients have been experiencing different feelings during the past week. The total sum score of each subscale indicates "non-cases" (0-6), "possible cases" (7-10) or "cases" (>10).

In this study a total sum score of 10 in respectively subscale was used as a cut-off determining whether patients suffered from symptoms of depression and/or anxiety or not. Thus, HAD was dichotomized.

Variables of interest and which were included in the statistical analysis in this study were SMBQ-18 \geq / $<$ 4.4 and HAD $>$ / \leq 10 as outcome measures at baseline, three, six, 12 and 18 months follow-up and baseline variables; sex, marital status, level of education, PA and duration of symptoms.

Statistical methods

All patient data were previously put into and compiled in a statistical program. Patients in the age range 18-30 years along with relevant variables were sorted out from this material. Only patients who answered all questions of interest were included in each statistical analysis, since no data imputation was done. Hence the number of observations can vary somewhat in the analyses. Level of p-value for significance was set at $p < 0.05$. For all statistical analysis IBM SPSS Statistics 25 for Mac was utilized (35).

Descriptive statistics

To get a visual overview of the course of mental symptoms in young adults graphs were drawn. This was done by plotting the percentage of patients scoring above cut-off for each subscale in the measure instruments in relation to time of treatment. Percentage for each measure point were obtained by crosstabs showing frequencies in number and percent of patients who scored above and below cut-off for SMBQ-18 and HAD respectively. Graphs were drawn in Microsoft Excel to visualize the course of burnout, depression and anxiety for all patients and for women and men separately at baseline and further on every follow-up visit after three, six, 12 and 18 months.

Significance test

Significance testing was performed to determine whether the proportion of the young adult patients who scored above cut-off on each mental symptom scale significantly differed over time or not. To examine change from baseline to 18 months, including every follow-up visit, the non-parametric Cochran's Q test was utilized for all three mental symptoms. For pairwise comparisons between measure points the non-parametric McNemar's test was used, since the patient data was dichotomous. McNemar's test discriminated whether the difference in proportion of patients scoring above cut-off between pairwise measurement points was significant or not. To be specific comparisons between baseline and 3 months, 3 and 6 months,

6 and 12 months, 12 and 18 months and additionally between baseline and 18 months were performed.

Regression analysis

Regression analyses were performed with five different baseline characteristics as independent variables; sex, marital status, level of education, duration of symptoms and physical activity. All were considered potentially predictive for the course of mental symptoms. The selection of possible predictors was made in consultation with an experienced clinical chief physician and was based on previous research (13, 33). Regression models were calculated by Cox's regression bivariate analysis with constant time at risk and SMBQ-18 < 4.4 as an outcome measure, i.e. recuperation from symptoms of burnout after 18 months of treatment. A proportion of patients in number and percentage that scored below cut-off after 18 months for each value of given predictor were obtained by crosstabs. Only patients with complete data at baseline and 18 months follow-up visit were included and the result is presented as prevalence ratio (PR) with a confidence interval (CI) of 95%. Referential group is stated as 1.

Ethics

Previous studies based on this longitudinal patient's data were approved by the Regional Ethical Review Board in Gothenburg, Sweden, and conducted according to the 1964 Declaration of Helsinki. All patients included in this study have signed a written informed consent, which declares they allow their data to be used for research. No further ethical application for this degree project was hence required.

Results

In total, 61 (46 female and 15 male) young adult patients were included in this study after fulfilling the age criterion as well as diagnostic criteria for exhaustion disorder.

Baseline characteristics

Baseline characteristics are shown in Table 2. The mean age for the young adults was 27.5 years (range 21-30), same for women and men. Fifty-three percent (n = 31) were married (similar to both sexes) and 47% (n = 28) reported marital status as single or other (similar to both sexes). Seventy-five percent (n = 45) of all participants had a college education (80% women and 57% men). Regarding duration of symptoms before consultation, 67% (n = 40) reported time since onset of symptoms to be ≥ 1 year (70% women and 57% men). The question concerning PA showed that 24% (n = 14) of the patients were physically inactive, while 27% (n = 12) performed moderate-to-vigorous PA and in between 52% (n = 24) stated some light PA.

Table 2 Baseline socio-demographic and lifestyle characteristics of young adult patients with exhaustion disorder

Characteristics	N ¹	Women	Men	Total
		n = 46	n = 15	n = 61
		n (%)	n (%)	n (%)
Marital status	59			
- single or other		22 (47.8)	6 (46.2)	28 (47.4)
- married or live-in partner		24 (52.2)	7 (53.8)	31 (52.5)
Level of education ²	60			
- higher		37 (80.4)	8 (57.1)	45 (75.0)
- lower		9 (19.6)	6 (42.9)	15 (25.0)
Duration of symptoms	60			
- < 1 year		14 (30.4)	6 (42.9)	20 (33.3)
- ≥ 1 years		32 (69.6)	8 (57.1)	40 (66.6)
PA	59			
- physically inactive		9 (20.0)	5 (35.7)	14 (23.7)
- some light PA		24 (53.3)	7 (50.0)	31 (52.5)
- moderate-to-vigorous PA		12 (26.7)	2 (14.3)	14 (23.7)

¹Number of patients with complete data for each characteristic

²Lower education is elementary and high school, higher is one year or more of college education

Self-reported mental symptoms

The SMBQ-18 and HAD showed that following proportion of the young adult patients at baseline were suffering from symptoms of; 91% (n = 53) burnout (SMBQ ≥ 4.4), 79% (n = 48) anxiety (HAD > 10 anxiety subscale) and 33% (n = 20) depression (HAD > 10 depression subscale). Equivalent assessment at each follow-up showed that frequency in occurrence of all three mental symptoms consistently decreased over time. However, after 18 months of individualized treatment at ISM 22% (n = 11) were still suffering from burnout. The proportion of young adult patients who scored above cut-off on HAD at 18-months follow-up visit was 12% (n = 6) and 2% (n = 1) for anxiety and depression subscale respectively. This

pattern of decreasing symptoms was present for both men and women. Frequency data for each mental symptom are presented in graphs (Figure 1, 2, 3), for all patients and for men and women separately.

The course of mental symptoms

The course of mental symptoms in young adult patients diagnosed with ED presented a consistently diminishing character. The decrease in proportion of patients scoring above cut-off on respectively symptom scale (visualized in Figure 1, 2, 3) was significant for symptoms of burnout ($p < 0.0005$), anxiety ($p < 0.0005$) and depression ($p < 0.0005$) according to Cochran's Q test.

Burnout

Pairwise comparison between measure points confirmed that the decrease in symptoms of burnout in young adult patients between baseline and 18-months follow-up visit was significant (from 92% to 20% $p < 0.0005$; $n = 49$) according to McNemar's test. The pairwise comparisons in addition confirmed a significant decrease in proportion of patients with symptoms of burnout between baseline and three months (from 91% to 65% $p = 0.001$; $n = 54$) and between six and 12 months (from 51% to 28% $p = 0.004$; $n = 51$). However, the decrease in proportion of young adult patients who suffered from symptoms of burnout was not significant between three and six months (from 60% to 49% $p = 0.238$; $n = 53$) and between 12 and 18 months (from 29% to 22% $p = 0.549$; $n = 49$).

Anxiety

The decrease in symptoms of anxiety in young adult patients between baseline and 18-months follow-up visit was significant (from 80% to 12% $p < 0.0005$; $n = 51$) according to McNemar's test. Pairwise comparisons between measure points in addition confirmed a significant decrease in proportion of patients with symptoms of anxiety between baseline and

three months (78% to 41% $p < 0.0005$; $n = 59$). However, the decrease in proportion of young adult patients who suffered from symptoms of anxiety was not significant between three and six months (from 38% to 35% $p = 0.815$; $n = 55$), between six and 12 months (from 33% and 22% $p = 0.146$; $n = 51$) and between 12 and 18 months (from 20% to 12% $p = 0.289$; $n = 50$).

Depression

The decrease in symptoms of depression in young adult patients between baseline and 18-months follow-up visit was significant (from 38% to 2% $p < 0.0005$; $n = 50$) according to McNemar's test. Pairwise comparisons between measure points in addition confirmed a significant decrease in proportion of patients with symptoms of depression between baseline and three months (33% to 14% $p = 0.013$; $n = 58$). However, the decrease in proportion of young adult patients who suffered from symptoms of depression was not significant between three and six months (from 13% to 9% $p = 0.774$; $n = 56$), between six and 12 months (from 9% and 4% $p = 0.453$; $n = 54$) and between 12 and 18 months (from 4% to 2% $p = 1$; $n = 51$).

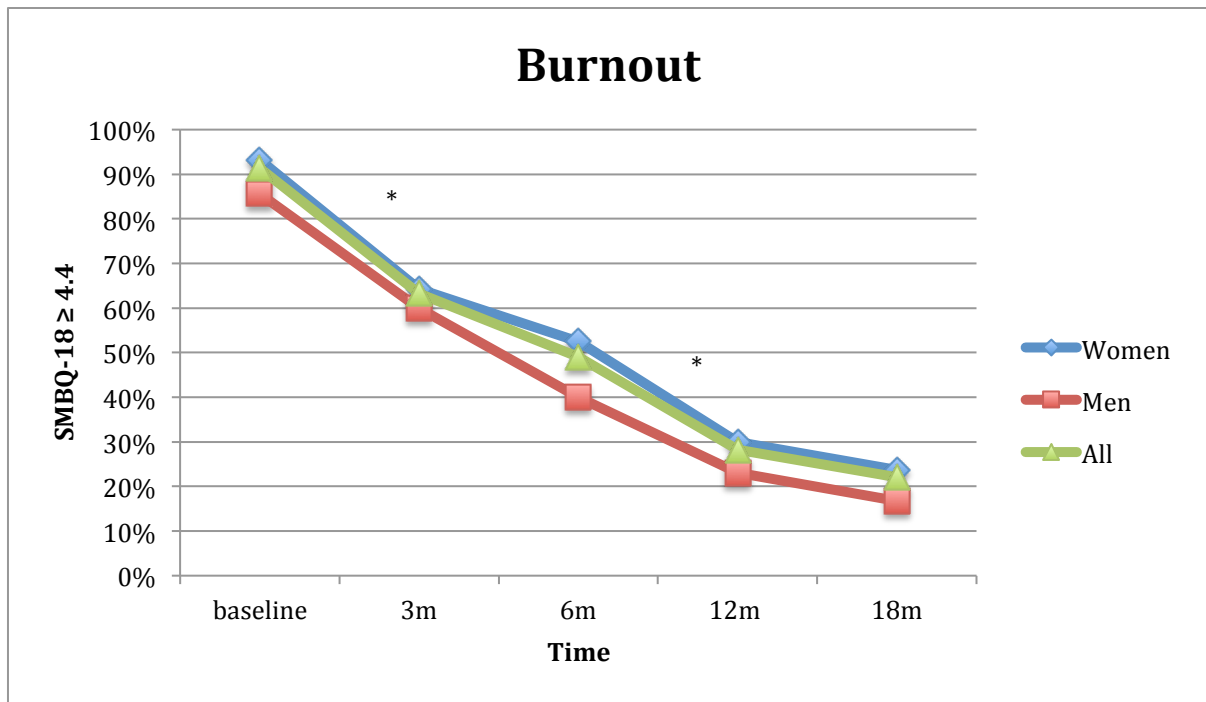


Figure 1 Course of burnout symptoms in young adult patients treated for exhaustion disorder. The percentage (%) of all patients and women and men separately who scored above mean total score/cut-off ≥ 4.4 on the 18-item version of Shirom-Melamed Burnout Questionnaire (SMBQ-18), at baseline and every follow-up visit during 18 months (m) of individualized treatment. *Statistically significant difference ($p < 0.005$) between two time points for all patients (middle line).

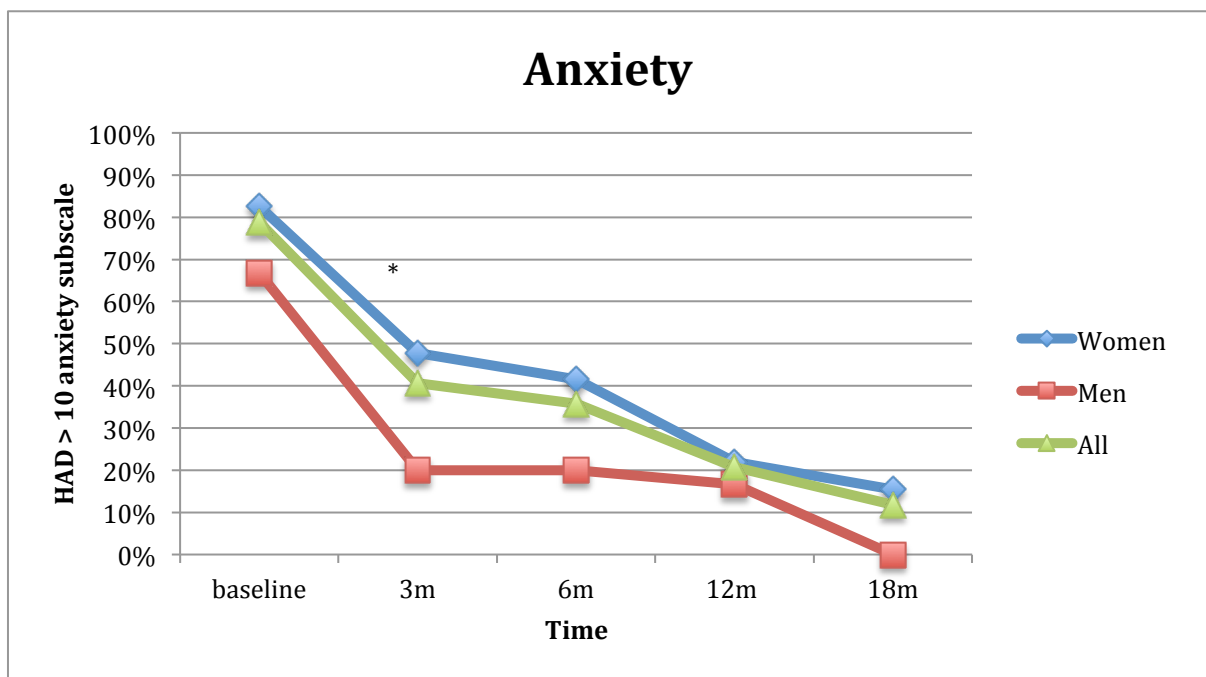


Figure 2 Course of anxiety symptoms in young adult patients treated for exhaustion disorder. The percentage (%) of all patients and women and men separately who scored above cut-off > 10 on anxiety subscale of the Hospital Depression and Anxiety scale (HAD), at baseline and every follow-up visit during 18 months (m) of individualized treatment. *Statistically significant difference ($p < 0.0005$) between two time points for all patients (middle line).

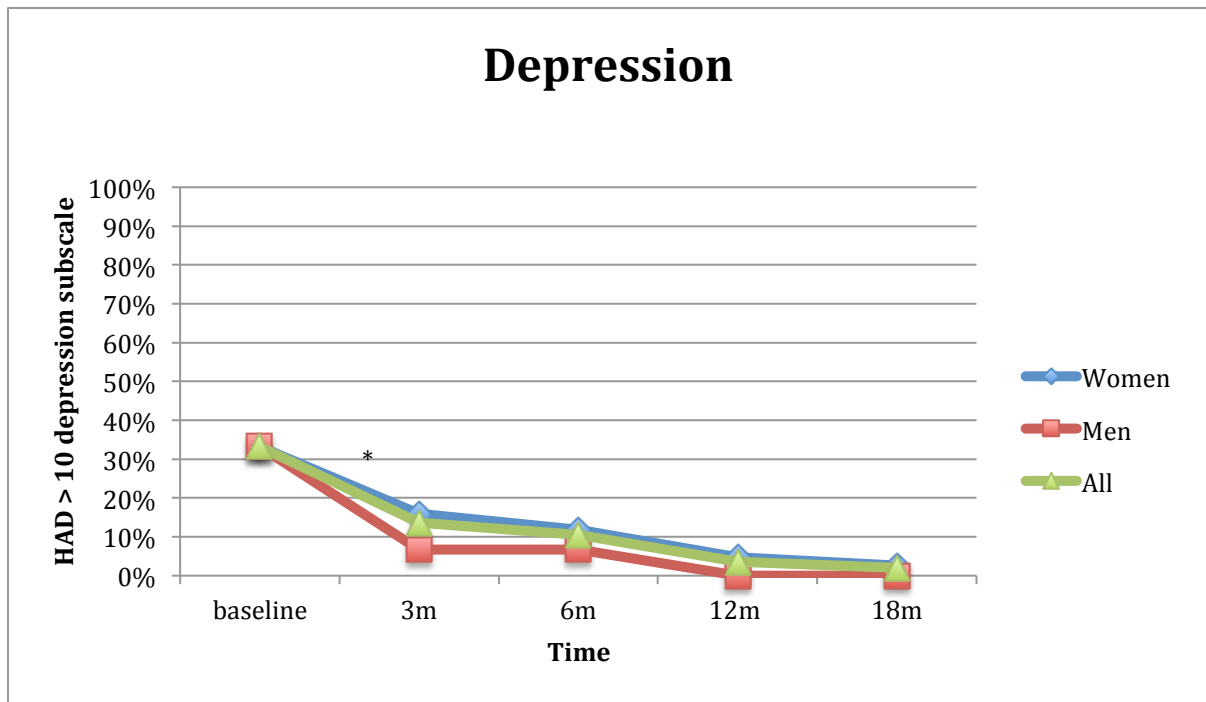


Figure 3 Course of depressive symptoms in young adult patients treated for exhaustion disorder. The percentage (%) of all patients and women and men separately who scored above cut-off > 10 on depression subscale of the Hospital Depression and Anxiety scale (HAD), at baseline and every follow-up visit during 18 months (m) of individualized treatment. *Statistically significant difference ($p < 0.05$) between two time points for all patients (middle line).

Sex differences in course of mental symptoms

Due to the limited amount of men, no statistical test was performed to investigate whether the sex differences in proportion of patients who suffered from mental symptoms at the different measure points were statistically significant or not. However, a descriptive analysis follows below.

All three mental symptoms were in general more frequent at all five measure points among the female patients compared to the males (Figure 1, 2, 3). The only exception where both sexes were affected to the same extent was depression at baseline, wherein one-third of all patients scored above cut-off on HAD depression subscale regardless of gender.

Young adult women appear to suffer from symptoms of burnout and anxiety to a greater extent when ambulatory ill in exhaustion disorder compared to young adult men. Most apparent is the difference in proportion of patients suffering from symptoms of anxiety at

baseline; women 83% (n = 38) and men 67% (n = 10). The difference in symptoms of burnout is small; women 93% (n = 41) and men 86% (n = 12).

In addition, young adult male patients seem to recover from their symptoms of anxiety faster than female ditto. After three months of individualized treatment did 48% of the women and merely 20% of the men still score above cut-off on HAD anxiety subscale. The same pattern was seen after 18 months of individualized treatment, where a greater proportion of the young adult male patients had recovered from symptoms of burnout and anxiety compared to the females. Seventeen percent (n = 2) of the men compared to 24% (n = 9) of the women still suffered from symptoms of burnout and none of the men compared to 15% (n = 6) of the women showed symptoms of anxiety at 18 months follow-up visit.

Baseline characteristics as predictors for recovery

Potentially predictive factors (sex, marital status, level of education, duration of symptoms and PA), for the course of mental symptoms in young adult patients diagnosed with exhaustion disorder, did not show to significantly predict recovery from symptoms of burnout. In Table 3 prevalence ratios with corresponding confidence intervals and p-values are presented for each possible predictor.

Table 3 Bivariate regression analysis¹ of potentially predictive factors for recovery from symptoms of burnout after 18 months of individualized treatment

Predictors	n ² (%)	18 months PR (95% CI)	p-value
Sex			
- men	10 (83)	1	
- women	29 (76)	0.92 (0.45-1.88)	0.81
Marital status			
- single or other	21 (91)	1	
- married or live-in partner	18 (69)	0.76 (0.40-1.42)	0.39
Level of education ³			
- higher	30 (77)	1	
- lower	9 (81)	1.06 (0.51-2.24)	0.87
Duration of symptoms			
- < 1 year	13 (77)	1	
- ≥ 1 year	26 (79)	1.03 (0.53-2.01)	0.93
PA			
- physically inactive	10 (71)	1	
- some light PA	19 (79)	1.11 (0.52-2.38)	0.95
- moderate-to-vigorous PA	9 (81)	1.15 (0.47-2.82)	0.95

¹Cox regressions of baseline characteristics as possible predictors for scoring below cut-off < 4.4 on 18-item Shirom-Melamed Burnout Questionnaire (SMBQ-18) at 18 months follow-up visit in young adult patients diagnosed with exhaustion disorder and who scored above cut-off for SMBQ-18 at baseline

²Number of patients with complete data who scored ≥ 4.4 and < 4.4 on SMBQ-18 at baseline and 18-months follow-up respectively

³Lower education is elementary and high school, higher is one year or more of college education

Discussion

The presence of mental symptoms in young adults suffering from exhaustion disorder is substantial and severe at the time patients are ambulatory ill on their first consultation. Ninety-one percent show symptoms of burnout, 79% suffer from anxiety and 33% from depression to some extent. Sixty-seven percent state that the onset of their symptoms is further than a year back in time, which indicates the course of ED to be prolonged. However, after initiation of individualized treatment all three mental symptoms studied in this degree project had significantly decreased after three months.

Course of mental symptoms

The most remarkable result is the fact that over one-fifth of the young adult patients still were suffering from symptoms of burnout on their last follow-up visit, in spite of being treated for such a long time. Although this result is startling, in comparison with a previous study the young adult ED patients differ in their course of mental symptoms. When Glise et. al surveyed the course of mental symptoms in patients with exhaustion disorder (13) every third patient were still suffering from burnout after 18 months of individualized treatment. Thus, zooming in on young adults they seem to recover faster compared to patients in the age range 18-65 years. Twenty-two percent of the young adults compared to 33% of the wider age range patients still show symptoms of self-reported burnout after 18 months of individualized treatment. This can be related to the fact that a similar proportion scored above cut-off for burnout at baseline among the young adults as well as among the 18-65 year old patients in aforementioned study (91% and 93% respectively).

Additionally, the young adult patients in this degree project suffered from anxiety at baseline to a greater extent (79%) than the wider age range group (65%) studied by Glise et. al (13) and the proportion of patients that were suffering from symptoms of depression at baseline were equal. Hence, young adults do not seem to suffer from a milder form of the syndrome as

a possible explanation to that a considerably greater proportion had recovered from symptoms of burnout after 18 months of treatment.

Another plausible reason why the course of mental symptoms seem to be deviant in young adult ED patients while comparing the result with the corresponding study by Glise et. al could possibly have been longer duration of symptoms before consultation among the wider age ranged group, since long duration of symptoms before consultation was a significant predictive factor for extended time to recovery (13). However, this explanation can be ruled out since there were more patients in this study compare to Glise's who stated that their symptoms had lasted for one year or longer (67% vs. 58%). On the other hand, one can speculate that it is a possibility that yong adults might be more observant and aware of recently emerged symptoms since they generally have fewer conditions accumulated according to their shorter time in life.

As mentioned in the introduction a majority of the patients in the study by Glise et. al were in the age range 30-50 years, meaning there is an actual age difference compared to the patient group in this degree project. Further question is whether this observation that young adults diagnosed with ED seem to recover from symptoms of burnout faster than older aged patients is consistent with reality? This possibility requires to be additionally studied.

In this degree project, the frequency of self-reported anxiety (12%) after 18 months of individualized treatment is in proportion to self-reported anxiety (mild 16% and severe 5%) among young adults in general in Sweden during the time period when the patients were treated (36). Likewise is self-reported depression after 18 months of treatment consistent (or even less frequent) with self-reported depressive symptoms among Swedish population during the first decade of the twentieth century; 2% in this study compare to 4-7% in general (37). Symptoms of depression were still present in 4% of the young adult patients after 12 months

and in 11% after six months. Thus, the young adult patients in this study did not suffer from symptoms of depression after 12 months or from symptoms of anxiety after 18 months to a greater extent than the Swedish population in general. Nevertheless, altogether has the course of mental symptoms in young adult patients diagnosed with exhaustion disorder shown to be long-lasting.

Socio-demographic and lifestyle characteristics

One thing notable is that the spectrum of characteristics in ED patients seems to be quite the opposite of associated risk factors for mental health illness in general. Baseline characteristics in this, as well as in previous studies (11), indicate that ED patients have high socio-economic status (SES). In this degree project more than half were married and 75% had a college education. Corresponding percentage of young adults (age 25-34 years) in general having a college education during the time period in question in Sweden was 37% (38). This statistic of socio-demographic characteristics at baseline is in contrast to generally low SES in patients suffering from other psychiatric disorders (39) and the fact that mental health illness increase in the low-educated part of the population (19). Additionally ED patients state quantitative and emotional demands at work to be stressors that contribute to their illness (12), while work in general is a protective factor for mental health illness (1) and unemployment in contrary is a risk factor for ditto (40).

Contrariwise a Finnish cross-sectional study (41) indicate that women with lower SES and low basic education along with divorced, widowed or single men have more burnout symptoms than other groups studied. Since this study examined burnout in general in a working population using MBI as measure instrument it might not to be able to contrast characteristics in ED patients, while symptoms of burnout are not exclusively related to ED. Furthermore, because of that the Finnish study is cross-sectional and does not corrects for psychiatric nor somatic diseases there is a potential risk that the patients scoring high on MBI

are suffering from co-morbid illnesses with associated low SES as a risk factor as an explanation for their self-perceived burnout.

Previous studies have noticed similar pattern with high educational level among patients diagnosed with exhaustion disorder (11) and in addition a Finish study, which aimed to clarify associations between SES and common mental disorders, found signs suggesting that “mental health might be worse among those in higher rather than lower socioeconomic position” (42). However risk factors for ED are, to my knowledge, not exclusively studied and identified in a scientific manner. To definitely detect risk factors for exhaustion disorder, further studies specifically intended for the purpose are required. Identification of risk factors along with utilization of screening instrument for ED, e.g. previously proposed Karolinska Exhaustion Disorder Scale (KEDS) (43) and self-reported Exhaustion Disorder scale (s-ED) (34), could potentially be helpful to find ED in an early stage or even prevent the disorder from occurring in individuals at risk.

Sex differences

The imbalanced number of women and men in this study is reflecting the difference in incidence of sick leave due to stress-related mental illness between sexes in population in general; during the time when data was collected and nevertheless in the present (18). Number of men in this study was unfortunately insufficient in order to study the course of mental symptoms in men and women separately, i.e. to perform significance testing between measure points. However, speculations concerning comparisons between the sexes based on frequency data are possible. The most obvious difference in course of mental symptoms is the proportion of young adult women suffering from symptoms of anxiety at baseline compared to young adult men, and additionally the divergence in recovery from the symptoms. After three months of individualized treatment almost half of the women and merely one fifth of the men still scored above cut-off on HAD anxiety subscale. Furthermore, at 18 months follow-up visit

more than every seventh women compared to none of the young adult men showed symptoms of anxiety.

One possible explanation for the preponderance of women displaying symptoms of anxiety in this study is the fact that women have shown to be significantly more vulnerable to anxiety disorders compared to men (44, 45). In 2011 McLean et. al examined gender differences in DSM-IV anxiety disorders. The study was comprehensive with over 20,000 participants and the result showed lifetime prevalence to be seven times higher in women compared to men (44). In addition, McLean et. al suggest that “anxiety disorders are not only more prevalent but also more disabling in women than in men”, which might explain women’s extended time to recovery from their mental health symptoms.

In contradistinction to the cautiously indicated sex differences in this degree project, previous studies that examining if gender relates to the course of illness in exhaustion disorder and burnout did not find any significant dissimilarities (13, 33, 46). Hence in order to determine whether there are actual sex differences among young adults with ED, more extensive studies with a larger patient clientele are required.

Strengths and weaknesses

There are shortcomings in this degree project that need to be discussed. To begin with, no power analysis was performed, since the study was based on preexisting data and all patients available were included.

One weakness is the limited number of patients, and especially the number of male patients. Altogether 61 participants are an adequate amount of patients to study and to apply statistical analyses on, however a larger group of patients would be required to receive a more reliable result. Besides, the comparisons between women and men are arbitrary since minor

differences in number of male patients scoring above/below cut-off on any measure instrument results in a major impact on the percentage of proportion.

Another weakness is the fact that antidepressant medication was not taken into account. Some of the young adult patients had received AD already from the health centers they were remitted from and some were prescribed treatment with AD at ISM if clinical depression was confirmed. Significant symptoms of depression on the HAD subscale is not necessarily determining clinical depression and the fact that some of the patients were treated with AD might have affected the outcome of recovery from mental health symptoms. However, Glise et al. did not find either use of AD or co-morbid clinical depression to be predictive for the course of mental symptoms in ED patients (13).

An additional thing to take into consideration is the conceivability that highly educated patients are more likely to ask for specialized treatment compared to general population. This might have resulted in that physicians at the primary health care centers and occupational service centers as a consequence remitted highly educated patients to ISM to a greater extent than patients with lower educational level. This could be an explanation for the notably discrepancy in proportion of highly educated patients compared to the general population, however it does not elucidate the entire difference.

One strength is the long follow-up time. Since this degree project was dedicated twenty weeks it was an asset to be able to study the course of mental symptoms in young adults for 18 months. In contrast, the patient data was collected ten years ago (two-thirds of the patients had their first consultation in the years 2004-2008), which might be a disadvantage. However, the course of mental symptoms in ED patients can be assumed not to differ between two consecutive decades.

Additionally, regarding the patient's data, if it had been collected in the present time KEDS (43) or s-ED (34) would have been chosen as measure instruments to follow the course of mental symptoms in ED patients. Both of these measure and/or screening instruments have recently been developed to assess severity in ED specifically and both are validated according to Persson et. al (47). However, the measure instruments (SMBQ, HAD) that were used when this patient data in question were collected evaluate the mental symptoms that characterize ED satisfactory. Nevertheless, measure instruments purposely designed to follow the course of ED symptoms would have been to prefer.

Concerning the treatment one strength of this study is the fact patients were treated at the same clinic; hence was the same treatment offered for all of the young adult patients. One can argue that individualized treatment as a concept, which means that the patients de facto are treated differently since components alter depending on symptoms, is a weakness of this study. However, there is yet no evidence for currently studied treatment methods (e.g. cognitive behavioral therapy, mindfulness, Qi gong, physical activity, physiotherapy, workplace dialogue regarding a return to work plan) to shorten the time for recovery and its associated sick leave (48). The most likely theory as it seems, is that the brain needs time to recover in accordance with the proverb "time heals all wounds" and meanwhile, one can only direct treatment to relieve the symptoms of exhaustion disorder (48).

Conclusions

The burden of symptoms of burnout as well as symptoms of anxiety among young adult patients is major while ambulatory ill in exhaustion disorder. Symptoms of depression are less frequent, but still present in one third of young adults when seeking healthcare. There is preponderance in proportion of female patients with ED who suffer from mental health symptoms; most apparent is the difference in symptoms of anxiety.

Once individualized treatment is initiated the patients start to recover, there is a significant decrease in burden of mental symptoms already after three months of adequate treatment. Symptoms of burnout are however prolonged since over a fifth still suffer from them after 18 months of individualized treatment. This relatively high risk for long lasting course of symptoms of burnout along with a high proportion of young adult patients who suffer from symptoms of anxiety and burnout at the onset of illness, imply that preventive measures are needed to avoid the syndrome from occurring in the first place. Characteristics at baseline, i.e. while ambulatory ill in ED, do not predict the burden of mental symptoms in young adults after 18 months of individualized treatment according to this degree project.

To find patients at risk, detection of risk factors along with initiation of screening instruments could potentially reduce the number who suffers from stress-related diseases. Further research on young adults as a subgroup is needed since dissimilarities in course are indicated by this degree project, however no applicable conclusions can be made. The aim is of utmost importance, to enable professionals to give patients a plausible prognosis regarding recovery and return to occupation, as close to an individual level as possible. The observation in this degree project, suggesting that young adults seem to suffer from anxiety to a greater extent and recover faster from their mental symptoms while compared to ED patients in general, may be of value in pursuit of this aim.

Populärvetenskaplig sammanfattning

Stressrelaterad psykisk ohälsa med långtidssjukrivningar till följd har ökat avsevärt de senaste årtiondena. Utmattningsyndrom (UMS) är benämningen på det tillstånd av psykisk utmattning orsakad av långvarig stress i kombination med bristande återhämtning, vilket tidigare var känt som ”utbrändhet”. Ökningen av sjukskrivningar sker i alla ålderskategorier, men är som störst för unga vuxna. Den senaste årsrapporten från Folkhälsomyndigheten bekräftar att det skett en ökning av den psykiska ohälsan generellt bland unga vuxna 16-29 år samt att närmare hälften av dessa uppger att de lider av ängslan, oro eller ångest. Vad som ligger bakom detta växande samhällsproblem är ännu inte känt. Det faktum att sjukskrivningar relaterat till stress ökar mest för de unga vuxna i takt med att dessa generellt mår sämre psykiskt, gör stressrelaterade sjukdomar inom denna patientgrupp särskilt intressanta att titta närmare på.

Unga vuxna som fått diagnosen UMS har enligt min kännedom inte tidigare studerats enskilt som patientgrupp. Syftet med detta examensarbete var därför att ta reda på i vilken omfattning dessa lider av psykiska symptom samt hur länge symptomen kvarstår efter påbörjad behandling. Psykiska symptom i denna studie bedömdes med hjälp av självskattningsskalor. Patienterna hade själva fyllt i frågeformulär vid fem olika tillfällen under ett och ett halvt års tid, samtidigt som de fick behandling för sin sjukdom. Resultatet visade att majoriteten av de unga vuxna patienterna led av psykiska besvär vid insjuknandet i UMS. Nio av tio var mentalt utmattade, nästan fyra av fem led av ångest och en tredjedel hade depressiva symptom.

Vid jämförelse mellan könen verkade det som att de unga vuxna kvinnorna led av ångest i större utsträckning än de unga vuxna männen som också återhämtade sig snabbare från sina ångestbesvär. I övrigt var symptombilden i stort sett densamma oberoende av kön. Då resultatet av den här studien jämfördes med en tidigare studie på patienter med UMS,

förefaller att unga vuxna som patientgrupp lider av ångest vid insjuknandet i större uträckning än UMS patienter generellt. Däremot verkar de unga vuxna återhämta sig snabbare från sina psykiska besvär.

Några stora slutsatser kan inte dras enbart baserat på denna studie, då antalet patienter var få. Att spegla resultatet i samhället är därför inte möjligt. Däremot är alla steg mot ökad kunskap kring UMS viktiga, och för att helt förstå en sjukdom krävs insikter om vilka som riskerar att drabbas och varför de gör det. Att studera mindre grupper, såsom unga vuxna, och identifiera egenskaper hos sjukdomen särskilt för denna patientgrupp är till stor hjälp på vägen mot förståelsen av UMS. Kunskap om faktorer som påverkar förloppet för olika grupper skulle möjliggöra att vårdpersonal kunde uttala sig kring behandling och prognos för den enskilde patienten. Detta med avseende på återhämtning från symptom samt återgång i arbete. Därtill skulle kännedom om riskfaktorer inge möjlighet att arbeta förebyggande. Detta genom att individer med ökad risk att drabbas av stressrelaterad sjukdom skulle kunna identifieras och fångas upp tidigt. På så vis skulle sjukdomsförlopp kunna bromsas eller, i de bästa av världar, helt förhindras innan begynnandet.

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Appendices

Appendix 1

Hospital Anxiety and Depression Scale (HAD)

Dessa frågor har ställts samman för att hjälpa oss att förstå hur Du mår. Läs varje påstående och sätt ett kryss i rutan till vänster om det svar som kommer närmast hur Du har känt dig under veckan som gått.

1. Jag känner mig spänd och nervös:

- Mestadels
- Ofta
- Av och till
- Inte alls

2. Jag uppskattar fortfarande saker jag tidigare uppskattat:

- Definitivt lika mycket
- Inte lika mycket
- Endast delvis
- Nästa inte alls

3. Jag har en känsla av att något hemskt kommer att hända:

- Mycket klart och obehagligt
- Inte så starkt nu
- Betydligt svagare nu
- Inte alls

4. Jag kan skratta och se det roliga i saker och ting:

- Lika ofta som tidigare
- Inte lika ofta nu
- Betydligt mer sällan nu
- Aldrig

5. Jag bekymrar mig över saker:

- Mestadels
- Ganska ofta
- Av och till
- Någon enstaka gång

6. Jag känner mig på gott humör:

- Aldrig
- Sällan
- Ibland
- Mestadels

7. Jag kan sitta stilla och känna mig avslappnad:

- Absolut
- Vanligtvis
- Sällan
- Aldrig

8. Allting känns trögt:

- Nästan alltid
- Ofta
- Ibland
- Aldrig

9. Jag känner mig orolig, som om jag hade fjärilar i magen:

- Aldrig
- Ibland
- Ganska ofta
- Våldigt ofta

10. Jag har tappat intresset för hur jag ser ut:

- Fullständigt
- Till stor del
- Delvis
- Inte alls

11. Jag känner mig rastlös:

- Världigt ofta
- Ganska ofta
- Sällan
- Inte alls

12. Jag ser med glädje fram emot saker och ting:

- Lika mycket som tidigare
- Mindre än tidigare
- Mycket mindre än tidigare
- Knappast alls

13. Jag får plötsliga panikkänslor:

- Världigt ofta
- Ganska ofta
- Sällan
- Aldrig

14. Jag kan uppskatta en god bok, ett TV- eller radioprogram:

- Ofta
- Ibland
- Sällan
- Mycket sällan

Avdelningens anteckningar

Summa Å =

Summa D =

Appendix 2

Melamed

Nedan beskriver vi ett antal känslor som alla människor kan uppleva då och då. Beskriv i vilken grad Du upplever dessa under dagtid.

	Nästan aldrig						Nästan alltid
1. Jag känner mig trött	1	2	3	4	5	6	7
2. Jag känner mig pigg	1	2	3	4	5	6	7
3. Jag känner mig fysiskt utmattad	1	2	3	4	5	6	7
4. Jag känner att jag har fått nog	1	2	3	4	5	6	7
5. Jag känner mig full av energi	1	2	3	4	5	6	7
6. Mina "batterier" är uttömda	1	2	3	4	5	6	7
7. Jag känner mig alert	1	2	3	4	5	6	7
8. Jag känner mig utbränd	1	2	3	4	5	6	7
9. Jag känner mig mentalt trött	1	2	3	4	5	6	7
10. Jag känner att jag inte orkar gå till arbetet på morgonen	1	2	3	4	5	6	7
11. Jag känner mig aktiv	1	2	3	4	5	6	7
12. Jag känner mig dåsig	1	2	3	4	5	6	7
13. Jag känner mig spänd	1	2	3	4	5	6	7
14. Jag känner mig avspänd	1	2	3	4	5	6	7
15. Jag känner mig rastlös	1	2	3	4	5	6	7
16. Jag känner en stark inre spänning	1	2	3	4	5	6	7
17. Jag känner mig trött i huvudet	1	2	3	4	5	6	7
18. Jag har svårt att koncentrera mig	1	2	3	4	5	6	7
19. Jag känner mig trögtänkt	1	2	3	4	5	6	7
20. Jag kan inte tänka klart	1	2	3	4	5	6	7
21. Det känns svårt att tänka på komplicerade saker	1	2	3	4	5	6	7
22. Jag känner mig splittrad i tankarna	1	2	3	4	5	6	7