Young Adults in General Psychiatry

ADRIANA RAMIREZ
Abstract

Mental illness is common, and usually starts early in life. However, the majority of those affected never seek mental health care. The overall aim of this thesis was to increase knowledge about help-seeking young adults with mental illness in order to improve diagnostic procedures in clinical psychiatry.

A group of young adult psychiatric out-patients (n=217) were consecutively invited to participate in the study between October 2002 and September 2003. Altogether 200 (92%) agreed to participate. Among them, there were 161 (80%) women and 39 (20%) men. Participants’ mean age was 22.4±1.9 years. All participants were carefully and comprehensively assessed with respect to axes I, II, IV and V in the DSM-IV. Psychiatric disorders and personality disorders were assessed using the Structured Clinical Interview for DSM-IV for axis I disorders and the Structured Clinical Interview for DSM-IV for axis II disorders. Psychosocial and environmental problems (axis IV) were evaluated through structured interviewing by a social worker and by self-assessment with a questionnaire. Professional and patient ratings on the Global Assessment of Functioning scale were compared before and after treatment. Patients also reported on the Swedish universities Scales of Personality, the Child and Adolescent Psychiatric Screening Inventory-Retrospect and the Coddington’s life event scale.

Taken together, the young adult, psychiatric outpatients were characterized by an early onset of their mental disorders, by co-morbidity, by being female and by having mood or anxiety disorders. There were no significant differences between self-referred and those referred by medical professionals according to either number of current or lifetime diagnoses. Childhood onset of depression was associated with more severe symptoms, more psychosocial risk factors, and more childhood developmental delays. Axis IV psychosocial stress categories were related to the presence of axis I disorders, personality disorders, co-morbidity, and impaired functioning. Agreement between patients’ and professionals’ ratings on the GAF scale was good before treatment and excellent after treatment.

In summary, the findings suggest that direct self-referral to specialized psychiatric care does not seem to be associated with overutilization of such care. Childhood onset of depression is associated with a more complex illness. The revised axis IV according to DSM-IV seems to have concurrent validity, but is still hampered by limited reliability. And finally, the results support the usefulness of the self-report GAF instrument for measuring outcome in psychiatric care.

Keywords: Young adults, multi-axial diagnostics, self-referred, help seeking, axis IV, axis V

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In loving memory of my parents
Andrea and Rodolfo
This thesis is based on the following papers, which are referred to in the text by their Roman numerals.

I Ramirez A, Ekselius L, Ramklint M. Mental disorders among young adults self-referred and referred by professionals to specialty mental health care. Psychiatric Serv. 2009;60:1649-55


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<td>ANOVA</td>
<td>Analysis of Variance</td>
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<td>APA</td>
<td>American Psychiatric Association</td>
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<td>BP</td>
<td>Bipolar Disorder</td>
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<tr>
<td>CAPSI-R</td>
<td>Child and Adolescent Psychiatric Screening Inventory-Retrospect</td>
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<td>DIP-Q</td>
<td>DSM-IV and ICD-10 Personality-Questionnaire</td>
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<td>DSM</td>
<td>Diagnostic and Statistical Manual of Mental Disorders</td>
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<td>EDE-Q</td>
<td>Eating Disorder Examination-Questionnaire</td>
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<tr>
<td>GAF</td>
<td>Global Assessment of Functioning</td>
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<tr>
<td>ICC</td>
<td>Intra-class Correlation Coefficient</td>
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<td>ICD</td>
<td>International Classification of Diseases</td>
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<td>MADRS</td>
<td>Montgomery-Åsberg Depression Rating Scale</td>
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<td>MDD</td>
<td>Major Depression Disorder</td>
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<td>OCD</td>
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<td>PABAK</td>
<td>Prevalence &amp; Bias-Adjusted Kappa</td>
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<td>SIAS</td>
<td>Social Interaction Anxiety Scale</td>
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<td>SD</td>
<td>Standard Deviation</td>
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<td>SPSS</td>
<td>Statistical Package for the Social Sciences</td>
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<td>SPS</td>
<td>Social Phobia Scale</td>
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<td>WHO</td>
<td>World Health Organization</td>
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Introduction

Adolescence is a time of transition between childhood and adulthood. It is during this period that most psychiatric disorders have their onset [1, 2]. Moreover, the prevalence of psychiatric illness is highest in young adults [2, 3]. Therefore, as expected, there are more young people in Sweden, compared to older age groups, who seek mental health care [4]. Early and reliable identification of patients’ psychiatric symptoms, as well as various psychosocial risk factors, is crucial for adequate and effective measures. Development and quality assurance of diagnostic methods improve psychiatric assessments and are the basis for evidence-based treatment. Despite this, there is limited knowledge about the value of different diagnostic procedures in clinical psychiatry.

Classification of Mental Disorders

History

The concept of diagnosis derives from the Greek prefix *dia*, meaning “through”, and the Greek word *gnosis*, meaning “knowing”. In the field of psychiatry, diagnosis means the recognition of a disease through signs or symptoms. The diagnostic process is as old as medicine since the recognition of symptoms is a prerequisite for the choice of treatment. Diagnoses are specific constellations of symptoms.

Although psychiatric conditions have been diagnosed since ancient times, it was in Germany, in the middle of the 18th century, where the foundation of modern psychiatric classifications was laid. Moritz Romberg (1795-1873) and his successor, Wilhelm Griesinger (1817-1868), published early studies of brain diseases [5]. Emil Kraepelin (1856-1926) continued their neurological work and developed the psychiatric diagnoses by introducing criteria for distinguishing bipolar disorder from dementia praecox (schizophrenia) [6]. In the late 18th century, on the basis of the works above, there existed the following diagnostic dichotomies: psychosis versus neurosis, schizophrenia versus bipolar disorder, and neurosis versus psychopathy and personality disorder. Thereafter, in 1947, a Swedish professor named Erik Essen-Möller
(1901-1992) described the Moller & Wohlfahrt multi-axial diagnostic system, which separated etiology from symptoms by using multiple axes/assessment areas. The system was based on experiences from the Lundby study [7], which was one of the world’s first psychiatric epidemiological studies.

Several researchers continued to develop multiaxial assessment systems. Ottosson and Perris [111] further developed and divided the Moller & Wohlfahrt system into four axes: symptomatology, severity, course and presumed etiology. At the same time, Strauss [112] presented a system with five axes that also included social function. Accordingly, Michael Rutter [8] developed a system for child and adolescent psychiatry with four axes: psychiatric syndromes, intellectual level, biological factors and psychosocial factors.

The official diagnostic classification system, International Classification of Diseases (ICD) from the World Health Organization (WHO), was initially a register of causes of death. However, it was not until its sixth version from 1948 that psychiatric disorders were included. ICD was previously criticized for mixing different classification principles; namely, descriptive and etiological [9, 10]. In 1952, the American Psychiatric Association (APA) presented a new system called the “Diagnostic and Statistical Manual of Mental Disorders” [11]. It was developed into a multi-axial system in its third version (DSM-III) [12].

Current Classification Systems

Today, therefore, there are two internationally established classification systems for psychiatric disorders: Diagnostics and Statistical Manual of Mental Disorders, fourth version (DSM-IV) [13, 14] and the International Classification of Diseases, tenth version (ICD-10) [15]. Comparisons of prevalence rates between countries, as well as development trends, are made possible through these classification systems. They improve communication within and between professional groups as well as provide conditions for research and evidence-based treatments. Both systems are descriptive. Diagnostic criteria are based on the consensus of leading diagnostic experts. In order for a condition to be included in a classification system, it has to be valid. It must have been shown that the untreated condition causes suffering, loss of function or even death. The diagnosis must be meaningful to identify and possible to assess in a reliable way. Classification systems undergo regular scientific and clinical revisions.
DSM-IV

Axis I clinical syndromes
Psychiatric diagnoses are based on symptom criteria, some of which are compulsory, and time period criteria. In depression, for example, at least five depressive symptoms must exist, with at least one belonging to compulsory criteria. The duration of symptoms must also last for at least two weeks. In addition, there are exclusion criteria. An example would be that the depression is not better explained by a physical illness. Additionally, the symptoms must cause significant distress or functional impairment. Clinical syndromes are defined based on an interpersonal norm.

Axis II personality disorders
Personality Disorders (PD) are defined as a persistent pattern of inner experience and behavior that deviates markedly from what is expected in the person’s socio-cultural environment. In addition to the general criteria for all personality disorders, there are criteria for each specific disorder. Personality disorders are divided into three clusters: cluster A (the odd, eccentric personalities): paranoid, schizoid and schizotypal PD; cluster B (the impulsive, extrovert personalities): antisocial, borderline, histrionic and narcissistic PD; and cluster C (the anxious, introvert personalities): avoidant, dependent and obsessive-compulsive PD.

Axis III - physical illness / injury
Axis III is for reporting current general medical conditions that are potentially relevant to the understanding or management of the individual’s mental disorder.

Axis IV - psychosocial and environmental problems
Psychosocial problems can be risk factors for the development of a psychiatric disorder, target for treatment or influencing prognosis of the current mental disorder. These problems are grouped into nine categories: problems with primary support group, problems related to the social environment, educational problems, occupational problems, housing problems, economic problems, problems with access to health care services, and problems related to interaction with the legal system/crime.
Axis V - Global Assessment of Functioning (GAF)

This GAF rating can be used for planning and evaluation of treatment as well as predicting outcome. Only disabilities due to mental disorders are estimated. It is a global rating scale of symptoms and of psychological, social and occupational functioning on a scale between 1-100 [13]. Functioning is measured in relation to different activities. In psychiatry, the patient’s ability to function in their jobs, in their relationships and in their daily activities is evaluated. There are a limited amount of diagnostic tools for assessing functionality, such as questionnaires [16, 17].

Models for relations between different axes

Axis I- and axis II disorders often co-occur. This raises several questions. Do they share the same etiology? Are there implications in terms of causality? Several models for the relationship have been developed including the vulnerability, the complication and the spectrum models.

Vulnerability model

The vulnerability model assumes that there is a common vulnerability for both specific clinical syndromes and specific personality disorders [18]. This vulnerability may be biological and manifested in personality traits. For example, anxious traits increase vulnerability for both avoidant personality disorder and for depression [19].

Complication model

The complication model assumes that a second condition develops in the context of, or because of, a first condition [20]. For example, depressed teenagers might develop an altered self-image if they feel worthless, causing a change in their behavior. This could have an impact on their personality development [21]. Mental illness in childhood is related to higher prevalence of personality disorders [22, 23] high psychiatric co-morbidity [24, 25] less social support [26-28], lower functional capacity [29, 30], and poorer response to treatment of both mental and somatic illnesses [21, 31].

Spectrum model

The spectrum model assumes that the two clinical syndromes are related, in terms of etiology and mechanism of action, and exists on a continuum [19, 32-34]. For example, cluster A personality disorders are related to psychotic disorders [35] and cluster C personality disorders are related to anxiety disorders [36].
Diagnostic Assessment

Methods
The clinical evaluation of symptoms is crucial in psychiatric diagnostics since there are no biological markers, such as blood tests and x-rays, used in clinical practice. If symptoms are consistent with the description in the classification system, criteria are met. There are diagnostic tools to support the identification of symptoms, such as structured interviews and questionnaires. Diagnostic tools have been developed for different purposes – for screening, for diagnostics, and for ratings of severity or functional level.

There are also instruments used to evaluate risk factors; for example, questionnaires evaluating life events, psychosocial stress or personality traits. An instrument must be used in accordance with its purpose. A screening instrument, for example, should not be used for diagnostics.

Psychiatric epidemiology

Prevalence
Epidemiological studies show that mental illness is common and that, in any given year, approximately one quarter of the population is affected [37]. A smaller proportion, around 7%, is affected by several disorders [37]. Lifetime prevalence is even higher, around 50% [2, 3, 38].

Co-morbidity
Co-morbidity means the simultaneous occurrence of different diagnoses. Distinction is made between current and lifetime co-morbidity, differentiating between how many diagnoses are met currently and how many were met throughout life [39]. Homotypic continuity means that the diagnosis stays the same; i.e., those who had depression continue to have depression [40]. Heterotypic continuity is when one diagnosis is followed by another diagnosis [40]. Homotypic continuity exists for most diagnoses, while heterotypic continuity is more common for some, such as anxiety and depression or anxiety and substance abuse [40, 41]. Heterotypic continuity makes the distinction between different diagnoses weaker and raises questions about common vulnerabilities.
Age of onset
Mental illness has its onset early in life, and at least 75% experience its onset before the age of 24 [2, 42]. Median age of onset varies between different diagnoses and was reported from a North-American epidemiological sample to be 11 years old for anxiety disorders, 20 years old for substance use disorders and 30 years old for mood disorders [2].

Help-seeking
Only a minority of those affected by mental disorders seek care [43, 44]. Early onset and co-morbidity increase health care attendance [42]. This implicates that those who seek help through psychiatry can be expected to have more complex problems [45]. Different filters between the patient and psychiatry, such as the individual’s own ability to recognize mental illness, referral requirements, primary care physician’s competence to diagnose mental disorders and willingness to refer them, may also influence the number of patients in specialized care [46, 47]. Psychiatric services in Sweden, however, usually have no referral requirements. There is no knowledge of how this ability to refer oneself affects help-seeking.

Development of psychiatric disorders
There are biological, psychological, social and interactional models that try to explain the development of psychiatric disorders. The biological perspective tries to understand thoughts, feelings and behaviors based on physiological processes. However, biological changes, such as chemical processes within the nervous system, have both genetic and environmental influences [48]. Psychological models also include both biological and environmental influence. For example, Freud (1856-1939) developed the psychodynamic theory of how mental illness arises. In his model, biology provides us with drives, but the environment teaches us to deal with them. The cognitive theory by Beck [49] focuses on the way in which people receive information, evaluate it, and determine how to react. The emotions are influenced by the interpretation of them. The radical behaviorism by Skinner [50] focuses on behaviors and what environmental factors that increase the likelihood for a behavior to occur again. George W. Brown [51] constructed a psychosocial model for causal connection between social problems and psychiatric disorders. Poverty [52], absences from school [53] and family problems [27, 28, 54] have been shown to be social risk factors that increase the risk for psychiatric diseases. Brown showed that risk factors are nonspecific and not connected to individual diagnoses [55]. Psychosocial risk factors may be
mediating; for example, does early childhood victimization increase the risk of later psychopathology [56, 57]. Models that describe how both biological and psychosocial risk factors interact are called interactionistic [48, 58]. According to these models, stress interacts with the individual’s vulnerability through biological mechanisms such as increased cortisol levels, which affect the hypothalamic-pituitary-adrenocortical (HPA) axis. Research has shown that high cortisol levels affect the hippocampus and may lead to cell death [18]. Early development of stress such as child abuse, neglect or parental loss can lead to neurobiological changes underlying the increased risk of psychopathology [59]. Studies of gene-environment interactions (G X E) support the stress-vulnerability model. The genotype moderates the sensitivity to psychosocial stress [60, 61]. In summary, it is of importance to evaluate biological, psychological and social risk factors as part of the diagnostic process.

Life events
Events that happen in a person’s life can be positive or negative. An American psychiatrist, L.E. Hinkle Jr., introduced the concept of life events and described life events that affect the risk for diseases. He identified a number of people with frequent sick leave without any clear somatic cause. The characteristic of this group was that they suffered from an unpleasant and stressful life event before their sick leave. Holmes-Rahe’s schedule of current life events [62] is a scale for measuring life events and dramatic changes in people’s lives. Coddington’s Life Event Scale is a questionnaire about significant life events that occurred during childhood [63]. Particularly severe negative life events during childhood affect not only the risk of mental illness, but also reduce the person’s functional level. This is especially true if the negative life events (for example, neglect, maltreatment and sexual abuse) existed for a long period of time [64, 65].
Overall aims of the thesis

The overall aim was to increase knowledge about young adults with mental illness in order to improve diagnostic procedures.

The specific aims of the thesis are:

- to determine whether patients who refer themselves to specialized mental health care differ from those who are referred by non-psychiatrist professionals (paper I)
- to examine what characteristics delimit depression onset groups from each other. To investigate whether delayed or abnormal development is a risk factor for childhood onset of depression (paper II)
- to explore the reliability between professional and patient assessment of present categories of psychosocial stressors and to explore concurrent validity of axis IV (paper III)
- to investigate agreement between patients’ ratings on the GAF, both before and after treatment (paper IV)
Methodology

Design

All studies used a naturalistic and cross-sectional design, and paper IV also used longitudinal assessments.

Participants

The study was conducted at Flogsta Outpatient Clinic at the Uppsala Department of Psychiatry between October 1, 2002, and September 30, 2004. At the time of the study, Uppsala was a city with a population of nearly 180,000, whereof 32 % were younger than 25 years old – a great proportion of them being university students. Young adults between 18-25 years of age, living in the catchment area and visiting the clinic, were consecutively invited to participate in the study within the first year (until September 30, 2003). During the year of study enrollment, 217 patients (6 % of the population in this age group living in the catchment area) came for an initial appointment. After receiving a complete description of the study, written informed consent was obtained from 200 out of 217 (92 %) patients. Among participants, there were 161 (80 %) women and 39 (20 %) men. Among the 17 non-participants, i.e., external drop-outs, 13 (76 %) were women and 4 (24 %) were men. There was no significant difference between participants and non-participants according to sex. Participants’ mean age was 22.4±1.9 years. Non-participants had a mean age of 21.5±1.7 years (t=2.21, df=215, p=0.04). There were no significant differences between participants and dropouts according to any diagnoses. The number of patients varies in the four different studies (I-IV), depending on study purpose (paper II), or because of missing data, i.e., internal drop-outs (paper III & IV), see Table 1.

A majority of the participants, 166 (83 %), had an occupation; forty (20 %) worked and 126 (63 %) studied. Among those 34 (17 %) without any occupation, there were 14 (7 %) on short-term disability and 20 (10 %) were unemployed. Most of them, 155 (78 %), lived alone, and there were 42 (21 %) who lived with their parents. Only 3 (2 %) lived in an institution.
Table 1. Descriptive data of participants in paper I-IV (N=200).

<table>
<thead>
<tr>
<th>Paper</th>
<th>Number of participants</th>
<th>Number of internal drop-outs</th>
<th>Rate of participation (%)</th>
<th>Male/Female</th>
<th>Age mean (SD)</th>
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<tbody>
<tr>
<td>I</td>
<td>200</td>
<td>0</td>
<td>100</td>
<td>39/161</td>
<td>22.4 (1.9)</td>
</tr>
<tr>
<td>II</td>
<td>156</td>
<td>0</td>
<td>100</td>
<td>23/133</td>
<td>22.4 (1.8)</td>
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<tr>
<td>III</td>
<td>163</td>
<td>37</td>
<td>82</td>
<td>30/133</td>
<td>22.4 (1.9)</td>
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<td>IV</td>
<td>191</td>
<td>9</td>
<td>96</td>
<td>38/153</td>
<td>22.4 (1.9)</td>
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</table>

Diagnostic procedures

An initial diagnostic assessment of axis I-V according to DSM-IV [13] included three patient visits - two with a doctor and one with a social worker. This was followed by a team conference. During the first visit, a clinical interview was performed. On the second visit, a structured diagnostic interview was performed. On the third visit, psychosocial and environmental problems were assessed by the social worker. During the team conference, available information was presented and axis I, III, IV and V-diagnoses were established. Patients were subsequently given appropriate treatment. Finally, axis II diagnoses were assessed by the doctor who performed the initial appraisal at a suitable time point, such as when axis I symptoms were resolved.

Assessments

Axis I and axis II

Psychiatric disorders were assessed using the Structured Clinical Interview for DSM-IV axis I disorders, clinical version (SCID-I-CV) [66] and by using the Structured Clinical Interview for DSM-IV axis II, personality disorders (SCID-II) [67]. The SCID-I CV provides comprehensive assessment of most diagnoses, but for some diagnoses there are only screening questions, i.e., agoraphobia, social phobia, specific phobia, generalized anxiety disorder, anorexia nervosa, bulimia nervosa, and somatoform disorders. If screening questions were assented to, all criteria for the diagnosis were reviewed using the DSM-IV criteria as a checklist. Furthermore, for those who assented, either to screening questions for anorexia and bulimia nervosa or to social phobia, supplementary information was gathered by the use of questionnaires. For eating disorders, the Eating Disorders Examination-Questionnaire
(EDE-Q) [68] was used and for social phobia, the Social Phobia Scale (SPS) and the Social Interaction Anxiety Scale (SIAS) was used [69]. Two of the authors (MR and AR) performed the SCID interviews. Complete inter-rater reliability (Kappa 1.0) was obtained for eight randomly selected SCID-I interviews. Based on six randomly selected SCID-II interviews, the overall Kappa coefficient was 0.89 concerning categorical personality disorder diagnoses.

Axis IV

**Axis IV - Interview**

Assessment of psychosocial and environmental problems according to axis IV was based on a *structured interview* and performed by a social worker with considerable clinical experience. The interview covered all nine different areas of psychosocial stress according to DSM-IV: problems with the primary support group, problems related to the social environment, educational problems, occupational problems, housing problems, economic problems, problems with access to health care services, problems related to interaction with the legal system/crime and other psychosocial and environmental problems. Since there is no gold standard for assessment of axis IV, the interview was constructed by us as a checklist in order to cover all areas we needed to ask about, and questions were included if both the last author and the social worker agreed on their relevance (face validity). During the interview, each area of psychosocial stress was explored and categorized as present or not. The time frame comprised the last year. If problems were considered present, the social worker also made an estimate of the total burden of stress on a scale from 1 (none) to 6 (catastrophic).

**Axis IV - Self-assessment**

Assessment of self-reported psychosocial and environmental problems was performed using the axis IV scale included in the DSM-IV and ICD-10 Personality Questionnaire [70]. It comprises 11 “yes” or “no” questions regarding psychosocial and environmental problems according to the DSM-IV axis IV categories. If the patient assented to problems in one or several areas during the last year, he or she was also instructed to estimate the global burden of experienced stress on a scale from 1 (none) to 6 (catastrophic). Before the interview, each participant completed the self-assessment of axis IV categories. Both assessments were performed within two weeks for the majority of patients.
Axis V

Global Assessment of Functioning (GAF) – axis V [71] - is an overall judgment about the patient’s current level of functioning on a scale from 1-100. GAF ratings were estimated for all patients during a team meeting, after the diagnostic procedure and prior to treatment. All team members were trained in the use of GAF and had extensive experience in the procedure. The ratings were based on consensus within the team. Patients were subsequently given appropriate treatment. After finalizing treatment, patients had a final visit during which the professional who met the patient made a second assessment of GAF. Each patient’s own GAF rating was performed using a self-report version [16] at the same time as the assessment by the professional was made. Both patients and professionals were blind to previous ratings and ratings made by others.

Life events

In paper II, life events were assessed by Coddington’s life event scale - a questionnaire concerning significant life events that occurred during childhood [63]. The scale is validated by a teenage group in Sweden [72]. The scale contains 40 questions about life events experienced either during the last year or previously.

Previous child psychiatric symptoms

In paper II, previous child psychiatric symptoms were assessed by the Child and Adolescent Psychiatric Screening Inventory-Retrospect (CAPSI-R). This questionnaire is a screening form for adults of previous child psychiatric psychopathology [73]. The questions retrospectively assess symptoms such as delays in language, motor and social development, abnormal impulse control, attention deficits, and separation anxiety symptoms.

SSP - personality traits

In paper II, personality traits were assessed by the Swedish universities Scales of Personality (SSP) [74]. The SSP comprises 91 items, divided into 13 scales, with seven items in each scale. Each item is presented as a statement with a four-point response format ranging from 1= “does not apply at all” to 4 = “applies completely”. The SSP mean scores were transformed into normative t-scores with means of 50 and standard deviations of 10 based on a Swedish gender-stratified non-patient sample [74]. Factor analysis of the normative data yielded a three-factor model, whereof one is Neuroticism. The scales somatic trait anxiety, psychic trait anxiety, lack of assertiveness, stress susceptibility, embitterment, mistrust, and detachment loaded on this factor [74].
Statistics

For inter-rater reliability concerning continuous data, the intra-class correlation coefficient (ICC) was used with a two-way mixed effects model. Intra-class correlation coefficients are considered excellent if greater than 0.74, good if ranging from 0.60 to 0.74, and fair if ranging from 0.40 to 0.59 [75]. Kappa statistics [76, 77] were used for agreement between professional and self-assessment of different data and groups as well as for inter-rater reliability concerning categorical diagnoses. Kappa was considered slight if kappa<0.2, fair if kappa is 0.21-0.40, moderate if kappa is 0.41-0.60, substantial if kappa is 0.61-0.80 and, finally, almost perfect if kappa is 0.81-1.0. When the distribution of reported categories is unevenly distributed to a large extent, Cohen’s kappa is known to be less reliable [76]. Therefore, we also used the Prevalence & Bias-Adjusted Kappa (PABAK) [77]. For overview of statistical methods, see Table 2.

Table 2. Statistical analyses.

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<td>Chi square test (Fisher’s exact test)</td>
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<td>Logistic regression</td>
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<td>Chi square test (Fisher’s exact test)</td>
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<td>One-way ANOVA</td>
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<td></td>
<td>Pearson’s correlation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Paper III</th>
<th>Student’s t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chi square test (Fisher’s exact test)</td>
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<tr>
<td></td>
<td>One-way ANOVA</td>
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<tr>
<td></td>
<td>Pearson’s correlation</td>
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<td></td>
<td>Mann-Whitney Test</td>
</tr>
<tr>
<td></td>
<td>Prevalence &amp; Bias-Adjusted Kappa (PABAK)</td>
</tr>
<tr>
<td></td>
<td>Cohen’s Kappa</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Paper IV</th>
<th>Intra-class correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Student’s t-test</td>
</tr>
<tr>
<td></td>
<td>Cohen’s Kappa</td>
</tr>
</tbody>
</table>

Ethics

The study was performed according to the principles of the Helsinki Declaration and was approved by the Uppsala University Ethics Committee.
Results

Mental disorders among young adults (paper I)

We hypothesized that self-referred patients would have fewer psychiatric disorders than those who were referred by professionals.

Mood disorders and specific phobia were more common among self-referred patients (see paper I, Table 2). There were no other statistically significant differences between self-referrals and referred according to specific axis I diagnoses. Co-morbidity among axis I disorders was pronounced with a mean number of 2.2±1.3 diagnoses, with 68 % fulfilling criteria for more than one specific disorder. There were seven individuals (4 %) who did not fulfill criteria for any current diagnosis. However, there was no significant difference between self-referrals and referred according to number of current disorders, 2.3±1.3 vs. 2.2±1.3, see Figure 1, nor number of lifetime diagnoses, 2.9±1.7 vs. 2.9±1.6. Neither were there any differences according to recall of age of onset of first disorder between self-referred and referred, 13.6±4.7 years vs. 13.5±4.2 years. Any personality disorder was present in 53 (28 %) of the assessed patients (n=188). There were no differences according to referral status in prevalence of personality disorders. GAF, before treatment, did not differ between groups, 54.5±6.5 vs. 54.7±8.0.

There was no significant difference between self-referred and those referred by medical professionals according to number of previous health service providers (1.1±1.0 vs. 1.2±0.8). Among the self-referred, there was a larger proportion of patients who had never had any previous contact with mental health care ($\chi^2=5.53$, df=1, p=0.02).

A logistic regression was performed with referral status as the dependent outcome variable. Variables with a significant difference between self-referred and referred were entered into the model as independent predictors: any mood disorder, any anxiety disorder, any eating disorder and no previous contact with mental health services. Those individuals who did not have any previous contact with the mental health system were significantly more likely to refer themselves (OR=2.16; 95 % CI:1.02-4.55). Additionally, having any mood disorder also increased the likelihood for self-referral (OR=2.36; 95 % CI:1.01-5.54). Having any anxiety or any eating disorder were not significant predictors of referral-status.
Delimiting depression with an early onset (paper II)

We hypothesized that age of onset would define different subgroups in young adults with depression. Early onset was expected to be characterized by more negative life events, more trauma, childhood developmental delays, neurotic personality traits, early-onset anxiety disorders and higher rates of substance use disorders.

Of the 156 patients, 148 (95 %) had major depressive disorder (MDD), and eight (5 %) patients fulfilled criteria for a bipolar disorder (BP I or II). Average age of first depressive episode was 16.9 years (4.0). The average number of depressive episodes in the entire group was 2.6 (2.9). Recurrent depression was more common among those with childhood and adolescent onset, and they also had significantly more depressive episodes. There were 43 (29 %) patients fulfilling criteria for a personality disorder. There were no significant differences between onset groups according to any psychiatric diagnosis, nor to the number of diagnoses, lifetime or current, nor to the number of personality disorders (see paper II, Table 1).
Three of the SSP neuroticism related scales (somatic trait anxiety, psychic trait anxiety and stress susceptibility) were, in all groups, higher than one standard deviation compared to the mean in the normal population. Although there was a tendency for the childhood onset group to have the highest values, there was no statistically significant difference between the groups.

The rated severity (1-6) of last year’s total psychosocial problems was significantly higher in those with childhood onset (a): 3.9 (1.0) compared to adolescent onset (b): 3.5 (1.0) and adult onset (c): 2.3 (1.7) (F=4.63, p=0.011; Post-hoc = a>c; p<0.01). Problems within the social environment were more common in the adolescent onset group.

The childhood onset group had significantly more total number of trauma categories and more trauma categories reported in the medical records, but not from the SCID. Experience of neglect was significantly more common in the childhood onset group; whereas, parental loss and sexual abuse did not significantly differ between groups.

The average scores on Coddington’s life event scale were 10.6 (4.8) in the childhood onset group, 9.7 (4.8) in the adolescent onset group and 8.9 (4.7) in the adult onset group, with no significant differences (p=0.429) between groups. Some specific life events were more frequent in the group with childhood onset; namely, serious illness of father, teenage pregnancy and abortion.

Those with childhood onset depression reported more developing delays: reading difficulties, limited social skills and memory deficits. Patients with childhood and adolescent onset reported more previous symptoms of separation anxiety (see Table 3).
Table 3. Positively assessed questions from the Child and Adolescent Psychiatric Screening Inventory-Retrospect (CAPSI-R), comparing groups according to age of onset of first depressive episode (n=141).

<table>
<thead>
<tr>
<th>Question number:</th>
<th>Age of onset of first depressive episode</th>
<th>( \chi^2 )</th>
<th>p</th>
<th>Post-hoc</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. As a child did you have pronounced difficulties learning to read?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. As a child did you have pronounced difficulties learning mathematics?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Did others perceive your way of speaking as odd or longwinded?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. As a child, did you have interests that you were almost always busy with and that others looked upon as special and unusual?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. Did others often complain that you did not listen when they were talking to you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25. Did you often lose things?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27. Were you forgetful and found it difficult to remember everyday things?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>68. As a child, did you worry a great deal about being separated from your parents, for example, by getting lost or being kidnapped?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>69. Did you often have nightmares about being separated from your near and dear ones?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>0-12 years</th>
<th>13-17 years</th>
<th>18-25 years</th>
<th>( \chi^2 )</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>n = 18</td>
<td>n = 54</td>
<td>n = 69</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 (39)</td>
<td>4 (7)</td>
<td>10 (14)</td>
<td>10.57</td>
<td>0.005</td>
<td>a&gt;b**, c*</td>
</tr>
<tr>
<td>5 (28)</td>
<td>4 (7)</td>
<td>7 (10)</td>
<td>3.77</td>
<td>0.056</td>
<td></td>
</tr>
<tr>
<td>5 (28)</td>
<td>2 (4)</td>
<td>6 (9)</td>
<td>9.25</td>
<td>0.010</td>
<td>a&gt;b**, c*</td>
</tr>
<tr>
<td>4 (22)</td>
<td>6 (11)</td>
<td>3 (4)</td>
<td>5.82</td>
<td>0.054</td>
<td></td>
</tr>
<tr>
<td>6 (33)</td>
<td>6 (11)</td>
<td>5 (7)</td>
<td>9.34</td>
<td>0.010</td>
<td>a&gt;b, c**</td>
</tr>
<tr>
<td>5 (28)</td>
<td>15 (28)</td>
<td>8 (12)</td>
<td>5.80</td>
<td>0.055</td>
<td></td>
</tr>
<tr>
<td>7 (39)</td>
<td>11 (21)</td>
<td>8 (12)</td>
<td>7.30</td>
<td>0.026</td>
<td>a&gt;c**</td>
</tr>
<tr>
<td>5 (28)</td>
<td>6 (11)</td>
<td>5 (7)</td>
<td>5.99</td>
<td>0.051</td>
<td></td>
</tr>
<tr>
<td>7 (39)</td>
<td>13 (24)</td>
<td>5 (7)</td>
<td>12.21</td>
<td>0.002</td>
<td>a, b&gt;c**</td>
</tr>
</tbody>
</table>

\( ^\dagger n=53, \, *p<0.05, \, **p<0.01 \)
Axis IV – psychosocial and environmental problems (paper III)

We hypothesized, in accordance with the stress-diathesis model, that patients with severe and complex symptoms would suffer from more psychosocial stress. We also hypothesized that agreement between patients’ and professionals’ assessments of categories of psychosocial problems should be at least moderate.

Psychosocial and environmental problems experienced during the last year, categorized according to DSM-IV, assessed both by interview and self-assessed, are presented in Table 4. According to the structured interview performed by the social worker, problems with the primary support group (67\%) were most common, followed by problems related to the social environment (48\%) and educational problems (44\%).

Agreement between the results of the interview and self-assessment on categories of psychosocial and environmental problems are presented in Table 4. According to prevalence & bias-adjusted kappa (PABAK), agreement was 0.31-0.83, see Table 4.

The relation between GAF and number of axis IV categories was explored, showing decreasing GAF values with an increasing number of axis IV categories (F=5.69; df=155; p<0.001).

Exploring the validity of number of categories of psychosocial problems in patients with or without diagnoses from a specific diagnostic group revealed significant differences, with disordered patients having more psychosocial stress. This was true for all groups, but not significant for eating disordered patients: mood disorders 2.7 (SD=1.6) versus 1.9 (SD=1.6) (Z=2.8; p=0.006), anxiety disorders 2.8 (SD=1.7) versus 1.9 (SD=1.4) (Z=3.1; p=0.002), eating disorders 2.2 (SD=1.6) versus 2.7 (SD=1.7) (Z=1.8; p=0.069), substance use disorders 4.5 (SD=2.2) versus 2.4 (SD=1.5) (Z=3.2; p=0.001), and personality disorders 3.2 (SD=1.6) versus 2.2 (SD=1.6) (Z=3.5; p=0.001).
Table 4. Axis IV - agreement on assessments of categories of psychosocial and environmental problems, comparison of assessments performed by interview by a social worker and self-assessments in a group of psychiatric out-patients (n=163).

<table>
<thead>
<tr>
<th>Axis - IV</th>
<th>Any problem interview</th>
<th>Any problem self-assessed</th>
<th>Agreement on existence of problems</th>
<th>Agreement on non-existence of problems</th>
<th>Overall agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problems with primary support group</td>
<td>109 (67)</td>
<td>105 (64)</td>
<td>82 (50)</td>
<td>31 (19)</td>
<td>0.32</td>
</tr>
<tr>
<td>Problems related to the social environment</td>
<td>78 (48)</td>
<td>89 (55)</td>
<td>57 (35)</td>
<td>53 (32)</td>
<td>0.35</td>
</tr>
<tr>
<td>Educational problems</td>
<td>57 (44)</td>
<td>80 (62)</td>
<td>47 (37)</td>
<td>38 (30)</td>
<td>0.35</td>
</tr>
<tr>
<td>Occupational problems</td>
<td>28 (38)</td>
<td>30 (41)</td>
<td>20 (27)</td>
<td>35 (48)</td>
<td>0.49</td>
</tr>
<tr>
<td>Housing problems</td>
<td>47 (29)</td>
<td>75 (46)</td>
<td>33 (20)</td>
<td>74 (45)</td>
<td>0.29</td>
</tr>
<tr>
<td>Economic problems</td>
<td>40 (24)</td>
<td>65 (40)</td>
<td>31 (19)</td>
<td>89 (55)</td>
<td>0.41</td>
</tr>
<tr>
<td>Problems with access to health care services</td>
<td>16 (10)</td>
<td>39 (24)</td>
<td>8 (5)</td>
<td>115 (71)</td>
<td>0.18</td>
</tr>
<tr>
<td>Problems related to interaction with the legal system/crime</td>
<td>21 (13)</td>
<td>13 (8)</td>
<td>10 (6)</td>
<td>138 (85)</td>
<td>0.54</td>
</tr>
<tr>
<td>Other psychosocial and environmental problems</td>
<td>12 (7)</td>
<td>9 (6)</td>
<td>1 (0.6)</td>
<td>142 (88)</td>
<td>0.03</td>
</tr>
</tbody>
</table>

*Prevalence & Bias-Adjusted Kappa
Axis V – Global Assessment of Functioning scale (paper IV)

We hypothesized that patients’ and staff members’ agreement on the GAF, before and after treatment, would be at least acceptable.

At the first assessment, overall mean GAF scores obtained by staff members and patients were 54.6±7.6 and 55.5±11.4, respectively. After treatment, the corresponding figures were 71.0±11.6 and 72.9±14.4. The ICC coefficient between staff members’ and patients’ GAF ratings was 0.65 before treatment and 0.86 after treatment. GAF scores and the ICC in the different diagnostic groups are shown in Table 5.

In patients with excessive co-morbidity, GAF scores were low and agreement between staff members and patients before treatment was low, see Table 5. However, agreement after treatment increased and was at least good for those with two or three disorders, see Table 5.

Changes in GAF ratings from initial to final assessments were calculated. There were 187 patients who had both assessments done by experts, with a mean change of 14.7±10.4, and 137 patients had done both ratings themselves, with a mean change of 17.0±15.7. Agreement according to GAF change between patients and staff members in the total group was 0.77.
Table 5. GAF scores rated before and after treatment in different diagnostic groups. Comparison of GAF rated by experts and by patients. Participants (n=191) recruited from a total group of young (18-25 years) adult psychiatric outpatients.

<table>
<thead>
<tr>
<th>Diagnoses according to DSM-IV</th>
<th>N</th>
<th>GAF before treatment (n=191)</th>
<th>GAF after treatment (n=138)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Expert mean±SD</td>
<td>Self mean±SD</td>
</tr>
<tr>
<td><strong>Total group</strong></td>
<td>191</td>
<td>54.6±7.6</td>
<td>55.5±11.4</td>
</tr>
<tr>
<td><strong>Diagnostic groups</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mood disorders</td>
<td>139</td>
<td>53.6±7.0</td>
<td>53.6±10.9</td>
</tr>
<tr>
<td>Anxiety disorders</td>
<td>128</td>
<td>52.4±6.2</td>
<td>52.9±9.7</td>
</tr>
<tr>
<td>Eating disorders</td>
<td>55</td>
<td>53.2±7.3</td>
<td>52.9±14.4</td>
</tr>
<tr>
<td>Other Axis I disorders</td>
<td>22</td>
<td>55.4±8.1</td>
<td>56.8±12.6</td>
</tr>
<tr>
<td>Substance related disorders</td>
<td>17</td>
<td>51.1±6.8</td>
<td>54.9±13.7</td>
</tr>
<tr>
<td><strong>Comorbidity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One axis I disorder group</td>
<td>56</td>
<td>58.2±7.6</td>
<td>60.1±12.0</td>
</tr>
<tr>
<td>Two co-morbid axis I disorder groups</td>
<td>62</td>
<td>54.1±7.1</td>
<td>55.5±10.4</td>
</tr>
<tr>
<td>Three co-morbid axis I disorder groups</td>
<td>33</td>
<td>50.9±5.3</td>
<td>51.6±9.1</td>
</tr>
<tr>
<td>Four co-morbid axis I disorder groups</td>
<td>34</td>
<td>50.6±5.0</td>
<td>49.9±10.8</td>
</tr>
<tr>
<td><strong>Personality disorders</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No axis II disorder / no PD</td>
<td>146</td>
<td>56.1±7.6</td>
<td>56.9±11.0</td>
</tr>
<tr>
<td>Any axis II disorder</td>
<td>45</td>
<td>49.8±5.6</td>
<td>50.8±11.4</td>
</tr>
</tbody>
</table>
Discussion

The overall aim of the present thesis was to increase knowledge about young adults with mental illness and about psychiatric assessments in order to improve diagnostic procedures. Mental illness is common, usually starting early in life, and the prevalence is highest in young adulthood [2, 42]. The majority of those affected never seek mental health care [43, 44]. Therefore, it is important to increase help seeking, as well as optimization, in order to obtain adequate identification of symptoms. This will make it possible for persons with mental disorders to be offered effective treatments.

Methodological considerations

Sample
All study examinations took place in an ordinary clinical psychiatric setting, and patients were not recruited for the study. Patients who sought help at the clinic had no knowledge of the ongoing study before they visited the clinic; such knowledge could have influenced patterns of referral. All patients were consecutively invited to participate with a high attrition rate, 92 %. The drop-out analysis showed no differences between participants and non-participants. This all-inclusive approach increases the likelihood that the sample is representative of other young clinical samples from general psychiatry. Furthermore, this is supported by similar prevalence data of different axis I disorders as well as level of co-morbidity in a study by Zimmerman et al. [78] using semi-structured diagnostic interviews, SCID-I and II, in 2,300 psychiatric outpatients. However, there might be limited ability to generalize the results to other settings such as settings with older patients, with more men or with more patients with schizophrenia and substance related disorders. Furthermore, the high level of co-morbidity limits the possible analyses of relations between specific diagnostic groups. If there had been a control group, less burdened by psychopathology, this would have increased the strength of the study.
Methods and Procedures

The study analyses were based on careful and comprehensive assessment of axes I, II, IV and V in DSM-IV. The two doctors who performed the diagnostic SCID-interviews were trained in accordance with the SCID-manual, and kappa agreement was almost perfect. Inter-rater-reliability was calculated from a limited number of interviews. However, both interviewers (MR and AR) had their clinical training within the same department by the same tutors, and both interviewers had previously shown reliable reports by assessing SCID-interviews from audio and videotapes. Personality disorders were not evaluated until state effects of axis I symptoms were resolved. A weakness of the study is that problems with recall might influence reports [79, 80], such as reports on lifetime diagnoses (paper I-IV), age of onset (paper II), previous symptoms, (paper I-IV), childhood life-events & trauma (paper II), and reports on previous health care service utilization (paper I). However, since all participants were young, they were more likely to accurately remember their childhood.

In paper III, the social worker evaluated current psychosocial and environmental problems (axis IV) in a structured manner based on an interview-based checklist. In a clinical sample of patients with substance use disorders and schizophrenia studied by Compton et al. [81], using a comparable method, the prevalence of psychosocial problems was similar. The short axis IV scale, a questionnaire filled in by the patients, is not extensively validated. However, previous studies using the scale have shown similar results, with personality-disordered patients being the most psychosocially burdened [23, 82].

In paper IV, professional and patient GAF ratings were compared before and after treatment. All staff members were trained and well experienced in the GAF assessment technique. Furthermore, during the whole study period, staff members performed weekly GAF co-ratings in order to secure inter-rater reliability. However, it cannot be excluded that the different GAF rating procedures used at first and second professional assessment has affected the reliability of the professionals’ GAF ratings.

Help-seeking

Even if psychiatric disorders are prevalent, there is only a minority of those affected who seek treatment. The consequences of permitting self-referral have not yet been studied. Even if allowance of the patient to refer him or herself to specialized care differs between various health care systems, the proportion of help-seeking persons within this study was similar to figures
reported by others [83]. Every twentieth individual in this age group, from the population in the catchment area, sought help from psychiatric services. The characteristics of the study group are also in accordance with previous research about treatment seekers. They have previously been characterized by an early onset of disorders [42], by being female [84] and by having mood and anxiety disorders, especially if co-morbid [85].

In Sweden, there is an established public mental health service providing equality in the opportunity for treatment. Thus, in spite of no requirement of referral from general practitioners, nor financial difficulties in getting treatment, the rate of help-seeking young adults did not exceed rates from other populations with other health care systems [86]. Therefore, allowance of the patient to refer him or herself did not increase the proportion of help-seeking individuals nor did it alter the pattern of help seeking. Self-referred patients were equally or more disordered than those referred by mental health professionals. In summary, the findings do not support any overutilization of care by permitting self-referral.

Early onset depression

The age limit that should be applied to early-onset depression is still unclear. Zisook et al. [87] examined 1,500 depressed patients between 18 and 75 years old and found an average age of onset of 26 years, distributed with two incidence peaks: one between 13-15 years old and another between 40-42 years old. Based on the onset distribution of Zisook’s study [87], all patients within the paper II study group had an early onset. In spite of this, there were significant differences between age of onset groups according to several studied variables.

Childhood and adolescent onset was, as expected, associated with a recurrent course, but since all patients were younger than 25 years old, the course of the young adult onset group is still unknown. In accordance with previous findings [87-89], childhood onset of depression was related to more personality disorders, more traumatic experiences, neglect and more negative life events. Beyond previous findings, childhood developmental delays were also shown to be more common in the childhood onset group.

The prevalence of personality disorders was, however, lower than in some previous studies [90-92]. The prevalence of personality disorders increases if they are self-assessed, compared to assessment with semi-structured diagnostic interviews such as SCID-II [93]. The prevalence also increases if the investigation of personality traits is done under the influence of axis I symptoms [94]. The thorough assessment by structured interviews, performed
when axis I symptoms had resolved, may explain the lower incidence in this study. It also supports the fact that the prevalence data is true.

It has previously been shown that co-morbidity between ADHD and depression in adolescence is common [95, 96] as well as between autism spectrum disorders (ASD) and depression [97]. Developmental delays should be able to affect self-image and self-confidence negatively and is relevant to include in future research on early-onset depression. Childhood delays in motor, language and cognitive development have been related to later adult onset of schizoaffective disorder [98]. However, no comparable study has been performed in patients with depression. In paper II, those with a childhood onset of depression, compared to those with later onset, affirmed more social and cognitive difficulties on the CAPSI-R questionnaire. We do not know if they met criteria for specific diagnoses, such as attention deficit hyperactivity disorder (ADHD), but they affirmed symptoms included in ADHD and ASD.

Psychosocial stress is believed to contribute to the onset and exacerbation of mental disorders [99, 100]. Within the study group, those with the earliest onset had experienced more severe adverse life events and more traumas. They also rated severity of last year’s total psychosocial problems significantly higher. Distressing conditions in the family has proven to be more common among patients with anxiety or depression [101, 102]. Previously experienced psychosocial problems seem to influence current life. Since those with the earliest onset experienced more childhood traumas, it is not surprising that they seem to continue to struggle with social adversity.

Depressive episodes with onset before 15 years of age are related to a higher prevalence of bipolar disorders [91, 103]. However, neither the presence of bipolar disorders nor the presence of shorter periods of elevated mood were more common among those with childhood or adolescent onset in this study. It is possible that some of the patients with MDD will develop bipolar disorder in the future. All patients are still young, and the course of their mood disorder is still unknown.

Psychosocial stress
Psychosocial problems can be risk factors for the development of a psychiatric disorder as well as a target for treatment or influencing prognosis of the current mental disorder. The majority of patients were psychosocially burdened. The results support previous findings [104] that psychosocial stress is related to psychopathology, co-morbidity and decreasing GAF values. Dur-
ing the last few decades, research has shown that co-morbidity is common in psychiatric patients [39]. This study expands on previous findings by exploring the relation between axis IV categories and degree of co-morbidity. Co-morbid personality disorders were strongly associated with psychosocial stress. Personality-disordered patients experienced stress within their primary support group, related to their social environment, and they had occupational problems. Therefore, it seems that these axis IV categories capture the difficulties associated with personality disorders [82]. It also implicates that mental health services for young people need to have social workers among the staff, and efforts targeting social problems need to be added to other treatments.

Agreement on current psychosocial stress between the professional and the patients was higher for those axis IV categories, with more absolute and less subjective content; for example, problems related to interaction with the legal system/crime compared to problems with the primary support group. Previous studies of patients’ and clinicians’ ratings of stressor severity have shown fair to good agreement [105, 106]. The result implicates that assessment of categories, compared to ratings such as in DSM-III, might be progress, but only for problems with the legal system/crime.

Global Assessment of Functioning

There is a need for systematic follow-up of patients, and there is increasing pressure to use outcome measures in routine clinical practice. For obvious reasons, it is also important to examine patients’ subjective opinions about how their condition and level of functioning have changed over time. Self-report and expert evaluations are assumed to be complementary, and there is no strong evidence that one method is more valid than the other. In paper IV, the reliability of patients’ and trained staff members’ GAF ratings, before and after treatment, was examined. Generally, the results demonstrate good agreement before treatment and excellent agreement after treatment. The findings support the usefulness of the GAF self-report version for measuring outcome in routine clinical care. However, in patients with personality disorders, or in those with excessive co-morbidity, only low agreement was achieved before treatment but improved to good or excellent after treatment. The GAF scale defines some aspects of functioning and some symptoms at ten severity levels, but the instructions are incomplete. There are, for example, no instructions about manic symptoms or substance-related symptoms. This could also explain the greater difficulty in assessing GAF in severely disordered patients compared to patients in full or partial recovery.
The inter-rater reliability of GAF ratings, performed by trained clinicians and experts, has been shown to be excellent [107, 108]; whereas, agreement between routine clinical scores and scores done by researchers is low [108]. Previously, only one study has compared GAF ratings of clinicians and psychiatric outpatients [16]. High concordance before treatment was found in that study, which is in line with our findings.

Several studies have shown that clinicians’ GAF ratings reflect improvements during treatment [109]. According to our results, there was excellent agreement between experts’ and patients’ opinions on the degree of improvement, measured as an increase in GAF scores (overall ICC=0.77). However, patients rated their mean increase in GAF slightly higher than experts in all diagnostic groups. This difference is the opposite of the expected bias caused by those providing treatment [110].

**General discussion and future aspects**

The results implicate that multi-axial diagnostic evaluation according to DSM-IV in young adult psychiatric patients provides important information for treatment planning. The diagnostic procedure needs to include reliable diagnostic instruments, both in research and in clinical practice. Since help-seeking patients are characterized by co-morbid disorders, but also by previous child-psychiatric symptoms and previous developmental delays, current psychosocial stress, more childhood life-events and low functioning, there is a need for thorough assessments. All this information was of clinical importance, since it defined specific subgroups.

Future research is needed on how to reduce the obstacles of help seeking for mental disorders. There is a need for more research about how childhood developmental delays influence adult psychopathology and influence age of onset of psychiatric disorders. There is also a need for more research concerning difficulties in assessing severely disordered patients. It is also important to study implementation of diagnostic procedures in clinical psychiatry.
Conclusion

In the present thesis young adults with mental illness were investigated with respect to self-referral, onset of depression, psychosocial and environmental problems and global assessment of functioning. This group of young individuals was characterized by an early onset of mental disorders, high comorbidity and by being female. The main conclusions are

- Direct self-referral to specialized psychiatric care does not seem to be associated with overutilization of such care.

- Childhood onset of depression is associated with more severe symptoms, more psychosocial risk factors, and childhood developmental delays.

- The revised axis IV according to DSM-IV seems to have concurrent validity, but is still hampered by limited reliability.

- Agreement between patients’ and professionals’ ratings on the GAF scale was good before treatment and excellent after treatment. The results support the usefulness of the self-report GAF instrument for measuring outcome in psychiatric care.
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