Mental Health Problems and Barriers to Service Use in Dutch Young Adults

Kathleen Vanheusden

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Mental Health Problems and Barriers to Service Use in Dutch Young Adults

Psychische problemen en barrières voor zorggebruik van jongvolwassenen in Nederland

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1 General Introduction

General Introduction

Only up to one-third of young adults with a mental disorder seek professional help. The reasons for this low help-seeking rate are largely unclear. The first aim of this thesis is to explain why young adults are unlikely to seek professional help when facing mental health problems. The second aim is to provide insight into problem behaviours that typically first emerge in young adulthood: i.e., psychotic symptoms and problems related to alcohol use.

Determinants of mental health service use

Background

Young adulthood is a critical period for mental health. Mental disorders such as anxiety disorders, mood disorders, and substance use disorders often first emerge during adolescence or young adulthood (Kessler et al., 2007). The prevalence of mental disorders among young adults is high (Alonso et al., 2004; Andrews et al., 2001a; Bijl et al., 1998; Kessler et al., 1994). In the Netherlands, 34% of 18-24 year olds meet criteria for a 12-month mood, anxiety or substance use disorder, compared with 24% of 25-34 year olds, 24% of 35-44 year olds, 20% of 45-54 year olds and 15% of 55-64 year olds (Bijl et al., 1998). Young adults are particularly at risk for alcohol use disorders (Alonso et al., 2004; Bijl et al., 1998), although there is also some evidence for an increased risk of anxiety disorders (Alonso et al., 2004). Furthermore, depression among adolescents and young adults is of particular concern, given its link to suicide. Indeed, depression has been found to be the strongest single risk factor for attempted or complete suicides (Beautrais et al., 1996).

Young adulthood is also a critical period of the lifespan. In this period of life many important steps are made that set the stage for future economic and social position, such as finishing education, entering employment and starting a family. Because young adulthood is such a critical phase of socialization, poor mental health during this period of life may have particularly long-lasting, adverse consequences (Newman et al., 1996). Indeed, Wittchen et al. (1998) found that mental disorders in young adults cause significant psychosocial impairments, limiting educational ability, work, and social interaction. Since the stakes for good mental health are high in young adulthood, it is important that young adults with mental health problems seek appropriate help early.

Treatments for mental disorders in young people have significantly improved over recent decades, and include better pharmacological treatments and more effective psychosocial interventions (Patel et al., 2007). Several meta-analyses have

shown support for the effectiveness of pharmacotherapies and psychotherapies, for various mental disorders in both adolescent and adult populations, including internalizing disorders such as anxiety disorder and externalizing disorders such as attention-deficit/hyperactivity disorder (Burns et al., 1999; Faraone et al., 2004; Malouff et al., 2007; Mitte, 2005; Prendergast et al., 2006).

Despite the availability of effective treatments, professional help is sought by only one-third of young adults with mental disorders (Aalto-Setala et al., 2002; Newman et al., 1996). Studies conducted in the United States, Australia and the Netherlands indicate that young adults are less likely to use mental health services than older adults, while taking into account differences in psychiatric morbidity (Andrews et al., 2001b; Bijl and Ravelli, 2000; Kessler et al., 2005b). At the same time, there are studies indicating that after the onset of mental disorder younger adults obtain professional help more quickly than older adults (Kessler et al., 1998; Wang et al., 2005a). These conflicting results may reflect methodological differences between studies, e.g., in the definition of mental health service use.

Studies that examined determinants of mental health service use in young adults specifically are scarce. A UK study found that only 25% of 16-24 year-olds with a mental disorder sought professional help from their general practitioner, and a significantly lower rate was found for young males (Biddle et al., 2004). Bergeron et al. (2005) identified determinants of help-seeking behaviour in young Canadians aged 15-24 years. Only 25% of young Canadians with an anxiety, depressive or substance use disorder had sought formal or informal help, and significantly lower rates were found in males and those with an anxiety or substance use disorder (Bergeron et al., 2005).

Several explanations have been proposed for the low rates of mental health service use among young adults. Since young adults are generally physically healthy, they often do not consult their general practitioner on a regular basis (Patel et al., 2007). Thus young adults may lack a trusting relationship with their general practitioner, and they may consider this a barrier to seeking help from their general practitioner for mental health problems. Another explanation is that there is a lack of mental health services that meet the specific care needs of young adults, such as help with educational achievements, employment, and housing (Davis, 2003; Davis and van der Stoep, 1997). Yet another explanation is that parental facilitation of help-seeking behaviour is lessening; attempts by parents to convince adolescents or young adults to go for help may not be acted upon (Logan and King, 2001). Thus young adults decide for themselves whether or not to seek help, and since their life phase is about becoming independent they may tend not to.

Mental health services in the Netherlands

The Dutch mental health care system has a low threshold and a comparatively good quality (Schene and Faber, 2001). Mental health service use by people with psychiatric disorders is higher in the Netherlands than in countries such as the United States, most likely due to lower financial barriers in the Netherlands (Bijl and Ravelli, 2000) and the low threshold community mental health care. Indeed, the number of people using mental health services in the Netherlands increased during the 1990s due to the implementation of low threshold community mental health care (Schene and Faber, 2001). The Dutch health care setting is set up so that in primary care both somatic and mental health problems are treated, with the general practitioner acting as a formal gate keeper for the referral to specialty mental health services. In practice sometimes people also access mental health services directly, with the general practitioner providing a referral afterwards. In this thesis the use of mental health services is defined as the use of either *primary* mental health services (delivered by a GP, a company physician or general social work) or *specialty* mental health services (delivered by mental health professionals in an extra-, semi- or intramural setting).

Theoretical framework

The Behavioural Model of Health Care Use Young adults typically assume responsibility for their own health actions and they exert autonomy over the decision to seek health services. Consequently, this thesis draws upon health service use-models that were developed for adults, which tend to focus on the internal cognitive cues of the individual rather than on outside influences on service-seeking decisions. In this thesis, the Behavioural Model of Health Care Use is used as a theoretical framework (Andersen and Newman, 1973; Andersen, 1995). This model proposes that there are three main factors influencing the use of health services: need for care, enabling factors and predisposing factors. Need for care is subdivided into objective need for care (ascertained according to professional standards) and subjective need for care (as perceived by the individual). In this thesis objective need is defined as reporting serious problems on a self-report scale, including internalizing problems such as a high level of depression or anxiety, and externalizing problems such as a high level of aggressive behaviour. Subjective need is defined as a self-perceived need for professional help for mental health problems. Although people may be in need of health services, two other factors may influence service use. Enabling factors make it possible to use health services, and include resources such as health insurance and geographical availability of mental health services, but also resources such as knowledge of mental health problems. Predisposing factors exist prior to the onset of disease and reflect people's tendency to seek services;

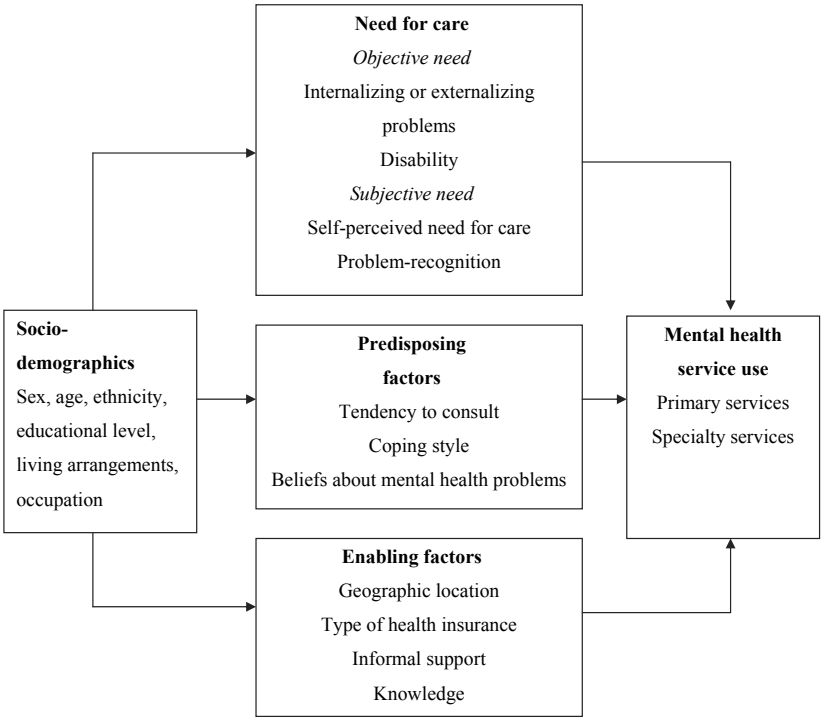

Figure 1.1: Research model of the relationship between socio-demographic variables and mental health service use.

coping style, beliefs about mental health problems, and the 'tendency to consult' can be ranked among them. In this thesis the Behavioural Model of Health Care Use is used to determine whether socio-demographic disparities exist in mental health service use, and whether these can be attributed to disparities in objective need, subjective need, predisposing or enabling factors. Our indicators of need, predisposing and enabling factors are presented in Figure 1.1.

Relating socio-demographic differences in service use to differences in need, enabling and predisposing factors indirectly provides an answer why certain groups underutilize mental health services. In this thesis, we also directly addressed reasons for not seeking treatment among young adults with serious internalizing or externalizing problems, by administering a comprehensive Barriers-To-Care checklist. This checklist assesses various barriers-to-care, e.g., barriers related to enabling resources such as financial resources and knowledge of mental health problems.

The Self-Regulation Model This thesis also draws upon the Self-Regulation Model to examine predisposing factors, which are only loosely specified in the Behavioural Model of Health Care Use, in more detail. Predisposing factors include beliefs that people have about their health problem that may render them more or less likely to

consult health services. The Self-Regulation Model specifies that people form beliefs about health problems in five domains: beliefs about the identity (the illness label), the cause, the consequences, the expected timeline and the potential for controllability (Leventhal and Diefenbach, 1991; Leventhal et al., 1983). These beliefs are regarded as the driving force behind the actions that people take in response to their health problems, including the decision whether or not to seek care (Leventhal and Diefenbach, 1991; Leventhal et al., 1983). Using the Self-Regulation Model, we will examine beliefs that young adults have about the mental health problems they have experienced and how these beliefs relate to their use of mental health services.

The Self-Regulation Model is also used to provide insight into ethnic differences in the use of mental health services. Population-based studies in Western countries indicate that immigrant groups are less likely than non-immigrants to receive specialty mental health services (Alegría et al., 2002; Commander et al., 2004; Dieperink et al., 2002; Kirmayer et al., 2007). Furthermore, ethnic differences have been demonstrated in how mental health problems are perceived in terms of causes and controllability. For example, non-Western immigrants in the Netherlands tend to attribute their mental health problems to external causes such as job conflicts rather than to internal causes such as low self-esteem (Knipscheer, 2001). Further, people from non-Western societies may not believe in the helpfulness of mental health treatments (Furnham et al., 2000; Karasz, 2005). In this thesis ethnic disparities in the use of mental health services are examined in relation to disparities in beliefs about mental health problems.

Determinants of problem behaviour

Background

Young adulthood is a high risk period for the development of psychotic disorders (Amminger et al., 2006) and alcohol use disorders (Bijl and Ravelli, 2000). These disorders have been associated with delays in help-seeking behaviour. People with psychotic disorders often lack insight into their illness, and frequently attribute their problems to external factors such as supernatural forces (Saravanan et al., 2007). A lack of insight among psychotic patients predicts delays in help-seeking behaviour (Saravanan et al., 2007). People with alcohol use disorders often do not perceive themselves as disabled and frequently do not seek treatment (Proudfoot and Teesson, 2002).

As yet, insufficient knowledge exists of determinants of psychotic symptoms and deviant patterns of alcohol use. In this part of the thesis insight is provided into determinants of psychotic symptoms and problems related to alcohol use.

Psychotic symptoms

Research suggests that psychosis exists as a continuum with normal experiences. Indeed, psychotic symptoms are far more common than psychotic disorders (Johns and van Os, 2001). Although the majority of people who experience psychotic symptoms are not disabled, longitudinal studies suggest that they nevertheless are at an increased risk of developing a psychotic disorder (Chapman et al., 1994; Kwapil et al., 1997; Poulton et al., 2000). If psychosis exists as a continuous phenotype, correlates of psychotic symptoms would be similar to well-known correlates of psychotic disorders. For example, migrant status is associated with higher rates of schizophrenia (Fearon and Morgan, 2006; Selten et al., 2007). As yet, only a few studies examined ethnic disparities in psychotic symptoms (Johns et al., 2002; King et al., 2005).

In this thesis ethnic differences are examined in self-reported auditory and visual hallucinations, and an attempt is made to explain these differences. It has been suggested that social adversity rather than genetic factors best explain the higher rates of psychotic disorder among migrants (Cantor-Graae, 2007; Fearon and Morgan, 2006; Selten et al., 2007). Hence, social adversity could also explain ethnic disparities in the prevalence of self-reported hallucinations. Social adversity is assessed by taking into account factors such as educational level and social support.

Alcohol consumption

A lot of research has been conducted on identifying psychiatric problems associated with alcohol use disorders or with heavy drinking, but there is little research examining the whole spectrum of alcohol consumption, including abstinence, moderate drinking, higher level drinking and excessive drinking. Recent studies point to a U-shaped relationship between alcohol consumption and mental health problems, such that moderate drinking is associated with lower rates of depression and anxiety compared with excessive drinking and abstinence (Caldwell et al., 2002; Lipton, 1994; Manninen et al., 2006). However, these studies primarily focused on symptoms of anxiety or depression, and did not explore other types of psychopathology. In this thesis associations are examined between alcohol consumption and a wider range of internalizing problems (e.g., withdrawn behaviour, somatic complaints) and externalizing problems (e.g., aggressive behaviour, rule-breaking behaviour). Furthermore, this thesis provides insight into the underlying mechanisms of presumably U-shaped associations between alcohol consumption and poor mental health. We will examine whether social factors such as the experience of negative social exchange account for associations between alcohol consumption and poor mental health.

This thesis

This thesis aims to give more insight into determinants of mental health service use and determinants of problems behaviour among young adults. More specifically, the following questions will be addressed:

Determinants of mental health service use

1. Do socio-demographic inequalities exist in the use of mental health services among young adults with serious internalizing or externalizing problems? (Chapter 2)
2. What are the self-perceived barriers-to-care among young adults with serious internalizing or externalizing problems? (Chapter 3)
3. Are young adults' beliefs about mental health problems associated with the use of mental health services? (Chapter 4)
4. Do ethnic disparities exist in the use of mental health services? Are ethnic disparities in the use of mental health services related to disparities in beliefs about mental health problems? (Chapter 5)

Determinants of problem behaviour

1. Do ethnic disparities exist in self-reported hallucinations? Does social adversity contribute to the presumed elevated risk of hallucinations among migrants? (Chapter 6)
2. Which patterns of association exist between alcohol consumption and internalizing and externalizing problems? Do social factors contribute to presumed U-shaped patterns of association? (Chapter 7)

Methods

This study was a cross-sectional population-based survey conducted from September 2004 to October 2005. The Medical Ethics Committee of the Erasmus MC approved the design and conduct of the study. Thirty-five municipalities were randomly selected from the Dutch province of Zuid-Holland. Zuid-Holland is comprised of 92 municipalities in both rural and urban areas and contains 21.2% of the Dutch population (Statistics Netherlands, 2004). A random sample of 19-30 year-olds was selected from each municipality, and the total sample included 3338 young adults.

A postal survey was sent to all 3338 young adults in September 2004. After nine weeks, the potential participants were reminded either by phone or a home

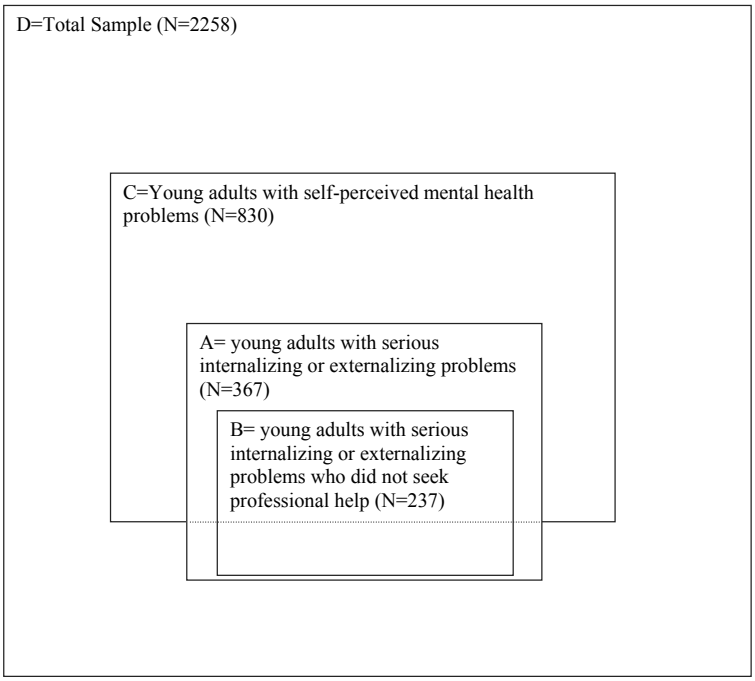

Figure 1.2: The logical relationships between the groups included for the different chapters.
[A] Chapter 2 provides insight into determinants of mental health service use among young adults with serious internalizing or externalizing problems (N=367).
[B] Chapter 3 explores barriers-to-care among young adults with serious internalizing or externalizing problems who did not seek professional help (N=237).
[C] Chapter 4 and 5 explore beliefs about mental health problems among young adults with self-perceived mental health problems (N=830).
[D] For chapters 6 and 7 data were analyzed from all participants (N=2258).

visit to fill in the questionnaire. A total of 165 persons were excluded from the sample because of intellectual or physical disability, a language barrier, moving away from the province, or death. Of the 3173 eligible young adults, 2258 (71.2%) participated.

For some of the chapters of this thesis data were analyzed from all participants, whereas for other chapters a selection criterion was applied. The analyzed groups of participants across the different chapters are presented in Figure 1.2. Also, Figure 1.2 confirms the rationale of this thesis; mental health services were used by only a minority of young adults with serious internalizing or externalizing problems.

2

The use of mental health services among young adults with emotional and behavioural problems: equal use for equal needs?

Kathleen Vanheusden, Jan van der Ende, Cornelis L. Mulder, Frank J. van Lenthe, Frank C. Verhulst, Johan P. Mackenbach

In revision, Social Psychiatry and Psychiatric Epidemiology

Abstract

Objective

Mental health problems are highly prevalent in young adults. Despite possibilities for effective treatment, only about one-third of young adults with mental health problems seek professional help. Little knowledge exists of which groups of young adults are underusing mental health services and for what reasons. The present study examined demographic and socioeconomic inequalities in the use of mental health services by young adults, and examined whether such inequalities were attributable to differences in objective need, subjective need, predisposing or enabling factors.

Design

Cross-sectional study among the general population of southwest Netherlands aged 19-32 years (2258 respondents). A postal survey was administered including questions on demographic and socioeconomic factors and mental health service use. Data were analyzed with logistic regression analysis. Participants: all respondents with serious internalizing or externalizing problems (n = 367). Main outcome measure: 12-month mental health service use

Results

Only 34.6% of young adults with psychopathology had used mental health services. Recipients of mental health services were more often female (OR = 2.05, 95%CI = 1.25-3.36), older (OR = 2.03, 95%CI = 1.19-3.47), economically inactive (OR = 2.10, 95%CI = 1.19-3.71) or students (OR = 1.98, 95%CI = 1.02-3.85) and they were less often living alone (OR = 0.55, 95%CI = 0.30-0.99) or higher educated (OR = 0.41, 95%CI = 0.24-0.70). After adjustment for need for care, the higher odds ratio for service use among young adults who were female, older or economically inactive attenuated. The other socio-demographic disparities in mental health service use did not attenuate when adjusting for need, enabling or predisposing factors.

Conclusion

Among young adults, equal use of mental health services for equal needs has not been achieved. The underserved groups of young adults strongly oppose the traditionally underserved groups in the general population, and may inform interventions aimed at improving young people's help-seeking behaviours.

Introduction

National mental health surveys indicate that young people in the age range 15 to 24 years have the highest rate of mental disorders (Andrews et al., 2001a; Bijl et al., 1998; Kessler et al., 1994). In the Netherlands, 34% of 18-24 year olds meet criteria for a 12-month mood, anxiety or substance use disorder, compared with 24% of 25-34 year olds, 24% of 35-44 year olds, 20% of 45-54 year olds and 15% of 55-64 year olds (Bijl et al., 1998). Among adolescents and young adults, mental disorders are the leading cause of disability (Patel et al., 2007). Effective treatments for mental disorders in young people exist, including pharmacological treatments and psychosocial interventions (Patel et al., 2007). However, population-based surveys demonstrate that only about 25%-30% of young people with mental health problems use mental health services (Aalto-Setala et al., 2002; Bergeron et al., 2005; Newman et al., 1996). It is important to improve our understanding of which groups of young adults are underusing mental health services and for what reasons.

The few studies on young adults' help-seeking behaviours all indicate that young males are particularly unlikely to seek help for mental health problems (Aalto-Setala et al., 2002; Bergeron et al., 2005; Biddle et al., 2004), which agrees with studies reporting findings for a broader age group of adults (Bebbington et al., 2003; Wang et al., 2005b). However, groups that typically underuse mental health services as identified by studies examining broad age groups, such as employed persons (Bebbington et al., 2003; Bijl and Ravelli, 2000) and persons living with a partner (Bijl and Ravelli, 2000; Lefebvre et al., 1998) have not been identified in studies examining young adults. Only one study examined socio-demographic factors associated with mental health help-seeking in young adults and did not find occupation or living arrangements to predict service use (Biddle et al., 2004). The authors suggested that factors such as employment status, marital status, and living arrangements may be more influential in middle and later adulthood (Biddle et al., 2004). As yet, little knowledge exists of which groups of young adults are underusing mental health services and for what reasons.

This study focused on identifying demographic and socioeconomic inequalities in young adults' mental health service use. The Dutch health care setting is such that in primary care both somatic and mental health problems are treated, with the GP acting as a gate keeper for the referral to specialty mental health services; although in practice people also consult specialty services directly. We focused on the use of any mental health services, i.e., the use of primary (delivered by a GP, a company physician or general social work) or specialty mental health services (delivered by mental health professionals).

The Behavioural model of health care use (Andersen and Newman, 1973; Andersen, 1995) was used to identify factors that could mediate demographic and socioeconomic inequalities in mental health service use. This model suggests that health service use is influenced by an objective need for care (e.g., problem severity), a subjective need (e.g., self-perceived need for care), predisposing factors (e.g., the tendency to consult) and enabling factors (e.g., financial means). In the first version of the behavioural model, background variables such as sex, age and educational level were assumed to have an indirect effect on health service use via need, predisposing and enabling factors. However, some researchers found direct effects of the background variables on service use independently of the three main determinants (Cassee, 1973; Greenley and Mechanic, 1976). In response, Andersen adopted the background variables in the predisposing category. This approach has been criticized because it is unlikely that need for care and enabling factors would be unrelated to these background variables (Cassee, 1973; Hosman, 1983). We share this point of view and will adopt the original behavioural model.

Thus the present study examined demographic and socioeconomic inequalities in the use of mental health services by young adults, and examined whether such inequalities were attributable to differences in objective need, subjective need, predisposing or enabling factors. If the use of mental health services by subgroups of young adults is not in accordance with their objective need, then inequalities in service use exist. These inequalities then may be explained by differences in subjective need, enabling factors or predisposing factors. These latter factors may reflect barriers-to-care, making them important targets for intervention.

Methods

Sample

This study was a cross-sectional population-based survey conducted from September 2004 to October 2005. The Medical Ethics Committee of the Erasmus MC approved the design and conduct of the study. Thirty-five municipalities were randomly selected from the Dutch province of Zuid-Holland. Zuid-Holland is comprised of 92 municipalities in both rural and urban areas and contains 21.2% of the Dutch population (Statistics Netherlands, 2004). A random sample of 19-30 year-olds was selected from each municipality, and the total sample included 3338 young adults.

A postal survey was sent to all 3338 young adults in September 2004. After nine weeks, the potential participants were reminded either by phone or a home visit to fill in the questionnaire. A total of 165 persons were excluded from the sample

because of intellectual or physical disability, a language barrier, moving away from the province, or death. Of the 3173 eligible young adults, 2258 (71.2%) participated. Due to the duration of the data collection, the age range of the participants expanded from 19-30 years to 19-32 years. Non-respondents were more likely to be male, non-Dutch and younger than those who did respond (data not shown). A large majority of participants (n = 2077) filled in the questionnaire by themselves, while 181 participants completed the questionnaire in the presence of someone from our data-collection team, generally because the participant needed help in completing the questionnaire. These 181 participants were disproportionably male and from non-Dutch origin, but they did not differ from the other participants in age, psychopathology or mental health service use (data not shown).

Instruments

Instrument used for selecting participants The Adult Self-Report (ASR) was used to assess internalizing and externalizing problems in the past 6 months (Achenbach and Rescorla, 2003). The ASR comprises 123 statements on problem behaviours which can be scored with 0= not true, 1= somewhat or sometimes true, 2= very true or often true. The 123 problem behaviours constitute 8 empirically-based syndromes: Anxious/Depressed, Withdrawn, Somatic Complaints (together constituting the Internalizing group of syndromes), Rule-Breaking Behaviour, Aggressive Behaviour, Intrusive (together constituting the Externalizing group of syndromes), Thought Problems and Attention Problems (these two syndromes do not constitute a higher-order scale). A Total Problem score can be derived by summing the individual item scores. The following are examples of ASR items: "I am fearful or anxious" (Anxious/Depressed), "I keep from getting involved with others" (Withdrawn), "heart pounding" (Somatic Complaints), "I get in many fights" (Aggressive Behaviour), "I do things that may cause me trouble with the law" (Rule-Breaking Behaviour) and "I try to get a lot of attention" (Intrusive). Good reliability and validity have been demonstrated for the ASR (Achenbach and Rescorla, 2003).

We selected participants who scored in the borderline or clinical range of the ASR Total Problem score. Scores between the 84th and 90th percentile represent the borderline range; scores in this range indicate that enough problems were reported to be of concern (Achenbach and Rescorla, 2003). Scores above the 90th percentile represent the clinical range; scores in this range indicate that professional help may be warranted (Achenbach and Rescorla, 2003).

Mental health service use The use of mental health services was assessed with the following question: "Have you consulted one of the following persons, sources or agencies for mental health problems or substance use problems in the past 12 months?" Sources of primary care that could be endorsed were a general practi-

tioner, a company physician, or general social work. Sources of specialty care that could be endorsed were a community mental health care institute, a psychiatrist, psychologist, or psychotherapist in private practice, therapy via the internet, ambulatory addiction care, residential addiction care, a psychiatric day care institute, a psychiatric residential care institute, sheltered accommodation, or the use of psychotropic medication. Mental health service use was defined as the use (>= 1 contact) of primary or specialty mental health services in the past 12 months.

Demographic and socioeconomic factors The following demographic and socioeconomic factors were examined: sex, age, ethnicity, living arrangements, occupational status and educational level. In keeping with Statistics Netherlands, participants with at least one parent born outside the Netherlands were considered to be non-Dutch (Statistics Netherlands, 2004). Educational levels were classified as lower (primary education only, lower or intermediate vocational school, or lower secondary school) or higher (intermediate or higher secondary school, higher vocational school, or university). Participants who were following a course of education at the time of the survey were classified according this level of education, even though they had not yet obtained any qualifications.

Objective need Indicators of objective need included severity of psychopathology and disability. Since there was still a considerable range in the ASR Total Problem scores (62-215 points) among the included group with scores above the 84th percentile, we used the ASR Total Problem score to indicate the severity of internalizing and externalizing problems. Disability in communication, self-care, mobility, relationships, household chores and social functioning was measured with the World Health Organisation-Disability Assessment Scale (Janca et al., 1996).

Subjective need Problem-recognition was assessed with the following question: "Did you have mental health problems during the past 12 months?" The following three responses could be provided: 1=not at all, 2=a little bit or sometimes, or 3=clearly or often. A dichotomized variable was constructed indicating that problems were admitted (response 2 or 3) or that problems were denied (response 1).

Participants who admitted that they had mental health problems were asked whether they had needed professional help for these problems in the past year. The absence of a self-perceived need for professional help was inferred for those without problem-recognition.

Predisposing factors Predisposing factors comprised coping strategies and the 'tendency to consult'. Coping strategies were measured with the Multidimensional Health Profile-Psychosocial functioning (Ruehlman et al., 1999). Good validity and reliability have been reported for this questionnaire. The coping scale was divided into a passive (e.g., "I try to accept my feelings") and an active coping scale (e.g., "I make specific plans to solve my problems"). The 'tendency to consult' was assessed

Table 2.1: Measurements included in this study.

Variables	Operationalisation	Categorization
Care utilization		
Mental health service use	Either primary or specialty mental health service use for mental health or substance use problems in the past year	Any versus no use
Demographic & socioeconomic factors		
Sex	-	female versus male
Age	-	26-32 versus 19-25 years
Educational level	Highest educational attainment	higher versus lower
Ethnicity	Parental country of birth	non-Dutch versus Dutch
Occupational status	School or employment status	economically inactive; student; versus employed
Living arrangements	Current living arrangements	living alone; living with parents; versus living with partner
Behavioural model factors		
Objective need		
Problem severity	Checklist of emotional and behavioural problems (see Method)	Total sore
Disability	Checklist of disability (see Method)	Total sore
Subjective need		
Problem-recognition	"Did you have mental health problems in the past year?"	"Clearly" or "a little bit" versus no
Self-perceived need for care	"Have you needed professional help for mental health problems in the past year?"	Yes versus no
Enabling factors		
Financial means	Type of health insurance	Public versus private
Geographic availability of services	Urbanicity, at a municipal level	5-point scale of the address density
Informal care use	Checklist of informal care use (see Method)	Any versus no use
Predisposing factors		
Tendency to consult	"Would you consult a mental health professional in case of mental health problems?"	5-point scale very unlikely-very likely
Passive coping, Active coping	Checklist of coping strategies (see Method)	Total passive/active coping score

by asking participants whether they would consult a mental health professional in case of mental health problems.

Enabling factors Enabling factors comprised geographical availability of services, financial resources and the use of informal care. Since urban areas offer more mental health services than rural areas, urbanicity was used to indicate the geographical availability of services. Urbanicity was measured at a municipal level, using a 5-point rating of the average address density for each municipality (Statistics Netherlands, 2004). Further, because privately insured persons generally have a higher income than the publicly insured, the type of health insurance was used as an indicator of financial resources. Informal care use was defined as having consulted

at least one of the following resources for mental health or substance use problems in the past 12 months: family or friends, a telephone helpline, information on the internet, a self-help book, a complementary caregiver (e.g., a herbalist), a religious representative or a self-help group. An overview of all measures is presented in Table 2.1.

Data analysis

First, multivariate associations were examined between socio-demographic factors (independent variables) and the use of mental health services (dependent variable) using multivariate logistic regression analysis. Second, multivariate associations were examined between the indicators of objective need, subjective need, enabling and predisposing factors (independent variables) and the use of mental health services (dependent variable) using multivariate logistic regression analysis. Only the significant variables from these first two analyses were analyzed further. Third, to explain socio-demographic inequalities in mental health service use (dependent variable), five multivariate logistic regression models were fit. In the first model, socio-demographic factors were entered as independent variables, and in the second, third, fourth and fifth models adjustments were made for objective need, subjective need, predisposing factors and enabling factors respectively. The reduction in the odds ratio for each socio-demographic group across the different regression models was used to indicate the contribution of objective need, subjective need, predisposing and enabling factors to the socio-demographic inequalities in mental health service use. The reduction in OR was computed as follows:

$$\left(\frac{\text{OR model}_x - \text{OR model}_y}{\text{OR model}_x - 1} \right) * 100.$$

Results

Inequalities in mental health service use

Among young adults with internalizing and externalizing psychopathology (n = 367), only 34.6% had used mental health services in the past year. A multivariate logistic regression analysis indicated six independent effects of socio-demographic variables on mental health service use (Table 2.2). Women, 26-32 year olds, economically inactive persons and students were more likely to have used mental health services than the reference groups (i.e., males, 19-25 year olds, employed persons). Further, higher educated persons and persons who lived alone were less likely to have used mental health services compared with the reference groups (i.e., lower educated persons, persons living with a life partner).

Table 2.2: Multivariate associations between socio-demographic factors (independent variables) and 12-month mental health service use (dependent variable) among young adults with serious emotional and behavioural problems (n=364).

	Used any mental health services (n=126) n[1] (%)	**Used any mental health services (126 out of 364)** OR[2] (95% CI)	*p*-value
Sex			
Male (n=170)	46 (27.1%)	1.00	
Female (n=194)	80 (41.2%)	2.09 (1.27-3.45)	0.00
Educational level			
Lower (n=234)	94 (40.2%)	1.00	
Higher (n=128)	31 (24.2%)	0.42 (0.24-0.71)	0.00
Age			
19-25 years (n=213)	63 (29.6%)	1.00	
26-32 years (n=151)	63 (41.7%)	2.02 (1.17-3.46)	0.01
Ethnicity			
Dutch (n=226)	80 (35.4%)	1.00	
Non-Dutch (n=135)	44 (32.8%)	0.78 (0.48-1.27)	0.31
Occupational status			
Employed (n=198)	60 (30.3%)	1.00	
Economically inactive (n=78)	39 (50.0%)	2.28 (1.28-4.06)	0.01
Student (n=88)	27 (30.7%)	1.97 (1.01-3.85)	0.05
Living situation			
With partner (n=133)	57 (42.9%)	1.00	
Living alone (n=115)	32 (27.8%)	0.55 (0.30-0.99)	0.05
With family (n=115)	37 (32.2%)	0.83 (0.45-1.53)	0.56

OR indicates odds ratio, CI indicates confidence interval;

[1] Numbers slightly vary because of missing values regarding demographic and socioeconomic factors;

[2] Odds ratios are adjusted for the effects of the other socio-demographic variables in the multivariate model.

Behavioural model of mental health service use

A multivariate logistic regression analysis (Table 2.3) revealed four independent effects of behavioural model variables on service use; higher levels of disability (objective need factor), the presence of a self-perceived need for care (subjective need factor), a higher tendency to consult (predisposing factor) and the use of informal care (enabling factor) were independently associated with an increased likelihood of mental health service use.

Explaining inequalities in mental health service use

Model 1 indicates that women were twice as likely (OR = 2.05, 95%CI = 1.25-3.36) to have used mental health services compared with men (Table 2.4). After adjustment for the level of objective need (Model 2, Table 2.4) the odd ratio for women declined from 2.05 to 1.59 (43.8% reduction); further adjustment for subjective need (Model 3, Table 2.4) resulted in a further decline to 1.10 (90.5% total reduction, relative to Model 1).

Table 2.3: Multivariate associations of objective need, subjective need, predisposing and enabling factors (independent variables) with 12-month mental health service use (dependent variable) among young adults with serious emotional and behavioural problems (n=364).

	Used any mental health services (126 out of 364)	
	OR[2] (95% CI)	*p*-value
Objective need		
Total problem score[1]	1.00 (0.98-1.02)	0.99
Disability[1]	1.03 (1.01-1.05)	0.02
Subjective need		
No problem-recognition	1.00	
Problem-recognition	2.15 (0.75-6.15)	0.18
No perceived need for care	1.00	
Perceived need for care	4.36 (2.35-8.12)	0.00
Predisposing factors		
Tendency to consult[1]	1.66 (1.28-2.16)	0.00
Active coping[1]	1.04 (0.91-1.19)	0.68
Passive coping[1]	0.97 (0.85-1.11)	0.59
Enabling factors		
Degree of urbanization[1]	0.87 (0.68-1.16)	0.39
Public insurance	1.00	
Private insurance	1.25 (0.63-2.45)	0.50
No informal care use	1.00	
Informal care use	6.22 (3.25-11.88)	0.00

OR indicates odds ratio, CI indicates confidence interval;

[1] Indicates continuous variables;

[2] Odds ratios are adjusted for the effects of the other variables in the multivariate model.

Young adults aged 26-32 years old were twice as likely (OR = 2.03, 95%CI = 1.19-3.47) to have used mental health services compared with 19-25 year olds. After adjustment for the level of objective need (Model 1, Table 2.4) the odds ratio for 26-32 year olds declined from 2.03 to 1.73 (29.1% reduction), while the additional adjustments hardly resulted in a further decline.

Furthermore, economically inactive young adults were twice as likely (OR = 2.10, 95%CI = 1.19-3.71) to have used mental health services compared with the employed (Model 1, Table 2.4). After adjustment for the level of objective need (Model 2, Table 2.4) the odd ratio declined from 2.10 to 1.50 (54.5% reduction); further adjustment for subjective need (Model 3, Table 2.4) resulted in a further decline to 1.10 (90.9% total reduction).

The lower likelihood of mental health service use among persons with higher education and persons with lone residence, and the higher likelihood of mental health service use among students did not attenuate after adjustment for need, predisposing and enabling factors (Model 1-4, Table 2.4).

Table 2.4: Associations between socio-demographic factors (independent variables) and mental health service use (dependent variable), adjusting for relevant covariates (objective need, subjective need, predisposing and enabling factors) in five logistic regression models.

	Used any mental health services (126 out of 364)				
	Model 1: crude model	**Model 2: objective need**	**Model 3: subjective need**	**Model 4: predisposing factors**	**Model 5: enabling factors**
	OR[2] (95% CI)	OR[2] (95% CI)	OR[2] (95% CI)	OR[2] (95% CI)	OR[2] (95% CI)
Sex					
Male	1.00	1.00	1.00	1.00	1.00
Female	2.05 (1.25-3.36)$_b$	1.59 (0.95-2.67)	1.10 (0.62-1.97)	1.04 (0.57-1.90)	0.84 (0.44-1.64)
Age					
19-25 years old	1.00	1.00	1.00	1.00	1.00
26-32 years old	2.03 (1.19-3.47)$_a$	1.73 (0.99-3.03)	1.67 (0.91-3.06)	1.64 (0.87-3.07)	1.68 (0.84-3.33)
Education					
Lower educated	1.00	1.00	1.00	1.00	1.00
Higher educated	0.41 (0.24-0.70)$_b$	0.46 (0.27-0.81)$_b$	0.43 (0.24-0.79)$_b$	0.49 (0.26-0.91)$_a$	0.35 (0.18-0.70)$_b$
Employment status					
Employed	1.00	1.00	1.00	1.00	1.00
Economically inactive	2.10 (1.19-3.71)$_b$	1.50 (0.81-2.76)	1.10 (0.56-2.15)	1.04 (0.52-2.07)	1.28 (0.60-2.76)
Student	1.98 (1.02-3.85)$_a$	2.06 (1.03-4.09)$_a$	2.20 (1.04-4.68)$_a$	1.88 (0.86-4.10)	2.11 (0.90-4.91)
Living situation					
With partner	1.00	1.00	1.00	1.00	1.00
Alone	0.55 (0.30-0.99)$_a$	0.48 (0.26-0.90)$_a$	0.40 (0.20-0.78)$_b$	0.38 (0.19-0.77)$_b$	0.31 (0.15-0.67)$_b$
With caretakers	0.83 (0.45-1.53)	0.72 (0.38-1.35)	0.54 (0.27-1.09)	0.62 (0.30-1.27)	0.51 (0.23-1.14)
Objective need					
Disability[1]		1.05 (1.03-1.07)$_c$	1.04 (1.01-1.06)$_b$	1.04 (1.02-1.08)$_b$	1.03 (1.01-1.05)$_a$
Subjective need					
No need			1.00	1.00	1.00
Perceived need for care			6.71 (3.86-11.69)$_c$	6.70 (3.79-11.84)$_c$	5.67 (3.05-10.54)$_c$
Predisposing factors					
Tendency to consult[1]				1.55 (1.22-1.97)$_c$	1.61 (1.23-2.10)$_b$
Enabling factors					
No informal care use					1.00
Informal care use					7.92 (4.08-15.36)$_c$

OR indicates odds ratio, CI indicates confidence interval;

$_a$ $p<0.05$, $_b$ $p<0.01$, $_c$ $p<0.001$;

[1]Indicates continuous variables;

[2] Odds ratios are adjusted for the effects of the other variables in the multivariate model;

Model 1: socio-demographic factors;

Model 2: socio-demographic factors + objective need;

Model 3: socio-demographic factors + objective need + subjective need;

Model 4: socio-demographic factors + objective need + subjective need + predisposing factors;

Model 5: socio-demographic factors + objective need + subjective need + predisposing factors + enabling factors.

Discussion

Principal findings

A population-based survey indicated that only 34.6% of young adults with serious internalizing or externalizing problems had used mental health services in the past year. Significantly lower rates of service use were found for males, 19-25 year olds, employed persons, higher educated persons and persons who lived alone. These lower rates of mental health service use could only partly be accounted for by a lower objective need for care.

Limitations

A limitation is that the present study is cross-sectional which makes if difficult to establish the causal pathways of socio-demographic disparities in the use of mental health services. Furthermore, time frames were not compatible, with psychopathology pertaining to the past 6 months and mental health service use pertaining to the past 12 months. However, this would have affected results for socio-demographic disparities in service use only if the socio-demographic disparities in psychopathology in the first 6 months of the 12 months preceding the survey would differ from such disparities in the subsequent 6 months, which we render unlikely. Moreover, non-response rates were higher among males, 19-25 year olds and immigrants. We may have overestimated the use of mental health services for these groups, since studies of health insurance records indicate that non-respondents to health surveys are relatively low users of health services (Etter and Perneger, 1997).

Explanation for the findings

Objective Need After taking into account the level of objective need for care, the higher odds ratio for service use among young adults who were female, older or economically inactive attenuated, whereas other socio-demographic disparities in mental health service use retained strength. Thus, socio-demographic characteristics were associated with mental health service use over and above objective need for such services, indicating that inequalities exist in the accessibility of mental health services.

One may wonder whether the socio-demographic inequalities in mental health service use result from an insufficient adjustment for the objective need for care. However, we believe that our assessment of objective need is adequate. The self-report assessment of internalizing and externalizing psychopathology has been shown to partly converge with objective need defined in terms of psychiatric diagnoses. Correlations have been demonstrated for the empirically-based exter-

nalizing syndromes of Achenbach's self-reports with externalizing disorders such as attention-deficit/hyperactivity disorder, and likewise, correlations have been demonstrated for the empirically-based internalizing syndromes with mood and anxiety disorders (Gould et al., 1993; Kasius et al., 1997; Morgan and Cauce, 1999). It has been suggested that the incorporation of a measure of disability would improve the validity of both the diagnostic approach and the empirical approach of Achenbach (Gould et al., 1993). Therefore we also took into account disability as an indicator of objective need.

Subjective need The low service use among males and employed persons was strongly associated with a lack of subjective need for care. Likewise, previous mental health surveys indicate that men with mental health problems are less likely to perceive a need for care than women (Kessler et al., 1981; Meadows et al., 2002). Unfortunately, our study cannot provide insight into the mechanisms underlying the lack of subjective need for care among young adults who were male or employed. However, it has been suggested that the traditional masculine role discourages men to admit that they need professional help for emotional problems (Moller-Leimkuhler, 2002).

Predisposing and enabling factors Socio-demographic differences in mental health service use could not be attributed to differences in predisposing (i.e., 'tendency to consult' in our behavioural model) or enabling factors (i.e., informal care use). However, the reasons why some groups of young adults underused mental health services may reflect predisposing or enabling factors that were not included in our behavioural model, possibly predisposing factors such as attitudes towards general practitioners (Biddle et al., 2006) and mental health professionals (Parslow and Jorm, 2000).

Critique of the behavioural model

One may question whether the behavioural model of health care use addresses all key factors in the help-seeking process. The model depends on the assumption that help-seeking is a matter of rational, voluntary choice: individuals are seen as weighing within their minds whether their need for care can be met by the resources available (Pescosolido and Boyer, 1999). However, rational choice may be a suboptimal candidate for understanding the mechanisms underlying the use of health services when acknowledging that psychiatric symptoms may entail confused thinking and lack of insight. Pescosolido and Boyer (1999) suggest that dealing with mental health problems is a social process that is managed though contacts within the community, such as family, police or other institutional agents. Indeed, the finding that young adults with lone residence underused mental health services may have a social explanation, such as not having people around who

may facilitate help-seeking behaviour. Thus, the reasons why young adults underuse mental health services may not be found exclusively within the behavioural model of health care use.

Contrasts with existing literature

The low mental health service use that we found among males, employed persons and 19-25 year olds is in agreement with previous population-based studies among a broad age range of adults that took into account psychiatric morbidity, and found these groups to underutilize mental health services (Bebbington et al., 2000; Bijl and Ravelli, 2000). The other three socio-demographic disparities in mental health service use identified in the present study contrast with findings for broader age groups.

First, the lower likelihood of service use among young adults with higher education is at odds with previous mental health surveys among a broader age group of adults. People with higher education have been found less likely to use primary care, but more likely to use specialty mental health care when facing mental health problems (Madianos et al., 1993; ten Have et al., 2003), presumably because they view mental health professionals more positively than people with less education (Madianou et al., 1986; Rost et al., 1993). One may wonder whether this specific pattern also applies to young adults. Accordingly, we distinguished between the use of primary and specialty mental health services in additional analyses. It was found, however, that young people with higher education were just as likely to use primary care, but less likely to use specialty mental health care (results not shown). The question arises why educational level would operate differently in young people. It could be that higher educated young adults take pride in solving their problems alone, or that they have more internal resources to manage their problems alone.

Second, the lower probability of mental health service use in young adults with lone residence contrasts with previous mental health surveys among adults of all ages indicating that lone residence increases the probability of mental health service use over and above psychiatric morbidity (Bijl and Ravelli, 2000; Lefebvre et al., 1998). Since lone residence may represent a burden among older adults who generally aspire for partnership, it may increase their likelihood of help-seeking behaviour. However, among young adults lone residence predicted a decreased likelihood of mental health service use, probably because there were no other people directly around to facilitate help-seeking behaviour.

Third, the higher likelihood of mental health service use that we found among students contrasts with the lower likelihood found in a Dutch population-based study (Bijl and Ravelli, 2000). It may be inadequate to examine the effect of stu-

dent-status in a broad age sample, since students are generally younger. Thus, our results suggest that students are more inclined to use mental health services than employed persons, possibly because mental health services are often available within college settings (Reifler et al., 2006).

Conclusively, when examining young adults specifically, other inequalities in mental health service use are found than when examining broader age groups. However, it cannot be excluded that different associations between socio-demographic factors and mental health service use were found because we are looking at individuals with internalizing and externalizing problems rather than individuals with a psychiatric diagnosis.

Conclusion

Mental health problems are highly prevalent in young adults. Despite possibilities for effective treatment, young adults are low users of mental health services. Studies on young adults' help-seeking behaviours are scarce and have not investigated which groups of young adults are underusing mental health services. The present study revealed that equal use of mental health services for equal needs has not been achieved. This study among young adults identified 'new' underserved groups in terms of mental health services, including individuals that lived alone and higher educated persons. These underserved groups strongly oppose the traditionally underserved groups in the general population, and may inform interventions aimed at improving young people's use of mental health services. Conclusively, these findings warrant exploration in larger samples with which more robust analysis will be possible, to augment our understanding of which groups of young adults are underusing mental health services.

3

Young adults face major barriers to seeking help from mental health services

Kathleen Vanheusden, Cornelis L. Mulder, Jan van der Ende, Frank J. van Lenthe, Johan P. Mackenbach, Frank C. Verhulst

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Abstract

Objective

Mental health problems often emerge in young adulthood. Although effective treatments are available, young adults are unlikely to seek professional help. This study examined barriers-to-care in young adults with serious internalizing or externalizing problems.

Methods

Population-based study among 2258 19-32 year-olds in the south-west region of the Netherlands. Barriers-to-care were examined in participants with serious internalizing or externalizing problems who did not seek professional help. A potential barrier was that participants denied that they had mental health problems. In those admitting problems, barriers were assessed with the Barriers-To-Care checklist and analyzed with Latent Class Analysis.

Results

Of 362 participants with serious internalizing or externalizing problems 237 (65.5%) did not seek professional help. Of non-help-seeking young adults 36% denied having problems; additionally Latent Class Analysis revealed that 37% *Perceived Problems as Self-Limiting* (e.g., they believed that problems were not serious) and 24% *Perceived Help-Seeking Negatively* (e.g., they believed that treatment would not help).

Conclusions

Young adults' barriers-to-care reflect limitations in their knowledge of mental health problems and available treatments, but possibly also a failure of existing mental health services to engage young people. Treatment accessibility for young adults may be augmented by improving their mental health literacy.

Introduction

Adolescence and young adulthood are the periods of life during which most mental disorders emerge. Impulse control disorders and phobias most commonly begin in the prepubertal years, while other anxiety disorders, mood disorders, substance use disorders, and nonaffective psychosis most commonly begin in adolescence or young adulthood (Kessler et al., 2007). Mental health and substance use disorders are the major health problems of young people, which account for most of their disability (Patel et al., 2007).

Over the past two decades, treatments for mental disorders in young people have substantially improved, with more effective pharmacological treatments and better forms of psychosocial interventions (Patel et al., 2007). Several meta-analyses have indicated the effectiveness of pharmacotherapies and psychotherapies, particularly those with a cognitive-behavioural orientation, for a range of mental health and behavioural disorders in both adolescent and adult populations (Burns et al., 1999; Faraone et al., 2004; Malouff et al., 2007; Mitte, 2005). Although mental and substance use disorders represent the major health problems during adolescence and young adulthood, use of mental health services is low during these periods of life. Only one-third of adolescents and young adults with mental disorders use mental health services (Aalto-Setala et al., 2002; Newman et al., 1996; Patel et al., 2007). Further, studies among adolescents and young adults reveal that professional help is more often sought for internalizing problems than for externalizing problems (Bergeron et al., 2005; Ferdinand and Verhulst, 1994).

Several explanations have been offered for the low use of mental health services among young people. First, because adolescents and young adults are generally physically healthy, they usually do not regularly consult a general practitioner (Patel et al., 2007). Second, parents are less likely to convince adolescents or young adults to go for help because they see an end of their parental responsibility and because they no longer have control over their children (Logan and King, 2001). Third, mental health services are designed either for children or for adults. The available mental health services often do not deal with specific care needs of young adults, such as help with housing, education and employment (Davis, 2003; Davis and van der Stoep, 1997). Engagement of young people may also require a particular style and therapeutic skill that are often lacking (Patel et al., 2007). Hence, it could be hypothesized that young people hold negative attitudes toward available mental health services. Fourth, young people may have limited knowledge of the signs of mental health problems in themselves or others (Rickwood et al., 2005). For example, levels of correct recognition of depression and psychosis in case vignettes are lower in adolescents compared with adults (Jorm et al., 2006; Wright et

al., 2005). It could be hypothesized that young people also do not recognize it when they personally are having serious mental health problems.

As yet, few studies have directly assessed young adults' self-perceived barriers-to-care. Studies that assessed reasons for not seeking treatment for mental health problems mostly focused on wide age groups (those between the ages of 18 and 60). These studies found some effects of age on the reasons for not seeking treatment. Young adults with mental health problems more often lacked the perception that they needed treatment (Kessler et al., 2001; Meltzer et al., 2003) and more often thought that problems would get better by itself (Wells et al., 1994) compared with older adults. Further, young adults more often endorsed that they were too embarrassed to discuss their problems with anyone than older adults (Meltzer et al., 2003; Wells et al., 1994). Kessler et al. (2001) found that young adults with mental health problems more often endorsed that they wanted to solve their problems on their own than older adults; however, Meltzer et al. (2003) found the reverse. In summary, there are indications that young adults experience specific barriers-to-care, although it is unclear which barriers are the most important.

This population-based study examined barriers-to-care among young adults aged 19-32 years with serious internalizing problems (e.g., a high level of depression or anxiety) or externalizing problems (e.g., a high level of aggressive or rule-breaking behaviour) who had not sought professional help. First, we assessed the proportion of non-help-seeking young adults who denied having mental health problems. Second, among non-help-seeking young adults who admitted having problems, other potential barriers-to-care were assessed with a comprehensive checklist. Specifically, we had the following hypotheses. We expected that young adults with externalizing problems were less likely to seek professional help than young adults with internalizing problems. Further, we expected that non-help-seeking young adults often denied having problems. Among non-help-seeking young adults who admitted having problems, we hypothesized that negative attitudes toward available mental health services were among the most important barriers-to-care.

Method

Sample

This study was a cross-sectional population-based survey conducted from September 2004 to October 2005. The Medical Ethics Committee of the Erasmus MC approved the design and conduct of the study. Thirty-five municipalities were randomly selected from the Dutch province of Zuid-Holland. Zuid-Holland is

comprised of 92 municipalities in both rural and urban areas and contains 21.2% of the Dutch population (Statistics Netherlands, 2004). A random sample of 19-30 year-olds was selected from each municipality, and the total sample included 3338 young adults.

A postal survey was sent to all 3338 young adults in September 2004. After nine weeks, the potential participants were reminded either by phone or a home visit to fill in the questionnaire. A total of 165 persons were excluded from the sample because of intellectual or physical disability, a language barrier, moving away from the province, or death. Of the 3173 eligible young adults, 2258 (71.2%) participated. Due to the duration of the data collection, the age range of the participants expanded from 19-30 years to 19-32 years. Non-respondents were more likely to be male, non-Dutch and younger than those who did respond (data not shown). A large majority of participants (n = 2077) filled in the questionnaire by themselves, while 181 participants completed the questionnaire in the presence of someone from our data-collection team, generally because the participant needed help in completing the questionnaire. These 181 participants were disproportionably male and from non-Dutch origin, but they did not differ from the other participants in age, psychopathology or mental health service use (data not shown).

This study focussed on young adults with clinical levels of internalizing or externalizing problems (n = 364).

Measures

Internalizing and externalizing problems The Adult Self-Report (ASR) was used to assess internalizing and externalizing problems in the past 6 months (Achenbach and Rescorla, 2003). The ASR comprises 123 statements on problem behaviours which can be scored with 0=not true, 1= somewhat or sometimes true, 2= very true or often true. The 123 problem behaviours constitute 8 empirically-based syndromes (Achenbach and Rescorla, 2003): Anxious/Depressed, Withdrawn, Somatic Complaints (together constituting the Internalizing group of syndromes), Rule-Breaking Behaviour, Aggressive Behaviour, Intrusive (together constituting the Externalizing group of syndromes), Thought Problems and Attention Problems (these two syndromes do not constitute a higher-order scale). The following are examples of ASR items: "I am fearful or anxious" (Anxious/Depressed), "I keep from getting involved with others" (Withdrawn), "heart pounding" (Somatic Complaints), "I get in many fights" (Aggressive Behaviour), "I do things that may cause me trouble with the law" (Rule-Breaking Behaviour) and "I try to get a lot of attention" (Intrusive).

For this study we selected participants who scored in the clinical range of the internalizing broadband scale, the externalizing broadband scale, or both of these

scales. Scores above the 90th percentile represent the clinical range; these scores were found to be strongly associated with an external indicator of serious psychopathology, i.e., referral to mental health services (Achenbach and Rescorla, 2003). Thus, we examined only those participants for whom professional help may be warranted.

Good reliability and validity have been demonstrated for the ASR (Achenbach and Rescorla, 2003). Correlations have been demonstrated for the empirically-based externalizing syndromes of Achenbach's self-reports with externalizing disorders such as attention-deficit/hyperactivity disorder, and likewise, correlations have been demonstrated for the empirically-based internalizing syndromes with mood and anxiety disorders (Gould et al., 1993; Kasius et al., 1997; Morgan and Cauce, 1999).

A Dutch translation of the ASR was available. The ASR internalizing and externalizing broadband scales had a high internal consistency in our sample, with Cronbach's alphas of 0.93 and 0.87 respectively.

Mental health service use The use of mental health services was assessed with the following question: "Have you consulted one of the following persons, sources or agencies for mental health problems or substance use problems in the past 12 months?" Sources of primary care that could be endorsed were a general practitioner, a company physician, or general social work. Sources of specialty care that could be endorsed were a community mental health care institute, a psychiatrist, psychologist, or psychotherapist in private practice, therapy via the internet, ambulatory addiction care, residential addiction care, a psychiatric day care institute, a psychiatric residential care institute, sheltered accommodation, or the use of psychotropic medication. Mental health service use was defined as the use (>= 1 contact) of primary or specialty mental health services in the past 12 months.

Problem-recognition Problem-recognition was assessed with the following question: "Did you have mental health problems during the past 12 months?" The following three responses could be provided: 1=not at all, 2=a little bit or sometimes, or 3=clearly or often. A dichotomized variable was constructed indicating that problems were admitted (response 2 or 3) or that problems were denied (response 1).

Other barriers-to-care Participants who admitted that they had mental health problems but who did not seek professional help were presented with the Barriers-to-Care checklist. This checklist (See Table 3.4) assesses 18 reasons for not seeking professional help, and is based upon several previous checklists of barriers-to-care (Hornblow et al., 1990; Meadows et al., 2000; Wells et al., 1994). It provides a comprehensive assessment of barriers-to-care, assessing various practical barriers (e.g., those relating to cost, time, or geographical availability) and various psychological

barriers (e.g., those relating to fear of stigmatization or to perceived helpfulness of treatment). Participants could also volunteer barriers that were not part of the Barriers-to-Care checklist; this option was used by only 5 participants and these responses were not analyzed further.

Data analyses

First, among young adults with clinical levels of psychopathology, we examined sex, age and type of psychopathology (i.e., serious internalizing problems, serious externalizing problems, or both these problems) in relation to the use of mental health services (yes or no) with logistic regression analysis. Second, among non-help seeking young adults with clinical levels of psychopathology, sex, age and type of psychopathology were examined in relation to problem-recognition (problems were admitted versus problems were denied) with logistic regression analysis. Third, among non-help seeking young adults with clinical levels of psychopathology who admitted having problems, endorsement patterns on the Barriers-to-Care checklist were analyzed with latent class analysis. Latent class analysis reduces the numerous endorsement profiles to a limited number of mutually exclusive classes, assigning persons to classes. The optimal number of classes was determined using the Lo-Mendell-Rubin likelihood ratio test (Lo et al., 2001). The probability that a barrier was endorsed within a latent class was estimated with the 'conditional endorsement probability', for each barrier and each latent class. Furthermore, we examined sex, age and type of psychopathology in relation to latent class-membership with logistic regression analysis.

Results

The young adults in this study comprised 364 young adults with clinical levels of internalizing or externalizing problems and 1879 young adults with normal ASR scores. The presence of clinical levels of psychopathology was associated with being younger (19-25 years) and lower educated (Table 3.1).

Only 34.5% of young adults aged 19-32 years with clinical levels of psychopathology had used mental health services (Table 3.2). Among young adults with clinical levels of psychopathology, multivariate logistic regression analysis revealed that female sex and older age (26-32 years) predicted an increased likelihood of mental health service use, while externalizing problems predicted a decreased likelihood (Table 3.2).

Multivariate logistic regression analysis among non-help seeking young adults with clinical levels of psychopathology revealed that female sex was associated

Table 3.1: Sample characteristics.

	Clinical levels of internalizing or externalizing psychopathology?		
	No (n = 1879)	Yes (n = 364)	
	n[1] (%)	n[1] (%)	χ^2-value *(df = 1)*
Sex			
Male	861 (45.8%)	176 (48.4%)	0.79
Female	1018 (54.2%)	188 (51.6%)	
Age			
19-25 years	953 (50.7%)	210 (57.7%)	5.94*
26-32 years	926 (49.3%)	154 (42.3%)	
Educational level			
Lower	984 (52.6%)	236 (65.2%)	19.43***
Higher	887 (47.4%)	126 (34.8%)	

*p<0.05, ***p<0.001;
[1]Sample sizes slightly vary due to missing values for socio-demographic variables.

Table 3.2: Correlates of 12-month mental health service use among young adults with clinical internalizing or externalizing problems. Results of multivariate logistic regression analysis.

	Mental health service use (n = 125) among those with clinical psychopathology (n = 362[b])	
	n (% within row)	OR (95%CI)
Type of psychopathology[a]		
Internalizing problems (n = 110)	48 (43.6%)	1.00
Externalizing problems (n = 141)	29 (20.6%)	0.35 (0.20-0.61)***
Internalizing & Externalizing problems (n = 111)	48 (43.2%)	0.97 (0.56-1.67)
Sex		
Male (n = 175)	48 (27.4%)	1.00
Female (n = 187)	77 (41.2%)	2.02 (1.26-3.25)**
Age		
19-25 years (n = 209)	59 (28.2%)	1.00
26-32 years (n = 153)	66 (43.1%)	2.18 (1.36-3.48)**

OR indicates odds ratio, CI indicates confidence interval;
**p<0.01, ***p<0.01;
[a] Psychopathology was defined as a score in the clinical range (>90th percentile) of the Internalizing broadband scale, the Externalizing broadband scale, or both of these scales;
[b] The number of young adults with clinical levels of psychopathology dropped from 364 to 362 due to two missing values for mental health service use.

with an increased likelihood of admitting one's problems, while externalizing problems were associated with a decreased likelihood (Table 3.3).

Non-help-seeking young adults with clinical levels of psychopathology who admitted having mental health problems (n = 151) were asked to complete a Barriers-to-Care checklist; 143 filled in the checklist, and there were 8 missing values for this checklist. The endorsement patterns of the 143 participants were analyzed with latent class analysis. The Lo-Mendell-Rubin likelihood ratio test revealed that a two-class solution was preferable to a one-class solution (test value = 192.62,

Table 3.3: Correlates of problem-recognition among non-help seeking young adults with clinical internalizing or externalizing problems. Results of multivariate logistic regression analysis.

	Admitted having mental health problems (n = 151) among non-help seeking young adults with clinical psychopathology (n = 237)	
	n (% within row)	OR (95%CI)
Type of psychopathology		
Internalizing problems (n = 62)	50 (80.6%)	1.00
Externalizing problems (n = 112)	49 (43.8%)	0.18 (0.08-0.37)***
Internalizing & Externalizing problems (n = 63)	52 (82.5%)	0.98 (0.39-2.48)
Sex		
Male (n = 127)	69 (54.3%)	1.00
Female (n = 110)	82 (74.5%)	2.45 (1.34-4.49)**
Age		
19-25 years (n = 150)	94 (62.7%)	1.00
26-32 years (n = 87)	57 (65.5%)	1.37 (0.74-2.53)

OR indicates odds ratio, CI indicates confidence interval;
**p<0.01, ***p<0.001.

p<0.01) and that a three-class solution was not better than a two-class solution (test value = 45.64, p = 0.26). Thus, a latent class model with two classes was chosen to describe the endorsement patterns of barriers-to-care (Table 3.4).

In both latent classes, the highest endorsement probability was found for the barrier "I wanted to solve problems on my own" (Table 3.4). The first and largest class (n = 87) was labeled *Perceived Problems as Self-Limiting* because of the high endorsement probabilities for the barriers indicating that problems were perceived as mild, such as "I did not think problems were serious" (probability = 0.72), "I thought problems would go away" (probability = 0.69), and "I had enough support in my social network" (probability = 0.72). The second class (n = 56) was labeled *Perceived Help-Seeking Negatively* (Table 3.4). The second class resembled the first class to a considerable degree, but the second class was unique with respect to the high endorsement probabilities for barriers that reflected negative ideas about help-seeking including "I thought help-seeking was a sign of weakness" (probability = 0.80), "I found it hard to talk about personal problems" (probability = 0.77), "I was afraid of what people might think if I sought help" (probability = 0.72), and "I did not think treatment would help" (probability = 0.59).

Furthermore, we examined sex, age and type of psychopathology in relation to latent class-membership (*Perceived Help-Seeking Negatively* versus *Perceived Problems as Self-Limiting)* with logistic regression analysis. Age and sex were not associated with latent class membership, but type of psychopathology was: externalizing problems were associated with a decreased likelihood of *Perceiving Help-Seeking Negatively* (Table 3.5).

Table 3.4: Barriers-to-care among young adults with clinical levels of psychopathology who admitted having problems but did not seek professional help. Results from Latent Class Analysis.

	Class1: Perceived Problems as Self-Limiting (n = 87)	**Class2: Perceived Help-Seeking Negatively (n = 56)**
	Conditional probability	Conditional probability
Attitudinal barriers (crude prevalence rate)		
1. I wanted to solve problems on my own (91.6%)	0.90	0.94
2. I did not think problems were serious (70.6%)	0.72	0.68
3. I thought problems would go away (72.7%)	0.69	0.78
4. I had enough support in my social network (55.9%)	0.72	0.34
5. I found it hard to talk about personal problems (62.0%)	0.51	0.77
6. I thought help-seeking was a sign of weakness (39.9%)	0.11	0.80
7. I was afraid of what people might think if I sought help (32.2%)	0.04	0.72
8. I thought help-seeking was too self-indulgent (16.9%)	0.04	0.35
9. I did not think treatment would help (39.2%)	0.25	0.59
10. I did not trust mental health services (23.8%)	0.09	0.45
11. I thought treatment could only make things worse (22.4%)	0.09	0.42
12. I have had a bad experience with mental health services (14.7%)	0.10	0.21
Practical barriers (crude prevalence rate)		
13. I did not know how to get help (25.2%)	0.15	0.39
14. I could not afford treatment (18.2%)	0.07	0.34
15. I could not arrange to get a consultation timely enough (3.5%)	0.00	0.08
16. I did not have time to seek help (22.4%)	0.06	0.45
17. Services were to far away or difficult to reach (2.8%)	0.02	0.03
18. I sought help, but did not receive it (1.4%)	0.02	0.00

Table 3.5: Correlates of barriers-to-care among young adults with clinical levels of psychopathology who admitted having problems but did not seek professional help. Results of multivariate logistic regression analysis.

	Perceived Problems as Self-Limiting (n = 87)	**Perceived Help-Seeking Negatively (n = 56)**	**Pessimistic About Help-Seeking *versus* Perceived Problems as Self-Limiting**
	n (% within row)	n (% within row)	OR (95%CI)
Type of psychopathology			
Internalizing problems (n = 48)	23 (47.9%)	25 (52.1%)	1.00
Externalizing problems (n = 48)	43 (89.6%)	5 (10.4%)	0.10 (0.03-0.31)***
Internalizing & Externalizing problems (n = 47)	21 (44.7%)	26 (55.3%)	1.14 (0.50-2.57)
Sex			
Male (n = 66)	38 (57.6%)	28 (42.4%)	1.00
Female (n = 77)	49 (63.6%)	28 (36.4%)	0.73 (0.34-1.57)
Age			
19-25 years (n = 90)	56 (62.2%)	34 (37.8%)	1.00
26-32 years (n = 53)	31 (58.5%)	22 (41.5%)	1.30 (0.59-2.89)

OR indicates odds ratio, CI indicates confidence interval;
***p<0.001

In summary, among non-help-seeking young adults with clinical levels of psychopathology (n = 237), 86 (36.3%) denied having problems; 87 (36.7%) *Perceived Problems as Self-Limiting* and 56 (23.6%) *Perceived Help-Seeking Negatively*.

Discussion and Conclusion

Discussion

Only 34.5% of young adults aged 19-32 years with clinical levels of psychopathology had used mental health services. The rate was even lower (28%) for those aged 19-25 years. Similarly, Newman et al. (1996) found that only 25% of 21 year-olds with a mood, anxiety or substance use disorder had used mental health services. Aalto-Setala et al. (2002) found that only one-third of young adults aged 20-24 years with depression had used mental health services. The available evidence clearly shows that young adults have a low rate of help-seeking for mental health problems.

As hypothesized, denial of problems was a significant barrier-to-care. Among non-help seeking young adults with clinical levels of psychopathology, 36% denied that they had mental health problems. Other studies also indicated that young people have a limited knowledge of the signs of mental health problems. For example, levels of correct recognition of depression and psychosis in case vignettes are lower in adolescents than in adults (Jorm et al., 2006; Wright et al., 2005). Our study revealed that young adult males were particularly likely to deny having problems. A previous study also showed that men are less likely than women to translate symptoms of mental health problems into a conscious recognition of having a mental health problem (Kessler et al., 1981).

Furthermore, 37% of non-help seeking young adults with clinical levels of psychopathology perceived their problems as self-limiting (e.g., they believed that problems were not serious and would go away). This perception contrasts with current knowledge of mental health problems. For example, there is evidence showing that internalizing and externalizing problems in young adults are often enduring and cause significant disability (Ferdinand and Verhulst, 1994; Ferdinand and Verhulst, 1995b). Findings from previous studies also suggest that young adults perceive their problems as self-limiting. For example, previous studies indicated that young adults with mental health problems more often lacked the perception that they needed treatment (Kessler et al., 2001; Meltzer et al., 2003), and more often thought that problems would get better by itself (Kessler et al., 2001; Wells et al., 1994) compared with older adults.

As hypothesized, negative attitudes toward available mental health services were among the most important barriers-to-care. We found that 24% of non-help-seeking young adults with clinical levels of psychopathology perceived help-seeking negatively (e.g., they believed treatment would not help, they thought that seeking help would be weak). A review study also indicated that young people tend to believe that seeking professional help does not help (Rickwood et al., 2005). On the one hand, the negative perception of help-seeking contrasts with the evidence for effective treatments for a range of mental disorders in both adolescent and adult populations (Burns et al., 1999; Malouff et al., 2007; Mitte, 2005). On the other hand, the negative perception of help-seeking is in agreement with the notion that existing mental health services fail to appeal to young adults (Manchester, 2006; Patel et al., 2007; Patton et al., 2007).

As hypothesized, professional help was less often sought for externalizing than for internalizing problems. The most prevalent barrier-to-care among young adults with externalizing problems was denial, which is in agreement with evidence for the low treatment engagement among people with externalizing problems. For example, a study among out-patients receiving treatment for a psychiatric disorder found that aggressive behaviour was inversely related to subjective need for treatment and treatment adherence (Elbogen et al., 2006). Beside treatment engagement, the low rates of help-seeking for externalizing problems may also reflect a lack of effective treatments. Indeed, available treatments for externalizing disorders mostly target children and adolescents (Connor et al., 2006) rather than adults. However, research has indicated that the stability of externalizing problems from adolescence into adulthood is substantial (Ferdinand and Verhulst, 1995a; Hofstra et al., 2001; Hofstra et al., 2002), suggesting that interventions should also target adults.

The study results should be considered in light of the following limitations. First, a limitation of our study is its cross-sectional nature which prevents causal interpretations. However, there is no apparent reason why young adults would not be able to identify their reasons ('the causes') for not seeking professional help. Second, a study of health insurance records indicated that non-responders to health surveys are lower users of health services than responders (Etter and Perneger, 1997). Given that non-response was higher among male, younger and non-Dutch subjects, we may have overestimated the use mental health services for these groups. Third, the low rate of financial barriers-to-care found in this study may not extrapolate to young adults in other countries; mental health service use by people with psychiatric disorders is higher in the Netherlands than in countries such as the United States, most likely due to lower financial barriers in the Netherlands (Bijl and Ravelli, 2000). Fourth, we have disregarded the 165 young adults

who endorsed that they "needed professional help for mental health problems in the past 12 months" because they did not meet criteria for objective need (i.e., clinical levels of psychopathology). It is possible that these 165 young adults did meet criteria for objective need in the first 6 months of the 12-month period preceding the survey, since the timeframes for psychopathology and 'perceived need' were 6 and 12 months respectively. More importantly though, barriers-to-care were hardly experienced among the 165 young adults who perceived a need for professional help; a majority of them (72%) had sought professional help.

Conclusion

The majority of young adults with serious internalizing or externalizing problems did not seek professional help. The barriers-to-care among young adults reflect limitations in their knowledge of mental health problems and of available treatments. Our findings warrant evaluation of larger samples for which more robust analysis is possible.

Practice Implications

Our results have implications for policy and mental health care. First, policy makers need to be aware that treatment accessibility for young adults may be augmented by raising their knowledge of mental health problems. For example, an Australian mental health awareness campaign targeted young people and led to an increase in knowledge of mental health problems, a reduction in perceived barriers-to-care and an increase in help-seeking for depression (Wright et al., 2006). More of such efforts are urgently needed to increase young adults' help-seeking behaviours. Second, mental health care providers need to be aware of the negative perception of help-seeking among young adults, which suggests that existing mental health services fail to engage young adults. Age-appropriate care for young adults would involve general practitioners working together with mental health and substance use professionals and relevant support agencies, such as accommodation, education and employment services (Patel et al., 2007). There is evidence that age-appropriate care leads to increased help-seeking behaviour among young people (Kang et al., 2006).

4 Beliefs about mental health problems and help-seeking behaviour in Dutch young adults

Kathleen Vanheusden, Jan van der Ende, Cornelis L. Mulder, Frank J. van Lenthe, Frank C. Verhulst, Johan P. Mackenbach

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Abstract

Background

Mental health problems in young adults are frequent and impairing, but are often left untreated. This study among young adults with self-perceived mental health problems examines beliefs about mental health problems (i.e., their cause, consequences, timeline, and controllability) and help-seeking behaviour.

Method

A cross-sectional population survey (n = 2258) in the south-west Netherlands. Participants were included who stated that they had mental health problems during the past year (n = 830). Beliefs about cause, consequences, timeline, and controllability of self-perceived mental health problems were assessed with the revised Illness Perception Questionnaire. Internalizing and externalizing psychopathology was assessed with the Adult Self-Report.

Results

A multivariate logistic regression analysis indicates that independent of gender, age, and severity of psychopathology, higher levels on the intra-psychic causes scale (OR = 1.95, 95%CI = 1.48-2.58), the consequences scale (OR = 1.81, 95%CI = 1.40-2.33), and the treatment control scale (OR = 1.97, 95%CI = 1.60-2.41) are associated with an increased likelihood of mental health service use, while higher levels of personal control (OR = 0.76, 95%CI = 0.62-0.93) are associated with a decreased likelihood.

Conclusions

Beliefs that may encourage young adults with mental health problems to seek professional help include the beliefs that mental health problems have adverse consequences and that treatment can help. Since these beliefs are related to young adults' knowledge of mental health problems, help-seeking behaviour may be encouraged by educating young adults about mental health problems and the effective mental health treatments which are available.

Introduction

Mental disorders account for a large proportion of the disease burden in young adults in most societies (Patel et al., 2007). Since young adulthood is a critical stage of socialization in terms of professional career and interpersonal relationships, poor mental health may have more severe, long-lasting consequences for young adults than for other age groups (Newman et al., 1996). It has been shown that mental disorders in young adults cause great impairments, limiting educational ability, work, and social interaction (Wittchen et al., 1998). The stakes for good mental health during young adulthood are high, and it is therefore important to encourage young adults with mental health problems to seek appropriate help early.

There is substantial evidence for the effectiveness of psychosocial and pharmacological treatments for a range of mental disorders in both adolescent and adult populations, including internalizing disorders such as anxiety disorder and externalizing disorders such as attention-deficit/hyperactivity disorder (Burns et al., 1999; Faraone et al., 2004; Malouff et al., 2007; Mitte, 2005; Prendergast et al., 2006). However, professional help is sought by only one-third of young adults with mental disorders (Aalto-Setala et al., 2002; Newman et al., 1996). As yet, little is known about the determinants of help-seeking behaviour specifically in young adults with mental health problems.

In general, barriers to seeking help from mental health services are dependent more on knowledge, beliefs, and stigma than on financial resources (Kovess-Masfety et al., 2007). This study will focus on beliefs that young adults (19-32 years) have about the mental health problems they have experienced. The self-regulation model (Leventhal and Diefenbach, 1991; Leventhal et al., 1983) is used as a theoretical framework. This model proposes that people form beliefs in response to a health problem, including beliefs about *identity* (what is it?), *causes* (what caused it?), *consequences* (how does it affect my life?), *timeline* (is it acute, chronic or cyclic?) and *controllability*, distinguished between personal control (what can I do about it?) and treatment control (what can treatment do about it?). This model has been extensively used to identify determinants of health-promoting behaviours such as adherence to medical treatments (Watkins et al., 2000), adherence to psychotropic medication (Clifford, 1998; Lobban et al., 2005) and care-seeking for physical health problems (Cameron et al., 1993; Cameron et al., 1995; Lawson et al., 2004).

To our knowledge, the self-regulation model has not yet been used to identify determinants of help-seeking for mental health problems. Most studies have only examined beliefs about the controllability of mental health problems. For example, a qualitative study in the UK indicated that most young adults with mental health problems do not believe that a general practitioner would be helpful for mental

health problems (Biddle et al., 2006). Further, a study among students assessed attitudes toward an individual with depression, described in a vignette, and personal help-seeking intention (Halter, 2004). Students who believed that depression was under personal control were less likely to demonstrate help-seeking intentions (Halter, 2004). Thus, pessimistic beliefs about treatment control and optimistic beliefs about personal control may contribute to the low treatment rate among young adults with mental health problems.

There has been little exploration of beliefs about the identity, the cause, the consequences and the expected timeline of mental health problems. A strong identity, i.e., experiencing symptoms as related to mental health problems, has been associated with positive attitudes toward medication adherence in people with schizophrenia (Lobban et al., 2005). Belief in an internal cause has been associated with medication adherence among psychotic patients (Clifford, 1998). A study among depressed patients presenting in primary care found that the patients who had received prior mental health treatment perceived their depressive symptoms as being more chronic and as having more negative consequences than the patients with no prior mental health treatment (Brown et al., 2001). In addition, Brown et al. (2001) found that the perception of depressive symptoms as having negative consequences was associated with active coping strategies. Thus it could be hypothesized that a perception of mental health problems as having a strong identity, an internal cause, negative consequences and a chronic timeline will predict young adults' help-seeking behaviour.

The aim of this study is to examine beliefs about mental health problems and help-seeking behaviour among young adults with self-perceived mental health problems. We included all young adults participating in a population-based study on mental health service use who stated that they had mental health problems in the past year. Specifically, we tested the hypotheses that perceptions of an internal cause, negative consequences, a chronic timeline, low personal control, and high treatment control were independent predictors of mental health service use. Other variables that are known to influence help-seeking behaviour were also taken into account, including severity of internalizing problems (e.g., depression) and externalizing problems (e.g., aggression), sex and age.

Methods

Sample

This study was a cross-sectional population-based survey conducted from September 2004 to October 2005. The Medical Ethics Committee of the Erasmus MC

approved the design and conduct of the study. Thirty-five municipalities were randomly selected from the Dutch province of Zuid-Holland. Zuid-Holland is comprised of 92 municipalities in both rural and urban areas and contains 21.2% of the Dutch population (Statistics Netherlands, 2004). A random sample of 19-30 year-olds was selected from each municipality, and the total sample included 3338 young adults.

A postal survey was sent to all 3338 young adults in September 2004. After nine weeks, the potential participants were reminded either by phone or a home visit to fill in the questionnaire. A total of 165 persons were excluded from the sample because of intellectual or physical disability, a language barrier, moving away from the province, or death. Of the 3173 eligible young adults, 2258 (71.2%) participated. Due to the duration of the data collection, the age range of the participants expanded from 19-30 years to 19-32 years. Non-respondents were more likely to be male, non-Dutch and younger than those who did respond (data not shown). A large majority of participants (n = 2077) filled in the questionnaire by themselves, while 181 participants completed the questionnaire in the presence of someone from our data-collection team, generally because the participant needed help in completing the questionnaire. These 181 participants were disproportionably male and from non-Dutch origin, but they did not differ from the other participants in age, psychopathology or mental health service use (data not shown).

Analyses were conducted among 830 participants who perceived that they had mental health problems in the past year, as determined by participants' responses to the question "Did you have mental health problems during the past year?" One of three responses could be provided: 1="not at all", 2="a little bit or sometimes", 3="clearly or often". Responses 2 and 3 were used to include young adults with self-perceived mental health problems.

Measures

Sample characteristics Participants' gender, age and educational levels were registered. Educational level was classified as lower (primary education only, lower or intermediate vocational school, or lower secondary school) or higher (intermediate or higher secondary school, higher vocational school, or university). Students were classified according to their current training, even though they had not yet obtained qualifications.

Help-seeking behaviours The use of mental health services was assessed with the following question: "Have you consulted one of the following persons, sources or agencies for mental health problems or substance use problems in the past 12 months?" Sources of primary care that could be endorsed were a general practitioner, a company physician, or general social work. Sources of specialty care that

could be endorsed were a community mental health care institute, a psychiatrist, psychologist, or psychotherapist in private practice, therapy via the internet, ambulatory addiction care, residential addiction care, a psychiatric day care institute, a psychiatric residential care institute, sheltered accommodation, or the use of psychotropic medication. Mental health service use was defined as the use (>= 1 contact) of primary or specialty mental health services in the past 12 months.

Self-regulation factors The Illness Perception Questionnaire-Revised (IPQ-R; Moss-Morris et al., 2002) is a questionnaire which assesses the dimensions of the self-regulation model. This questionnaire is a reliable and valid measure for the assessment of illness beliefs pertaining to a range of physical illnesses (Moss-Morris et al., 2002) and mental disorders (Fortune et al., 2004; Lobban et al., 2005). The IPQ-R assesses the 5 key beliefs regarding illnesses: identity, cause, consequences, timeline, and controllability. The dimensions of controllability and timeline have been subdivided to differentiate personal from treatment control and an acute/chronic timeline from a cyclic timeline. Agreement with statements are assessed on a 5-point rating scale ranging from 1 ="strongly disagree" to 5= "strongly agree". For each statement, researchers may replace the word *illness* with a specific condition; in this case, *mental health problems* is used. Examples of key items for each subscale are presented in Table 4.1. Identity, the number of symptoms that a patient attributes to his or her illness, is not assessed in this study, since such questions can only be addressed to specific psychiatric disorders.

The IPQ-R cause subscale is not used because this scale is primarily somatically orientated. Instead, beliefs about the causes of mental health problems were investigated with a self-report questionnaire which measures causal attributions (Faller, 1997). The questionnaire begins with the open-ended phrase "My mental health problems stem from…", followed by a list of 23 possible causes of mental health problems that have to be rated on a 5-point scale ranging from 1="strongly disagree" to 5="strongly agree". The 23 items can be grouped in 5 scales that represent intra-psychic, biographical, interpersonal, social and somatic causes. Examples of key items for each subscale are presented in Table 4.1. This questionnaire has been demonstrated to have a good validity and reliability (Faller, 1997).

Psychopathology The Adult Self-Report was used to assess internalizing and externalizing problems during the past 6 months (Achenbach and Rescorla, 2003). The ASR comprises 123 statements on problem behaviours which can be scored with 0=not true, 1= somewhat or sometimes true, 2= very true or often true. The 123 problem behaviours constitute 8 empirically-based syndromes: Anxious/Depressed, Withdrawn, Somatic Complaints (together constituting the Internalizing group of syndromes), Rule-Breaking Behaviour, Aggressive Behaviour, Intrusive (together constituting the Externalizing group of syndromes), Thought Problems

Table 4.1: Assessment of self-regulation factors among young adults with self-perceived mental health problems.

Scales	Examples of corresponding items
Causes[1]	
Intra-psychic attribution	"low self-esteem", "inner anxieties"
Social attribution	"difficulties at work or school", "financial problems"
Interpersonal attribution	"problems in partnership or family", "not being understood by others"
Somatic causes	"hormonal problems", "physical illness"
Biographical causes	"difficult childhood", "difficult relationship with parents"
Consequences[2]	"My mental health problems have major consequences on my life", "My mental health problems cause difficulties for those who are close to me"
Timeline[2]	
Acute/Chronic timeline	"My mental health problems are likely to be permanent rather than temporary", "My mental health problems will last a long time"
Cyclic timeline	"My mental health problems come and go in cycles", "I go through cycles in which my mental health problems get better and worse"
Controllability[2]	
Personal control	"The course of my mental health problems depends on me", "I have the power to influence my mental health problems"
Treatment control	"Mental health treatment will be effective in curing my mental health problems", "The negative effects of my mental health problems can be prevented by mental health treatment"

[1]The self-regulation factor 'cause' was assessed with Faller's self-report questionnaire on perceived causes Higher scores on the intra-psychic, social, interpersonal, somatic and biographical causes scales indicate stronger causal beliefs;

[2] Self-regulation factors pertaining to consequences, timeline and controllability were assessed with the revised Illness perception Questionnaire. Higher scores on the consequences, acute/chronic timeline, cyclic timeline, personal control, and treatment control scales indicate stronger beliefs in adverse consequences, a chronic timeline, a cyclic timeline, personal control and treatment control respectively.

and Attention Problems (these last two syndromes do not constitute a higher-order scale). A Total Problem score can be derived by summing the individual item scores. Scores above the 84th percentile represent the deviant range; scores in this range are strongly predictive of referral to mental health services (Achenbach and Rescorla, 2003).

Good reliability and validity have been demonstrated for the ASR (Achenbach and Rescorla, 2003). Correlations have been demonstrated for the empirically-based externalizing syndromes of Achenbach's self-reports with disruptive behaviour disorders such as attention-deficit/hyperactivity disorder, and likewise, correlations have been demonstrated for the empirically-based internalizing syndromes with mood and anxiety disorders (Gould et al., 1993; Kasius et al., 1997; Morgan and Cauce, 1999).

We included the dichotomized ASR Total Problem score in our analyses because beliefs about mental health problems will probably be related to problem severity. Indeed, moderate correlations were found between a deviant ASR Total Problem

score and the following variables: acute/chronic timeline (0.41), consequences (0.46), personal control (-0.21), cyclic timeline (0.27), intra-psychic causes (0.50), social causes (0.42), interpersonal causes (0.39), somatic causes (0.30) and biographical causes (0.29).

Dutch translations were available for all questionnaires used (i.e., the ASR, IPQ-R, and Faller's self-report questionnaire about causes). These questionnaires had medium to high internal consistency in our sample, with Cronbach's alphas ranging between 0.87 and 0.93 for the ASR broadband scales, between 0.70 and 0.85 for the IPQ-R scales, and between 0.59 and 0.77 for the scales of Faller's self-report questionnaire on causes.

Data analysis

First, sample characteristics were stratified by the inclusion criterion of self-perceived mental health problems (yes versus no), and χ^2-tests were used to explore distributional differences. Second, univariate associations were examined between self-regulation factors and the use of mental health services with logistic regression analysis adjusted for gender, age and the dichotomized ASR Total Problem score. To examine whether the associations between beliefs and the use of mental health services depended on gender or the presence of serious mental health problems, interactions were tested between each self-regulation factor in conjunction with gender and the ASR Total Problem score. Third, three multivariate logistic regression models were fit: the first model contained gender, age and the ASR Total Problem score, and self-regulation variables were added in the second model. In the third model, all significant interactions identified in the univariate analyses were included, and a backward selection procedure was used to develop the final model.

To facilitate interpretation of the study results, the continuous self-regulation variables were standardized into z-scores (mean = 0, standard deviation = 1).

Results

Sample characteristics

Of the total sample (n = 2249), 830 participants (37%) perceived that they had mental health problems during the past year. The presence of self-perceived mental health problems was strongly associated with female gender, a deviant ASR Total Problem score, and the use of mental health services (Table 4.2). Subsequent results all pertain to young adults with self-perceived mental health problems.

Table 4.2: Sample characteristics

	Self-perceived mental health problems in the past year?		
	No (N = 1419)	**Yes (N = 830)**	χ^2-test *(df = 1)*
	N[1] (%)	N[1] (%)	p-value
Gender			
Male	758 (53.4%)	279 (33.6%)	0.001
Female	661 (46.6%)	551 (66.4%)	
Age			
19-25 years	745 (52.5%)	420 (50.6%)	0.38
26-32 years	674 (47.5%)	410 (49.4%)	
Education level			
Lower	768 (54.4%)	456 (55.1%)	0.77
Higher	643 (45.6%)	372 (44.9%)	
ASR Total Problem score			
Normal	1329 (94.1%)	544 (65.8%)	0.001
Deviant	83 (5.9%)	283 (34.2%)	
Mental health service use			
No	1355 (96.2%)	547 (66.3%)	0.001
Yes	53 (3.8%)	278 (33.7%)	

[1]Sample sizes vary slightly due to missing values on sample characteristics.

Univariate associations between self-regulation factors and mental health service use

Univariate associations between self-regulation factors and the use of mental health services revealed that higher levels on the personal control scale were associated with a decreased likelihood of service use, independent of gender, age and the dichotomous ASR Total Problem score (Table 4.3). Higher levels on most other self-regulation scales were associated with an increased likelihood of service use; the strongest associations were seen for intra-psychic causes (OR = 3.05, 95%CI = 2.46-3.79), consequences (OR = 2.69, 95%CI = 2.21-3.27), and treatment control (OR = 2.52, 95%CI = 2.10-3.01).

Three significant interactions were found between self-regulation factors and gender in relation to mental health service use: (1) treatment control * gender (OR = 1.47, 95%CI = 1.01-2.15), (2) personal control * gender (OR = 1.81, 95%CI = 1.27-2.57) and (3) chronic timeline * gender (OR = 0.62, 95%CI = 0.44-0.89). Higher levels on the personal control scale were associated with a decreased likelihood of service use in men, while no association was found for women. Higher levels on the chronic timeline scale were positively associated with service use in both genders, but the association was stronger for men. Higher levels on the treatment control scale were positively associated with service use in both genders, but this association was stronger for women.

Furthermore, two significant interactions were found between self-regulation factors and problem severity: (1) treatment control * ASR Total Problem score (OR = 0.64, 95%CI = 0.45-0.92) and (2) intra-psychic causes * ASR Total Problem

Table 4.3: Univariate associations between self-regulation variables and the use of mental health services adjusted for gender, age and ASR Total Problem score.

	Use of mental health services (N = 278) versus no use (N = 547)
	OR (95%CI)
Self-regulation variables[1]	
Causes	
Intra-psychic causes	3.05 (2.46-3.79)***
Social causes	1.43 (1.22-1.69)***
Interpersonal causes	1.36 (1.16-1.60)***
Somatic causes	1.24 (1.06-1.44)**
Biographical causes	1.53 (1.30-1.79)***
Consequences	2.69 (2.21-3.27)***
Timeline	
Acute/Chronic timeline	1.48 (1.25-1.74)***
Cyclic timeline	1.08 (0.92-1.26)
Controllability	
Treatment control	2.52 (2.10-3.01)***
Personal control	0.81 (0.70-0.95)**

OR indicates odds ratio, CI indicates confidence interval;
**p<0.01, ***p<0.001;
[1]Self-regulation variables are standardized continuous variables.

score (OR = 0.46, 95%CI = 0.29-0.72). Higher levels on the treatment control scale were positively associated with service use in young adults with and without a deviant ASR Total Problem score, but the association was stronger in those without. Further, higher levels on the intra-psychic causes scale were positively associated with service use in young adults with and without a deviant ASR Total Problem score, and again the association was stronger in those without.

Multivariate associations between self-regulation factors and mental health service use

Multivariate logistic regression analysis showed that female gender, older age (26-32 years) and a deviant ASR Total Problem score were associated with an increased likelihood of mental health service use (Table 4.4, Step 1).

Self-regulation variables were added in the second step of the analysis: higher levels on the treatment control scale, the consequences scale, and the intra-psychic causes scale were strongly associated with an increased likelihood of service use, while higher levels on the personal control scale were associated with a decreased likelihood (Table 4.4, Step 2). The effects of gender and a deviant ASR Total Problem score were no longer significant. Addition of the self-regulation factors led to an increase in the Nagelkerke R^2 from 0.09 to 0.39.

In the third step, we tested the five significant interactions between self-regulation factors in conjunction with gender or problem severity which were identified

Table 4.4: Multivariate associations between self-regulation factors and the use of mental health services adjusted for gender, age and ASR Total Problem score

	Use of mental health services (N = 278) versus no use (N = 547)		
	OR (95%CI)	OR (95%CI)	OR (95%CI)
Step 1: background variables[1]			
ASR Total Problem score (=deviant)	1.94 (1.42-2.66)***	0.64 (0.40-1.03)	0.71 (0.44-1.13)
Gender (=female)	1.47 (1.06-2.04)*	1.27 (0.86-1.88)	1.41 (0.93-2.11)
Age (=26-32 years)	1.95 (1.44-2.65)***	1.92 (1.33-2.76)***	1.91 (1.32-2.76)**
Step 2: + self-regulation variables[2]			
Causes			
Intra-psychic causes		1.95 (1.48-2.58)***	2.94 (1.92-4.50)***
Social causes		1.06 (0.85-1.32)	0.98 (0.78-1.22)
Interpersonal causes		0.82 (0.65-1.02)	0.84 (0.67-1.05)
Somatic causes		0.96 (0.79-1.17)	0.98 (0.80-1.19)
Biographical causes		1.20 (0.98-1.47)	1.22 (1.00-1.49)
Consequences		1.81 (1.40-2.33)***	1.84 (1.43-2.38)***
Timeline			
Acute/Chronic timeline		0.87 (0.69-1.11)	0.88 (0.69-1.12)
Cyclic timeline		0.85 (0.70-1.03)	0.85 (0.70-1.03)
Controllability			
Treatment control		1.97 (1.60-2.41)***	1.88 (1.53-2.31)***
Personal control		0.76 (0.62-0.93)**	0.52 (0.36-0.74)***
Step 3: + Interaction effects			
Personal control * gender			1.71 (1.13-2.60)*
Intra-psychic causes * ASR Total Problem score			0.52 (0.32-0.84)**
Nagelkerke R^2	0.06	0.39	0.40

OR indicates odds ratio, CI indicates confidence interval;
*p<0.05, **p<0.01, ***p<0.001;
[1] Background variables are dichotomized variables;
[2] Self-regulation variables are standardized continuous variables.

in the univariate analysis. A backward selection procedure was used to develop the final model, in which two interactions remained significant. First, the interaction between personal control and sex remained significant: higher levels on the personal control scale were associated with a decreased likelihood of service use in men and were unrelated to service use in women (Table 4.4). Second, the interaction between intra-psychic causes and the ASR Total Problem score remained significant; higher levels on the intra-psychic causes scale were positively associated with mental health service use in young adults with and without a deviant ASR Total Problem score, but the association was stronger in those without (Table 4.4).

Discussion

This study demonstrated that beliefs that young adults with mental health problems had about their problems were strongly associated with their use of mental health services. Our hypotheses that perceptions of an internal cause, negative consequences, a chronic timeline, low personal control, and high treatment control were associated with mental health service use were largely confirmed: higher levels on the treatment control scale, the consequences scale, and the intra-psychic causes scale were independently associated with an increased likelihood of mental health service use, while higher levels on the personal control scale were associated with a decreased likelihood.

Generally, holding beliefs closer to the scientific knowledge of mental health problems was associated with an increased likelihood of mental health service use. First, we found that the belief in adverse consequences was associated with an increased likelihood of mental health service use. Indeed, it has been shown that mental health problems in young adults have adverse consequences, such as limitations in educational ability, work, and social interaction (Wittchen et al., 1998). Second, belief in treatment control (i.e., believing that mental health treatment could help) was associated with an increased likelihood of mental health service use. A belief in treatment control is in agreement with the evidence for effective treatments for various mental disorders in both adolescent and adult populations (Burns et al., 1999; Faraone et al., 2004; Malouff et al., 2007; Mitte, 2005). Conclusively, the findings suggest that young people are unlikely to seek professional help because they do not fully understand the consequences of their mental health problems or what can be done about their problems through treatment. In agreement with our findings, a study examining self-regulation factors in individuals with eating disorders found that belief in adverse consequences and treatment control strongly predicted their readiness to change (Stockford et al., 2007).

Furthermore, our findings indicated that young adult men consulted mental health services less often than women, but also that the correlates of help-seeking behaviour differed between genders. Belief in personal control was associated with a decreased likelihood of mental health service use for men, while there was no association for women. This gender difference in correlates of help-seeking behaviour may stem from the different social norms for men and women. The traditional male gender-role is characterized by attributes such as independency, control and invulnerability (Moller-Leimkuhler, 2002). Men are expected to manage their problems themselves, while for women the help-seeking role is socially acceptable (Moller-Leimkuhler, 2002). This may explain why young adult men who perceived their mental health problems as being under personal control were unlikely to seek

help; as long as they can manage their problems alone they will. In agreement with our findings, a qualitative study found that one of the major reasons why men do not seek help from their family physician for medical problems is a difficulty with giving up personal control (Tudiver and Talbot, 1999).

Our findings further suggest that young adults who believe that their mental health problems depend on their own behaviour are more likely to seek help. The belief that the mental health problems had intra-psychic causes (e.g., a lack of self-esteem, inner anxieties) was associated with an increased likelihood of mental health service use, while belief in other causes such as somatic or social causes were unrelated to service use. Previous studies about causal beliefs in relation to help-seeking behaviour are scarce. A qualitative study of depressed people in Uganda found that somatization of emotional problems led to delays in accessing mental health services (Okello and Neema, 2007). Furthermore, there are studies suggesting that causal beliefs affect prognosis and response to treatment (Addis and Jacobson, 1996; Henningsen et al., 2005). For example, a study among outpatients with a somatoform disorder and a comorbid mental disorder found that the patients who emphasized psychosocial causes had lower levels of depression at 6 months follow-up than the patients who emphasized organic causes (Henningsen et al., 2005). In a controlled trial of psychotherapy for depression, belief in relationship causes was associated with better outcome in behavioural therapy, whereas belief in existential causes was associated with better outcome in cognitive therapy (Addis and Jacobson, 1996). Conclusively, the evidence suggests that causal beliefs are clinically significant features that shape help-seeking behaviour, prognosis and response to treatment.

The study results should be considered in light of the following limitations. First, the cross-sectional nature of the study prevents causal interpretations. Beliefs about mental health problems may influence the use of mental health services, but it is also conceivable that mental health service use could influence beliefs about mental health treatment. Second, non-respondents to this survey were more often male, younger and non-Dutch. We therefore may have overestimated the use of mental health services in these groups, since studies using health insurance records have shown that non-responders to health surveys are lower users of health services than responders (Etter and Perneger, 1997). Third, the psychopathological and service use time frames were 6 and 12 months respectively; our adjustment for psychopathology is therefore not complete.

Implications

Although the present study cannot establish whether beliefs are causally related to help-seeking behaviours, prior research suggests that intervening in beliefs about

mental health problems has a positive impact on help-seeking behaviours. For example, an Australian mental health awareness campaign achieved an increase in positive beliefs about the benefits of treatment and in help-seeking behaviours (Wright et al., 2006). Thus, changing beliefs about mental health problems may affect change in young adults' help-seeking behaviour. Our findings suggest that mental health service use could be encouraged by educating young adults about the effective mental health treatments that are available. Addressing the consequences of mental health problems may also lead to an increase in appropriate concern about mental health problems and in help-seeking behaviour.

5

Underutilization of specialty mental health services by non-Western immigrants in the Netherlands

Kathleen Vanheusden, Frank J. van Lenthe, Jan van der Ende, Cornelis L. Mulder, Johan P. Mackenbach, Frank C. Verhulst

In revision, Ethnicity and Health

Abstract

Objective

The present study examined (1) whether disparities exist in the use of mental health services by Western immigrants and non-Western immigrants compared with Dutch natives and (2) whether ethnic disparities in the use of mental health services can be accounted for by disparities in causal attributions of mental health problems (intra-psychic, biographical, social, interpersonal, or somatic causes) and beliefs concerning the controllability of mental health problems (treatment control and personal control).

Design

Data were analyzed from a cross-sectional population-based survey among 2258 young adults from south-west Netherlands (response rate 71%). Data on socio-demographics, psychiatric morbidity, primary, and specialty mental health service use, and beliefs about the causes and controllability of mental health problems were analyzed for each ethnic group. Logistic regression analyses were conducted to examine associations between ethnicity and past-year mental health service use, adjusting for relevant covariates.

Results

When taking into account levels of psychiatric morbidity, non-Western immigrants were just as likely to have used only primary mental health services, but less likely to have used specialty mental health services when compared to Dutch natives (OR = 0.53, 95%CI = 0.33-0.83). The lower use of specialty mental health services among non-Western immigrants could be attributed to their lower levels of intra-psychic causal attributions and their less positive beliefs about mental health treatment. Western immigrants, however, did not differ from Dutch natives in service use.

Conclusions

Even in a socialized health care setting with minimal economic barriers-to-care, non-Western immigrants were found to be low users of specialty mental health services. The present study demonstrates that the underutilization of specialty care among non-Western immigrants is associated with external causal attributions and pessimistic beliefs about mental health treatment. Challenging these beliefs in health educational campaigns may augment treatment accessibility for migrants.

Introduction

Population-based studies in the US and Europe indicate that immigrant groups are less likely than non-immigrants to receive specialty mental health services (Alegría et al., 2002; Commander et al., 2004; Kirmayer et al., 2007). By not receiving treatment, immigrants with mental health problems may experience a greater disability burden from mental illness than non-immigrants. For example, a population-based study among Whites, African Americans, and Caribbean blacks showed that major depressive disorder was more often left untreated, was more chronic, and was more disabling among both black groups than among Whites (Williams et al., 2007). To eliminate mental health disparities, it is important to examine the reasons why immigrants are low users of specialty mental health services.

Several factors have been proposed to explain the low utilization of specialty mental health services by immigrants, including economic, access, and cultural barriers (Wallen, 1992). Because immigrants disproportionately suffer from economic disadvantages, they are more likely to consider out-of-pocket health care costs a barrier to seeking care (Alegría et al., 2002; Miranda et al., 2002). Furthermore, immigrants' access to mental health services may be limited. For example, they may have jobs which offer little flexibility to consult health professionals during normal working hours (Wallen, 1992). Also, individuals in migrant communities may lack knowledge concerning the availability of services (Wells et al., 1989). Furthermore, immigrants may face cultural barriers. For example, they may have different beliefs about what strategies are appropriate in dealing with mental health problems (Wallen, 1992).

This study examined barriers-to-care among young adult immigrants in the Netherlands. Health care in the Netherlands involves little cost for patients; economic barriers-to-care are minimal. Hence, this study setting allows us to focus on other barriers. This study will focus on cultural barriers such as differential beliefs about the causes and controllability of mental health problems. Because immigrants from non-Western countries tend to attribute their mental health problems to external causes such as job conflicts rather than to internal causes such as low self-esteem (Knipscheer, 2001), they may be less likely to seek professional help for their problems. Furthermore, cultural barriers may exist in terms of the strategies that migrants consider appropriate to deal with mental health problems. Because non-Western immigrants hold less positive views about mental health treatment (Furnham et al., 2000; Karasz, 2005), they may be less likely to seek professional help. Further, non-Western immigrants may be less likely to seek professional help because they more often use self-reliance as a coping mechanism (Chapman and Mullis, 2000). Thus, ethnic differences may exist in beliefs concerning the causes of

mental health problems, the helpfulness of treatment (i.e., treatment control), and the helpfulness of self-reliance (i.e., personal control), and these differences may act as cultural barriers-to-care.

The aims of the present study were two-fold. First, we examined whether there were disparities in the use of mental health services (distinguishing primary and specialty mental health services) between Western immigrants and non-Western immigrants compared with Dutch natives, while taking into account ethnic differences in psychiatric morbidity. Second, we examined whether ethnic disparities in the use of mental health services could be accounted for by disparities in beliefs concerning the cause and controllability of mental health problems. Our hypothesis was that non-Western immigrants were less likely than Dutch natives to have used specialty mental health services. Further, we expected that external causal attributions, pessimistic beliefs about treatment control, and optimistic beliefs about personal control could account for the low use of specialty mental health services among non-Western immigrants. Western immigrants, however, were hypothesized not to differ from Dutch natives in the use of mental health services.

Method

Sample

This study was a cross-sectional population-based survey conducted from September 2004 to October 2005. The Medical Ethics Committee of the Erasmus MC approved the design and conduct of the study. Thirty-five municipalities were randomly selected from the Dutch province of Zuid-Holland. Zuid-Holland is comprised of 92 municipalities in both rural and urban areas and contains 21.2% of the Dutch population (Statistics Netherlands, 2004). A random sample of 19-30 year-olds was selected from each municipality, and the total sample included 3338 young adults.

A postal survey was sent to all 3338 young adults in September 2004. After nine weeks, the potential participants were reminded either by phone or a home visit to fill in the questionnaire. A total of 165 persons were excluded from the sample because of intellectual or physical disability, a language barrier, moving away from the province, or death. Of the 3173 eligible young adults, 2258 (71.2%) participated. Due to the duration of the data collection, the age range of the participants expanded from 19-30 years to 19-32 years. Non-respondents were more likely to be male, non-Western immigrants and younger than those who did respond (data not shown). A large majority of participants (n = 2077) filled in the questionnaire by themselves, while 181 participants completed the questionnaire in the presence of

someone from our data-collection team, generally because the participant needed help in completing the questionnaire. These 181 participants were disproportionably male and from non-Dutch origin, but they did not differ from the other participants in age, psychopathology or mental health service use (data not shown).

The total sample (n = 2258) was used to examine associations between ethnicity and mental health service use (n = 2236 in the analysis, due to 22 missing values on service use). To examine whether ethnic disparities in mental health service use were associated with disparities in beliefs about the cause and controllability of mental health problems, additional analyses were conducted among 830 participants who perceived that they had mental health problems in the past year, as determined by participants' responses to the question "Did you have mental health problems during the past year?" One of three responses could be provided: 1="not at all", 2="a little bit or sometimes", 3="clearly or often". Responses 2 and 3 were used to include young adults with self-perceived mental health problems. The proportion with self-perceived mental health problems did not differ across ethnic groups. Furthermore, among the 1419 participants without self-perceived mental health problems, the use of mental health services was low prevalent (53 out of 1419; 3.8%) and not selective in terms of ethnicity.

Measures

Mental health service use The Dutch health care setting is set up so that both somatic and mental health problems are treated in primary care, with the GP acting as a gate keeper for referral to specialty mental health services.

The use of mental health services was assessed with the following question: "Have you consulted one of the following persons, sources or agencies for mental health problems or substance use problems in the past 12 months?" Sources of primary care that could be endorsed were a general practitioner, a company physician, or general social work. Sources of specialty care that could be endorsed were a community mental health care institute, a psychiatrist, psychologist, or psychotherapist in private practice, therapy via the internet, ambulatory addiction care, residential addiction care, a psychiatric day care institute, a psychiatric residential care institute, or sheltered accommodation.

Ethnicity Participants were considered to be migrants if they had been born abroad or when at least one parent had been born abroad (Statistics Netherlands, 2004). Non-Western migrants originate from Turkey, Africa, Latin-America, Asia, or the Antilleans. Migrants from other countries were classified as Western migrants.

Psychopathology We used the Adult Self-Report (ASR) to measure internalizing and externalizing problems in the past 6 months. Good reliability and validity have

Table 5.1: Sample characteristics across ethnic groups.

	Dutch natives (N = 1632)	Western immigrants (N = 140)	non-Western immigrants (N = 464)	χ^2 -test Western vs. Dutch	χ^2 -test non-Western vs. Dutch
	N (%)	N (%)	N (%)	*p*-value[1]	*p*-value[1]
Sex					
Male	760 (46.6%)	65 (46.4%)	210 (45.3%)	0.89	0.47
Female	872 (53.4%)	75 (53.6%)	254 (54.7%)		
Age					
19-25 years	825 (50.6%)	68 (48.6%)	264 (56.9%)	0.70	0.01
25-32 years	807 (49.4%)	72 (51.4%)	200 (43.1%)		
Educational level					
Low	852 (52.4%)	58 (41.4%)	301 (65.3%)	0.01	0.00
High	773 (47.6%)	82 (58.6%)	160 (34.7%)		
Mental health services					
No use	1404 (86.0%)	113 (80.7%)	388 (83.6%)	0.23	0.02
Used only primary care	102 (6.3%)	12 (8.6%)	46 (9.9%)		
Used specialty care	126 (7.7%)	15 (10.7%)	30 (6.5%)		

[1] χ^2-tests were conducted to examine associations between ethnicity and sample characteristics.

been reported for the ASR (Achenbach and Rescorla, 2003). The ASR Internalizing broadband scale comprises the syndrome scales Anxious/Depressed, Withdrawn, and Somatic Complaints; the ASR Externalizing broadband scale comprises the syndrome scales Aggressive Behaviour, Rule-Breaking Behaviour, and Intrusive. The Internalizing and Externalizing Problems scores were used for the analyses.

Socio-demographic characteristics Participants' sex, age, and educational levels were registered. Educational level was classified as lower (primary education only, lower or intermediate vocational school, or lower secondary school) or higher (intermediate or higher secondary school, higher vocational school, or university). Participants who were following a course of education at the time of the survey were classified according to this level of education, even though they had not yet obtained any qualifications. Table 5.1 shows that non-Western immigrants were younger and lower educated than Dutch natives, while Western immigrants were higher educated than Dutch natives.

Beliefs about the cause and controllability of mental health problems Beliefs about the cause of mental health problems were investigated with a self-report questionnaire that measures causal attributions (Faller, 1997). The questionnaire begins with the open-ended phrase "My mental health problems stem from…", followed by a list of 23 possible causes of mental health problems that have to be rated on a 5-point scale ranging from 1="strongly disagree" to 5="strongly agree". The 23 items can be grouped in 5 scales that represent intra-psychic causes (e.g., "low self-esteem", "inner anxieties"), biographical causes (e.g., "difficult childhood", "difficult relationship with parents"), interpersonal causes (e.g., "problems in partnership or

family", "not being understood by others"), social causes (e.g., "difficulties at work or school", "financial problems") and somatic causes (e.g., "hormonal problems", "physical illness"). Good validity and reliability have been demonstrated for this questionnaire (Faller, 1997).

Beliefs about treatment control and personal control were assessed with the revised Illness Perception Questionnaire (IPQ-R; Moss-Morris et al., 2002). Researchers may replace the word *illness* by a specific condition; we filled in *mental health problems*. The treatment control scale assesses agreement to statements about the potential benefits of treatment, such as "mental health treatment will be effective in curing my mental health problems", "the negative effects of my mental health problems can be prevented by mental health treatment". The personal control scale assesses agreement with statements such as "the course of my mental health problems depends on me", "I have the power to influence my mental health problems". Agreement with the IPQ-R statements was assessed on a 5-point scale ranging from 1= "strongly disagree" to 5= "strongly agree". Good validity and reliability have been demonstrated for the Illness Perception Questionnaire for a range of physical illnesses (Moss-Morris et al., 2002) and mental disorders (Fortune et al., 2004; Lobban et al., 2005).

Dutch translations were available for all the questionnaires used in this study (the Adult Self-Report, the questionnaire concerning causal attributions, and the Illness Perception Questionnaire-Revised).

Data analysis

Levels of internalizing and externalizing problems were compared among the three ethnic groups (Dutch natives, Western immigrants, and non-Western immigrants) with ANOVA, including sex, age, and educational level as confounders. Next, associations between ethnicity and care utilization were examined with two logistic regression analyses. Associations were examined between ethnicity and (1) the use of only primary mental health services and (2) the use of specialty mental health services (with or without primary care). These two analyses included sex, age, and educational level as confounders. Further, these two logistic regression analyses were repeated with an additional adjustment for the Internalizing and Externalizing Problem scores, in order to determine whether ethnic differences in service use were in accordance with differences in psychiatric morbidity.

Furthermore, among the subset of 830 participants who stated that they had mental health problems in the past year, we examined ethnic differences in mean scores on the intra-psychic, biographical, interpersonal, social, and somatic causes scales, and the treatment control and personal control scales with ANCOVA. Sex, age, educational level, and Internalizing and Externalizing Problem scores were in-

cluded as covariates. Next, we examined whether beliefs about the cause and controllability of mental health problems contributed to the presumed underutilization of specialty mental health services among non-Western immigrants. A logistic regression analysis was conducted to examine the association between ethnicity (independent variable) and the use of specialty mental health services (dependent variable), using two blocks. In the first block, ethnicity, other socio-demographics (sex, age, and educational level), and the Internalizing and Externalizing Problem scores were entered into the regression model. In the second block, the intra-psychic, biographical, interpersonal, social, and somatic causes scale scores, and the treatment control and personal control scale scores were added to the regression model.

To facilitate interpretation of the study results, the continuous Internalizing and Externalizing Problem scores and the continuous cause and controllability scales were standardized into z-scores (mean = 0, standard deviation = 1).

Results

Psychopathology

Adjusting for sex, age, and educational level, there were ethnic differences in the mean levels of internalizing problems ($F = 26.17_{(df = 2, 2227)}$, $p<0.001$) and externalizing problems ($F = 9.01_{(df = 2, 2227)}$, $p<0.001$). Pair-wise comparisons showed that mean levels of internalizing problems were higher both in Western (mean z-score = 0.07, sd = 1.03) and non-Western immigrants (mean z-score = 0.30, sd = 1.15) compared with Dutch natives (mean z-score=-0.09, sd = 0.93). Similarly, mean levels of externalizing problems were higher both in Western (mean z-score = 0.09, sd = 1.13) and non-Western immigrants (mean z-score = 0.18, sd = 1.13) compared with Dutch natives (mean z-score = -0.06, sd = 0.94).

Ethnic disparities in mental health service use

Use of only primary mental health services Among Western immigrants 8.6% had consulted only primary mental health services, which does not differ significantly from the rate of 6.3% among Dutch natives, regardless of adjustment for psychopathology (Table 5.2). In the unadjusted analysis, non-Western immigrants (OR = 1.61, 95%CI = 1.11-2.34) were more likely than Dutch natives to have used only primary mental health services (with a rate of 9.9%). However, after adjustment for psychopathology, non-Western immigrants no longer differed from Dutch natives in the use of only primary mental health services (Table 5.2).

Table 5.2: Associations between ethnicity (independent variable) and two dependent variables: (1) the use of only primary mental health services, (2) the use of specialty mental health services. With and without adjustment for psychopathology.

	Used only primary mental health services versus no such use (160 versus 2076)		
	n (%)	OR (95%CI)	OR (95%CI) adjusted for psychopathology[1]
Ethnicity			
Dutch natives (n = 1632)	102 (6.3%)	1.00	1.00
Western immigrants (n = 140)	12 (8.6%)	1.47 (0.78-2.77)	1.31 (0.69-2.50)
Non-Western immigrants (n = 464)	46 (9.9%)	1.61 (1.11-2.34)[a]	1.29 (0.88-1.90)
	Used specialty mental health services versus no such use (171 versus 2065)		
	n (%)	OR (95%CI)	OR (95%CI) adjusted for psychopathology[1]
Ethnicity			
Dutch natives (n = 1632)	126 (7.7%)	1.00	1.00
Western immigrants (n = 140)	15 (10.7%)	1.47 (0.83-2.60)	1.22 (0.66-2.25)
Non-Western immigrants (n = 464)	30 (6.5%)	0.83 (0.55-1.26)	0.53 (0.33-0.83)[b]

OR indicates odds ratio, CI indicates confidence interval;
[a] $p<0.05$, [b] $p<0.01$;
All odds ratios were adjusted for sex, age and educational level;
[1] Adjusted for Internalizing and Externalizing Problem scores.

Use of specialty mental health services Among Western immigrants, 10.7% had consulted specialty mental health services (with or without primary services), which is not significantly different from the rate of 7.7% among Dutch natives, regardless of adjustment for psychopathology (Table 5.2). In the unadjusted analysis non-Western immigrants (with a specialty care rate of 6.5%) did not significantly differ from Dutch natives in the use of specialty mental health services. However, when taking into account levels of psychopathology, non-Western immigrants were less likely than Dutch natives to have used these services (OR = 0.53, 95%CI = 0.33-0.83).

Ethnic disparities in beliefs about cause and controllability

Among participants who stated that they had mental health problems in the past year (n = 830), non-Western immigrants had lower mean levels on the treatment control and personal control scales compared with Dutch natives. Both Western and non-Western immigrants had higher mean levels than Dutch natives on the biographical causes scale, while they had lower levels on the intra-psychic causes scale. Furthermore, non-Western immigrants had higher mean levels than Dutch natives on the social causes scale (Table 5.3).

Next, we examined the contribution of beliefs about the cause and controllability of mental health problems to the underutilization of specialty mental health services by non-Western immigrants. Since no ethnic variation was found in the

Table 5.3: Ethnic disparities in beliefs about the cause and controllability of mental health problems among young adults with self-perceived mental health problems in the past year (N = 830). Results of ANOVA.

	Dutch natives (N = 587)	**Western immigrants (N = 59)**	**non-Western immigrants (N = 184)**
	Estimated mean z-score[#]	Estimated mean z-score[#]	Estimated mean z-score[#]
Intra-psychic causes	0.05	-0.19[a]	-0.10[a]
Biographical causes	-0.08	0.23[a]	0.20[a]
Social causes	-0.07	0.09	0.16[a]
Interpersonal causes	-0.03	-0.03	0.09
Somatic causes	-0.05	0.08	0.10
Treatment control	0.04	0.07	-0.15[a]
Personal control	0.04	0.15	-0.16[a]

[#] Estimated means holding five covariates constant: age, sex, educational level, Internalizing, and Externalizing Problem scores;

[a] Pair-wise comparisons revealed that the indicated mean differs from the Dutch mean in the same row ($p<0.05$).

use of primary mental health services, this type of service use was not analyzed further. Among young adults with self-perceived mental health problems (n = 830), ethnic disparities in specialty mental health services were similar to those in the total population: after adjustment for psychopathology non-Western immigrants (OR = 0.58, 95%CI = 0.36-0.95) were less likely than Dutch natives to have used specialty mental health services, while Western immigrants did not differ from Dutch natives (Model 1, Table 5.4). After additional adjustment for beliefs about the cause and controllability of mental health problems, the odds ratio for non-Western immigrants (OR = 0.67, 95%CI = 0.37-1.21) was no longer significant (Model 2, Table 5.4). Higher levels on the intra-psychic causes scale, the biographical causes scale and the treatment control scale predicted an increased likelihood of specialty mental health service use (Model 2, Table 5.4). Given that non-Western immigrants had lower mean scores than Dutch natives on the intra-psychic causes scale and the treatment control scale (Table 5.3), the underutilization of specialty mental health services among non-Western immigrants can be attributed to the lower levels for these two scales. Indeed, additional analyses revealed that the reduction of the odds ratio for non-Western immigrants is the result of adjustment for the levels on the intra-psychic causes- and treatment control scales (results not shown).

Furthermore, with a backward selection procedure we tested whether we could improve the regression model (Model 2, Table 5.4) by including interactions between ethnicity and the cause and controllability scales in relation to specialty mental health service use, but none was found.

Table 5.4: Associations between ethnicity (independent variable) and the use of specialty mental health services. With (Model 2) and without (Model 1) adjustment for beliefs about the cause and controllability of mental health problems. Analysis among young adults with self-perceived mental health problems in the past year (N = 830).

	Specialty mental health service use versus no such use (155 versus 665)	
	Model 1 OR (95% CI)[1]	Model 2 OR (95% CI)[2]
Ethnicity		
Dutch natives	1.00	1.00
Western immigrants	1.16 (0.59-2.29)	1.53 (0.69-3.39)
Non-Western immigrants	0.58 (0.36-0.95)[a]	0.67 (0.37-1.21)
Psychopathology		
Internalizing Problems	1.60 (1.28-2.00)[c]	0.73 (0.51-1.03)
Externalizing Problems	1.04 (0.83-1.31)	1.01 (0.76-1.36)
Beliefs		
Intra-psychic causes		2.57 (1.88-3.51)[c]
Biographical causes		1.33 (1.07-1.66)[a]
Social causes		1.05 (0.79-1.38)
Interpersonal causes		1.06 (0.82-1.38)
Somatic causes		0.87 (0.69-1.11)
Treatment control		3.03 (2.33-3.93)[c]
Personal control		0.83 (0.64-1.07)

OR indicates odds ratio, CI indicates confidence interval;
[a] $p<0.05$, [c] $p<0.001$;
[1] Odds ratio is adjusted for age, sex, educational level, internalizing, and externalizing problems;
[2] Odds ratio is adjusted for age, sex, educational level, internalizing and externalizing problems, and beliefs about cause and controllability.

Discussion

Main findings

This population-based study examined ethnic disparities in the use of mental health services among young adults in the Netherlands. As hypothesized, non-Western immigrants were less likely than Dutch natives to have used specialty mental health services when taking their greater psychiatric morbidity into account. As hypothesized, we demonstrated that the underutilization of specialty care in non-Western immigrants is associated with external attributions of their mental health problems (i.e., they perceive fewer intra-psychic causes) and pessimistic beliefs about treatment. Unlike hypothesized however, the underutilization of specialty care in non-Western immigrants is not associated with a greater belief in personal control. In fact, non-Western immigrants held less optimistic beliefs about personal control than Dutch natives.

Limitations and strengths

A limitation is that the contrast between Western and non-Western migrants is very crude. Due to the limited sample size, we did not differentiate the groups further. However, an additional analysis that differentiated between first- and second-generation migrants revealed that first-generation non-Western migrants had the greatest underutilization of specialty mental health care (results not shown). This suggests that factors pertaining to acculturation, such as greater knowledge of mental health services and the incorporation of values of the host culture, contribute to the differential rates of mental health service use. Furthermore, because the present study is cross-sectional, establishing the causal pathways of ethnic disparities in the use of specialty mental health services is difficult. The more favourable beliefs about mental health treatment that we found among Dutch natives may be causally related to their higher use of specialty mental health services, but the other way around - with service use resulting in more favourable beliefs - is also conceivable. Moreover, the psychopathological and mental health service use time frames were not compatible; psychopathology pertained to the past 6 months, while mental health service use pertained to the past 12 months. This disparity may have resulted in an insufficient adjustment for psychiatric morbidity. Since mental health problems can be more chronic in non-Western immigrants than in non-immigrants (Williams et al., 2007), insufficient adjustment for psychiatric morbidity could result in overestimation of non-Western immigrants' use of specialty mental health services. Furthermore, non-respondents in our survey were more often from non-Western origin. A study of health insurance agency records indicated that non-responders to health surveys are lower users of health services in comparison to responders (Etter and Perneger, 1997). Hence, we may have overestimated the use of mental health services among non-Western immigrants.

A strength is that our study is a population-based study rather than a study of contact rates with mental health services. Indeed, our population-based study showed that the underutilization of specialty mental health services among non-Western immigrants could be identified only when taking into account differences in psychiatric morbidity. Another strength is that this study was conducted among a target group for mental health care, as the prevalence of mental disorders is greater among young adults than among the general population (Andrews et al., 2001a; Bijl et al., 1998; Kessler et al., 1994). Furthermore, our sample size was large and a high response rate was achieved. Moreover, this study is one of the few studies that examined ethnic differences in beliefs about the cause and controllability of mental health problems.

Interpretation of the findings

As hypothesized, non-Western immigrants were less likely than Dutch natives to have used specialty mental health services when psychiatric problems were taken into account. These findings are consistent with those of previous studies showing that non-Western immigrants in the Netherlands are underrepresented in specialty mental health care (Dekker et al., 1996; Dieperink et al., 2002; Uniken-Venema and Wierdsma, 1993). Similarly, a Canadian study showed that immigrant status is associated with lower rates of mental health service use, even though Canada has a universal health insurance system (Kirmayer et al., 2007). Thus, immigrants appear to be low users of specialty mental health services, even in the context of health care systems with few economic barriers-to-care.

In agreement with our hypothesis, we demonstrated that the underutilization of specialty care in non-Western immigrants is associated with external causal explanations for mental distress. Non-Western immigrants were found to attribute their mental health problems to external causes rather than internal causes, in agreement with previous studies (Bhui et al., 2006; Knipscheer, 2001; Sheikh and Furnham, 2000). Our study adds that the belief that mental health problems are not caused by intra-psychic aspects (e.g., low self-esteem) may contribute to the underutilization of specialty mental health services among non-Western immigrants.

As hypothesized, we demonstrated that the underutilization of specialty care in non-Western immigrants is associated with pessimistic beliefs about mental health treatment. Our finding that non-Western immigrants were less positive than Dutch natives about the potential helpfulness of treatment is in agreement with previous studies comparing Western and non-Western groups (Furnham et al., 2000; Karasz, 2005). The pessimistic beliefs about treatment in non-Western minority groups may stem from a perception of discriminatory treatment by mental health services, including the experience or expectation of misdiagnosis, misinterpretation, and over-prescription of psychofarmaca (Campling, 1989; McLean et al., 2003).

Unlike hypothesized, the underutilization of specialty care in non-Western immigrants was not associated with a greater belief in personal control. In fact, non-Western immigrants held less optimistic beliefs about personal control, which contrasts with the results of a previous study which found that adolescent non-Western minority groups more often use a coping mechanism of self-reliance (Chapman and Mullis, 2000). Conclusively, our findings indicate that young non-Western immigrants in the Netherlands are generally pessimistic about the controllability of their mental health problems, whether through personal resources or treatment. This underlines that young non-Western immigrants are a population in need of help.

The differential causal beliefs of non-Western migrants may explain why they are pessimistic about the controllability of their problems. The greater endorse-

ment of biographical and social causes among non-Western migrants could reflect a greater prevalence of stressful or adverse social circumstances. This may explain why non-Western immigrants believe that mental health treatment, which indeed mostly focuses on intra-psychic aspects, would not be useful. Further, the presence of adverse social circumstances may explain why non-Western immigrants perceive to have little personal control.

Beliefs concerning the cause and controllability of mental health problems only partly accounted for the underutilization of specialty mental health services among non-Western immigrants. Other factors that may contribute to the underutilization include social factors, such as fear of stigmatization within the close-knit migrant community (Knipscheer, 2001) and a lower tolerance for discussing problems with someone outside the family network (Gemignani et al, 2001). Furthermore, non-Western immigrants may be hampered by greater structural barriers-to-care. For example, prejudice and a lack of cultural sensitivity on the part of the general practitioner may contribute to the differential referral rates. In addition, out-of-pocket costs of mental health care may be considered a barrier among non-Western immigrants because of their greater social disadvantage.

Implications for research and policy

The present study highlights the need for action to augment the access of non-Western immigrants to specialty mental health services. Prospective studies are needed to determine the causal pathways for the ethnic disparities in the use of specialty mental health services. Challenging pessimistic beliefs about mental health treatment through health educational campaigns could augment treatment accessibility for non-Western immigrants. Furthermore, mental health services that meet the needs of non-Western immigrants have to focus more on biographical factors (e.g., a difficult childhood, sexual abuse) and social factors (e.g., problems at work or school, financial problems), since these factors may contribute to the poor mental health of non-Western immigrants. It may also prove valuable to train general practitioners in recognizing common mental disorders among ethnic minority populations. For example, it has been shown that a one-day training course can significantly enhance GP-detection of psychological distress and suicidal ideation in young patients (Pfaff et al., 2001). Such interventions could be tailored to ethnic minority populations, by addressing the beliefs about the cause and controllability of mental health problems that may keep non-Western immigrants from seeking treatment.

6

Associations between ethnicity and self-reported hallucinations in a population sample of young adults in the Netherlands

Kathleen Vanheusden, Cornelis L. Mulder, Jan van der Ende, Jean-Paul Selten, Frank J. van Lenthe, Frank C. Verhulst, Johan P. Mackenbach

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Abstract

Background

Psychotic disorders are more common in people from ethnic minorities. If psychosis exists as a continuous phenotype, ethnic disparities in psychotic disorder will be accompanied by similar ethnic disparities in the rate of psychotic symptoms. This study examined ethnic disparities in self-reported hallucinations in a population sample of young adults.

Method

Cross-sectional population survey (n = 2258) in the south-west Netherlands. Seven ethnic groups were delineated: Dutch natives, Turks, Moroccans, Surinamese/Antilleans, Indonesians, other non-Western immigrants (mostly from Africa or Asia) and Western immigrants (mostly from Western-Europe). Self-reported auditory and visual hallucinations were assessed with the Adult Self-Report. Indicators of social adversity included social difficulties and a significant drop in financial resources.

Results

Turkish females (OR = 13.48, 95%CI = 5.97-30.42), Moroccan males (OR = 8.36, 95%CI = 3.29-21.22), Surinamese/Antilleans (OR = 2.19, 95%CI = 1.05-4.58), Indonesians (OR = 4.15, 95%CI = 1.69-10.19) and other non-Western immigrants (OR = 3.57, 95%CI = 1.62-7.85) were more likely to report hallucinations than their Dutch counterparts. When adjusting for social adversity, the odds ratios for self-reported hallucinations among the non-Western immigrant groups showed considerable reductions of 28% to 52%.

Conclusions

In a general population sample, several non-Western immigrant groups reported hallucinations more often than Dutch natives, which is consistent with the higher incidence of psychotic disorders in most of these groups. The associations between ethnicity and hallucinations diminished after taking into account social adversity, which supports the view that adverse social experiences contribute to the higher rate of psychosis among migrants.

Introduction

In Europe, psychotic disorders are more common in people from ethnic minorities. In the UK, many immigrant groups, especially those of African Caribbean origin, have higher incidence rates of psychotic disorders than the native population (Bhugra et al., 1997; Fearon et al., 2006; King et al., 1994). Likewise, in the Netherlands, psychotic disorders are more common among non-Western immigrant groups, including Moroccans, Surinamese, Antilleans and immigrants from other non-Western countries (Selten et al., 2001). Furthermore, the incidence of psychotic disorders is slightly increased among Turkish immigrants (Veling et al., 2006). These incidence studies are all based on contact rates with health services rather than on population-based data, because of the low prevalence of psychotic disorders in the general population and because most people with psychotic disorders eventually make use of health services. However, contact rates primarily reflect how psychiatric symptoms are acted upon (e.g., the speed of help-seeking behaviour) rather than the actual prevalence of illness (Blane et al., 1996). Since non-Western immigrants in the Netherlands are underrepresented in mental health care (Dekker et al., 1996; Dieperink et al., 2002; Uniken-Venema and Wierdsma, 1993), studies based on contact rates may underestimate ethnic disparities in psychotic disorders.

Another strategy to examine ethnic gradients in psychosis is based on research suggesting that psychosis, although dichotomously defined for clinical purposes, in fact exists as a continuous phenotype (Johns and van Os, 2001). The available research indicates that psychotic-like symptoms can occur in normal people. For example, it has been shown that hallucinations causing no distress or impairment are more prevalent in the general population than those associated with distress or impairment (Tien, 1991). Nonetheless, longitudinal studies do suggest that individuals with psychotic-like symptoms are at an increased risk of developing a psychotic disorder (Chapman et al., 1994; Poulton et al., 2000).

If psychosis does exist as a continuous phenotype, it could be hypothesized that the associations between ethnicity and psychotic symptoms will match the associations between ethnicity and psychotic disorder. Interestingly, a UK study found a higher prevalence rate of psychotic symptoms among African-Caribbean people than among natives (King et al., 2005), but this two-fold increase was much smaller than that commonly reported for psychotic disorder (Fearon et al., 2006; Harrison et al., 1988). As yet, only a few studies examined ethnic disparities in psychotic symptoms (Johns et al., 2002; King et al., 2005).

In this study, ethnic disparities in self-reported auditory and visual hallucinations will be examined. This examination allows for an interesting comparison with ethnic disparities in psychotic disorders as reported in previous research (Selten et

al., 2001; Veling et al., 2006). We will also examine ethnic disparities in social adversity, which has been suggested as an explanation for the higher rate of psychotic disorder among migrants. Balanced reviews favour a primarily social rather than biological explanation on several grounds: (1) the rates of schizophrenia are increased in migrants from a wide range of countries of origin, (2) the rates of schizophrenia are not increased in the countries of origin and (3) selective migration of individuals predisposed to psychosis is rendered unlikely (Cantor-Graae, 2007; Fearon and Morgan, 2006; Selten et al., 2007). Thus, it could be hypothesized that social adversity contributes to associations between ethnicity and hallucinations, and that these associations will diminish after adjustment for social adversity. King et al. (2005) adjusted the ethnic disparities in psychotic symptoms for social factors (i.e., educational level and social class), but the disparities hardly diminished. In this study, social adversity was taken into account by including indicators from different domains of social adversity (e.g., self-perceived social difficulties, a significant drop in financial resources).

Method

Sample

This study was a cross-sectional population-based survey conducted from September 2004 to October 2005. The Medical Ethics Committee of the Erasmus MC approved the design and conduct of the study. Thirty-five municipalities were randomly selected from the Dutch province of Zuid-Holland. Zuid-Holland is comprised of 92 municipalities in both rural and urban areas and contains 21.2% of the Dutch population (Statistics Netherlands, 2004). A random sample of 19-30 year-olds was selected from each municipality, and the total sample included 3338 young adults.

A postal survey was sent to all 3338 young adults in September 2004. After nine weeks, the potential participants were reminded either by phone or a home visit to fill in the questionnaire. A total of 165 persons were excluded from the sample because of intellectual or physical disability, a language barrier, moving away from the province, or death. Of the 3173 eligible young adults, 2258 (71.2%) participated. Due to the duration of the data collection, the age range of the participants expanded from 19-30 years to 19-32 years. Non-respondents were more likely to be male, non-Western immigrants and younger than those who did respond. Non-response rates were 25.3% for Dutch natives, 31.6% for Western immigrants and 38.7% for non-Western immigrants (χ^2=51.12, df = 2, p<0.001). A large majority of participants (n = 2077) filled in the questionnaire by themselves, while 181

participants completed the questionnaire in the presence of someone from our data-collection team, generally because the participant needed help in completing the questionnaire.

Due to 15 missing values on self-reported hallucinations, we analyzed data from 2243 participants, including 1634 Dutch natives, 95 Turks, 67 Moroccans, 158 Surinamese/Antilleans, 60 Indonesians, 89 immigrants from other non-Western countries and 140 Western immigrants.

Measures

Hallucinations The Adult Self-Report (ASR) was used to measure self-reported auditory and visual hallucinations in the past 6 months (Achenbach and Rescorla, 2003). Auditory and visual hallucinations were assessed with the following two items: "I hear sounds or voices that other people think aren't there", and "I see things that other people think aren't there". The following three responses could be provided: 0="not true", 1="somewhat or sometimes true", 2="very true or often true". A dichotomous variable was constructed indicating the presence of at least one hallucination (score 1 or 2) versus the absence (score 0). A short description of the hallucinatory experience was requested; comments frequently accompanying the endorsement of visual hallucinations included "I see shadows", "I am spiritual", "I am paranormally gifted", and comments accompanying the endorsement of auditory hallucinations included "I hear deceased people", "I am paranormally gifted", "I hear a voice calling my name". In only a few cases did the comments indicate a misinterpretation of content, such as "I see opportunities that other people do not see". In these cases a 0-rating was made.

Internalizing and externalizing problems More generally, the ASR assesses internalizing and externalizing problems in the past 6 months. The ASR comprises 123 statements which can be scored with 0=not true, 1= somewhat or sometimes true, 2= very true or often true. The 123 items constitute eight empirically-based syndromes (Achenbach and Rescorla, 2003): Anxious/Depressed, Withdrawn, Somatic Complaints (together constituting the Internalizing group of syndromes), Rule-Breaking Behaviour, Aggressive Behaviour and Intrusive (together constituting the Externalizing group of syndromes), Thought Problems and Attention Problems (these two syndromes do not constitute a higher-order scale). An ASR Total Problem score was derived by adding the individual item scores. A dichotomized ASR Total Problem score was constructed to indicate the presence of serious internalizing and externalizing problems, using the 84th percentile as a cut-off point. Scores above the 84th percentile represent the deviant range and have been found to predict referral to mental health services (Achenbach and Rescorla, 2003). Self-reported hallucinations were examined in relation to the dichotomous ASR Total

Problem score to determine their clinical significance. The two ASR hallucination items were removed from the ASR Total Problem scale to avoid overlap.

Ethnicity Participants were considered to be migrants if they had been born abroad or when at least one parent had been born abroad (Statistics Netherlands, 2004). Six groups were delineated: immigrants from (1) Turkey, (2) Morocco, (3) Surinam/Antilles, (4) Indonesia, (5) other non-Western countries (mostly in Africa and Asia), and (6) Western countries (mostly in Western Europe).

Other variables Four indicators of social adversity were distinguished: (1) low educational level, (2) low social support (past 12 months), (3) great social difficulties (past 12 months), and (4) a significant drop in financial resources (past 12 months). An index was constructed ranging from 0 to 4 indicators of social adversity. These four indicators are rated dichotomously (present versus absent), and are further described below.

Participants were asked about their highest attained educational level. They could indicate one of the following: 1=no completed education, 2=primary education only, 3=lower vocational school, 4=lower secondary school, 5=intermediate vocational school, 6=intermediate or higher secondary school, 7=higher vocational school, or 8=university. These responses were dichotomized as lower (responses 1-5) and higher (responses 6-8). Participants who were following a course of education at the time of the survey were classified according to this level of education, even though they had not yet obtained any qualifications.

Social support and social difficulties pertaining to relationships with friends and family were measured with the Multidimensional Health Profile-Psychosocial functioning, for which good reliability and validity have been demonstrated (Ruehlman et al., 1999). Social support is a composite score of items pertaining to the perceived satisfaction with emotional, practical and informational support received during the past year. With regard to social difficulties, the items assessed to what extent the participant had experienced things such as hostility, rejection or being gossiped about in the past year. The composite scales of social support and of social difficulties were both dichotomized using the 75th percentile as a cut-off score. Furthermore, we asked the participant whether he or she had experienced a significant drop in financial resources in the past year.

If some of the social adversity indicators would be strongly interrelated, this could lead to inflated scores on the index of social adversity. However, correlations among the four indicators (i.e., low educational level, low social support, great social difficulties, and a significant drop in financial resources) were weak: the strongest association was 0.18 between high social difficulties and low social support.

Furthermore, we also examined whether cannabis use during the past 12 months (yes or no) contributed to ethnic disparities in self-reported hallucinations. Overlap between cannabis use and the index of social adversity was limited, with a correlation of 0.10.

Data analysis

First, rates of self-reported hallucinations were calculated for each ethnic group, by gender. Second, associations were examined between ethnicity and potential determinants of hallucinations with χ^2-tests and ANOVA. Third, associations between ethnicity (the independent variable) and self-reported hallucinations (the dependent variable) were examined using logistic regression analysis. Three regression models were fit. In the first regression model adjustments were made for sex and age only, and in the second and third models additional adjustments were made for cannabis use and the mean score on the social adversity index respectively. Fourth, using logistic regression analysis self-reported hallucinations were examined in relation to the dichotomous ASR Total Problem score, to determine their clinical significance. We tested for interaction between self-reported hallucinations and ethnicity in relation to the dichotomous ASR Total Problem score.

Results

Sample characteristics

Ethnicity was associated with self-reported hallucinations (χ^2=65.98, *df* = 6, p<0.001): hallucinations were reported by 2.7% of Dutch natives, 15.8% of Turks, 11.9% of Moroccans, 5.7% of Surinamese/Antilleans, 10.0% of Indonesians, 9.0% of other non-Western immigrants and 2.1% of Western immigrants. Table 6.1 shows that there is gender variation in self-reported hallucinations; Moroccan males were more likely to report hallucinations than Moroccan females, and Turkish females were more likely to report hallucinations than Turkish males.

All non-Western immigrants groups, except Indonesians, had higher rates of social adversity indicators (Table 6.2). Further, ethnicity was significantly associated with the mean score on the social adversity index ($F = 16.51_{(df = 6, 2247)}$, p<0.001), independent of sex and age. Pair-wise comparisons within ANOVA showed that the mean score on the social adversity index was significantly higher in Turks (mean = 1.84, SD = 1.02), Moroccans (mean = 1.82, SD = 1.07), Surinamese/Antilleans (mean = 1.58, SD = 1.10) and other non-Western immigrants (mean = 1.54, SD = 1.12) when compared to Dutch natives (mean = 1.16, SD = 0.96), whereas Indonesians (mean = 1.17, SD = 1.03) and Western immigrants (mean = 1.13, SD = 1.05) did not

Table 6.1: Self-reported hallucinations across ethnic groups, stratified by gender.

	Males	Females	Self-reported hallucinations in males	Self-reported hallucinations in females	Gender difference across ethnic groups
	n	n	n (%)	n (%)	p-value[1]
Dutch	762	872	23 (3.0%)	21 (2.4%)	0.45
Turkish	51	44	4 (7.8%)	11 (25.0%)	0.03
Moroccan	34	33	7 (20.6%)	1 (3.0%)	0.05
Surinamese/Antillean	65	93	6 (9.2%)	3 (3.2%)	0.16
Indonesian	24	36	1 (4.2%)	5 (13.9%)	0.39
Other non-Western	36	53	4 (11.1%)	4 (7.5%)	0.71
Western	65	75	2 (3.1%)	0 (0%)	0.21

[1] χ^2-test was conducted for Dutch and Turks; Fisher's Exact Test was conducted for all other ethnic groups because at least one expected cell count was smaller than 5.

Table 6.2: Potential determinants of self-reported hallucinations across ethnic groups.

	Cannabis use (=yes)	Lower educational level	Drop in financial resources	Low social Support	High social difficulties
	%	%	%	%	%
Dutch (N = 1634)	15.6%	52.7%	18.7%	24.1%	21.3%
Turkish (N = 95)	8.3%	78.1%	35.8%	39.8%	32.6%
Moroccan (N = 67)	13.4%	75.8%	39.4%	40.9%	28.8%
Surinamese/Antillean (N = 158)	15.1%	63.8%	35.4%	32.7%	27.2%
Indonesian (N = 60)	22.0%	53.3%	15.0%	15.0%	33.9%
Other non-Western (N = 89)	13.3%	55.7%	31.1%	34.8%	34.4%
Western (N = 140)	24.5%	41.8%	23.4%	22.1%	26.2%
χ^2(df = 6)	14.37*	50.43***	55.74***	31.99***	21.19**

*χ^2-test p<0.05; ** p<0.01; ***p<0.001.

differ from Dutch natives. Cannabis use also differed across the ethnic groups, with Western immigrants and Indonesians having higher rates, while Turks had lower rates in comparison to Dutch natives (Table 6.2).

Ethnic disparities in self-reported hallucinations

Logistic regression analysis indicated that ethnicity was associated with self-reported hallucinations independent of sex and age; highly increased odds ratios for self-reported hallucinations were found in Turks, Moroccans, Indonesians and other non-Western immigrants, and a moderately increased odds ratio was found in Surinamese/Antilleans. Western immigrants, however, did not differ significantly from Dutch natives in the likelihood of self-reported hallucinations (Table 6.3, Model 1). Adjustment for cannabis use (Table 6.3, Model 2) did not lead to reductions in the

Table 6.3: Associations between ethnicity (independent variable) and self-reported hallucinations (dependent variable), with and without adjustment for other variables.

	Self-reported hallucinations (92 out of 2243)		
	Model1	Model2	Model3
	OR (95%CI)[1]	OR (95%CI)[2]	OR (95%CI)[3]
Ethnicity			
Dutch	1.00	1.00	1.00
Turkish	6.68 (3.56-12.52)[c]	7.50 (3.96-14.19)[c]	5.18 (2.66-10.09)[c]
Moroccan	4.83 (2.18-10.73)[c]	5.09 (2.28-11.38)[c]	3.12 (1.34-7.31)[b]
Antillean/Surinamese	2.19 (1.05-4.58)[a]	2.21 (1.05-4.63)[a]	1.58 (0.74-3.40)
Indonesian	4.15 (1.69-10.19)[b]	3.87 (1.57-9.57)[b]	3.84 (1.52-9.72)[b]
Other non-Western	3.57 (1.62-7.85)[b]	3.70 (1.67-8.20)[b]	2.95 (1.31-6.64)[b]
Western	0.53 (0.13-2.22)	0.48 (0.12-2.02)	0.44 (0.10-1.89)
Other variables			
Cannabis use (yes)		2.48 (1.50-4.10)[c]	2.11 (1.25-3.55)[b]
Index of social adversity			
0 indicators			1.00
1 indicators			1.02 (0.46-2.24)
2 indicators			3.03 (1.47-6.25)[b]
3 indicators			3.15 (1.36-7.30)[b]
4 indicators			8.93 (3.42-23.32)[c]

OR indicates odds ratio, CI indicates confidence interval;
[a] $p<0.05$; [b] $p<0.01$; [c] $p<0.001$;
[1]odds ratio was adjusted for sex and age;
[2]odds ratio was adjusted for sex, age and cannabis use;
[3]odds ratio was adjusted for sex, age, cannabis use, and social adversity.

odds ratios for self-reported hallucinations among non-Western immigrants, while adjustment for social adversity did (Table 6.3, Model 3). The reduction in odds ratio can be computed as follows: $\left(\frac{\text{OR model}_x - \text{OR model}_y}{\text{OR model}_x - 1} \right) * 100$. After adjustment for social adversity, the odds ratios for self-reported hallucinations were reduced in Turks (by 35.7%), Moroccans (by 48.2%), Surinamese/Antilleans (by 52.1%) and other non-Western immigrants (by 27.8%), but not in Indonesians.

Gender variation in self-reported hallucinations

We performed an additional logistic regression analysis stratified by gender among Dutch natives and the groups presenting with gender variation in self-reported hallucinations, i.e., Turks and Moroccans. Logistic regression analysis among Turkish, Moroccan and Dutch males showed that Moroccan males were more likely to report hallucinations than Dutch males (OR = 8.36, 95%CI = 3.29-21.22), while Turkish males (OR = 2.74, 95%CI = 0.91-8.26) did not differ significantly from Dutch males. After adjustment for cannabis use the odds ratio for Moroccan males

(OR = 8.56, 95%CI = 3.34-21.94) hardly changed. However, after additional adjustment for the index of social adversity the odds ratio for Moroccan males (OR = 4.76, 95%CI = 1.67-13.54) showed a reduction of 50.3%.

Further, logistic regression analyses among Turkish, Moroccan and Dutch females revealed that Turkish females were more likely to report hallucinations than Dutch females (OR = 13.48, 95%CI = 5.97-30.42), while Moroccan females (OR = 1.15, 95%CI = 0.15-8.85) did not differ significantly from Dutch females. After adjustment for cannabis use the odds ratio for Turkish females (OR = 13.90, 95%CI = 6.12-31.59) hardly changed. After additional adjustment for the index of social adversity, however, the odds ratio for Turkish females (OR = 10.22, 95%CI = 4.27-24.43) showed a reduction of 28.5%.

Associations between self-reported hallucinations and psychopathology

Among young adults who reported hallucinations (n = 92), the majority (56.5%) had a deviant ASR Total Problem score, compared with only 14.7% of young adults who did not report hallucinations (n = 2151). When stratifying by ethnicity; among young adults who reported hallucinations, the percentage with a deviant ASR Total Problem score was 50.0% in Dutch natives, 60.0% in Turks, 50% in Moroccans, 55.6% in Antilleans/Surinamese, 83.3% in Indonesians, 75.0% in other non-Western immigrants, and 50% in Western immigrants, compared with much lower percentages in the groups who did not report hallucinations (13.0% in Dutch natives, 18.8% in Turks, 15.3% in Moroccans, 21.5% in Antilleans/Surinamese, 24.1% in Indonesians, 25.9% in other non-Western immigrants and 15.2% in Western immigrants). Indeed, a logistic regression analysis revealed that the presence of self-reported hallucinations was strongly associated with having a deviant ASR Total Problem score (OR = 6.70, 95%CI = 4.31-10.44), independent of sex and age. No interaction was found between self-reported hallucination and ethnicity in relation to having a deviant ASR Total Problem score (Wald = 0.84, $df = 6$, $p = 0.99$).

Discussion

Main findings

In a general population sample of young adults, all non-Western immigrant groups reported hallucinations more often than Dutch natives did, whereas Western immigrants were similar to Dutch natives. When taking social adversity into account, the odds ratios for self-reported hallucinations in most non-Western immigrant groups showed considerable reductions, of 28% to 52%.

Interpretation of findings

In our study among young adults, 4.3% reported auditory or visual hallucinations in the past 6 months, which is comparable to findings for the UK where 4% of the general population reported such experiences (Johns et al., 2002).

Western immigrants were just as likely to report hallucinations as the native Dutch. Similarly, previous studies indicated that the incidence of schizophrenia is not increased among Western immigrants (Selten et al., 2001; Veling et al., 2006). Further, we found that the likelihood of self-reported hallucinations was increased in all non-Western immigrant groups, i.e., in Turks, Moroccans, Indonesians, Antilleans/Surinamese, and other non-Western migrants. Veling et al. (2006) found higher incidence rates of schizophrenia in immigrants from Morocco, Surinam and other non-Western countries, but the incidence rate was only mildly increased for Turkish immigrants. Thus, the seven-fold increased likelihood of self-reported hallucinations for Turkish immigrants in our study is much higher than the increase reported for schizophrenia. It is possible that the incidence of schizophrenia in Turkish immigrants has been underestimated, since the incidence studies are based on contact rates with health services. Our population-based data provide support for this possibility: when controlling for sex, age, and ASR Total Problem score, Turkish immigrants had a lower likelihood of mental health service use than Dutch natives (results not shown). On the other hand, self-reported hallucinations are not the same as a diagnosed psychotic disorder, so ethnic disparities in psychotic disorder may not be accompanied by identical ethnic disparities in self-reported hallucinations.

We found an increased likelihood of self-reported hallucinations among Moroccan males and Turkish females, while the likelihood was not increased among Moroccan females and Turkish males. In accordance with our findings, the incidence of schizophrenia is increased in Moroccan men, but not in Moroccan women (Selten et al., 2001; Veling et al., 2006). Veling et al. (2006) did not have sufficient power to examine gender differences for Turks, although in accordance with our findings the absolute values of the incidence rate ratios were higher in Turkish females than in Turkish males.

This study demonstrates that the odds ratios for self-reported hallucinations among non-Western immigrants were reduced with 28%-52% when taking social adversity into account. The causal direction of the association between social adversity and self-reported hallucinations has to be interpreted with caution. It is likely that social adversity explains at least in part the increased likelihood of self-reported hallucinations among non-Western immigrants. First, a growing body of evidence suggests that social adversity is causally implicated in the development of psychotic disorders among migrants. It has been shown that migrants generally

experience greater social adversity than native people do (Fearon and Morgan, 2006). Further, factors pertaining to social adversity, such as being born in deprived areas (Castle et al., 1993; Harrison et al., 2001), childhood trauma (Morgan and Fisher, 2007), deafness (David et al., 1995), and low IQ (David et al., 1997) have been associated with an increased risk of developing a psychotic disorder, with possible mechanisms being increased exposure to life events and social exclusion (Selten and Cantor-Graae, 2005). Second, continuities have been found between self-reported hallucinations and psychotic disorders. For example, self-reported psychotic symptoms (including hallucinatory experiences) at age 11 years predicted a very high risk of a diagnosis of schizophreniform disorder at age 26 years (Poulton et al., 2000). Given the continuity between psychotic-like symptoms and psychotic disorders and the evidence for social adversity as a cause of the increased psychosis rate among migrants, we consider it likely that social adversity contributes at least in part to ethnic disparities in self-reported hallucinations.

Although ethnic disparities in self-reported hallucinations may reflect actual differences between certain ethnic groups, they could also reflect cultural differences. For example, among Moroccans, the belief in witchcraft and evil spirits is not uncommon (Van Gemert, 1998). Given that hallucinatory experiences are more positively valued in some non-Western cultures, they may be more frequently noticed and reported (Al-Issa, 1995). However, it is unlikely that self-reported hallucinations among non-Western immigrants reflect merely cultural expressions without any clinical significance, since our data indicate that self-reported hallucinations are of equal clinical significance among the different ethnic groups. Young adults who reported hallucinatory experiences were seven times more likely to have serious internalizing and externalizing problems than young adults who did not report such experiences; this association was equally strong for all ethnic groups in our study.

Our results should be considered within the context of the following limitations. First, hallucinations were assessed by self-report, which may not bear up to rigorous clinical assessment. Nevertheless, the phrasing of the ASR hallucination items does approximate the DSM-IV definition of hallucinations as 'sensory perceptions that have the compelling sense of reality of a true perception but that occurs without external stimulation of the relevant sensory organ' (American Psychiatric Association, 1994). Second, non-Western immigrants had a higher non-response rate than did Dutch natives. If people with psychotic symptoms were less willing to participate, this may have resulted in an underestimation of the prevalence rates of hallucinations for non-Western immigrants. Third, although our measure of social adversity included several indicators of adversity, we did not measure all relevant social factors. It is likely that other factors related to social adversity also contribute

to the ethnic disparities in self-reported hallucinations observed in this study. For example, perceived discrimination has been associated with an increased incidence of schizophrenia (Veling et al., 2007) and psychotic symptoms such as delusional ideation (Janssen et al., 2003). Further, childhood experiences, such as being born in deprived areas, may also be an important indicator of social adversity (Castle et al., 1993; Harrison et al., 2001).

In conclusion, the ethnic disparities in self-reported hallucinations demonstrated in the present study partly match the ethnic disparities in the incidence of schizophrenia and are explained for 28%-52% by social adversity. These findings are supportive of a continuum of psychotic experiences. Improving social conditions for non-Western immigrants may lower the risk of psychotic-like experiences and psychotic disorders.

7

Patterns of association between alcohol consumption and internalizing and externalizing problems in young adults

Kathleen Vanheusden, Frank J. van Lenthe, Cornelis L. Mulder, Jan van der Ende, Dike van de Mheen, Johan P. Mackenbach, Frank C. Verhulst

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Abstract

Objective

This study examined levels of internalizing and externalizing problems over the full spectrum of alcohol consumption in young adults and identified whether social factors account for the associations of alcohol consumption with internalizing and externalizing problems.

Method

This study was a cross-sectional random sample study among 2,258 young adult men and women from the general population of southwest Netherlands. Five groups were distinguished: (1) nondrinkers; (2) occasional drinkers (monthly or less); and regular drinkers (two or more times monthly) who were further classified into (3) low-level drinkers (one to two drinks per occasion), (4) higher-level drinkers (three to four drinks per occasion), or (5) excessive drinkers (five or more drinks per occasion). Internalizing problems and externalizing problems, social support, and negative social exchange were measured with standardized questionnaires.

Results

U-shaped associations were found between alcohol consumption and various internalizing problems. Low social support accounted for higher rates of internalizing problems in nondrinkers and negative social exchange accounted for higher rates of internalizing problems in excessive drinkers. Also, excessive drinking was associated with various externalizing problems. A J-shaped association was found between alcohol consumption and aggressive behavior, with higher rates for occasional and excessive drinkers compared with low-level drinkers. Negative social exchange partly accounted for associations between alcohol consumption and externalizing problems.

Conclusions

Nondrinkers and excessive drinkers differ from low-level drinkers in risk factors for poor mental health, and these factors may contribute to their elevated rates of mental health problems. Interventions that address the experience of negative social exchange may produce both mental health benefits and a reduction of excessive drinking.

Introduction

Alcohol use disorders and mental disorders are pertinent issues for young adults, representing the major causes of disability (Hollander et al., 2006; Moon et al., 1999). These disorders often co-occur, with positive associations between alcohol-use disorders and mood, anxiety, and personality disorders (Dawson et al., 2005; Grant et al., 2004; Ross, 1995). Understandably, the focus of attention in alcohol research has been on mental health problems associated with alcohol-use disorders or with heavy drinking. However, recent studies point to a U-shaped relationship between the full spectrum of alcohol consumption and mental health problems, such that moderate drinking is associated with lower rates of depression and anxiety when compared with higher levels of consumption and abstinence (Caldwell et al., 2002; Lipton, 1994; Manninen et al., 2006; Power et al., 1998; Rodgers et al., 2000a,b).

This study examined associations between alcohol consumption and psychopathology, expanding previous research on this topic by addressing a range of problem behaviors. Previous studies that examined associations between alcohol consumption and psychopathology focused primarily on symptoms of anxiety and depression, with several studies finding evidence for U-shaped associations (Caldwell et al., 2002; Manninen et al., 2006; Rodgers et al., 2000a,b). This study examined a wider range of internalizing problems (e.g., withdrawn behavior and somatic complaints) and externalizing problems (e.g., aggressive behavior, rule-breaking behavior).

Although U-shaped associations have been reported between alcohol consumption and internalizing problems, it is unclear whether similar relations hold for externalizing problems. The association between alcohol consumption and externalizing problems could be U-shaped, because externalizing and internalizing problems are strongly interrelated (Kessler et al., 2005). However, previous findings on drinking patterns in relation to externalizing disorders demonstrate that abstainers have the lowest rate of externalizing problems. For example, a population-based study among adults showed that all drinkers (i.e., normal drinkers, heavy episodic drinkers, and those with alcohol-use disorders) were more likely than abstainers to have an antisocial personality disorder (Dawson et al., 2005). Similarly, in a community sample of adolescents, abstainers had the lowest rate of disruptive behavior disorders, the alcohol abuse/dependence group had the highest rate, and the other groups (experimenters, social drinkers, problem drinkers) had intermediate rates (Rohde et al., 1996). Our study differs from the above studies in that it delineates groups in terms of drinking quantity rather than in terms of alcohol-use disorders or reasons for drinking (e.g., social drinking). Based on previous findings, we expected to find U-shaped associations between alcohol consumption and

internalizing problems; we also expected to find associations between high levels of alcohol consumption and externalizing problems.

To explain the U-shaped association between alcohol consumption and poor mental health, the "sick-quitter" hypothesis suggests that the negative affect of former problem drinkers accounts for the poor mental health among nondrinkers. This hypothesis has been tested directly in a British study, which showed that the U-shaped pattern between alcohol consumption and psychological distress persisted even when former problem drinkers were excluded from the analysis (Power et al., 1998). The alternative explanation is that abstainers and heavy drinkers differ from moderate drinkers on risk factors for poor mental health. Indeed, Rodgers et al. (2000a) found that nondrinkers and heavy drinkers share risk factors for poor mental health, including low social support and stressful life events, which may put both groups at risk for mental health problems.

Only a few studies have examined the contribution of social factors to mental health problems among nondrinkers and heavy drinkers. In this study, we explored social support (e.g., emotional support from friends or family) and negative social exchange (e.g., perceiving hostility coming from friends or family). In line with previous research (Rodgers et al., 2000a), we expected that low social support would account for higher rates of mental health problems in nondrinkers. Furthermore, previous research indicated that interpersonal difficulties predict increased alcohol consumption (Lemke et al., 2007). For this reason, it could be hypothesized that negative social exchange with friends and family would account for higher rates of mental health problems in heavy drinkers. Thus we expected that a lack of social support would account for poor mental health among nondrinkers and that negative social exchange would account for poor mental health among heavy drinkers.

Method

Sample

This study was a cross-sectional population-based survey conducted from September 2004 to October 2005. The Medical Ethics Committee of the Erasmus Medical Center approved the design and conduct of the study. First, 35 municipalities were randomly selected from the Dutch province of Zuid-Holland. Zuid-Holland comprises 92 municipalities in both rural and urban areas where 21.2% of the Dutch population lives (Statistics Netherlands, 2004). Second, 19- to 30-year-olds were randomly selected from each municipality. The total sample comprised 3,338 young adults.

A postal survey was sent to all 3,338 young adults in September 2004. After 9 weeks, the potential participants were reminded, either by phone or a home visit, to fill in the questionnaire. A total of 165 persons were excluded from the sample because of intellectual or physical disability, a language barrier, moving away from the province, or death. Of 3,173 eligible young adults, 2,258 (71.2%) participated. Due to the duration of the data collection, the age range of the participants expanded from 19-30 years to 19-32 years. Nonrespondents were more likely to be male, non-Dutch, and younger than respondents (data not shown). The large majority of participants (n = 2,077) filled in the questionnaire by themselves, whereas some participants (n = 181) completed the questionnaire in the presence of someone from our data collection team, mostly because the participant needed help in completing the questionnaire. These 181 participants were disproportionably non-Dutch and male, but they did not differ from the other participants in age or alcohol consumption (data not shown). After the study had been fully explained to the participants, written informed consent was obtained.

Measures

Alcohol consumption. Alcohol consumption in the past 12 months was assessed with the Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993). The AUDIT provides information on drinking frequency and typical drinking quantity. Young adults were classified as nondrinkers, occasional drinkers (i.e., those drinking monthly or less), low-level drinkers, higher-level drinkers, or excessive drinkers. Low-level, higher-level, and excessive drinkers were all regular drinkers (at least two times a month) who were distinguished based on their typical drinking quantity. Low-level drinking refers to one to two glasses per occasion, higher-level drinking refers to three to four glasses, and excessive refers to at least five glasses.

By using the typical drinking quantity, we could avoid the grouping together of heavy episodic drinkers with moderate drinkers. For example, when using weekly average alcohol intake, those who consumed 14 drinks per week by having 2 drinks per day would be grouped together with those consuming 14 drinks over the weekend. In this respect, a recent study revealed that the overall relationship between depression and alcohol consumption did not vary by type of depression measure but varied significantly by the type of alcohol measure, with the strongest relationship found for heavy episodic drinking and high quantity per occasion, with less strong relationships for total volume and no association with drinking frequency (Graham et al., 2007). For this reason, we placed more emphasis in our definition of alcohol consumption on drinking quantity than drinking frequency. Also, the three groups of regular drinkers (i.e., low-level, higher-level, and excessive drinkers) hardly differed in drinking frequency. Among regular drinkers,

42.6% drank two to four times a month, 38.3% drank two to three times a week, and 19.1% drank four or more times a week. Pair-wise chi-square tests indicated that low-level drinkers had a lower drinking frequency than higher-level drinkers ($\chi^2 = 11.42$, 2 df, $p < .01$), whereas no differences in drinking frequencies were found between higher-level and excessive drinkers and between low-level and excessive drinkers.

Twenty missing values were observed for alcohol consumption.

Internalizing and externalizing problems The Adult Self-Report (ASR) was used to measure internalizing and externalizing problems in the past 6 months (Achenbach and Rescorla, 2003). Internalizing problems comprised the syndromes anxious/depressed, withdrawn, and somatic complaints; externalizing problems comprised the syndromes aggressive behavior, rule-breaking behavior, and intrusive; mixed problems comprised the syndromes attention problems and thought problems. Of the mixed problems, only attention problems were examined. With regard to the rule-breaking behavior score, the item "I get drunk" was excluded. Syndrome scale scores were dichotomized into deviant and normal scores, according to the cutoff score (the 93rd percentile) provided by the manual (Achenbach and Rescorla, 2003). The cutoff score predicts whether people were referred to mental health services, so that scores above the 93rd percentile indicate a probable need for treatment. Good validity and reliability have been demonstrated for the ASR (Achenbach and Rescorla, 2003).

Social factors Social support and negative social exchange were measured with the Multidimensional Health Profile-Psychosocial (MHP-P) functioning scales, for which good reliability and validity have been demonstrated (Ruehlman et al., 1999). Social support is assessed with nine items pertaining to perceived satisfaction with the emotional, informational, and tangible support received from close friends or close family during the past year. The following is an example: "Over the past year, how much emotional support did you receive from close friends or family?" This item was scored on a 5-point rating scale ranging from 1 = "none" to 5 = "a great deal". Furthermore, negative social exchange was assessed with four items that assess how often the participant experienced negativity from close friends or close family during the past year. The following is an example: "Over the past year, how often did your close friends or close family make fun of you, gossip about you, or reject you?" This item was scored on a 5-point rating scale ranging from 1 = "never" to 5 = "very often". Social support and negative social exchange are different constructs. The correlation between these two scales is -.24.

Dutch translations were available for all the questionnaires used (the ASR, the AUDIT, and the MHP-P).

Data analysis

The present study examined associations of alcohol consumption with internalizing and externalizing problems and examined whether social support and negative social exchange contributed to such associations. First, associations were examined between alcohol consumption and each psychopathology variable (i.e., the seven dichotomized ASR syndromes), with adjustment for gender and age (Model 1). Interactions between alcohol consumption and gender were also tested. Second, before examining whether social factors contribute to associations between alcohol consumption and psychopathology, we first examined social factors in relation to alcohol consumption and psychopathology. Social factors were transformed into *z* scores. The association between social support (independent variable) and each psychopathology syndrome (dependent variable) was examined with logistic regression analysis, with adjustment for gender and age. This set of logistic regression analyses was repeated with negative social exchange as the independent variable. Furthermore, differences in mean levels of social support (dependent variable) across alcohol consumption categories (independent variable) were examined with an analysis of variance (ANOVA), with adjustment for gender and age. This ANOVA was repeated with negative social exchange as the dependent variable. Third, we examined whether social factors contribute to the associations between alcohol consumption and psychopathology. Associations were examined between alcohol consumption and each psychopathology variable (i.e., the seven dichotomized ASR syndromes) with logistic regression analysis, with adjustment for gender, age, social support, and negative social exchange (Model 2).

Results

Sample characteristics

The young adults in this study comprised nondrinkers (18.3%), occasional drinkers (21.9%), low-level drinkers (36.7%), higher-level drinkers (14.0%), and excessive drinkers (9.1%). Table 7.1 shows that the distribution of the five alcohol consumption groups differs in age ($F = 4.24$, 4/2,233 df, $p < .001$) and gender ($\chi^2 = 181.88$, 4 df,

Table 7.1: Sample characteristics of young adults across alcohol consumption categories.

	Nondrinkers (N = 410)	Occasional (N = 490)	Low-level (N = 822)	Higher level (N = 313)	Excessive (N = 203)
Sex					
Male (%)	31.5%	30.8%	50.4%	60.1%	75.4%
Age (19-32 years)					
Mean (SD)	25.53 (3.64)	25.42 (3.46)	25.43 (3.43)	25.01 (3.62)	24.47 (3.48)

$p < .001$). Post-hoc analyses within ANOVA indicated that excessive drinkers were younger than nondrinkers, occasional drinkers and low-level drinkers. Further, a chi-square test indicated that the percentage male was higher in the groups with greater alcohol consumption.

Associations between alcohol consumption and mental health problems

The relationship between alcohol consumption and internalizing problems is U-shaped, such that nondrinkers, occasional drinkers, and excessive drinkers have a higher proportion of internalizing problems than low-level drinkers (Figure 7.1, part A).

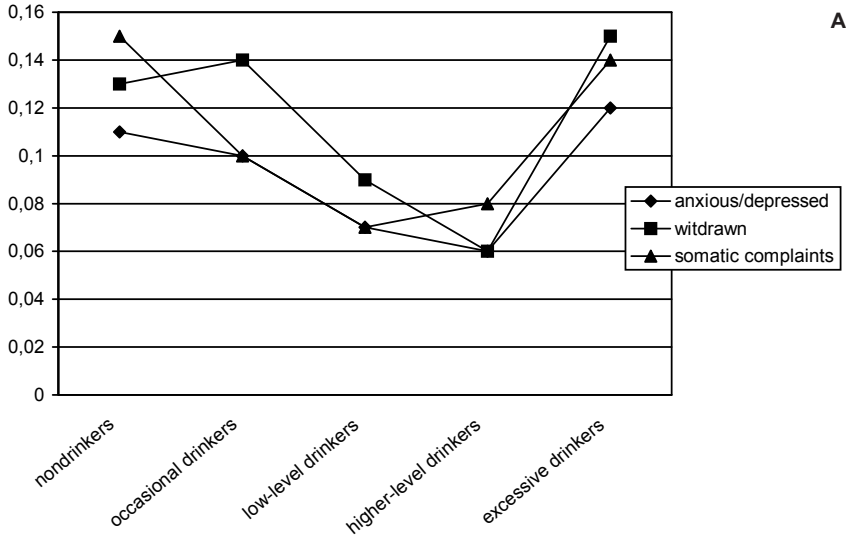

Figure 7.1: Associations of 12-month alcohol consumption with internalizing and externalizing problems in the past 6 months. The Y-axis represents the proportion with a deviant problem score, the X-axis represents the 5 alcohol consumption groups. A) U-shaped associations exist between alcohol consumption and internalizing syndromes. B) J-shaped associations exist between alcohol consumption and most externalizing syndromes.

The association of alcohol consumption with most externalizing syndromes appears J-shaped, such that in comparison with low-level drinkers, higher-level and excessive drinkers have a much higher rate of externalizing problems, whereas nondrinkers and occasional drinkers have slightly higher rates (Figure 7.1, part B).

Social factors in relation to mental health and alcohol consumption

Social support was negatively associated with all internalizing and externalizing problems with the exception of the intrusive externalizing syndrome. Furthermore, negative social exchange was positively associated with all internalizing and externalizing problems (Table 7.2).

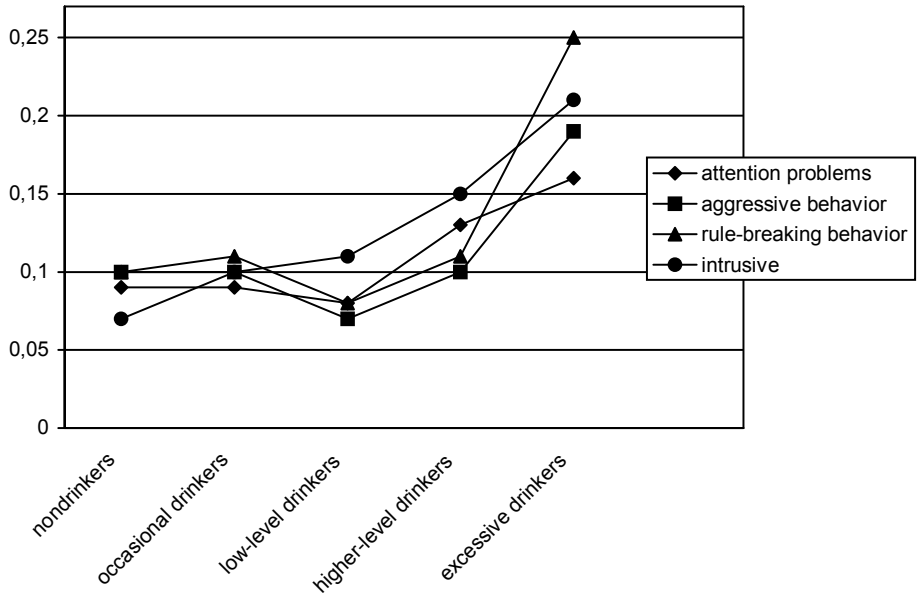

Table 7.2: Univariate associations between standardized social factors (independent variable) and psychopathology (dependent variables). Results of logistic regression analyses.

	Social support OR (95%CI)[1]	Negative social exchange OR (95%CI)[1]
Anxious/depressed	0.59 (0.51-0.68)$_c$	2.07 (1.83-2.34)$_c$
Withdrawn	0.46 (0.40-0.53)$_c$	1.90 (1.70-2.14)$_c$
Somatic problems	0.64 (0.56-0.73)$_c$	1.81 (1.61-2.03)$_c$
Attention problems	0.80 (0.70-0.92)$_b$	1.79 (1.59-2.01)$_c$
Aggressive behavior	0.63 (0.55-0.72)$_c$	2.25 (1.99-2.55)$_c$
Rule-breaking behavior	0.74 (0.65-0.84)$_c$	1.70 (1.52-1.91)$_c$
Intrusive	1.03 (0.90-1.18)	1.43 (1.28-1.61)$_c$

OR indicates odds ratio, CI indicates confidence interval;
$_b$ p<0.01, $_c$ p<0.001;
[1] Odds ratios are adjusted for age and sex.

With regard to alcohol consumption, it was found that nondrinkers had lower levels of social support compared with low-level drinkers. Furthermore, excessive drinkers had higher levels of negative social exchange compared with low-level drinkers (Table 7.3).

Associations between alcohol consumption and internalizing problems

Nondrinkers, occasional drinkers, and excessive drinkers were more likely to have a deviant anxious/depressed score than low-level drinkers (Table 7.4, Model 1). When adjusting for social support and negative social exchange, these associations

Table 7.3: Univariate associations between alcohol consumption (independent variable) and standardized social factors (dependent variables). Results of ANOVA.

	Social support Mean (sd)[1]	Negative social exchange Mean (sd)[1]
Nondrinkers	**-0.10 *(1.18)***	-0.01 *(1.10)*
Occasional drinkers	0.04 *(1.00)*	0.05 *(1.06)*
Low-level drinkers	0.04 *(0.95)*	-0.06 *(0.92)*
Higher level drinkers	0.04 *(0.88)*	-0.04 *(0.85)*
Excessive drinkers	-0.11 *(0.99)*	**0.27 *(1.13)***

[1]Means are adjusted for sex and age. Bold figures indicate that the cell-mean differs from low-level drinkers in the same column ($p<0.05$).

Table 7.4: Associations between alcohol consumption (independent variable) and internalizing syndromes (dependent variable). With and without adjustments made for social factors.

	Anxious/Depressed OR (95%CI)	Withdrawn OR (95%CI)	Somatic Complaints OR (95%CI)
Model 1[1]			
Non-drinkers	1.63 (1.07-2.48)$_a$	1.58 (1.07-2.32)$_a$	2.24 (1.52-3.30)$_c$
Occasional drinkers	1.59 (1.06-2.38)$_a$	1.75 (1.22-2.51)$_b$	1.42 (0.95-2.13)
Low-level drinkers	1.00	1.00	1.00
Higher level drinkers	0.87 (0.51-1.49)	0.63 (0.37-1.08)	1.18 (0.73-1.91)
Excessive drinkers	1.85 (1.11-3.07)$_a$	1.74 (1.09-2.27)$_a$	2.08 (1.27-3.39)$_b$
Model 1 χ^2 (df = 6)	15.20$_a$	24.14$_c$	29.16$_c$
Model 2[2]			
Non-drinkers	1.45 (0.93-2.26)	1.31 (0.86-1.98)	2.10 (1.41-3.15)$_c$
Occasional drinkers	1.40 (0.92-2.15)	1.59 (1.08-2.34)$_a$	1.27 (0.84-1.94)
Low-level drinkers	1.00	1.00	1.00
Higher level drinkers	0.92 (0.53-1.60)	0.66 (0.38-1.15)	1.25 (0.76-2.04)
Excessive drinkers	1.45 (0.85-2.48)	1.42 (0.87-2.33)	1.72 (1.03-2.86)$_a$
Social factors			
Social support	0.73 (0.62-0.84)$_c$	0.54 (0.46-0.62)$_c$	0.76 (0.66-0.88)$_c$
Negative social exchange	1.88 (1.66-2.14)$_c$	1.63 (1.45-1.85)$_c$	1.68 (1.49-1.90)$_c$
Difference χ^2 (df = 2)	141.34$_c$	184.25$_c$	104.69$_c$
Model 2 χ^2 (df = 8)	156.54$_c$	208.39$_c$	133.85$_c$
Nagelkerke R^2	0.15	0.18	0.12

OR indicates odds ratio, CI indicates confidence interval;
$_a$ $p<0.05$, $_b$ $p<0.01$, $_c$ $p<0.001$;
[1]Odds ratios are adjusted for sex and age;
[2]Odds ratios are adjusted for sex, age, social support and negative social exchange.

were attenuated and no longer significant (Table 7.4, Model 2). Similar results were found for the withdrawn syndrome.

Furthermore, logistic regression analysis revealed a U-shaped association between alcohol consumption and somatic complaints. When adjusting for social support and negative social exchange, however, these associations hardly attenuated

Table 7.5: Associations between alcohol consumption (independent variable) and externalizing syndromes (dependent variable). With and without adjustments made for social factors.

	Attention problems	Aggressive behavior	Rule-breaking behavior	Intrusive
	OR (95%CI)	OR (95%CI)	OR (95%CI)	OR (95%CI)
Model 1[1]				
Non-drinkers	1.19 (0.77-1.84)	1.47 (0.95-2.26)	1.36 (0.90-2.06)	0.65 (0.42-1.01)
Occasional drinkers	1.24 (0.82-1.86)	1.54 (1.03-2.32)$_a$	1.38 (0.93-2.05)	0.87 (0.59-1.27)
Low-level drinkers	1.00	1.00	1.00	1.00
Higher level drinkers	1.78 (1.17-2.72)$_b$	1.53 (0.96-2.44)	1.39 (0.88-2.18)	1.42 (0.97-2.07)
Excessive drinkers	2.19 (1.38-3.48)$_b$	3.46 (2.18-5.47)$_c$	4.16 (2.73-6.34)$_c$	2.02 (1.34-3.05)$_b$
Model 1 χ^2 (df = 6)	23.53$_b$	34.58$_c$	59.14$_c$	31.58$_c$
Model 2[2]				
Non-drinkers	1.11 (0.71-1.74)	1.29 (0.82-2.05)	1.26 (0.82-1.94)	0.64 (0.41-0.99)$_a$
Occasional drinkers	1.11 (0.73-1.70)	1.36 (0.88-2.10)	1.27 (0.85-1.90)	0.83 (0.56-1.22)
Low-level drinkers	1.00	1.00	1.00	1.00
Higher level drinkers	1.86 (1.21-2.86)$_b$	1.70 (1.04-2.77)$_a$	1.45 (0.92-2.29)	1.42 (0.97-2.09)
Excessive drinkers	1.82 (1.13-2.94)$_a$	2.93 (1.79-4.80)$_c$	3.72 (2.41-5.75)$_c$	1.81 (1.19-2.75)$_b$
Social factors				
Social support	0.95 (0.82-1.10)	0.79 (0.68-0.91)$_b$	0.85 (0.74-0.97)$_b$	1.13 (0.98-1.30)
Negative social exchange	1.76 (1.55-1.99)$_c$	2.09 (1.84-2.38)$_c$	1.60 (1.42-1.81)$_c$	1.48 (1.31-1.67)$_c$
Difference χ^2 (df = 1)	84.90$_c$	173.06$_c$	75.92$_c$	36.16$_c$
Model 2 χ^2 (df = 7)	108.42$_c$	207.63$_c$	135.05$_c$	68.20$_c$
Nagelkerke R^2	0.10	0.19	0.12	0.06

OR indicates odds ratio, CI indicates confidence interval;
$_a$ p<0.05, $_b$ p<0.01, $_c$ p<0.001;
$_1$ Odds ratios are adjusted for sex and age;
$_2$ Odds ratios are adjusted for sex, age, social support and negative social exchange.

(Table 7.4, Model 2). Moreover, interactions between alcohol consumption and gender were tested in relation to each internalizing syndrome, but none was found.

Associations between alcohol consumption and externalizing problems

Excessive drinking was associated with all externalizing syndromes, whereas higher-level drinking was associated only with attention problems (Table 7.5, Model 1). These associations attenuated when adjusting for social support and negative social exchange, although the odds ratios were still significant (Table 7.5, Model 2).

Furthermore, occasional drinking was associated with a deviant score on the aggressive behavior syndrome, and this association attenuated when adjusting for social factors (Table 7.5, Model 2). Moreover, interactions between alcohol consumption and gender were tested in relation to the externalizing syndromes, but none was found.

Contribution of social factors

Because the patterns of association of social factors in relation to psychopathology (Table 7.2) and alcohol consumption (Table 7.3) are known, we could deduce that social support accounted for the higher rates of internalizing problems in nondrinkers, whereas negative social exchange accounted (partly) for the higher rates of internalizing and externalizing problems in excessive drinkers. Presumably the higher rates of internalizing and aggressive problems in occasional drinkers were partly accounted for by negative social exchange. Indeed, Table 7.3 shows that levels of negative social exchange were higher among occasional drinkers compared with low-level drinkers, although not significantly so.

Discussion

Principal findings

The present study showed that the mental health of low-level drinkers is superior to that of nondrinkers, occasional drinkers, and excessive drinkers in terms of internalizing problems. As hypothesized, U-shaped associations were found for internalizing problems, whereas only excessive drinking was consistently associated with externalizing problems. Social support and negative social exchange contributed mostly to associations between alcohol consumption and internalizing problems and, to a lesser degree, to associations between alcohol consumption and externalizing problems.

Limitations and strengths

An important limitation is that the present study is cross-sectional, preventing disentanglement of causal links. Social factors that were more prevalent in nondrinkers, occasional drinkers, and excessive drinkers may have had a causal impact on mental health. This is plausible, because social factors have been identified as important determinants of both mental and physical health (House et al., 1988; Kessler et al., 1985). However, the reverse, with mental health problems resulting in social difficulties, is also plausible. The latter would suggest that another factor causes mental health problems in nondrinkers, occasional drinkers, and excessive drinkers, such as genetics (Tambs et al., 1997). Alternatively, the associations between excessive drinking and mental health problems may reflect the effects of excessive drinking. Indeed, prospective studies demonstrate that heavy drinking predicts transitions from functioning well to periods of depression (Conner et al., 2005; Mueller et al., 1994).

Another limitation of this study pertains to the use of self-report data, because responses to sensitive questions such as drinking quantity may be biased. However, the administration of a postal survey and ensuring anonymity helps to generate reliable data (Kraus and Augustin, 2001). Also, the present study did not examine whether former problem drinkers could account for the poor mental health of abstainers. We believe this is unlikely, because the proportion of former problem drinkers has been found to be as high or even higher among moderate drinkers as compared with abstainers (Goldman and Najman, 1984; Power et al., 1998).

A limitation of our study is that there is overlap between negative social exchange and externalizing problems. However, the overlap is limited because negative social exchange refers to negativity or hostility that is directed toward the participant, whereas externalizing problems such as aggressive behavior refer to behavior that is directed by the participant toward other people. Also, the correlations between negative social exchange and the four externalizing problems scales are low to medium (Pearson *r* varies between .14 and .30).

A strength of this study is our focus on young adults, among whom excessive drinking and mental health problems most frequently occur (Gilvarry, 2000; Rodgers et al., 2000b). Furthermore, the inclusion of a wide range of mental health problems strongly enriched the present study as compared with previous studies on this topic. Moreover, the sample size was large and a high response rate was achieved.

Internalizing problems

This study found that low-level drinkers were less likely than nondrinkers, occasional drinkers, and excessive drinkers to have internalizing problems (i.e., the syndromes anxious/depressed, withdrawn, and somatic complaints). Studies that focus on the relationship between alcohol consumption and mental health among young adults are scarce and report mixed findings, with one study finding no evidence for U/J-shaped relationships between alcohol consumption and poor mental health (Winefield et al., 1992) and three other studies finding such evidence (Caldwell et al., 2002; Leifman et al., 1995; Power et al., 1998). Our study of young adults provides support for a U-shaped association between alcohol consumption and a variety of internalizing problems. Our findings are in accordance with studies among wide age groups that point to U-shaped relationships between alcohol consumption and negative affectivity (Lipton, 1994; Manninen et al., 2006; Rodgers et al., 2000a,b).

As hypothesized, a lack of social support accounted for the higher rate of internalizing problems among nondrinkers. Two previous studies among young adults found similar explanations for the poor mental health among nondrink-

ers. In a population sample of 20- to 24-year-olds, the higher levels of depression and anxiety in male abstainers were related to being introverted (Caldwell et al., 2002). Furthermore, in a population sample of 18- to 19-year-old men, abstainers had more psychological problems and a lower degree of sociability (e.g., greater insecurity in the company of others) than light drinkers (Leifman et al, 1995). The question arises as to why abstinence is associated with lower social support, lower sociability, and more introversion. It has been suggested that abstinence may be seen as a violation of prevailing social norms and could therefore result in social isolation (Caldwell et al., 2002). In contrast, characteristics such as introversion and low social support may cause abstinence because people with these characteristics may avoid social situations, such as having a drink with someone.

As hypothesized, negative social exchange accounted for higher rates of internalizing problems among excessive drinkers. The experience of negative social exchange with other people may cause tension, and excessive drinking may be a way of reducing this tension. This line of reasoning is in agreement with previous research that showed that social motives such as tension reduction are an important reason for people to use alcohol (Abbey et al., 1993).

Our findings suggest that the type of co-existent social problem determines whether young adults with internalizing problems abstain from alcohol or whether they drink excessively. Young adults who lack social support are more likely to abstain from alcohol, whereas young adults who experience negative social exchange are more likely to use alcohol excessively. Thus our findings suggest that internalizing problems polarize drinking behavior, depending on co-existent social problems.

Externalizing problems

As hypothesized, associations were found between excessive drinking and all externalizing problems (i.e., attention problems, rule-breaking behavior, aggressive behavior, and intrusive behavior). These findings are in line with studies that show strong associations between heavy drinking and attention-deficit/hyperactivity disorder, conduct disorder, and antisocial personality disorder (Dawson et al., 2005; Gilvarry, 2000).

Furthermore, we found that negative social exchange could only partly account for associations between alcohol consumption and externalizing problems, suggesting that direct associations exist between alcohol consumption and externalizing problems. Indeed, previous studies point to direct and reciprocal causal relationships between heavy drinking and externalizing problems. For example, antisocial behavior in early adolescence has been shown to predict later problem drinking in young adulthood (Bonomo et al., 2004). In contrast, support exists that

heavy drinking may lead to antisocial behavior (Bye, 2007). Indeed, alcohol has been shown to alter brain receptors and neurotransmitters, and several of its pharmacological effects are likely to increase the probability of aggressive behavior (Room et al., 2005). In addition, support that externalizing problems partly reflect adverse consequences of heavy drinking comes from studies examining the effect of liquor taxes, showing that price increases of alcohol lead to reductions in violent crime (Chaloupka et al., 2002; Cook and Moore, 1993).

However, we also found a J-shaped association between alcohol consumption and aggressive behavior. We found that occasional drinkers and excessive drinkers were more likely than low-level drinkers to have aggression problems, which could be partly accounted for by negative social exchange. Also, among the four externalizing syndromes, aggressive behavior had the strongest association with internalizing syndromes. For this reason, the association between alcohol consumption and aggressive behavior somewhat resembles the patterns of association that we found for internalizing problems.

Gender differences

No gender differences were found in terms of the associations between alcohol consumption and internalizing and externalizing problems in young adults, which contrasts with findings among adults showing that heavy drinking is associated with poorer mental health in women (Kessler et al., 1997; Schutte et al., 1997). The absence of a gender difference in our younger cohort may reflect a reduction in the social disapproval of substance use in women.

Implications

Our finding that excessive drinking was strongly related to poor mental health underlines the importance of addressing both problems when providing treatment for young adults. Moreover, intervention studies are needed that examine whether mental health benefits can be expected by addressing the negative social exchange that excessive drinkers may experience.

Furthermore, the poor mental health among abstainers and occasional drinkers suggests that abstinence behavior (or drinking only occasionally) may be at odds with social norms and may result in social isolation and negative social exchange. More research is needed on the social experiences of nondrinkers and how these experiences relate to their mental health.

8 General Discussion

General Discussion

The topics addressed in this thesis include *determinants of mental health service use* (Chapters 2, 3, 4 and 5) and *determinants of problem behaviour* (Chapters 6 and 7). The findings concerning these two topics are discussed below.

Determinants of mental health service use

Main findings

Significant socio-demographic inequalities in the use of mental health services were observed. Among young adults with serious internalizing or externalizing problems, only 35% had used mental health services in the past year, and significantly lower rates of service use were found for young adults who were male, younger, higher educated, living alone, or employed (Chapter 2).

Next, self-perceived barriers-to-care were examined among young adults with serious internalizing or externalizing problems who did not use mental health services in the preceding year. Of this non-help-seeking group 36% denied having mental health problems; additionally latent class analysis revealed that 37% perceived problems as self-limiting and 24% perceived help-seeking negatively (Chapter 3).

Subsequently, we examined beliefs that young adults had about the mental health problems they had experienced in the past year. Believing that mental health problems had intra-psychic causes, adverse consequences and believing that treatment could help control these problems predicted an increased likelihood of mental health service use, while believing that mental health problems were under personal control predicted a decreased likelihood in males (Chapter 4).

Last, ethnic disparities in the use of mental health services were determined. Although non-Western immigrants did not differ from Dutch natives in the use of primary mental health services, they were less likely to have used specialty mental health services. The underutilization of specialty care among non-Western immigrants was associated with external causal attributions and pessimistic beliefs about mental health treatment (Chapter 5).

Interpretation of the findings

Our findings confirm the main rationale of this thesis; mental health services were used by only a minority of young adults with serious internalizing or externalizing problems. Our findings will be interpreted in the context of the Behavioural

Model of Health Care Use, which distinguishes several factors influencing the use of health services: need for care, enabling factors, and predisposing factors.

Need for care Only 35% of young adults with serious internalizing or externalizing problems (i.e., objective need for care) had used mental health services (Chapter 2). Similarly, earlier studies among young adults indicated that professional help is sought by only one-third of young adults with mental disorders (Aalto-Setala et al., 2002; Newman et al., 1996).

We realize that the presence of clinical levels of internalizing or externalizing problems is not an absolute indicator of objective need. Ideally, to determine objective need, it is necessary to know which mental health problems are relatively brief and self-limiting and which become chronic and disabling (Andrews and Henderson, 2000; Patton et al., 2007). However, previous research does indicate that clinical levels of internalizing and externalizing problems among young adults are often chronic and disabling. For example, Ferdinand and Verhulst (1995b) found that some 50% of young adults who were initially classified as deviant on the Young Adult Self-Report were still deviant at follow-up. Further, a prospective study among young adults indicates that clinical levels of internalizing problems predict suicidal behaviour, and that clinical levels of externalizing problems predict police contact (Ferdinand and Verhulst, 1994). Fortunately, emotional and behavioural problems are not always chronic and disabling. Given that problems may remit spontaneously, young adults with clinical levels of emotional or behavioural problems may not need to seek professional help immediately. A period of watchful waiting may point out whether problems will remit spontaneously or whether professional help is warranted. For example, the Dutch guidelines for depression recommend a three month-period of watchful waiting (CBO & Trimbos-instituut, 2005).

Although not all young adults with clinical levels of psychopathology would have to seek professional help immediately, the use of mental health services, if equitably distributed, should not depend on other factors than need for care. For example, after adjustment for need for care, the use of mental health services should not differ by gender or education. However, in this thesis it was demonstrated that the use of mental health services does not solely depend on need for care, but is also subject to (a) enabling factors (i.e., knowledge, informal care use), (b) predisposing factors (i.e., tendency to consult, beliefs) and (c) to socio-demographic inequalities (in terms of gender, age, education, living arrangements, occupation and ethnicity).

Ad. a. Enabling factors Personal resources appeared to be significant enabling (or disabling) factors in the use of mental health services. Having received informal support concerning mental health problems, such as advice from family or friends, was associated with an increased likelihood of mental health service use over and

above need for care (Chapter 2). Similarly, a European study found that higher levels of social support predicted service use for depression (McCracken et al., 2006). Thus, the presence of a supportive social network is an important enabling factor in the use of mental health services. Further, young adults demonstrated a lack of knowledge about mental health problems (i.e., a disabling factor). For example, the barriers-to-care among young adults with serious internalizing or externalizing problems included a negative perception of help-seeking, such as thinking treatment would not help (Chapter 3). This suggests that young adults do not know that effective treatments are available. A previous study of mental health help-seeking in a university student population also indicated that skepticism about treatment effectiveness was a commonly reported reason for not seeking help (Eisenberg et al., 2007).

Enabling factors such as type of health insurance and geographic location were not associated with the use of mental health services (Chapter 2), which indicates equity of access in this regard. Contrarily, American studies have often demonstrated effects of resources such as income and health insurance on the use of mental health services (Kertesz et al., 2006; Weisner et al., 2001).

Ad b. Predisposing factors In this thesis, predisposing factors such as 'tendency to consult' were found to influence the use of mental health services over and above need for care (Chapter 2). In Chapter 4 predisposing factors were examined in more detail among young adults with self-perceived mental health problems; their use of mental health services depended more on beliefs about mental health problems than on the severity of psychopathology. Believing that mental health problems had intra-psychic causes, adverse consequences and believing that treatment could help control these problems strongly predicted an increased likelihood of mental health service use. Beliefs about consequences and treatment control could also be allocated as enabling factors because these beliefs are related to young adults' knowledge of mental health problems. Previous studies using the Behavioural Model of Health Care Use also indicated that beliefs about mental health problems influence service use. For example, the belief that one should not always handle problems alone was a predisposing factor that predicted an increased likelihood of contact with a health professional for psychological problems over and above need for care (Leaf et al., 1986).

Ad c. Socio-demographic disparities in service use Among young adults with serious internalizing or externalizing problems, significant socio-demographic inequalities in the use of mental health services were observed (Chapter 2). Lower rates of mental health service use were found among males, employed persons and 19-25 year olds; these findings are in agreement with previous population-based studies among a broader age group of adults (Bebbington et al., 2000; Bijl and Ravelli, 2000). In addition, the low use of specialty mental health services that we found

among non-Western immigrants (Chapter 5) is in accordance with previous Dutch studies (Dekker et al., 1996; Dieperink et al., 2002).

However, the underutilization of mental health services among young adults with serious internalizing or externalizing problems who were higher educated or living alone was unexpected (Chapter 2). Studies among a broader age group of adults found that higher education (Bijl and Ravelli, 2000; Madianos et al., 1993) and lone residence (Lefebvre et al., 1998; ten Have et al., 2003) both predict an increased likelihood of mental health service use over and above psychiatric morbidity. To our knowledge, other studies among young adults have not examined educational level in relation to service use, while living arrangements did not predict mental health help-seeking in a previous study among young adults by Biddle et al. (2004).

The underutilization of mental health services among young adults with higher education or lone residence could not be attributed to differences in need, enabling or predisposing factors. However, a unifying explanation may be given here. Young people who live alone are in the middle of the process of becoming independent, more so than young people living with parents, while those who live with

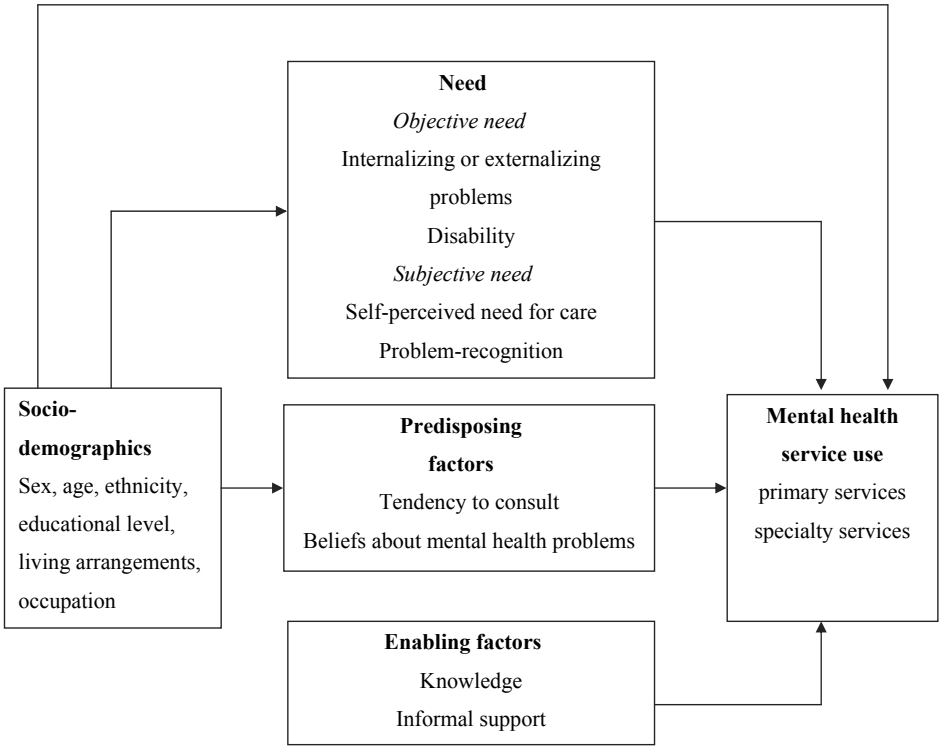

Figure 8.1: A summary of the research findings pertaining to determinants of mental health service use.

a partner will be further ahead in this process. The process of becoming independent could make it difficult to judge when to seek help. Similarly, higher educated young adults take more time for the process of becoming independent because of their longer educational trajectory compared with lower educated young adults. Additionally, higher educated young adults may have more internal resources to deal with their problems alone than lower educated young adults.

A summary of the findings pertaining to *determinants of mental health service use* is shown in Figure 8.1.

Determinants of problem behaviour

Main findings

First, associations were examined between ethnicity and psychotic-like symptoms. We found that the likelihood of self-reported hallucinations was increased in all non-Western immigrant groups, i.e., in Turks, Moroccans, Indonesians, Antilleans/Surinamese, and other non-Western migrants. Further, it was demonstrated that the increased likelihood of self-reported hallucinations among non-Western immigrants was associated with the experience of social adversity, such as having little social support.

Second, associations were examined between alcohol consumption and internalizing and externalizing problems. A U-shaped association was found such that nondrinkers, occasional drinkers and excessive drinkers were more likely to have internalizing problems than low-level drinkers. The increased likelihood of internalizing problems in nondrinkers was associated with having lower social support, while the increased likelihood in excessive drinkers was associated with the experience of negative social exchange with family and friends. Furthermore, strong and direct associations were found between excessive drinking and externalizing problems.

Interpretation

In the second part of this thesis insight was provided into determinants of psychotic-like symptoms and problems related to alcohol use. Factors related to social adversity contributed to ethnic disparities in self-reported hallucinations, and also to the poor mental health in nondrinkers and excessive drinkers in comparison to low-level drinkers.

Self-reported hallucinations The likelihood of self-reported hallucinations was increased in Turks, Moroccans, Indonesians, Antilleans/Surinamese, and other non-Western migrants. Likewise, a Dutch study found higher incidence rates of

schizophrenia in Moroccans, Surinamese and immigrants from other non-Western countries, and a mildly increased rate in Turks (Veling et al., 2006).

The increased likelihood of self-reported hallucinations among non-Western immigrants could partly be attributed to the experience of social adversity, such as having little social support. It is likely that social adversity at least in part causes the ethnic disparities in self-reported hallucinations, given the continuity between psychotic-like symptoms and psychotic disorders and the evidence for social adversity as a cause of the increased psychosis rate among migrants. Evidence for continuity comes from longitudinal studies indicating that individuals with psychotic-like symptoms are at an increased risk of developing a psychotic disorder (Chapman et al., 1994; Poulton et al., 2000). Evidence for social adversity as a cause for the increased psychosis rate among migrants can be found in the work by Boydell et al. (2001). The incidence of schizophrenia in non-white ethnic minorities was higher when they comprised a smaller proportion of the local population, with possible mechanisms including environmental stressors such as discrimination, perceived alienation and isolation (Boydell et al., 2001). In addition, the first part of this thesis also indicates that social adversity is an important cause of psychopathology among non-Western immigrants. Indeed, among young adults with self-perceived mental health problems, a greater endorsement of biographical and social causes was found among non-Western immigrants when compared to Dutch natives (Chapter 5).

Nonetheless, factors related to social adversity only partly accounted for the ethnic disparities in self-reported hallucinations (Chapter 6). Another factor that may contribute to ethnic disparities in self-reported hallucinations is perceived discrimination; this factor has been associated with an increased rate of psychotic-like symptoms (Janssen et al., 2003) and psychotic disorder (Veling et al., 2007). It could also be argued that cultural factors are important here. Since hallucinations are more positively valued in some non-Western societies, they may be more readily reported by non-Westerners (Al-Issa, 1995).

Alcohol consumption Insight was provided into underlying mechanisms of the associations between alcohol consumption and poor mental health. We found that lower levels of social support accounted for the increased likelihood of internalizing problems among nondrinkers. Similarly, previous studies among young adults found that abstinence was related to being less extroverted (Caldwell et al., 2002) and having poor sociability such as feeling insecure in the company of others (Leifman et al., 1995). It could be that abstinent behaviour conflicts with social norms of a drinking culture, and that an abstinent lifestyle leads to social isolation. In contrast, young adults who are socially isolated may have fewer opportunities for social drinking.

Furthermore, we found that higher levels of negative social exchange accounted for the increased likelihood of internalizing problems among excessive drinkers. The experience of negative social exchange may lead to excessive drinking. Indeed, previous research indicates that social motives such as tension reduction are an important reason for people to use alcohol (Abbey et al., 1993). Conclusively, our findings suggest that internalizing problems polarize drinking behaviour depending on concurrent social problems.

Furthermore, direct associations were found between excessive drinking and externalizing problems such as rule-breaking and aggressive behaviour. These findings are in agreement with previous studies that indicate that reciprocal, causal relationships exist over time between heavy drinking and antisocial behaviour (Bonomo et al., 2004; Bye, 2007).

Strengths and weaknesses

Below the strengths and weaknesses of this study are evaluated in relation to both topics; *determinants of mental health service use* and *determinants of problem behaviour*.

Major strengths of this study are the population-based design and the high participation rate. Our focus on young adults is also a strength, since *determinants of mental health service use* in young adulthood is an important, but poorly studied topic. Likewise, studying determinants of alcohol consumption and psychotic symptoms in young adults is particularly relevant, because these problem behaviours often first emerge in young adulthood. Yet another strength is the inclusion of young adults from different ethnic backgrounds.

An important limitation is that this study is cross-sectional. For example, while it is likely that beliefs about mental health treatment determine whether a person seeks professional help, it is also conceivable that a consultation with a mental health professional could influence beliefs about mental health treatment. Similarly, the causal direction of the associations between social adversity and problem behaviours (i.e., self-reported hallucinations, alcohol consumption) has to be interpreted with caution.

Yet another limitation is selection bias owing to non-response. Although a response of 71% is satisfactory, the effect of non-response should be evaluated because it may influence the interpretation of study results. Attrition analyses within a Dutch mental health study suggest that the prevalence of mental disorders among responders may be lower than among non-responders (de Graaf et al., 2000). Further, studies using health insurance agency-records indicate that responders to health surveys are higher users of health services than non-responders

(Etter and Perneger, 1997). Thus, the non-response in our study may have resulted in underestimation of the prevalence of mental health problems and overestimation of the use of mental health services, especially among the groups with greater non-response, i.e., males, 19-25 year olds and immigrants.

Furthermore, some of the data collected may suffer from measurement error (i.e., information bias). Self-reports may underestimate the actual prevalence of health service use, as demonstrated by a discrepancy between self-reported and registered service use (Ritter et al., 2001). The discrepancy between self-reported and registered service use increases when the amount of registered utilization increases (Ritter et al., 2001). For this reason we used a simple measure of mental health service use; at least one service contact versus none. Further, in the context of *determinants of problem behaviour* information bias may exist when assessing psychopathology in immigrants. For example, it is possible that self-reported hallucinations mean different things for different cultures.

Furthermore, this thesis provided insight into individual determinants of mental health service use, while determinants related to the health service system and societal determinants were less explored. Health service system-variables were not measured. However, it is likely that barriers within the health service system contribute to the differential rates of mental health service use across ethnic groups. For example, prejudice or a lack of cultural sensitivity on the part of the general practitioner may contribute to the differential referral to specialty mental health services. Furthermore, societal determinants, such as social norms with regard to help-seeking behaviour, were not explored in depth. However, the positive association between seeking informal support and the use of mental health services indicates that the informal network facilitates young people's help-seeking behaviour. In addition, one of the major barriers-to-care was a negative perception of help-seeking, which included fear of stigmatisation (i.e., 'I was afraid of what people might think if I sought help'.) Thus, the study findings do suggest that the social context is an important factor in the use of mental health services.

The external validity of our results may also be limited in several respects. This study was conducted in the highly urban province Zuid-Holland. In the context of *determinants of mental health service use,* it is important to take into account that people in urban areas of the Netherlands are more likely to use mental health services than people in rural areas (Bijl and Ravelli, 2000). As a result, we may have overestimated Dutch young adults' use of mental health services. With regard to *determinants of problem behaviour*; the prevalence of some problem behaviours may differ between urban and rural areas. For example, urbanicity has been linked to a higher risk of mental disorders, particularly depressive and psychotic disorders, but not to alcohol use disorders (Kovess-Masfety et al., 2005; Pedersen and

Mortensen, 2001). As a result, we may have overestimated the prevalence of depressive problems and psychotic symptoms among Dutch young adults.

Some of the findings also may not extrapolate to other countries. For example, mental health service use by people with psychiatric disorders is higher in the Netherlands than in countries such as the United States, most likely due to the lower financial barriers-to-care (Bijl and Ravelli, 2000). Thus, financial barriers-to-care are likely to be higher for young adults outside the Netherlands. With regard to *determinants of problem behaviour*, we do not have any reason to assume that social adversity would contribute differently to problem behaviours (i.e., psychotic symptoms and problems related to alcohol use) in other developed countries. However, one can imagine that the impact of social adversity will be difficult to ascertain in developing countries in which most citizens experience considerable social adversity.

Implications for future research

Providing insight into effective mental health treatments for young adults

In this thesis an attempt was made to explain why young adults are unlikely to seek professional help for mental health problems. However, seeking help is not the same as receiving adequate treatment. As yet, meta-analyses of treatment effectiveness either considered children and adolescents (Burns et al., 1999; Kazdin and Weisz, 2003) or adults of all ages (Malouff et al., 2007; Mitte, 2005); while it would be useful to know which mental health treatments are effective for young adults. This is important, since a lack of transition services that meet young adults' specific care needs, such as help with educational achievements, work, and accommodation, has been suggested as an explanation for the low treatment rates among young adults (Davis, 2003; Davis and van der Stoep, 1997).

Providing explanations for inequalities in mental health service use

Some of our findings regarding *determinants of mental health service use* warrant further explanation. Further research will need to explore the reasons for the low help-seeking rate among young adults who were higher educated or living alone, since we could only speculate about these reasons. For example, future research could clarify whether higher educated young adults have more internal resources to deal with their problems alone than lower educated young adults, or whether they face more barriers-to-care.

Providing insight into determinants of psychopathology

In this thesis associations were examined between social adversity and problem behaviours. Future research needs to investigate whether the associations between social adversity and psychotic symptoms are due more to social causation (social adversity as a cause of psychotic symptoms) or social selection (downward mobility).

The associations among social factors, alcohol consumption, and internalizing and externalizing problems also raise questions. For example, what happens with abstainers and excessive drinkers from this age onwards? Will levels of internalizing and externalizing problems increase as these young adults age? What role do social factors play in the continuation or cessation of excessive drinking? Future research needs to address these issues.

Recommendation for policy and mental health care

Raising knowledge of mental health problems

The findings suggest that mental health awareness campaigns may be effective in raising young adults' help-seeking behaviours, since factors related to knowledge and beliefs about mental health problems were strongly related to mental health service use and were commonly reported as reasons for not seeking professional help. Policy makers need to be aware that young adults are insufficiently knowledgeable of the signs of mental health problems, the consequences and the effective treatments that are available. Mental health awareness campaigns that specifically target young people may affect change in mental health literacy and help-seeking behaviour. A successful example is the Compass Strategy; this Australian mental health awareness campaign targeted young people and led to an increase in knowledge of mental health problems, a reduction in perceived barriers-to-care and an increase in help-seeking for depression (Wright et al., 2006).

Implementing age-appropriate and ethnic-friendly mental health services

The negative perception of help-seeking among young adults (e.g., that treatment would not help) is in agreement with the notion that existing mental health services fail to engage young adults (Manchester, 2006; Patel et al., 2007; Patton et al., 2007). Young adults often have specific care needs such as help with education, work, sexuality and housing (Davis, 2003; Patton et al., 2007). Age-appropriate care for young adults would involve integrating relevant services, for example by having general practitioners work together with mental health and substance use professionals and relevant support agencies, such as accommodation, education and employment ser-

vices (Patel et al., 2007). Headspace services in Australia are an example of youth specific services (catering for youth 12-25 years) that offer a range of different services including psychologists, alcohol and drug workers, as well as education and employment programs (see their website at www.headspace.org.au).

Further, since non-Western immigrants were found to underutilize specialty mental health care, it may prove valuable to train general practitioners in recognizing common mental disorders among ethnic minority populations. The general practitioner could also encourage the use of specialty mental health services by augmenting awareness among non-Western immigrants of the effective mental health treatments that are available. Furthermore, the greater endorsement of biographical and social causes of mental health problems among non-Western immigrants may reflect a greater prevalence of stressful or adverse social circumstances. This may explain why non-Western immigrants believe that mental health treatment focused on intra-psychic aspects would not be useful. Thus, mental health services that meet the needs of non-Western immigrants have to focus more on biographical and social aspects.

Intensifying mental health care for university students

Among young adults with serious internalizing or externalizing problems, student status was associated with an increased likelihood of mental health service use. However, the rate of help-seeking was much lower among higher educated students (20.4%) than among lower educated students (48.5%) with serious problems. Intensifying mental health services for university or higher vocational students may lead to reductions of educational inequalities in the use of mental health services. It may also lead to an increase in help-seeking behaviours among young adults who live alone.

Low threshold interventions could be implemented at universities or higher vocational colleges. For example, a cognitive-behavioural group intervention proved to be effective in reducing depressive symptoms among college women who were at risk for clinical depression (Peden et al., 2001). Also, brief interventions could be implemented at colleges to reduce excessive drinking. Binge drinking in college is highly prevalent and forms a risk factor for heavy drinking and alcohol dependence after college (Jennison, 2004). Screening and brief intervention for high-risk student drinkers has been shown effective in reducing excessive drinking (Marlatt et al., 1998; Vasilaki et al., 2006). Web-based forms of screening and brief intervention are also feasible in reducing students' binge drinking (Kypri et al., 2004). Our findings suggest that negative social exchange with family or friends is a potential risk factor for excessive drinking. Addressing this potential risk factor could improve interventions aimed at reducing excessive drinking.

Intensifying e-mental health

Internet-based information and interventions provide opportunities to engage young people in the help-seeking process. In our study, 19% of young adults with serious mental health problems consulted the Internet for information about mental health problems; having consulted the Internet for information was associated with an increased likelihood of mental health service use. Thus, the Internet may indeed facilitate help-seeking behaviours. Furthermore, comprehensive e-health systems may enhance the delivery of mental health care. For example, 'Grip Op Je Dip' is a Dutch web-based mental health service for young people with depression, which provides online cognitive-behavioural therapy in group sessions, guided by a mental health professional. Preliminary analyses indicate that this intervention successfully reduces levels of depression (http://www.gripopjedip.nl). Furthermore, the intervention seems to engage young people who would not have sought face-to-face professional help. For example, users of 'Grip Op je Dip' indicate that they prefer the anonymous nature of online therapy and the shared experience of online group sessions (http://www.gripopjedip.nl). Conclusively, Internet-based information and interventions may facilitate young people's help-seeking behaviours and may complement existing mental health services.

Prevention of psychotic symptoms and psychotic transitions

Recent evidence suggests that clinical intervention before the onset of the first episode of psychosis has potential benefits, such as attenuation of psychotic symptoms (Woods et al., 2003) and prevention of the development of psychotic disorder (McGorry et al., 2002). Findings from this study suggest that such interventions may be valuable in non-Western migrant communities. Furthermore, interventions that aim to reduce the experience of social defeat among non-Western migrants could prevent the development of psychotic symptoms and full-blown psychosis. This study suggests that aspects of social adversity such as having little social support and great social difficulties with family and friends could be targets for intervention.

Prevention of excessive drinking

In this thesis, strong and direct associations were found between excessive drinking and externalizing problems. This suggests that prevention of excessive drinking, e.g., by regulation of price and availability of alcoholic beverages, could manifest great reductions of externalizing problems. Indeed, studies on the effect of liquor taxes indicate that price increases lead to a reduction of alcohol consumption and alcohol-related violence (Chaloupka et al., 2002; Cook and Moore, 1993).

Conclusion

In conclusion, the findings give insight into determinants of mental health service use and determinants of problem behaviour among young adults. We have found that mental health service use does not solely depend on objective or subjective need for care, but is also subject to enabling factors such as knowledge of mental health problems, predisposing factors such as the 'tendency to consult', and to socio-demographic inequalities. These latter factors may represent barriers-to-care. Furthermore, our findings suggest that social adversity contributes to problem behaviours that often first emerge in young adulthood, including psychotic-like symptoms and deviant patterns of alcohol consumption.

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Summary

Summary

Introduction

The first aim of this thesis is to provide insight into help-seeking behaviours of young adults with mental health problems. The second aim is to provide insight into several problem behaviours that typically first emerge during young adulthood: i.e., psychotic symptoms and problems related to alcohol use.

In *chapter 1,* we present the background to this study. It is known that mental health problems often first emerge during young adulthood. Further, it is known that young adults are unlikely to seek professional help for their mental health problems, that their problems are often enduring and cause significant impairments such as limitations in educational ability, work and social relationships. Since effective mental health treatments are available for a range of mental disorders, a better understanding is needed of young adults' barriers-to-care. Therefore, our study provides insight into young adults' barriers-to-care.

Furthermore, insufficient knowledge exists of determinants of psychotic symptoms and deviant patterns of alcohol use, which are problem behaviours that often first emerge in young adulthood. We will examine how often psychotic symptoms occur among young adults, and whether there are ethnic disparities in the prevalence of psychotic symptoms, which is the case for schizophrenia. In addition, we will examine whether ethnic disparities in the prevalence of psychotic symptoms can be attributed to disparities in social adversity. Furthermore, we examined associations between alcohol consumption and mental health problems.

For this study, we used data from 2258 young adults from 35 municipalities in the southwest Netherlands.

Findings

In *chapter 2* we examine socio-demographic inequalities in the use of mental health services. Only 35% of young adults with serious emotional or behavioural problems have used mental health services. The percentage is significantly lower among men, younger participants (up to 25 years), the higher educated, persons who live alone, and employed persons. Men are less likely to use mental health services due to a lower subjective need for care. A lower subjective need is also the reason for the low mental health service use among employed young adults. No empirical explanations are found for the other socio-demographic inequities.

Chapter 3 explores reasons for not seeking professional help for serious emotional or behavioural problems. We find great psychological barriers-to-care, including problem denial, perceiving problems as self-limited and perceiving help-seeking negatively (e.g., thinking that treatment will not help). Young adults with serious

behavioural problems often deny having problems, whereas young adults with serious emotional problems often perceive help-seeking negatively. We have also examined the impact of practical barriers-to-care, such as financial barriers. This impact is found to be minimal.

Chapter 4 describes the beliefs that young adults have about their mental health problems. Help-seeking behaviour is strongly associated with beliefs about the cause, consequences and controllability of mental health problems, and to a lesser degree with problem severity. Three beliefs strongly predict the use of mental health services: the belief that problems have an intra-psychic cause (e.g., a lack of self-esteem), the belief that problems have negative consequences and the belief that treatment could help control these problems. In addition, perceiving that problems are under personal control predicts a decreased likelihood of mental health service use in men only.

In *chapter 5* we demonstrate that non-Western immigrants do not differ from Dutch natives in the use of primary mental health services, but that they are less likely to have used specialty mental health services. The underutilization of specialty mental health services among non-Western immigrants could be attributed to external causal attributions and pessimistic beliefs about mental health treatment. The greater endorsement of biographical (e.g, a difficult childhood) and social causes (e.g., financial problems) among non-Western immigrants may explain why they believe that mental health treatment, which mostly focuses on intra-psychic aspects, would not be useful.

Chapter 6 reveals that all non-Western immigrant groups report hallucinations (seeing or hearing things that aren't there) more often than Dutch natives. Western immigrants, however, did not differ from Dutch natives. The increased likelihood of self-reported hallucinations among non-Western immigrants could partly be attributed to the experience of social adversity, such as a significant drop in financial resources or having little social support.

In *Chapter 7* associations are examined between alcohol consumption and mental health problems. People who abstain from alcohol or who drink only occasionally as well as people who drink excessively are more likely to have internalizing problems than moderate drinkers. The increased likelihood of internalizing problems in nondrinkers is associated with having lower social support, whereas the increased likelihood in excessive drinkers is associated with the experience of negative social exchange with family and friends. Furthermore, strong and direct associations are found between excessive drinking and externalizing behaviour, such as aggression and rule-breaking behaviour.

Discussion and implications

In *chapter 8* we present the main conclusions of this thesis. Ideally, the use of mental health services would depend only on need for care, and not on non-need factors such as educational level or ethnicity. However, in this thesis it was demonstrated that the use of mental health services does not solely depend on need for care, but is also subject to predisposing factors (e.g., 'tendency to consult'), knowledge of mental health problems and socio-demographic characteristics (e.g., ethnicity). There are great psychological barriers-to-care, including problem denial, the perception that problems are self-limited, and a negative perception of help-seeking. These barriers are related to limitations in knowledge of mental health problems and the treatments that are available. For this reason we recommend the implementation of mental health awareness campaigns, like those developed in Australia. Awareness campaigns encourage help-seeking behaviour; with better knowledge of mental health problems, people are more likely to seek professional help. At the same time, mental health services will need to become more age-appropriate and ethnic-friendly. Age-appropriate mental health care would involve integrating relevant services (such as mental health and substance use services) and developing e-mental health systems to enhance service delivery. Ethnic-friendly mental health services would involve better addressing biographical and social aspects, since these factors may contribute to the poor mental health of non-Western immigrants.

Factors pertaining to social adversity are found to contribute to the increased prevalence of self-reported hallucinations among non-Western immigrants. In addition, we found that social factors contribute to the higher level of mental health problems among non-drinkers and excessive drinkers when compared to moderate drinkers. Further research is needed to examine whether social adversity actually has a causal role in the development of psychotic symptoms and alcohol-related problems. Nonetheless, interventions aimed at reducing psychotic problems could be improved by targeting social conditions, e.g., by augmenting levels of social support and the socio-economic position. Interventions aimed at reducing excessive drinking could also be improved by addressing social factors, such as the social interaction with family and friends.

Samenvatting

Samenvatting

Inleiding

Het eerste doel van deze studie is om meer inzicht te krijgen in het hulpzoekgedrag van jongvolwassenen met psychische problemen. Het tweede doel is om inzicht te krijgen in enkele probleemgedragingen die vaak voor het eerst hun intrede doen in de jongvolwassenheid, namelijk psychotische problematiek en problemen met alcoholgebruik.

In *hoofdstuk 1* schetsen we de achtergrond van deze studie. Uit eerder onderzoek is gebleken dat psychische problemen vaak ontstaan in de jongvolwassenheid. Tevens is bekend dat jongvolwassenen niet snel geneigd zijn om professionele hulp te zoeken voor hun psychische problemen, dat hun psychische problemen soms lang kunnen duren en dat deze problemen een weerslag hebben op scholing, loopbaan en sociale relaties. Aangezien er effectieve behandelingen bestaan voor een breed scala aan psychische stoornissen, is er meer kennis nodig over barrières bij het zoeken van professionele hulp bij jongvolwassenen. Onze studie wordt uitgevoerd om te bepalen wie hulp zoekt en wie niet, en wat daarvoor de redenen kunnen zijn.

Ook is er nog onvoldoende bekend over problemen die vaak voor het eerst hun intrede doen in de jongvolwassenheid, te weten psychotische problematiek en alcoholproblemen. We onderzoeken hoe vaak hallucinaties onder jongvolwassenen voorkomen en of er verschillen zijn tussen autochtonen en groepen allochtonen, net zoals dit het geval is bij schizofrenie. Verder onderzoeken we of etnische verschillen in het voorkomen van hallucinaties te herleiden zijn naar verschillen in maatschappelijke problemen. Tenslotte bestuderen we de relatie tussen alcoholconsumptie en psychische problemen.

Voor deze studie gebruiken we de gegevens van 2258 jongvolwassenen uit 35 gemeenten van Zuid-Holland.

Bevindingen

In *hoofdstuk 2* beschrijven we de sociaaldemografische verschillen in zorggebruik onder jongvolwassenen met ernstige emotionele of gedragsproblemen. Slechts 35% van de jongvolwassenen met ernstige emotionele of gedragsproblemen heeft professionele hulp gezocht in het afgelopen jaar. Dit percentage ligt significant lager bij mannen, jongere deelnemers (tot 25 jaar), hoger opgeleiden, personen die alleen wonen en personen met betaald werk. Mannen zoeken minder vaak hulp dan vrouwen omdat zij bij gelijke mate van problemen minder behoefte aan hulp blijken te hebben. Dit gebrek aan subjectieve hulpbehoefte ligt ook ten grondslag aan het lagere zorggebruik van jongvolwassenen met betaald werk. Voor de overige sociaaldemografische verschillen in zorggebruik hebben we geen empirische verklaringen kunnen vinden.

Hoofdstuk 3 beschrijft de redenen waarom jongvolwassenen met ernstige emotionele of gedragsproblemen geen professionele hulp zoeken. Er blijken forse barrières te bestaan om hulp te zoeken, namelijk ontkenning of onderschatting van de problemen en een negatieve houding ten aanzien van het zoeken van hulp (zoals pessimisme over het nut van de hulpverlening). Jongvolwassenen met ernstige gedragsproblemen ontkennen vaker dat ze problemen hebben, terwijl jongvolwassenen met ernstige emotionele problemen vaker een negatieve houding hebben ten aanzien van het zoeken van hulp. Daarnaast hebben we gekeken naar de rol van praktische barrières bij het zoeken van hulp, zoals wachtlijsten en financiële drempels. In ons onderzoek spelen dit soort barrières geen rol.

Hoofdstuk 4 beschrijft de opvattingen die jongvolwassenen hebben ten aanzien van hun psychische problemen. Hulpzoekgedrag blijkt sterker samen te hangen met opvattingen over de oorzaak, consequenties en behandelbaarheid van psychische problemen dan met de ernst van problemen. Drie opvattingen hangen sterk samen met het zoeken van professionele hulp: het idee hebben dat het probleem 'van binnen' zit (bv. een gebrek aan zelfvertrouwen), denken dat psychische problemen negatieve consequenties hebben en dat psychologische hulpverlening zou kunnen helpen. Daarnaast geldt voor mannen dat het idee persoonlijk controle te hebben over de problemen de kans op het zoeken van hulp verlaagt, terwijl dit voor vrouwen niet geldt.

In *hoofdstuk 5* wordt beschreven dat jongvolwassenen van niet-westerse komaf net zo vaak hulp zoeken bij hun huisarts voor psychische problemen als Nederlandse jongvolwassenen, maar dat zij minder gebruik maken van de GGz. Het lage GGz-gebruik van niet-westerse allochtonen is toe te schrijven aan hun opvatting dat de problemen niet 'van binnen' zitten en dat psychologische hulpverlening niet zou helpen. Niet-westerse allochtonen geven vaker aan dat hun problemen veroorzaakt worden door biografische factoren (zoals een moeilijke jeugd) en maatschappelijke factoren (zoals financiële problemen). Dit verklaart waarom niet-westerse allochtonen minder heil zien in psychologische hulpverlening, aangezien de hulpverlening zich vooral richt op psychische factoren.

Hoofdstuk 6 beschrijft dat alle niet-westerse allochtonen vaker hallucinatoire ervaringen (stemmen horen of dingen zien) rapporteren dan autochtonen. Westerse allochtonen verschillen daarentegen niet van autochtonen. Het verhoogd voorkomen van hallucinaties onder niet-westerse allochtonen blijkt voor 28%-52% toe te schrijven aan de grotere maatschappelijke problemen die niet-westerse allochtonen ondervinden, zoals een verslechtering van de financiële situatie of het ontbreken van sociale steun.

Hoofdstuk 7 beschrijft de associaties tussen alcoholconsumptie en psychische problemen. Zowel mensen die niet of nauwelijks drinken als mensen die overmatig

drinken hebben meer emotionele problemen dan matige drinkers. Het verhoogd risico op emotionele problematiek onder niet-drinkers houdt verband met het ontbreken van sociale steun, terwijl het verhoogd risico onder overmatige drinkers verband houdt met spanningen in het contact met vrienden of familie. Verder blijkt dat een hoog niveau van alcoholconsumptie sterk samenhangt met gedragsproblemen, zoals agressief en regelovertredend gedrag.

Discussie en aanbevelingen

In *hoofdstuk 8* worden de belangrijkste conclusies van dit proefschrift gepresenteerd. Ons standpunt is dat zorggebruik idealiter alleen afhangt van de behoefte aan zorg, en niet van overige kenmerken zoals opleidingsniveau of herkomst. In dit proefschrift is echter aangetoond dat het zorggebruik van jongvolwassenen niet alleen afhangt van de objectieve of subjectieve zorgbehoefte, maar ook van iemands geneigdheid om hulp te zoeken (bv. van de 'tendency to consult'), van kennis over psychische problemen en van sociaaldemografische kenmerken (bv. land van herkomst). Er blijken forse barrières te bestaan voor het zoeken van hulp, namelijk ontkenning of onderschatting van de problemen en pessimisme over het nut van de hulpverlening. Deze barrières hebben te maken met een gebrekkig inzicht in psychische problemen en een gebrekkige kennis over de mogelijkheden voor behandeling. Onze aanbeveling is dan ook om bewustwordingscampagnes in te voeren, naar Australisch voorbeeld. Bewustwordingcampagnes stimuleren hulpzoekgedrag: door betere kennis over psychische problemen zoeken mensen eerder professionele hulp. Aan de kant van de hulpverlening is eveneens verbetering mogelijk. Ten eerste, de hulpverlening zou zich beter kunnen toespitsen op jongvolwassenen door het hulpaanbod beter te integreren (bv. door hulp voor psychische problemen en middelengebruik te integreren) en door gebruik te maken van het Internet om de toegang naar zorg meer laagdrempelig te maken. Ten tweede, de hulpverlening zou beter tegemoet kunnen komen aan de specifieke zorgbehoeften van niet-westerse allochtonen, door in te spelen op de maatschappelijke moeilijkheden en biografische aspecten (zoals een moeilijke jeugd) die met name niet-westerse allochtonen parten spelen.

Ongunstige sociale factoren zoals een gebrek aan sociale steun blijken van belang in de verhoogde prevalentie van hallucinaties onder niet-westerse migranten. Daarnaast spelen sociale factoren een rol in de hogere prevalentie van psychische problemen van niet-drinkers en overmatige drinkers vergeleken met matige drinkers. Verder onderzoek is nodig om na te gaan in hoeverre sociale factoren ook echt een causale rol hebben in de ontwikkeling van psychotische problematiek en alcoholproblematiek. Interventies die zich richten op het terugdringen van psychotische problematiek zouden desalniettemin mogelijk verbeterd kunnen worden

door het behandelen van sociale thema's, zoals het mobiliseren van sociale steun en het verbeteren van de maatschappelijke positie. Interventies gericht op het terugdringen van excessief drinken zouden eveneens mogelijk verbeterd kunnen worden door het behandelen van sociale thema's, zoals de manier van omgaan met anderen.

Dankwoord

Dankwoord

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Kathleen

Curriculum Vitae

Kathleen Vanheusden werd op 29 november 1977 geboren te Den Haag. In juni 1996 behaalde zij haar VWO-diploma aan het Alfrinkcollege in Zoetermeer. Daarna studeerde zij 9 maanden aan het Education First college in Londen, waar zij het Cambridge Proficiency English diploma behaalde en onderwijs volgde in 'abnormal psychology' en 'creative writing'. In september 1997 begon zij met de studie Psychologie aan de Universiteit van Leiden. Zij koos voor de afstudeerrichting Functieleer, evenals de richting Klinische & Gezondheidspsychologie. Tijdens haar studie werkte zij als student-assistent in het onderwijs, bij de vakgroep Methoden en Technieken van Psychologisch Onderzoek. In het laatste jaar van haar studie liep zij stage binnen de afdeling Neuropsychologie van het Leidsch Universitair Medisch Centrum. Binnen deze stage verrichte zij neuropsychologisch onderzoek bij patiënten met cognitieve stoornissen, zoals de ziekte van Alzheimer. Vervolgens schreef zij haar afstudeerscriptie over in hoeverre cognitieve stoornissen bij ouderen gepaard gaan met desoriëntatie in tijd, plaats en persoon, bij de afdeling Medische Psychologie van het Onze Lieve Vrouwe Gasthuis te Amsterdam. In het najaar van 2002 studeerde zij af. Aansluitend werkte zij een half jaar in het onderwijs bij de vakgroep Methoden en Technieken van Psychologisch Onderzoek. Vanaf maart 2003 tot en met oktober 2007 was zij als onderzoeker verbonden aan het Erasmus Medisch Centrum. Zij voerde een promotieonderzoek uit bij de afdeling Kinder- en Jeugdpsychiatrie, in nauwe samenwerking met de afdeling Maatschappelijke Gezondheidszorg. De resultaten van dit promotieonderzoek staan beschreven in dit proefschrift. Vanaf november 2007 is zij werkzaam als psycholoog bij de afdeling Klinische Genetica van het Erasmus Medisch Centrum, waar zij zich bezig houdt met patiëntenzorg, wetenschappelijk onderzoek en onderwijs.