Mental health services use in the general Belgian population: estimating the impact of mental health and social determinants

by

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Abstract

Background

At present, variations in the relationship between social factors and the use of mental health services have already been examined in several countries differing in the organisation and financing of mental health services (Alegria & Bijl et al. 2000; Pescosolido & Boyer 1999). Research of social factors influencing services use in Belgium so far often focused on general health care use (Louckx & Vanroelen and Beck 2001; Van der Heyden & Demarest et al. 2003; Van Doorslaer & Buytendijk and Geurts 2001).

Objective

We analyse the link between mental health services use and the frequency and severity of common mental health complaints in the general population.

Methods

Logistic regression models are estimated using both the 2001 and 2004 wave of the 'Health Interview Survey' - two independent samples of the general Belgian population. Use of mental health services is measured by distinguishing individuals with from patients without contact with (a) a psychiatrist, (b) a general practitioner for social or psychosocial problems, (c) a specialist for social or psychosocial problems, or (d) a psychologist. The social factors included in our models are education, household income, employment status, marital status, nationality, and two proxies for informal social support. Mental health status is measured using three dimensions – depression, anxiety, and somatisation – of the Symptom Checklist SCL-90r.

Results and conclusions

Results confirm that people with common mental health complaints are an important group making use of health services. Nevertheless, health service use, because of mental health problems, is only partially based on the mental health status: the less

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educated, members of poorer households, and the unemployed are less inclined to seek professional help. Finally, general practitioners are important providers of help to persons with common mental health problems and, moreover, function as key persons in tackling mental health inequalities.

Introduction

The aim of the present study is to clarify the link between the use of mental health services and the frequency and severity of common mental health complaints in the general population. Sometimes the accumulation of such complaints leads to real psychopathologies like anxiety, depression, or somatisation disorder, usually called 'common mental disorders'(1). In general (2), but also in Belgium (3), a vast gap between suffering from mental health problems and using mental health services exists. Hence, the burden of mental ill health caused by common mental disorders mostly goes unnoticed (4).

Furthermore, a lot of mental health service use is not based on the mental health status. Two decades of epidemiological research has shown that variation in the use of mental health services due to social descriptors is considerable and cannot be ignored: in various countries and for a huge array of services, there is empirical evidence for links between mental health services use on the one hand and gender, education, income, employment status, and nationality (3;5-9) on the other hand. Understanding why health services use is not based on the mental health status has become an important issue (10). First, of course, the phenomenon has to be described and for Belgium, up to this date, no one has explored the link between common mental health complaints and mental health services use in the general population. Using data from the Belgian Health Interview Surveys of 2001 and 2004, we try to fill this gap. We want to gain insight in the social patterning of the use of the services of general practitioners, psychiatrists and psychologists. We emphasise the social mechanisms behind health service use instead of the illness characteristics (the visibility, seriousness, and frequency of symptoms) that influence the decision of the individual whether to seek care and which care. We use the model of Anderson (11) to emphasise social structural determinants of mental health service use. The mental health status is measured using three dimensions – depression, anxiety, and somatisation – of the SCL-90r (12). The social structural factors included in our model are education, household income, employment status, marital status and nationality. In addition we use the Pescosolido Network Model to emphasise social support determinants of mental health service use. Social support factors included in our model are frequency of and satisfaction with social contacts.

In general our results confirm that people with common mental health complaints are an important group of users of health services. Nevertheless, health service use, because of mental health problems, is only partially based on the mental health status:

the less educated, members of poorer households, and the unemployed are less inclined to seek professional help. Finally, general practitioners are important providers of help to persons with common mental health problems and, moreover, function as key persons in tackling mental health inequalities.

Theoretical background

In this study we focus on an individual's decision to engage in a particular health behaviour: to consult mental health care providers within the formal system. This is one of the actions that assist individuals in maintaining their mental health.

Various models categorise social barriers or determinants that lie between the individual and the decision to seek for a formal mental health provider. Based on Andersen's behavioural model of health services use (11), social structure has received a lot of attention in population studies as an explanatory mechanism in health care seeking behaviour. The model of Andersen was developed in 1968 (13) and revised by Andersen and Newman in 1995 (11). It clarifies the use of health services as part of a collective response to situations shared by members of social groups. It is manifest in its delineation of social attributes in predisposing the use of services, as well as of the availability of resources in enabling the use of services. Predisposing factors are associated with the tendency to seek care, both social and biological characteristics that are termed immutable. Enabling factors on the other hand, are mutable and refer to changeable resources that make it possible to act on a desire to receive care. Systems of stratification that cut across societies have great impact on the access to health (care) information and the access to very basic needs such as food and shelter, to consumer goods such as telephone or internet access, and to public services. One can distinguish different predisposing and enabling factors whereupon social structure is based: educational degree, economic market situation, income, and nationality.

But social structure indicators do not fully explain why individuals seek professional help. New approaches to care seeking behaviour are more dynamic and state that care seeking rarely happens in isolation (13). The Pescosolido Network Model emphasises that family and social networks in which people are involved, manage and initiate treatment. Within this view, social support as a social exploratory mechanism in health care seeking behaviour has received rising attention in population studies. It includes resources provided by other persons as well as the social networks that surround the individual and that one actually uses in dealing with life problems. Thus, one can distinguish between two different dimensions of social support. Structural characteristics refer to the presence of social relationships, as reflected in factors such as living arrangements (having a partner, having children), and number of social contacts. Functional characteristics refer to the quality of relationships, as indicated, in the satisfaction with social contacts (41). Social support (structural and functional)

serves as a motivator to find the way to formal mental health providers as well as alternatives to deal with mental health problems by the use of the formal system.

Yet, besides social influences on health services use, the mental health status is underscored as the primary factor. Therefore, both should be included to understand health services use.

Previous Research

Based on previous research in health care seeking, what can be expected from the associations between the use of mental health services and the social indicators of social structure and social support?

Van der Heyden et al. (14) explored the independent influence of education and income on the probability of the use of different types of health services in Belgium: the general practitioner, the specialist physician, the dentist, nursing care at home and hospital care. Adjusted for health status (measured by chronic diseases, functional limitation, and perceived health status) higher educated and higher income groups report more visits to the specialist and the dentist. Louckx et al. (15) investigated who has difficulties in paying for health care expenses. Those with a lower equivalent income, a lower educational degree, the sick or disabled and single parents report more difficulties in paying for health care expenses.

To our knowledge, only one study explored the impact of some indicators of social structure and social support on the mental health services use within the Belgian context. Alonso et al. (3) explored mental health services use for anxiety and mood disorders in a study conducted in six countries (Belgium, France, Germany, Italy, The Netherlands and Spain). They measured the relationships between education (indicator of social structure), marital status (indicator of social support), and the use of formal health services (adjusted for age, gender, urbanisation, and country). Overall, consultation was more likely by those highly educated, and by those who have never been married. Mental health status was the most important determinant associated with use. However, these relations were explored in the six countries sample as a whole, and thus not conducted for Belgium separately.

In sum, information about health services use for mental health problems in the Belgian general population is lacking at present. Nevertheless, research in related areas (14;15) suggests that mental health services are only partially based on the mental health status. Individuals in deprived positions, defined by income and education, are less likely to use health care. Furthermore, formal health care is also more used in the absence of social support.

Methods

Data

The data, derived from the Belgian 'Health Interview Survey', were collected in 2001 and 2004 by the Scientific Institute of Public Health, Unit of Epidemiology. The survey aims at gathering information on the health status and the health behaviour of the Belgian, non-institutionalised, population. The dataset is based on a multi-stage stratified sample of Belgian households within municipalities. The response rate is 61.4%. 10,156 respondents in 2001 and 11,220 respondents in 2004, all aged 15 or more, filled in a self-administered questionnaire. The data are organised at three levels: the level of the households concerns information on the participating households, the individual level includes information on the household members, and finally, two sub-individual levels are researched: one concerns information on contacts with health care providers during a specific reference period, the second is about the consumption of medical drugs in the past 24 hours. For the present analyses, the samples of both health interview surveys were pooled (N=21,376). Because full information on all key variables is available only for 15,085 respondents, or 71% of the total sample, item missing value imputation was used to reduce attrition rates. These data manipulation techniques are described below. The result is a final working sample of 17,354 respondents (N_{men}=9055; N_{women}=8299), or 81% of the baseline sample.

Measurements

<u>*Use of mental health services: general practitioners, psychiatrists and psychologists*</u>

Mental health service use was measured using four dummy variables (coded one in the presence of the stated condition and zero otherwise).

Three indicators of the use of specific services were constructed. GP-use for mental health reasons measures whether the respondent visited a general practitioner for 'social or psychological problems' at least once in the last two months. Contacts with psychiatrists indicates whether the respondents visited a psychiatrist during the two months before the interview. Finally, respondents who reported a visit to a psychologist during the past year scored positive on the 'contact with a psychologist' indicator.

In order to get an indication of the overall service use for mental health problems, the information on the specific indicators was added and dichotomised (1=having visited a general practitioner, a psychiatrist, or a psychologist for social or psychological problems).

Finally, 5.5% of the sample (952/17,354) had at least one contact for mental health reasons with any of the providers, while 297 persons, or 1.7%, contacted a general practitioner at least once. The rates of contact with a psychiatrist or a psychologist are, respectively, 1.7% (298/17,354) and 2.9% (499/17,354).

Mental health complaints: common mental disorders

Mental health is measured by three subdimensions of the Symptom Checklist 90 Revised (12): depression, anxiety, and somatic complaints. In general, the inventory has good psychometric properties. These are confirmed for the depression and anxiety subscales used in the Belgian Health Interview Survey (22). The validity of the somatisation subscale has been questioned. Hence, following Arrindell & Ettema (22), the subscale is considered to be a more valid indicator of somatic complaints instead of somatisation.

The SCL-90r depression scale consists of 13 items and has a satisfying reliability (Cronbach's α=.90); the SCL-90r anxiety scale counts 10 items, with a good reliability (Cronbach's α=.88); the same accounts for the somatic complaints subscale consisting of 12 items (Cronbach's α=.84). Individuals indicated how much they were distressed by the listed problems during the past week, including the day of the interview. Answering categories ranged between ever, a little, sometimes, seldom and never.

If information was missing on more than 40% of the items (this equals five items of the depression scale, five items of the somatic complaints scale, and four items of the anxiety scale), the respondents were excluded from the analyses. This reduced the baseline sample with 14.7%. Scores were summed with higher scores indicating more frequent complaints. The mean scores were 17.6 (SD=6.73) for the depression subscale, 12.8 (SD.=4,65) for the anxiety subscale, and 16.5 (SD=5.47) for the somatisation subscale. There are no validly established cut-offs (23). Levecque et al. (22) recommended to use the 90th percentile to define caseness. In order to preserve enough power for the analysis, we opt for an 80% threshold instead of a 90% norm. Using these cut-offs, 2958 persons, or 17.0% are categorised as depressed; 3269 respondents or 19.0% scored above the threshold for anxiety, and finally, 3369 persons, or 19.4% reported high scores on the somatic complaints inventory. To control for the robustness of the findings, we also ran the analyses with a cut-off at 90%. The results of these analyses did not differ.

Social structure

Based on Andersen's behavioural model of health services use, we included different predisposing and enabling factors upon which social structure is based: household income, education, employment status and nationality.

The equivalent household income is an indicator for the individual's access to material goods, taking into account the household size and composition, in order to enhance the comparability of the incomes of different households. For the calculation of the equivalent income indicator the 'modified OECD-scale', first proposed by Hagenaars et al. (24), was used. The first adult in the household was given a weight of one, every other adult in the household 0.5 and every child (younger than 18) 0.3.

Based on the sum of all weights within the household, the total household weight was calculated. To calculate the equivalent household income, the household income was divided by the total household weight. The scores were categorised in five groups: less than 750 €, 750-1000 €, 1000-1500 €, 1500-2500 €, and more than 2500 €. An equivalent income between 1500 en 2500 € is the median income category, containing 29% of the sample. In addition, 5.2% of the sample is deprived, having an income of less than 750 €. Finally, 22.8% have an equivalent household income of more than 2500 €.

More than 10% of the respondents refused to disclose their household income. Because refusal is likely to be linked to income, excluding these respondents from the analyses could introduce a selection bias. Therefore, first, sample mean imputation was used. Moreover, as it is unlikely that the sample mean is a reliable indicator of the subgroup that refused to disclose income, a dummy control variable was created, coded one if income mean substitution took place and coded zero if otherwise. This dummy is added to the equation in order to correct for selection bias and to model possible differences between the subgroup and the rest of the sample on the outcome variables (see Paul et al. (25) for more information on this procedure).

The highest educational degree of an individual is the indicator for one's knowledge and availability of information. Level of education is measured by the level of the highest diploma obtained: higher education (26.1%), higher secondary education (26.5%), lower secondary education (19.0%), no diploma or a primary education (17.1%), and respondents on daytime education (8.8%). Respondents with a higher secondary degree were the reference category.

Employment status is represented by an indicator consisting of six categories: employed (47%), unemployed (5.6%), housewife/man (6.8%), on retired (26.7%), unable to work due to invalidity (2.6%), and a rest category of other conditions (1.9%).

Nationality is a categorical variable with three categories: Belgian (91.3%), EU (non-Belgian) inhabitants (5.9%), non-EU inhabitants (2.8%).

Social support

We use the Pescosolido Network Model to emphasise social support determinants of mental health service use. We used two indicators based on the "Medical Outcome Study Social Support Survey" (MOS). One question distinguished between people who are satisfied with their social contacts (very happy and almost happy) and people who are not (almost unhappy, very unhappy).

The second question distinguished between people who have at least one social contact a week and people who have less contacts.

These two indicators are proposed by the HIS team to narrow down the discussion on how many and which dimensions social support includes. Hence we distinguish two different dimensions of social support. Structural characteristics are represented by the variable social integration and reflect the presence of social relationships and living arrangements. Functional characteristics are represented by the variable social support and refer to the quality of social contacts.

Social integration: we consider four dummy variables: without partner (=1) (26.6%), having at least one child (=1) (32.8%), being part of a complex household (=1) (13.6%), and 'have social contact at least once a week' (yes =1) (7.6%).

As an indicator for satisfaction with social support, respondents were asked whether they were satisfied with their social contacts. Respondents answered with yes (=0) or no (=1). 7.6% was not satisfied with the social contacts they had.

Control variables

Sex (0=men, 1=women) and age were added as controls. The age of the respondents was centered around the age of 40. Mean age of the sample is 48 and 52.2% of the sample is female.

TABLE 1. Sample descriptives

sex	
men	47.8
women	52.2
age	mean 8.11; DD 19.34
need	
depression	17.0
anxiety	19.0
somatisation	19.4
social structure	
student	8.8
educational level	
no education or primary education	19.3
lower secondary	21.4
higher secondary	29.9
higher education	29.4
income category (€ per month)	
<750	5.2
750-1000	9.5
1000-1500	20.2
1500-2500	29.0
>2500	22.8
missing	13.3
nationality	
Belgian	91.3
EU (non-Belgian)	5.9
non EU	2.8
economic market situation	
paid job	47.0
unemployed	5.6
disabled	2.6
retired	26.7
houseman/-wife	6.8
other	1.9
social support	
family situation	
single	26.6
couple	59.8
complex	13.6
children under age 12	
yes	32.9
no	67.1
frequency of social contact	
less than once a week	7.6
more than once a week	92.4
satisfaction with social contact	
yes	7.6
no	92.4

Analyses

Because the outcome indicator is dichotomous, estimations are carried out with logistic regression to predict the probability of a medical encounter for mental health reasons with a selected mental health care provider. Separate multivariable analyses and calculations of odds ratios and 95% confidence intervals for reporting contact with a general practitioner, psychologist, psychiatrist, or any other health care provider were conducted. A respondent is considered as a user if he/she consulted a provider, and is considered as a non-user if not. The list of predictor variables consists of need indicators (depression, anxiety and somatic complaints) and social indicators (income, education, the economic market situation, nationality, living arrangements, and perceived satisfaction with social support). Analyses are controlled for age and sex.

Results

Mental health and service use: odds ratios.

<u>Is mental health care use based on the mental health status?</u>

In table 2, the odds of mental health service use are summarised for people defined above or below the thresholds of depression, anxiety and somatisation. They show that, in general, service use is based on the mental health status. Common mental health problems are important reasons to consult service providers. Nevertheless, the percentage of users is rather small compared with the percentage of respondents with high scores on depression, anxiety, and somatisation. Hence, a substantial amount of people with above threshold severity and frequency of complaints did not mention seeking help from professional providers. Furthermore, a substantial number of persons in absence of a common mental health problem had at least one contact with a general practitioner, a psychologist, or a psychiatrist for mental health reasons.

<u>Is consulting a general practitioner, psychologist or psychiatrist based on the mental health status?</u>

The odds ratios are highest for contact with general practitioners both for people with complaints of depression (OR_{GP}=5.869; CI 4.659-7.401), and for people with complaints of anxiety (OR_{GP}=6.151; CI 4.879-7.768). These findings stress the importance of GPs for the treatment of common mental disorders or depression-/anxiety-related complaints.

Odds ratios are lowest for the consultation of psychologists compared to the odds ratios for visits to general practitioners and psychiatrists, for both depressed ($OR_{psychologist}$=3.861; CI 3.218 - 4.628) and anxious ($OR_{psychologist}$=3.822; CI 3.188-4.567) people, irrespective of the type of complaint. Hence, contact with psychologists is less driven by the severity and the frequency of complaints. Nevertheless,

psychologists were contacted more often than either psychiatrists or GPs, both among those with sub threshold and above threshold symptoms. Taken together these results point to the importance of psychologists in general, and to their importance for people with sub-threshold levels of mental health complaints.

Contact with psychiatrists is mostly driven by more severe complaints of depression ($OR_{psychiatrist}$=4.477 (CI 3.549-5.639)), and by high level of complaints on all three sub-dimensions combined ($OR_{psychiatrist}$=4.483 (CI 3.277-5.208)). Furthermore, psychiatrists are contacted more often than GPs, except for people with above-threshold complaints.

The odds for consulting a GP are highest for respondents with an anxiety syndrome, while the odds for consulting a psychiatrist or a psychologist are highest for respondents with severe complaints of depression, or with a high level of complaints regarding all three sub-dimensions. In sum, in the realm of common mental disorders, psychiatrists are most sought after by persons with a more severe cluster of mainly depression, but also anxiety and somatisation-related complaints. Of course, simple odds ratios do not take into account the influence of confounders. Moreover, the aim of the present research is to model both need ánd social determinants of service use. Therefore, we turn our attention to the results of the multivariate logistic regression analyses.

TABLE 2. Odds and odds ratio of ambulatory mental health use

	Total ambulatory			General practitioner			Psychiatrist			Psychologist		
Depression disorder	*N*	*odds*	*odds ratio*	*N*	*odds*	*odds ratio*	*N*	*odds*	*odds ratio*	*N*	*odds*	*odds ratio*
no (N=2958)	419	0.165	4.292	159	0.057	5.869	140	0.05	4.477	214	0.078	3.861
yes (N=14,396)	533	0.038		138	0.010		158	0.011		285	0.020	
Anxiety disorder												
no (N=3290)	446	0.157	4.292	172	0.055	6.151	144	0.046	4.134	229	0.075	3.822
yes (N=14,064)	506	0.037		125	0.009		154	0.011		270	0.020	
Somtisation disorder												
no (N=3369)	345	0.114	2.514	120	0.037	2.881	126	0.039	3.12	172	0.054	2.247
yes (N=13,985)	607	0.045		177	0.013		172	0.012		327	0.024	
Common mental disorder												
all (N=1392)	234	0.202	4.290	93	0.072	5.53	81	0.062	4.483	119	0.093	3.833
none (N=15,962)	718	0.047		204	0.013		217	0.014		380	0.024	

Logistic regression modeling

The results of the performed logistic regression analyses are summarised in table 3.

First, as concerns the mental health status determinants, the multivariate analyses allow to estimate their orthogonal effects on service use. The odds ratios in table 3

confirm that contact with a service provider is almost exclusively determined by the presence of severe complaints of depression and anxiety, somatisation. Having a depressive disorder increases the likelihood of contacting a health provider by 2.212 (CI=1.820-2.688), while an anxiety disorder increases the likelihood of contacting a health provider by 2.259 (CI=1.868-2.731). No significant impact of somatisation is measured. Comparable results are found (a) for GP use, with an OR of 2.662 (CI=1.914-3.703) for above-threshold depressive complaints and an OR of 3.129 (CI=2.255-4.342) for above-threshold anxiety; (b) for contact with a psychiatrist with an OR of 2.048 (CI=1.456-2.880) for above-threshold depressive complaints and an OR of 1.890 (CI=1.354-2.639) for above-threshold anxiety; and finally (c) for contacting a psychologist, with ORs of 2.074 (CI=1.587-2.712) and 2.169 (CI=1.670-2.817) for depressive disorder and anxiety disorder.

Second, estimations in the second half of table 3 show that, in spite of the strongly need-based care for mental health complaints, service use is also strongly influenced by social predictors.

To start with, we focus on variance in professional help-seeking related to social structural indicators. The less educated contact health providers less frequently for mental health problems independent of their mental health status. The reluctance of the less educated to seek professional help is especially striking concerning the help from psychologists ($OR_{primary\ school}$=0.484; CI=0.328-0.715; $OR_{university\ degree}$=1.355; CI=1.059-1.734). Where present the relationship between level of education and service use is linear. Persons with a university degree show the highest contact frequency (OR=1.274; CI=1.058-1.534), while people with a primary level degree report the least use of professional help (OR=0.778; CI=0.613-0.988). Educational differences in the propensity to contact a general practitioner are not significant, but more importantly, they are in the opposite direction: the lower educated are more eager to contact a general practitioner for mental health problems ($OR_{primary\ school}$=1.315; CI=0.910-1.900; $OR_{university\ degree}$=0.935; CI=0.667-1.312). Overall we find a social gradient in the use of professional help for mental health problems: the less educated turn to general practitioners, while those with post high school degrees make use of the more specialised services of psychiatrists and psychologists. In other words, GPs help tackling social inequalities in the use of mental health services because of their accessibility to the less educated.

In addition, household income plays an important role. First, we noticed that service use in general is less frequent for the lower income categories ($OR_{<750}$=0.622; $OR_{750-1000}$=0.682). Differences are more pronounced for seeking help from psychiatrists ($OR_{<750}$=0.496). These associations affirm the abovementioned finding that GPs help tackling social inequalities in mental health services use, but psychiatrists do not. It is important to notice that respondents who refused to disclose their household income have a service use pattern very similar to that of the lower income categories

($OR_{<750}=0.727$). Thus, probably a low income is a reason to keep one's income private. Moreover, this finding enhances our confidence in the validity of the applied missing data imputation technique.

As concerns work status, two conditions are significantly associated with mental health services use: being unemployed and being inactive due to invalidity.

Compared to the employed, the unemployed had less contacts with professional services in general (OR=1.375; CI=1.050-1.802). More specific analyses show this finding is restricted to seeking help from psychiatrists (OR=1.745; CI=1.071-2.841)): being unemployed probably indicates more severe mental health problems, preventing people from functioning at work. There are also strong associations between being inactive due to invalidity and the likelihood of contact with health care providers in general (OR=3.449; CI=2.585-4.601)) and with psychologists (OR=8.431; CI=5.623-12.640) and psychiatrists (OR=2.906; CI=1.965-4.297) in particular. This finding is more or less self-explanatory: besides symptoms, disability is a very important indicator of need. More important for the present investigation is the fact that the other associations hold, despite the fact that disability is taken into account.

Next, we find that EU immigrants contact professional providers less frequently (OR=0.563; CI=0.339-0.936). More in-depth analyses show this is limited to consulting general practitioners for mental health problems (OR=0.207; CI=0.051-0,846).

In sum, we found rather consistent inequalities in service use for mental health problems according to education and income.

We also noticed some differences in contact based on the absence of social support. Independent of the mental health complaints, singles (OR=1.485; CI=1.245-1.771) and persons with less than one contact per week (OR=1.290; CI=0.947-1.757) turned to professional providers more often. Differences were more pronounced for contacts with psychologists and psychiatrists, and are absent for contacts with GPs. Members of complex households are less likely to contact health providers in general (OR=0.664 (CI=0.554-0.858)) and to seek more specialised help from psychologists (OR=0.427 (CI=0.261-0.699)) or psychiatrists (OR=0.661 (CI=0.456-0.960)).

Finally, it is important to remind the reader that men were less eager to seek help from professionals in general ($OR_{overall\ use}$=1.391; CI=1.202-1.609)); and to contact general practitioners (OR_{GP}=1.491; CI=1.151-1.930) and psychologists ($OR_{psychologists}$=1.490; CI=1.222-1.816), irrespective of their mental health status. No gender differences in the propensity to contact psychiatrists were present. To end with, older persons were less likely to use the listed health services because of mental health problems, in general ($OR_{overall\ use}$=0.987; CI=0.981-0.993), or to contact psychiatrists ($OR_{psychiatrist}$=0.980; CI=0.971-0.989), irrespective of their mental health status. No age differences in the propensity to contact general practitioners and psychologists were found.

TABLE 3. Logistic regression of ambulatory mental health services use

	Total ambulatory			**General practitioner**			**Psychiatrist**			**Psychologist**		
	OR	*95%CI*		*OR*	*95%CI*		*OR*	*95%CI*		*OR*	*95%CI*	
constant	**0.030** ***			**0.008** ***			**0.009** ***			**0.013** ***		
sex												
men	**1.000**	1.000	1.000	**1.000**	1.000	1.000	**1.000**	1.000	1.000	**1.000**	1.000	1.000
women	**1.391** ***	1.202	1.609	**1.491** **	1.151	1.930	**1.045**	0.814	1.341	**1.490** ***	1.222	1.816
age	**0.987** ***	0.981	0.993	**0.995**	0.984	1.006	**0.994**	0.983	1.005	**0.980** ***	0.971	0.989
need												
depression	**2.212** ***	1.820	2.688	**2.662** ***	1.904	3.703	**2.048** ***	1.456	2.880	**2.074** ***	1.587	2.712
anxiety	**2.259** ***	1.868	2.731	**3.129** ***	2.255	4.342	**1.890** ***	1.354	2.639	**2.169** ***	1.670	2.817
somatisation	**1.106**	0.926	1.322	**0.913**	0.681	1.224	**1.201**	0.887	1.627	**1.188**	0.934	1.512
social structure												
student	**1.098**	0.831	1.451	**0.579** (*)	0.329	1.018	**0.789** (*)	0.413	1.507	**1.489** *	1.063	2.084
education level												
no education or primary education	**0.778** *	0.613	0.988	**1.351**	0.910	1.900	**0.687**	0.461	1.022	**0.484** ***	0.328	0.715
lower secondary	**0.886**	0.718	1.092	**1.075**	0.764	1.514	**1.152**	0.826	1.606	**0.732** *	0.540	0.992
higher secondary	**1.000**	1.000	1.000	**1.000**	1.000	1.000	**1.000**	1.000	1.000	**1.000**	1.000	1.000
higher education	**1.274** *	1.058	1.534	**0.935**	0.667	1.312	**1.472** *	1.060	2.044	**1.355** *	1.059	1.734
income category (€ per month)												
<750	**0.622** **	0.439	0.879	**0.779**	0.446	1.363	**0.496** *	0.275	0.898	**0.719** (*)	0.456	1.134
750-1000	**0.682** **	0.515	0.902	**0.616** *	0.377	1.008	**0.678**	0.425	1.081	**0.727**	0.501	1.055
1000-1500	**0.986**	0.807	1.204	**1.061**	0.759	1.484	**1.006**	0.720	1.406	**0.869**	0.656	1.150
1500-2500	**1.000**	1.000	1.000	**1.000**	1.000	1.000	**1.000**	1.000	1.000	**1.000**	1.000	1.000
>2500	**1.046**	0.859	1.274	**1.064**	0.754	1.503	**0.966**	0.671	1.139	**1.180**	0.910	1.532
missing	**0.728** *	0.567	0.935	**0.608** *	0.377	0.979	**0.797**	0.519	1.224	**0.719**	0.510	1.015
nationality												
Belgian	**1.000**	1.000	1.000	**1.000**	1.000	1.000	**1.000**	1.000	1.000	**1.000**	1.000	1.000
EU (non-Belgian)	**0.563** *	0.339	0.936	**0.207**	0.051	0.846	**0.614**	0.245	1.537	**0.736**	0.402	1.344
non EU	**1.202**	0.913	1.583	**1.063** *	0.650	1.741	**0.994**	0.598	1.650	**1.363**	0.953	1.951
economic market situation												
paid job	**1.000**	1.000	1.000	**1.000**	1.000	1.000	**1.000**	1.000	1.000	**1.000**	1.000	1.000
unemployed	**1.375** *	1.050	1.802	**1.186**	0.769	1.829	**1.745**	1.071	2.841	**1.362**	0.952	1.949
disabled	**3.449** ***	2.585	4.601	**1.500**	0.921	2.442	**8.431** *	5.623	12.640	**2.906** ***	1.965	4.297
retired	**0.901**	0.677	1.201	**0.568** *	0.350	0.924	**1.450**	0.906	2.321	**0.659** (*)	0.422	1.030
houseman/-wife	**0.865**	0.619	1.209	**0.669**	0.390	1.150	**1.390**	0.793	2.436	**0.828**	0.499	1.374
other	**1.107**	0.683	1.795	**0.813**	0.346	1.910	**1.486**	0.633	3.488	**1.407**	0.775	2.555
social support												
family situation												
single	**1.485** ***	1.245	1.771	**1.290**	0.947	1.757	**1.087**	0.802	1.472	**2.144** ***	1.694	2.715
couple	**1.000**	1.000	1.000	**1.000**	1.000	1.346	**1.000**	1.000	1.000	**1.000**	1.000	1.000
complex	**0.664** **	0.554	0.858	**0.893**	0.592	1.446	**0.427** *	0.261	0.699	**0.661** *	0.456	0.960
children under age 12												
yes	**0.925**	0.776	1.103	**1.069**	0.790	1.446	**0.763**	0.558	1.045	**0.967**	0.767	1.219
no	**1.000**	1.000	1.000	**1.000**	1.000	1.000	**1.000**	1.000	1.000	**1.000**	1.000	1.000
frequency of social contact												
less than once a week	**1.287** *	1.045	1.584	**1.039**	0.737	1.463	**1.497** *	1.073	2.088	**1.376** *	1.043	1.816
more than once a week	**1.000**	1.000	1.000	**1.000**	1.000	1.000	**1.000**	1.000	1.000	**1.000**	1.000	1.000
satisfaction with social contact												
yes	**1.000**	1.000	1.000	**1.000**	1.000	1.000	**1.000**	1.000	1.000	**1.000**	1.000	1.000
no	**1.113**	0.876	1.413	**1.144**	0.775	1.687	**0.923**	0.619	1.376	**1.024**	0.726	1.443

Discussion and conclusion

The aim of the present study is to clarify the link between mental health services use and the frequency and severity of common mental health complaints in the general population. The data, derived from the Belgian 'Health Interview Survey', were collected in 2001 and 2004 by the Scientific Institute of Public Health's Unit of Epidemiology. We use the model of Anderson (11) to distinguish between need-based and non-need-based determinants of mental health service use. Before discussing the main findings, some limitations of the study must be noted.

First, we used self-reported information from a study not explicitly designed to measure mental health service use. As a result our measure of service use is strongly driven by data availability. One drawback is that the contact information was not focused on mental health complaints in particular. Hence, the mental health service use is not registered by asking directly whether the individuals had sought treatment for a depression, anxiety or somatisation disorder. It is very well possible that the lower rates (5.5%) compared to other studies in the US (42) and Europe (8) indicate underreporting of mental health services use in a direct way. A second explanation could be that we do not take into account drug use. We disregarded drug use due to too much missing information and supposed lack of reliability of the data[1].

Second, mental health is measured using the SCL90r subscales anxiety, depression and somatisation. There are some known problems with the latter sub-dimension. Arrindell & Ettema (22) state that this subscale is a more valid indicator of somatic complaints instead of somatisation. Our finding of no substantial association between somatisation and seeking help from psychologists, psychiatrists, or general practitioners, after controlling for depression and anxiety, adds to the aforementioned doubts on the validity of this subscale.

Third, because valid, uncontested, population weights are absent, we were not able to weigh the sample to correct for stratified sampling and for oversampling of people aged 65 and above. Nevertheless, because both age and gender were included in the analyses, we are confident that the reported associations are independent of both, and hence are valid irrespective of the sampling design.

Fourth, in the Belgian Health Interview Survey some very important socio-demographic information, in particular on the household composition and marital status, is missing. For instance, we do not know whether respondents are divorced or cohabiting. As a result, our choice of independent variables is again strongly driven by data availability.

Despite these limitations, the present study revealed some interesting findings and important results.

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[1] We want to thank an anonymous referee for valuable remarks on this part of the discussion.

The findings confirmed the need-based nature of a substantial part of care seeking behaviour. People with depression and anxiety-related complaints are an important group of users of the services of GPs and of more specialised services of psychologists and psychiatrists. Of course, this finding is not unexpected. We use the association between common mental health problems and service use as a baseline finding that functions as a point of departure for the analyses of social determinants of mental health service use.

More interesting is, first, the finding that general practitioners play an important role when it comes to helping people with common mental health complaints. General practitioners are often the first professionals to be contacted (1). As a consequence they are an important source of referrals to specialist mental health care. However, empirical research (26) showed large differences in the way general practitioners fulfil this function. There is variation between general practitioners regarding available time, personal knowledge about the patient, skills, and cooperation with other chronic strain disciplines (27). More focused attention to mental health and wellbeing in the curriculum of medical faculties could help minimising these differences.

Second, we showed that, in absolute numbers, more than half of the clients visiting GPs, psychologists and psychiatrists have below-threshold levels of complaints. However, our indicator of mental ill health is only a rough measure of common mental health complaints. Moreover, it ignores problem behaviours, such as alcohol misuse, or more disabling mental health disturbances, such as psychoses. Nevertheless, the findings underscore the importance of so-called sub-clinical depression and anxiety (28) for the abovementioned practitioners and for health policy in general.

In sum, seeking professional help for mental health complaints is only partially need-based. Other conditions determine the use of health services. We discuss the most consistent findings.

First, validation of the Andersen model has been illustrated. A substantial social gradient in mental health services use is detected. The less educated are more hesitant to seek contact with health care providers for mental health problems. This reluctance is especially striking as concerns help from psychologists. Because we controlled for equivalent household income, the association cannot easily be explained by lack of financial resources. A more obvious hypothesis is that a more stringent stigma prevents the less educated to contact more specialised service providers (29). In contrast, less educated persons are more eager to contact a general practitioner for mental health problems. This means that GPs perform an important role in reducing the educational gradient in mental health service use; which again stresses the importance of the GP in the realm of mental health problems and basic mental health care. Apart from education, income also plays an important role. Specialised services use is lower among members of poorer households. An income gradient in care seeking from GPs for mental health problems is absent. This under-

scores the importance of financial barriers to specialised mental health care, and again points to GPs as key persons in tackling health inequalities. Because income and education are associated, the educational and income gradient in specialised mental health services use reinforce each other. The subgroup of less educated persons with a small equivalent household income are in double jeopardy of unmet needs, as concerns mental health problems. The persons inactive due to unemployment or invalidity report higher levels of service use. We hesitate to interpret this finding because of the cross-sectional nature of the dataset. Selection effects are, probably to a large amount, responsible for these associations. Nevertheless, we want to stress that by controlling for both conditions, we drastically enhanced the validity of the analyses. Both conditions are linked to disability, which is an important dimension of need, not tapped upon by the symptom inventories (18;30). By including both dummies in the regression equations, we made sure that service use based on the mental health status and service use based on social factors are properly separated.

Research in other countries seems to confirm that these empirical generalisations hold for mental health service use. Despite differences in the organisation of their health care, social structural influences on mental health services use have been observed in the Netherlands (16), Norway (17), Australia (9,18), the United States (8) and Canada (6). Adjusted for mental health status, these studies find that the lower educated are less likely to use mental health services. Studies of Alegria et al. (8) and Parlow and Jorm (9) looked for variations in mental health services by income in the Netherlands, Canada and the US. No significant association between income and probability of any mental health treatment was observed for persons with psychiatric disorders in any of the three countries. However, there were significant differences among countries in the association between income and sector of mental health care treatment. Furthermore, our research confirms that the unemployed were not more likely to make use of mental health services, independent of their mental health status, as was found in Canada (19), and Australia (9), but not in Finland (20). Finally, concerning the influence of social support on the mental health service use, population-based studies in Norway (17), the Netherlands (21) and Austria (9) suggest that social isolation increases contact with mental health care providers.

Second, the hypothesis – based on the work of Pescosolido (13) – that professional care and informal care are, to a certain amount, complementary gets some qualified support. Social isolation is linked to care seeking from professionals. The absence of an informal support network is an important determinant of professional help-seeking behaviour, not only because the social isolation has detrimental effects on mental health and well-being, but also because less integrated persons have fewer alternatives to turn to. More appropriate indicators of social integration and social support are needed to explore the links between support/integration and service use in the general population more in depth. Also, some caution is needed when interpreting

this association. The fact that singles and people with less than one social contact per week more often report contact with a psychologist or a psychiatrist could result from the fact that both specialised service use and social isolation indicate more severe complaints not identified by our indicators of mental health status. Nevertheless, the fact that the associations hold, even when controlling for employment status, e.g. being unemployed and being on sick leave, gives some confidence that the findings are sound and reliable.

To conclude, important gender and age differences in mental health service use were found. Basically, our findings confirm the results of numerous other studies (31). The use of less specialised care is strongly gender-based (32;33). Women more easily contact general practitioners and psychologists. The absence of this gender difference for contact with a psychiatrist leads to the conclusion that men use mental health services only for severe complaints (34;35). Our analyses rule out explanations referring to a gender-dependent access to social support or other social resources. Substantial age differences in contact with psychiatrists are apparent (36;37). A stigma could be a possible mediating factor (38). A cost issue is involved too, as consulting psychologists or psychiatrists is reimbursed less. Also probable is that among the aged, depression and anxiety-related complaints are more often incorrectly considered as part of the normal range of distress, as a result of which the aged are less frequently referred to specialists' care. Finally, a methodological explanation could be that the scales used to measure common mental health complaints have lower validity among the aged and substantially overestimate their mental health complaints (39).

For further research, we note that only selected fixed variables are tested as mediators for associations with the mental health care service use. By using this fixed list, the causal mechanisms behind the reported association with the mental health service use remains hidden and unknown, but the inference is that the causal mechanism is within the association. This method is sometimes called black box epidemiology and is under criticism (40). Some posit that the pathway to care requires a rather narrative and qualitative methodology to describe the process of seeking help in detail. However, identifying patterns of service use, based on exhaustive lists of variables, is a necessary prerequisite to the more detailed study of how, when, and why people enter care.

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