

MOST PEOPLE WITH MENTAL DISORDERS ARE HAPPY

A 3-year follow-up in the dutch general population

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ABSTRACT

Three questions are addressed: 1) How (un)happy are people with and without mental disorders? 2) What are the clinical characteristics associated with happiness among people with a mental disorder? 3) Does happiness predict recovery from mental disorders? A representative sample (N = 7076) of the Dutch population was interviewed at baseline and one and three years later. Mental disorders were assessed using the Composite International Diagnostic Interview. Happiness was measured using a single question on how often respondents had felt happy during the last four weeks. Of the respondents with a mental disorder 68.4% reported they had felt often happy, compared to 89.1% without a disorder. The unhappiness of people with mental disorders is associated with having a mood disorder and impaired emotional and social role functioning. Happiness enhances the changes of recovery from a mental disorder at follow-up. The implications are discussed.

Keywords: anxiety disorders, happiness, mental disorders, mood disorders, substance related disorders.

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1 INTRODUCTION

The main reason why we speak about mental disorders, is the suffering involved (APA, 1994). It therefore seems logical that people with mental disorders experience lower levels of happiness than people without disorders. This may be seen as so obvious that happiness is a neglected issue in mental health research. There are probably two main reasons for this neglect.

The first has to do with a tendency in research to focus on the negative aspects of functioning, while ignoring the positive (Seligman & Csikszentmihalyi, 2000). The new 'positive psychology' movement aims to correct this bias. There is good evidence that happiness has a positive influence on health and a host of other aspects of functioning (Lyubomirsky et al., 2005, Frederickson 2001). Positive emotions can be used to bounce back from negative experiences and emotions (Tugade et al., 2004; Frederickson et al., 2003) and therefore they are relevant for people with mental disorders.

A second reason is that well-being and ill-being have often been viewed as the mirror images of the same dimension, but positive and negative affect may be partly independent of the other (Ryff et al., 2006; Schreffin & Nelson, 2010). High levels of distress can go together with high subjective well-being (Headey & Wearing, 1992; Schimmack et al., 2004). This means that our knowledge of mental disorders is incomplete if we only look at the negative side of the spectrum. The current study aims to broaden the view on positive functioning and human strengths in the context of mental disorders.

Research questions

In this paper we address 3 questions: The first question relates to the size of the burden of mental disorder in terms of unhappiness. How (un)happy are people with mental disorders? We expect that they will be less happy than people without mental disorders, but do not know to what extent.

The second question deals with what kind of mental disorders are most detrimental to happiness. We were unable to find existing studies and expected that mood disorders would be most detrimental to happiness and that people can live fairly well with other mental disorders, in particular with less serious disorders such as a single phobia, that do not interfere too much with role functioning. We assessed whether it is the disorder itself that makes people unhappy, or the reduced functioning that goes with it.

The third question deals with whether happy moods influence the course of mental disorders. Happiness appears to foster physical health (Veenhoven, 2008) and we expected that the same will be true for mental health.

2 METHOD

2.1 Participants

The Netherlands Mental Health Survey and Incidence Study (N EMESIS) is a study on the prevalence, incidence, course and outcome of psychiatric disorders in a representative sample (N = 7076) of the general population aged 18-64 (Bijl, Van Zessen et al, 1998). The study is based on a sample of 90 Dutch municipalities, with the stratification criteria urban residence and adequate distribution over the 12 Dutch provinces. The second step was to draw a sample of private households from post office registers. The number of households selected in each municipality was determined by its population size.

The selected households were sent a letter of introduction signed by the national minister of public health asking them to take part. Shortly thereafter they were contacted by

telephone by the interviewers. Households with no telephone or unlisted numbers (18%) were visited in person. In each household, the member with the most recent birthday was selected, on the condition that (s)he was between 18 and 64 years and sufficiently fluent in Dutch to be interviewed. Persons who were not immediately available, due to travel, hospitalization or imprisonment, were contacted later. To establish contact, the interviewers made a minimum of ten phone calls or visits to a given address at different times of the day and week. These procedures were approved by the ethics committee of the Netherlands Institute of Mental Health and Addiction.

In the initial data collection phase, from February through December 1996, 7076 persons were interviewed (T0). The response rate was 69.7%. The participants in the survey reflected well the Dutch population in terms of gender, civil status and urban residence. The 18-24 age group was underrepresented (Bijl, Van Zessen et al, 1998).

All participants in the baseline interview were approached for the follow-up. As at T0, if necessary the interviewers made at least ten phone calls or visits at various times of the day and week. Of the 7076 persons who had taken part at T0, 5618 were interviewed twelve months later at T1 (response 79.4%) and of these 4796 subjects were interviewed two years later at T2 (response 85.4%) (De Graaf et al, 2000).

2.2 Variables

Mental disorder

The Composite International Diagnostic Interview (CIDI), Version 1.1 (computerized version) (Robins et al, 1988) was used to determine mental disorders. The CIDI is a structured interview that was developed by the World Health Organization (Wittchen et al, 1991) and is based on the Diagnostic Interview Schedule (DIS) and the Present State Examination (PSE). It is designed for use by trained interviewers who are not clinicians. CIDI 1.1 contains two diagnostic programs to compute diagnoses according to the criteria and definitions of either DSM-III-R or ICD-10. The CIDI is now being used worldwide, and WHO field trials have documented acceptable reliability and validity (Semler et al., 1987; Wacker et al., 1990; Farmer et al., 1991; Wittchen et al., 1989; Brown et al., 1994). The following DSM-III-R diagnoses are recorded in NEMESIS: mood disorders (depression, dysthymia, bipolar disorder), anxiety disorders (panic disorder, agoraphobia, simple phobia, social phobia, generalized anxiety disorder, obsessive-compulsive disorder) psychoactive substance use disorders (alcohol or drug abuse and dependence, including sedatives, hypnotics and anxiolytics), eating disorders, schizophrenia and other non-affective psychotic disorders. In our analysis we used the 1-month prevalence of disorders. The people without a disorder had no current disorder, but may have had a history of mental disorder.

Happiness

Happiness was measured using a single question taken from the Short-Form-36 Health Survey (SF-36) (Ware & Sherbourne, 1992; Ware et al., 1997) about the frequency of happy moods during the past four weeks. The scale ranged from 1 = never felt happy, 2 = rarely felt happy, 3 = sometimes felt happy, 4 = often felt happy, 5 = usually felt happy, until 6 = always felt happy.

Socio-demographic variables

We included age, gender, educational attainment, cohabitation status; living with a partner or not, irrespective of children, employment status; in paid employment or not, and degree of urban living (rural = municipalities with fewer than 500 addresses per square kilometer; urban = larger municipalities).

Role functioning

Role functioning was assessed using sub-scales of the SF-36, a health questionnaire. The reliability and validity of this instrument has been demonstrated (McHorney et al., 1993; McHorney et al., 1994; Burke et al., 1995; Aaronson et al., 1998). The scoring was performed in accordance with the guidelines of Ware & Sherbourne (1992). We used the scales emotional (3 items, Cronbach's $\alpha = 0.85$), social (2 items, Cronbach's $\alpha = 0.78$) and physical role functioning (4 items, Cronbach's $\alpha = 0.88$).

2.3 Analyses

The first research question about the (un)happiness of people with and without a mental disorder was addressed by using descriptive analyses, that is, comparison of the average happiness in both groups ([table 1](#)). The second research question about the clinical characteristics that are associated with less happiness was addressed using linear regression analysis, with happiness as a dependent variable and clinical and social demographic characteristics as possible confounders ([table 2](#)). The third research question about happiness and recovery from mental disorders was addressed using logistic regression analyses ([table 3](#)). We focused on people with mental disorders during our first measurement, used happiness at first measurement as independent variable and demographic and clinical characteristics as possible confounders. The dependent variable was the course of illness that was assessed in terms of presence or absence of any mental disorder during follow-up.

The data were weighted to ensure they were representative of the Dutch national population. Robust standard errors were calculated using the first-order Taylor-series linearization method, as implemented in the STATA 9.1 program, to obtain correct 95 percent confidence intervals and p-values.

3 RESULTS

3.1 How(un)happy are people with and without mental disorders?

In our sample more than four out of ten (41.2 %) people reported a lifetime prevalence of at least one DSM-III-R disorder at T0. For the prevalence of mental disorders during the past month the prevalence dropped to 16.5 % (Bijl, Ravelli & Van Zessen, 1998). As expected, people diagnosed as having a mental disorder reported less happiness than those without a disorder. People without any disorders reported an average happiness of 4.90, and people with any mental disorder 4.20. The full distributions are presented in [figure 1](#). The association between 1-month mental disorder and feelings of happiness adjusted for socio-demographic characteristics in adjusted coefficient (b) is -0.67 (95% CI -0.75 – -0.59)

The difference in the changes of having a mental disorder was more pronounced on the negative side of the happiness continuum than on the positive side.

Never or seldom felt happy

84.6 Percent of the people who had never or rarely felt happy during the past four weeks, had, a history of, a mental disorder. We mention lifetime prevalence because psychopathology is associated with the residual functional disability even if a disorder is cured or in remission (Bijl & Ravelli, 2000). The people who had never felt happy in the four weeks prior to the interview had an odd's ratio for having had a mental disorder during the past month of 22.7 (10.9 – 47.2, 95% CI) compared to those who always felt happy.

Often or always felt happy

68.4% Of the respondents diagnosed as having a mental disorder reported having felt at least often happy during the four weeks prior to the questioning. This is less than the 89.1% of the respondents who had not had a mental disorder in the four weeks prior to the interview, but having a mental disorder does not rule out happiness.

3.2 What clinical characteristics are associated with happiness?

As expected, the frequency of happy moods correlates with type of disorder (table 1). People with a substance abuse disorder report the highest levels of happiness: 4.43. People with alcohol abuse disorder are almost as happy as people without mental disorders. People with any anxiety disorders report an average happiness of 4.13 and people with a mood disorder reported an average happiness of 3.14. We did not have enough people in our sample with eating disorders, schizophrenia and other non-affective psychotic disorders to report on their happiness.

Disorders that are generally considered as less serious are associated with more happiness. Of the anxiety disorders, simple phobia is associated with most happiness and obsessive compulsive disorder and generalized anxiety disorder are associated with least happiness. Of the mood disorders, dysthymia is associated with more frequent happy moods than major depressive disorder. Substance abuse is associated with more happiness than substance dependence.

Comorbidity as an indicator for the severity of psychopathology was associated with less happiness. People with a pure mental disorder often experienced happy moods, with an average of 4.48. People with two mental disorders reported an average of 3.78 and people with three or more mental disorders reported an average of 3.10.

A multivariate linear regression analyses (table 2) was performed to assess whether it is a mental disorder that makes people less happy, or if other clinical characteristics are also of important. We adjusted for sociodemographical factors and the clinical characteristics of the kind of disorder, comorbidity and social, emotional and physical role functioning.

The changes of happiness for people with mental disorders are higher if people do not have a mood disorder, are living with a partner, are young, and indicate better social and emotional role functioning. The influence of comorbidity on happiness can be explained by the factors just mentioned.

3.3 Does happiness stimulate recovery from mental disorder?

Happiness can predict the course of illness. For people with a mental disorder at T0 (N=687) the association between feelings of happiness and course of illness, that is whether there is a disorder present at T1 or T2, in an unadjusted coefficient (b) is 0.76 (95 % CI 0.67 – 0.87).

In Table 3, we used a multivariate logistic regression analyses. The changes of recovery are higher for people with less mental disorders, with better emotional role functioning and who are younger. These factors are associated with higher happiness, and the predictive effect of happiness is no longer significant in this model. Having a middle higher education reduces the changes of recovery, but the trend for education and recovery was not significant.

3.4 Caveats

The strength of this study was that we could measure happiness in a large general population study with subjects with and without mental disorders. There are also some limitations which have to be addressed. The diagnoses were all based on self-reports. Happiness was measured using one single question on how often the respondent had felt happy during the last four weeks. A strength of this measure is its simplicity, but the estimates of the respondents may

be inaccurate. This limitation can be overcome using the Experience Sampling Method (Delespaul, 1995).

There is discussion in the literature about the usefulness of self-reports of positive affect in the context of mental disorders with respect to possible distortions (Katschnig et al, 2006). We therefore did additional analyses to check the congruent and ecological validity of our happiness measure and found both to be satisfactory (data is available from the first author). The fact that happiness had predictive validity, because it predicted the changes of mental disorders at follow-up, gives additional support to the idea that our happiness measure is relevant.

4 CONCLUSIONS

4.1 Findings

Disorders are associated with less happiness

People diagnosed as having a mental disorder reported less happiness than people without. Mood disorders make frequent happy moods least likely.

Most people with mental disorders are happy

However, 68.4% of the respondents with a mental disorder in month prior to the interview reported that they often felt happy during that time. This was even true for a significant minority of the people going through a major depressive episode.

Mood disorders are most detrimental to happiness

Average happiness is highest for people with substances abuse disorders. The anxiety disorders are associated with less happiness, and the people with mood disorders a least likely to report frequent feelings happiness, although on average they report to feel happy sometimes. People with an alcohol abuse disorder are just as happy as people without mental disorders.

Happiness predicts recovery

Happy moods can predict the course of mental disorders. The people with a mental disorder who reported more frequent happy moods were less likely to have a mental disorder at follow-up. This effect could be explained by the clinical characteristics of the disorder and the demographic characteristics of the people involved. People with better emotional role functioning, less comorbidity, and younger age, have better changes of recovery from mental disorders.

4.2 Discussion

The burden of mental disorders in the form of lost happiness is considerable, but two thirds of people with a 1 -month mental disorder reported having been at least often happy during the four weeks prior to the interview. Our results indicate that high levels of distress do not necessarily exclude happy moods. This indicates that focusing on the symptoms of people with mental disorders gives a one-sided and incomplete assessment of the lives of those involved. This was even true for a significant minority of the people diagnosed as going through a major depressive episode. This raises some doubts about the validity of the diagnoses, but this is outside the scope of this paper (for a discussion see: Horwitz & Wakefield, 2006).

The happiness of people with mental disorders can partly be explained by the clinical characteristics. We think that people with anxiety disorders can sometimes avoid feeling bad, by avoiding situations that cause them to be anxious. The most common substance related

disorder, alcohol abuse, is not associated with less happiness for the inflicted individuals. Still, the abuse may be detrimental to happiness on the long run, because alcohol problems may cause mood disorders (Fergusson et al, 2009). Our data hint at this possibility because alcohol dependency is associated with less happiness than alcohol abuse. Alcohol abuse may also have dire consequences for relatives, colleagues and friends.

Another explanation for the frequency of happiness among people with mental disorders may be that the conditions of living in The Netherlands are favorable. For example, people with mental disorders can count on an a good health care system, a fair government and they are protected by law. They also live in a democratic and individualistic culture, that enhances general happiness (Veenhoven, 1999). In recent years acceptance of common mental disorders seems to have increased and the stigma attached to such disorders decreased (Schnittker, 2008), which may have raised levels of happiness among people with mental disorders.

The possibility of coexisting happiness and mental disorders is of clinical relevance. If psychotherapists are aware of this possibility, the communication with the patient may improve, as is apparent from a case study by Sandra Buechler (2008). The life of a patient in his mid thirties was hobbled by obsessive rituals. He ended treatment when the rituals still consumed much of his time, but he was satisfied with what was accomplished, much to the surprise of his therapist Buechler. He explained that he felt better, had a better sexual life and that his feelings about the rituals changed. They were still an annoying, but no longer a defining part of his life. He had more fun and could see his strengths and not just his liabilities. A narrow focus on what goes wrong in the lives of client and forgetting what goes well, may limit therapeutic results.

REFERENCES

- Aaronson, N.K., Muller, M., Cohen, P.D.A. et al. (1998)
Translation, validation and norming of the Dutch language version of the SF-36 Health Survey in community and chronic disease populations.
J Clin Epidemiol 51: 1055-1068.
- APA (1994)
Diagnostic and Statistical Manual of Mental Disorders, fourth edition.
American Psychiatric Press, Washington DC.
- Bijl, R.V., Ravelli A. & Van Zessen, G. (1998)
Prevalence of psychiatric disorder in the general population: results of the Netherlands Mental Health Survey and Incidence Study (NEMESIS).
Social Psychiatry Psychiatric Epidemiology, 33: 587-595.
- Bijl, R.V., Van Zessen G., Ravelli A., De Rijk C. & Langendoen Y. (1998)
The Netherlands Mental Health Survey and Incidence Study (NEMESIS): objectives and design.
Social Psychiatry Psychiatric Epidemiology, 33: 581-586.
- Bijl, R.V. & Ravelli A. (2000)
Current and Residual functional disability associated with psychopathology: findings from the Netherlands Mental Health Survey and Incidence Study (NEMESIS).
Psychological Medicine, 30: 657-668.
- Brown G.W., Harris T.O., Hepworth C. (1994)
Life events and endogenous depression. A puzzle reexamined.
Arch Gen Psychiatry 51: 525-534.
- Buechler, S. (2008)
Making a difference in patients lives; Emotional experience in the therapeutic setting.
New York, Routledge.
- Burke J.D., Burke K.C., Baker J.H., Hillis A. (1995)
Test-retest reliability in psychiatric patients of the SF-36 Health Survey.
Intern J Meth Psychiatr Res 5: 189-194.
- De Graaf R., Bijl R.V., Smit F., Ravelli A., Vollebergh W.A.M. (2000)
Psychiatric and sociodemographic predictors of attrition in a longitudinal study: the Netherlands Mental Health Survey and Incidence Study (NEMESIS).
Am J Epidemiol, 152: 1039-47.
- Delespaul P.A.E.G. (1995)
Assessing schizophrenia in daily life: The experience sampling method.
Maastricht, UPM.

- Farmer A.E., Jenkins P.L., Katz R., Ryder L. (1991)
Comparison of CATEGO-derived ICD-8 and DSM-III classifications using the Composite International Diagnostic Interview in severely ill subjects.
Br J Psychiatry 158: 177-182.
- Fredrickson B.L. (2001).
The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions.
American Psychologist, 56: 218-226.
- Fredrickson B.L., Tugade M.M., Waugh C.E. & Larkin G. (2003).
What good are positive emotions in crises?
Journal of Personality and Social Psychology, 84: 365-376.
- Fergusson D.M., Boden J.M. & Horwood L.J. (2009)
Tests of Causal Links Between Alcohol Abuse or Dependence and Major Depression.
Arch Gen Psychiatry 66(3): 260-266
- Headey B. & Wearing A.J. (1992)
Understanding Happiness, a theory of subjective well-being
Melbourne, Longman Cheshire.
- Horwitz A.V. & Wakefield J.C. (2006)
The epidemic in mental illness: clinical fact of survey artefact?
Contexts, 5, 19-23.
- Katschnig H., Freeman H. & Satorius N. (eds) (2006)
Quality of Life in Mental Disorders, 2nd ed.
Chichester, John Wiley & Sons.
- Lyubomirsky S. King L. & Diener E. (2005)
The Benefits of Frequent Positive Affect: Does Happiness Lead to Success?
Psychological Bulletin. 131(6): 803-855.
- McHorney C.A., Ware J.E., Raczek A.E. (1993)
The MOS 36-Item Short-Form Health Survey (SF-36): II. Psychometric and clinical tests of validity in measuring physical and mental health constructs.
Med Care 31: 247-263.
- McHorney C.A., Ware J.E., Lu J.F.R., Sherbourne C.D. (1994)
The MOS 36-Item Short-Form Health Survey (SF-36): III. Tests of data quality, scaling assumptions, and reliability across diverse patient groups.
Med Care 32: 40-66.
- Robins L.N., Wing J., Wittchen H-U., et al, (1998)
The composite International Diagnostic Interview: an epidemiologic instrument suitable for use in conjunction with different diagnostic systems and in different cultures.
Archives of General Psychiatry, 45: 1069-1077.

- Tugade M.M., Fredrickson B.L. (2004)
Resilient individuals use positive emotions to bounce back from negative emotional experiences.
Journal of Personality and Social Psychology, 86: 320-333.
- Schimmack U., Oishi S., Furr R.M., Funder D.C. (2004)
Personality and Life Satisfaction: A Facet-Level Analysis.
Personality and Social Psychology Bulletin, 30: 1062-1075.
- Schnittker J. (2008)
An uncertain revolution: Why the rise of a genetic model of mental illness has not increased tolerance.
Social Science & Medicine, 67(9): 1370-1381.
- Schifffrin H.H., Katherine Nelson, S.K. (2010)
Stressed and Happy? Investigating the Relationship Between Happiness and Perceived Stress.
Journal of Happiness Studies, 11(1): 33-39.
- Seligman, M.E.P., Csikszentmihalyi M. (2000)
Positive psychology: An introduction.
American Psychologist. 55(1): 5-14
- Semler G., von Cranach M., Wittchen H-U. (eds) (1987)
Comparison between the Composite International Diagnostic Interview and the Present State Examination.
Report to the WHO/ADAMHA Task Force on Instrument Development. Geneva: WHO
- Veenhoven R. (1999)
Quality-of-life in individualistic society: A comparison in 43 nations in the early 1990's
Social indicators Research, 48: 157-186
- Veenhoven R. (2008)
Healthy happiness: Effects of happiness on physical health and the consequences for preventive health care
Journal of Happiness Studies, 9: 449-464
- Veenhoven R. (2009)
How do we assess how happy we are?
In: Dutt A & Radcliff B (eds.) Happiness, Economics and Politics,
Northampton: Edward Elger (in press)
- Wacker H.R., Battegay R., Mullejans R., Schlosser C. (1990)
Using the CIDI-C in the general population.
In: Stefanis CN, Rabavilas AD, Soldatos CR (eds). Psychiatry: a world perspective.
Amsterdam: Elsevier Science Publishers, 138-143.
- Ware J.E., Sherbourne C.D. (1992)
The MOS 36-item Short-Form Health Survey (SF-36): I. Conceptual framework and item selection.
Med Care 30: 473-483.

Ware J.E., Snow K.K., Kosinski M. et al. (1997)
SF-36 Health Survey. Manual & Interpretation Guide.
The Health Institute, New England Medical Center: Boston.

Wittchen H-U., Burke J.D., Semler G., Pfister H. (1989)
Recall and dating of psychiatric symptoms: test-retest reliability of time-related symptom questions in a standardized psychiatric interview
Arch Gen Psychiatry 46: 437-443.

Wittchen H-U., Robins L.N., Cottler L.B., Sartorius N., et al. (1991)
Cross-cultural feasibility, reliability and sources of variance in the Composite International Diagnostic Interview (CIDI).
Br J Psychiatry 159: 645-653.

Table 1

Average happiness for different 1-month mental disorders (N=7,076), in numbers, weighted means and 95% confidence intervals (CI).

	<i>N</i>	Feelings of happiness mean (95% CI)
No mental disorder	5,938	4.93 (4.90 – 4.95)
Any mental disorder	1,138	4.20 (4.12 – 4.28)
Any mood disorder	294	3.14 (2.98 – 3.30)
Major depression	193	2.97 (2.77 – 3.18)
Dysthymia	134	3.08 (2.84 – 3.32)
Bipolar disorder	44	3.53 (3.15 – 3.92)
Any anxiety disorder	711	4.13 (4.02 – 4.23)
Panic disorder	108	3.33 (3.05 – 3.61)
Agoraphobia	79	3.90 (3.55 – 4.24)
Social phobia	275	3.90 (3.73 – 4.07)
Simple phobia	408	4.32 (4.19 – 4.46)
Generalised anxiety disorder	58	3.65 (3.27 – 4.03)
Obsessive compulsive disorder	20	2.93 (2.32 – 3.54)
Any substance use disorder	342	4.43 (4.30 – 4.56)
Alcohol abuse	139	4.79 (4.62 – 4.96)
Alcohol dependence	166	4.26 (4.06 – 4.45)
Drug abuse	15	4.20 (3.67 – 4.73)
Drug dependence	41	3.84 (3.38 – 4.29)
Number of mental disorders		
Precisely 1 disorder	791	4.48 (4.40 – 4.57)
Precisely 2 disorders	208	3.78 (3.57 – 3.98)
3 or more disorders	139	3.10 (2.86 – 3.34)

Table 2

Correlates of feelings of happiness among people with a mental disorder (N=1,138), in weighted percentages or means, adjusted non-standardised coefficients (b) and 95% confidence intervals (CI). Results of a multiple linear regression analysis.

	%	Feelings of happiness Adjusted coefficient (95% CI)*
<i>Socio-demographic characteristics</i>		
Female (ref.=male)	50.8	0.06 (-0.09 – 0.21)
Age (in years)		
18-24	21.2	0.31 (0.03 – 0.59)
25-34	25.1	-0.01 (-0.24 – 0.23)
35-44	24.5	-0.11 (-0.35 – 0.13)
45-54	18.3	-0.24 (-0.49 – 0.02)
54-64	10.9	REF.
P for trend		0.001
Education		
Low	8.7	REF.
Low-Middle	42.4	0.02 (-0.25 – 0.29)
High-Middle	27.2	0.08 (-0.22 – 0.37)
High	21.7	-0.12 (-0.41 – 0.17)
P for trend		NS
Living with partner (ref.=other)	54.8	0.49 (0.33 – 0.64)
Paid employment (ref.=other)	62.5	0.07 (-0.08 – 0.22)

Urbanicity of place of residence

Very low	12.8	-0.11 (-0.35 – 0.13)
Low	19.9	0.05 (-0.16 – 0.26)
Middle	21.4	0.08 (-0.13 – 0.29)
High	21.8	0.03 (-0.17 – 0.22)
Very high	24.1	REF.
P for trend		NS

Clinical characteristics

Mood disorder (ref.=no)	23.9	-0.62 (-0.89 – -0.35)
Anxiety disorder (ref.=no)	58.7	-0.10 (-0.36 – 0.17)
Substance use disorder (ref.=no)	35.2	0.00 (-0.25 – 0.26)

Number of mental disorders

Precisely 1 disorder	70.8	0.24 (-0.10 – 0.58)
Precisely 2 disorders	17.7	0.01 (-0.29 – 0.32)
3 or more disorders	11.5	REF.
P for trend		NS
Emotional role functioning (0-100)	78.9	0.01 (0.00 – 0.01)
Social role functioning (0-100)	80.4	0.01 (0.01 – 0.02)
Physical functioning (0-100)	77.9	0.00 (-0.00 – 0.00)

* Adjusted for all variables in the table.

Table 3

The association between feelings of happiness and course of illness among people with a mental disorder (N=687) adjusted for socio-demographic and clinical characteristics, in adjusted odds ratio's and 95% confidence intervals (CI). Results of a multiple logistic regression analysis.

	Follow-up assessment: any mental disorder in two-year period Adjusted odds ratio (95% CI)*
Feelings of happiness	0.95 (0.79 – 1.13)
<i>Socio-demographic characteristics</i>	
Female (ref.=male)	1.14 (0.74 – 1.74)
Age (in years)	
18-24	4.34 (1.89 – 9.98)
25-34	1.76 (0.93 – 3.33)
35-44	1.42 (0.77 – 2.62)
45-54	1.65 (0.87 – 3.14)
54-64	REF.
P for trend	0.002
Education	
Low	REF.
Low-Middle	0.51 (0.25 – 1.05)
High-Middle	0.45 (0.21 – 0.99)
High	0.47 (0.21 – 1.04)
P for trend	NS
Living with partner (ref.=other)	1.05 (0.67 – 1.62)
Paid employment (ref.=other)	0.99 (0.64 – 1.54)

Urbanicity of place of residence

Very low	0.71 (0.36 – 1.39)
Low	0.65 (0.37 – 1.17)
Middle	1.00 (0.55 – 1.81)
High	0.70 (0.39 – 1.27)
Very high	REF.
P for trend	NS

Clinical characteristics

Mood disorder (ref.=no)	0.65 (0.28 – 1.53)
Anxiety disorder (ref.=no)	0.72 (0.32 – 1.64)
Substance use disorder (ref.=no)	0.67 (0.29 – 1.53)

Number of mental disorders

Precisely 1 disorder	0.12 (0.03 – 0.42)
Precisely 2 disorders	0.18 (0.06 – 0.59)
3 or more disorders	REF.
P for trend	0.002

Emotional role functioning (0-100)	0.99 (0.98 – 1.00)
Social role functioning (0-100)	0.99 (0.98 – 1.00)
Physical functioning (0-100)	1.00 (0.99 – 1.00)

* Adjusted for all variables in the table.

Figure 1

Weighted frequencies of happy feelings for people with and without one month mental disorders, in percentages.

