Soc Psychiat Epidemiol (2010) 45:265–273
DOI 10.1007/s00127-009-0064-y

ORIGINAL PAPER

Attitudes towards people with mental disorders: the psychometric characteristics of a Finnish questionnaire

Esa Aromaa · Asko Tolvanen · Jyrki Tuulari · Kristian Wahlbeck

Received: 27 August 2008 / Accepted: 28 April 2009 / Published online: 13 May 2009

Abstract
Background The prevalence of mental disorders, especially depression, increasingly creates concern for our mental, social and economic well-being. The public has insufficient knowledge about mental disorders and their treatment. A stigma is attached to mental disorders, which has a multifaceted impact on the lives of patients and their families. A Finnish general population survey studied knowledge of and attitudes towards mental health problems. This study examines the background dimensions of the attitude items used in the survey.
Methods An eight-page health survey questionnaire with 16 items on attitudes to mental health and depression was sent to a randomly selected sample of 10,000 persons aged 15–80 years. The overall response rate was 55.2%. The data were submitted to a principal component analysis (PCA). Two components were extracted by means of this analysis and submitted to further reliability analyses as well as to a preliminary validity analysis.
Results The PCA identified four components: (1) depression is a matter of will, (2) mental problems have negative consequences, (3) one should be careful with antidepressants and (4) you never recover from mental problems.
Conclusion The internal consistencies of the first two components were sufficient to build dimension scales for future analyses. The extracted components fit consistently with the leading stigma theories and earlier studies measuring public attitudes.

Keywords Public attitudes · Mental disorders · Population survey · Stigma · Principal component analysis

E. Aromaa (✉)
Vaasa Hospital District,
Psychiatric Unit of Vaasa Central Hospital,
Sarjakatu 2, Vaasa 65320, Finland
e-mail: esa.aromaa@vshp.fi

A. Tolvanen
Department of Psychology, University of Jyväskylä,
P.O. Box 35, 40014 Jyväskylä, Finland
e-mail: asko.tolvanen@psyka.jyu.fi

J. Tuulari
South-Ostrobotnia Hospital District, Psychiatric Clinic of Lapua,
Sairaalantie 9, 62100 Lapua, Finland
e-mail: jyrki.tuulari@epshp.fi

K. Wahlbeck
Vaasa Hospital District, National Institute for Health
and Welfare, Sarjakatu 2, Vaasa 65320, Finland
e-mail: kristian.wahlbeck@thl.fi

Introduction

Even in the wealthy developed countries, only a minority of people in need of mental health care will make use of mental health services [1–3]. This is due to many different reasons.

Public knowledge of mental health problems is inadequate [4, 5]. The views of the general public and health professionals about the aetiology of mental disorders and of the effectiveness of treatment methods differ. Insufficient or biased knowledge is fertile soil for developing misconceptions [6]. The public view emphasises the role of psychosocial stress factors in the development of schizophrenia and depression, and at the same time undervalues biological factors [7]. Furthermore, the public do believe in self-help and support from family and friends as well as in psychotherapy, but the public's attitudes towards medical treatment are suspicious [8].

Increasing the public's knowledge of mental health problems may of itself remain insufficient if negative

stereotypical beliefs prevail in society. Some researchers consider stigma to be a significant barrier to the development of efficient, customer-oriented mental health services and to their adequate utilisation [9–13]. The attitudes of primary and specialised health care staff also need to be altered [14, 15]. Research on stigma has traditionally focused on schizophrenia and other serious mental illnesses, but in recent years an interest in the stigma associated with depression has also developed [16].

Population studies have revealed four general misconceptions in association with mental disorders. First of all, people suffering from mental disorders are considered to be unpredictable and dangerous and therefore should be avoided. Secondly, they are irresponsible and are in need of authoritarian guidance. Thirdly, they are seen as child-like and thus in need of sympathetic care. Finally, the fourth stereotype is of a person who is incapable, which is associated with a self-inflicted weakness of character [17, 18].

Two complementary theories have given rise to research on stigma. According to Link and Phelans' [19] sociological theory, the stigmatization process begins by recognising and labelling the difference between oneself and the other. The next phase involves the linking of labelled persons with negative beliefs that predominate in society and eventually leads to discriminating the labelled persons. A central measure of discrimination is the desire to socially distance a labelled person. Link and Phelan differentiate between individual and structural discrimination and self-stigmatization. They also emphasize that stigmatization can occur only if the stigmatizer has power over the stigmatized.

Corrigan et al. [20] differentiate between public stigmatization and self-stigmatization in their social–psychological two-factor stigma theory. Public stigmatization is about the public reaction towards a certain group of stigmatized persons, while self-stigmatization is about how a person sees himself as a member of a stigmatized group. The basis for this concept of stigmatization is that attitudes that prevail in a society are very strong and are easily activated 'cognitive knowledge structures'. Some people are aware of the stereotypes, others are not. If a person is aware of and agrees with the stereotypes, it can be seen as a prejudice, which also entails emotional reactions. Prejudices can be manifested in many ways on a behavioural level.

An extensive development project—the Ostrobothnia-project (www.pohjanmaahanke.fi)—to promote mental health and prevent substance misuse was initiated in Western Finland in 2005.

In order to utilise public opinion in setting up the project and to create a baseline measurement to evaluate the effectiveness of the project interventions, an eight-page questionnaire was developed.

The questionnaire contained questions about mental health, attitudes towards mental disorders and the use of mental health and substance abuse services [21]. Standardised survey instruments were mostly used, but in order to measure beliefs and attitudes towards mental health problems, two sets of items were specifically created. The first set measured beliefs and attitudes towards mental health problems in general and the second towards depression.

Aims

We aimed at investigating the background dimensions of the survey items covering attitudes to mental health, and their connection to stigma theories and earlier studies. We also aimed at assessing the validity of the questionnaire statements.

Methods

Sixteen items exploring attitudes to mental health were developed for incorporation into a mental health survey. Seven of these items related to mental health problems, in general, and nine to depression only. The items were based on earlier studies measuring public attitudes towards mental health problems and also on researchers' clinical experience [22–24]. A four-point Likert scale was used with the response alternatives: "strongly disagree," "disagree," "agree" and "strongly agree" (Table 1).

Subjects

The questionnaire was posted to 10,000 randomly selected persons aged 15–80 years residing in either the Ostrobothnia-project area or in the control area, i.e. Southwest Finland. The overall response rate was 55.2%, while the response rate for the individual items of the survey varied from 49.5% to 53.1%. Overall, females had a 65% response rate compared to 48% among males, while the response rate was highest in the 50–70-year age group. The average age of the respondents was 46.9 (SD 17.3) years. Overall, 15% of the respondents were Swedish speakers. The lowest response rate was among Finnish-speaking men (46%) and the highest was among Swedish-speaking women (79%). While respondents were generally representative of the whole sample, the data were weighted in the analyses according to age, sex, language and region.

Statistics

The survey items were subjected to principal component analysis (PCA) using SPSS Version 16. The PCA is a widely used and validated tool for identifying the underlying dimensions in a set of variables [25]. After the factor extraction, Varimax rotation was performed because orthogonal rotation results in solutions that are easier to

Table 1 The 16-questionnaire items on beliefs and attitudes towards people with mental problems and the instructions used

Instruction: 'Below are some statements on general attitudes towards mental problems. Choose the alternative which you think suits best'.
1. Depression is a sign of weakness and sensibility.
2. You never recover from mental problems.
3. Patients suffering from mental illnesses are unpredictable.
4. Society should invest more in community care instead of hospital care.
5. If one tells about a mental problem, all one's friends will leave.
6. The professionals in health care do not take mental problems seriously.
7. It is difficult to talk with a person who suffers from mental problems.
8. If the employer finds out that the employee is suffering from mental illness, the employment will be in jeopardy.
Instruction: 'Below are some statements on general attitudes towards depression. Choose the alternative which you think suits best'.
9. Depression cannot be treated.
10. Depression is not a real disorder.
11. Depression is a sign of failure.
12. Antidepressants are not addictive.
13. Persons with depression should pull themselves together.
14. Antidepressants have side-effects.
15. Persons with depression have caused their problems by themselves.
16. Depression can be considered as a shameful and stigmatizing disease.

interpret. The internal consistency of the new scales was assessed using Cronbach's alpha coefficient.

If the dimensions found in the PCA are valid, then the results would be expected to correspond with earlier studies. The preliminary examination of the construct validity was performed by investigating the relationship between the formulated scales and respondents' age, gender and educational background, using Pearson correlation coefficient. Further, an analysis was made of the consistency between the formulated scales and results from earlier population mental health awareness studies. A fourth background variable was the respondents familiarity with mental health problems (does the respondent personally know someone who has a mental health problem).

Results

Factor solution

Prior to performing the PCA, the suitability of the data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of 0.3 and above. The Kaiser–Meyer–Olkin value was 0.831, above the minimum recommended value of 0.6 and the Bartlett's test of sphericity reached statistical significance ($P = 0.000$), suggesting that a factor analysis was appropriate.

Principal component analysis revealed the presence of four components with eigenvalues exceeding 1, explaining 21.8%, 9.8%, 7.9% and 6.7% of the variance, respectively. This model accounted for 46.3% of the total variance. Because an inspection of the scree plot did not reveal any dramatic change in the shape of the curve, a Horn's parallel analysis was also carried out [26], showing that all four eigenvalues exceeded the corresponding values from the random data set of similar size and so could be accepted for further investigation. To aid in the interpretation of these four components, a Varimax rotation was performed. A precondition to its use is that the underlying constructs are independent [25], and in this case the values were quite low (−0.041 to 0.285). After rotation, item 3 "Patients suffering from mental illnesses are unpredictable" was excluded because of low loading on two components (<0.338) (Table 2).

Component 1 "depression is a matter of will" consisted of five items and accounted for 21.8% of the variance. It

Table 2 Results of the principal component analysis (followed by Varimax rotation) applied to the 16 items data collected in 5,504 population sample (only the 14 significant items are listed)

Component loadings				
Items	I	II	III	IV
Depression is a sign of failure	0.69			
Persons with depression have caused their problems by themselves	0.65			
Depressed persons should pull themselves together	0.65			
Depression is a sign of weakness and sensibility	0.64			
Depression is not a real disorder	0.59			
If one tells about her mental problems, all friends will leave her		0.70		
If the employer finds out that the employee is suffering from mental problems, the employment will be in jeopardy		0.64		
The professionals in health care do not take seriously mental problems		0.62		
Depression can be considered as a shameful and stigmatizing disease		0.52		
It is difficult to talk with a person who suffers from mental problems		0.48		
Antidepressants are not addictive			−0.76	
Antidepressants have side-effects			0.67	
You never recover from mental problems				0.47
Depression cannot be treated				0.46

had an internal consistency of 0.694 and inter-item correlations 0.25–0.41. Ideally, the Cronbach alpha coefficient of the scale would be above 0.7. However, low Cronbach alpha values are common with shorter scales (e.g. scales with fewer than 10 items). This component indicates negative stereotypes about people with depression.

Component 2 "mental problems have negative consequences" consisted of five items and accounted for 9.8% of the variance. It has an internal consistency of 0.612 and inter-item correlations of 0.15–0.31. This component indicates people's beliefs about discrimination.

Component 3 "one should be careful with antidepressants" consisted of two items and accounted for 7.9% of the variance. It has an internal consistency of 0.420, and an inter-item correlation of 0.26. This component indicates peoples' typical concerns about using antidepressants.

Component 4 "you never recover from mental problems" consisted of two items and accounted for 6.7% of the variance. It has an internal consistency of 0.472, and an inter-item correlation of 0.33. Following rotation, this component comprised three items. The item "society should invest more into community care instead of hospital care" had the highest loading, though removing it from this scale resulted in a higher alpha value, and so it was extracted. The decision was also supported by a consideration of its content, which referred to the organising of the mental care system.

Reliability of the scales

The internal consistencies of the first two components "depression is a matter of will" and "mental problems have negative consequences" confirm their feasibility as scales to be used in further analyses. A high score on the first scale means the statements convey a belief that a person is responsible for the cause and course of his or her depression, and also capable of recovering from the illness if sufficiently strong willed. A high score for the second component indicates a belief that difficulties will be encountered in the community, the labour market and social life if a person's mental problems are revealed.

The two other components "one should be careful with antidepressants" and "you never recover from mental problems," consisting of two items each, had very low internal consistencies. Consequently, these four items were handled separately in the later analyses.

Construct validity of the scales

Angermeyer and Dietrich have reviewed 62 descriptive studies published between 1990 and 2004. These studies examined public beliefs and attitudes towards people with mental illness [5], and give evidence of some predictable connections to socio-demographic and other background variables. These predictions can be tested against this study's own demographic data.

Prediction 1: "Ageing increases negative attitudes"

In a great majority of the 43 studies included in the literature review [5], ageing increased negative attitudes. In our data, the first dimension "depression is a matter of will" correlated only slightly positively, though statistically significantly with age when using the Pearson correlation coefficient ($r = 0.097$, $n = 4{,}965$, $P < 0.01$). The correlation to age in the second dimension "mental illness has negative consequences" was stronger ($r = 0.161$, $n = 4{,}859$, $P < 0.01$). These results support the validity of our component scales and indicate that higher age correlates with more negative attitudes.

Prediction 2: "A rise in education level signifies more tolerant attitudes"

In 20 previous studies, an increased educational level correlated with reduced discriminating attitudes and increased tolerance. However, 18 other studies showed no significant connection between the two [5]. In the current data, the component "depression is a matter of will" correlated with both the comprehensive school level education and with vocational post-graduate level education. The length of the comprehensive education ($r = -0.189$, $n = 4{,}958$, $P < 0.01$) correlated slightly more strongly than the post-graduate education ($r = -0.152$, $n = 4{,}764$, $P < 0.01$). Thus the opinions of more educated people seem to be slightly more tolerant in seeing depression as a medical condition. A similar connection was found between level of education and the second component "mental problems have negative consequences," with the correlation of the length of the comprehensive education ($r = -0.132$, $n = 4{,}852$, $P < 0.01$) again being stronger than the length of the post-graduate education ($r = -0.065$, $n = 4{,}664$, $P < 0.01$). The longer the education, the less concern there was with the negative consequences of mental problems.

Prediction 3: "Women are more tolerant in their attitudes than men"

Gender predicted attitudes inconsistently [5]. The majority of the reviewed studies did not find a significant association in relation to gender. In the current study, a difference in attitudes between the genders was clear. Particularly, the view that depression was controllable was less pronounced among women, as measured by the Pearson correlation coefficient ($r = -0.246$, $n = 4{,}976$, $P < 0.01$). A similar

Table 3 The Pearson's product–moment correlation coefficients indicating the connection between familiarity with someone suffering from mental illness and the public attitudes on two dimensions: "depression is a matter of will" and "mental problems have negative consequences"

Do you know someone who suffers from mental health problems?			Depression	Mental problems
	N	%	Correlation	Correlation
Within the family or relative	2,055	37.3[a]	−0.125**	0.002
Circle of friends	1,974	35.9	−0.097**	−0.037**
From work	1,364	24.8	−0.122**	−0.087**
Leisure activities	314	5.7	−0.033*	0.015
Other contact	375	6.8	0.032*	0.037*

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

[a] People were allowed to choose more than one option

difference was also found in relation to fear of consequences, albeit lower ($r = -0.098$, $n = 4{,}870$, $P < 0.01$).

Prediction 4: "If a person is in contact with a person suffering from mental illness, the attitude is more positive"

In the review [5], 30 studies showed that attitudes are more positive if the respondent has had contact with people suffering from mental illnesses. Only one study showed a contrary result while another 30 studies showed no relation whatsoever.

The Pearson correlation coefficients in Table 3 confirm that for the current study, a correlation exists between positive attitude to mental problems and knowing a family member, a friend or a co-worker with a mental health problem (Table 3). The correlation with the controllability component is stronger than the consequences component, while the correlation with family relations is weak. If the acquaintanceship is based on free-time activities, the connection with the consequences component is actually negatively associated.

Discussion

This study showed four dimensions that underlay the questionnaire items on attitudes to mental health problems, of which two were sufficiently reliable to be used to formulate scales with adequate psychometric validity.

Comparison of the components identified in this survey with the stigma theory of Link and Phelan's [19] and Corrigan et al. [20] suggests that these components are suitable for obtaining information on the prevailing negative stereotypical attitudes among the public and also what kinds of negative consequences are perceived to be linked with mental illnesses. When combining controllability and consequences scales with the single attitude items in our questionnaire, it is possible to form a versatile picture of the public's beliefs and attitudes.

Attitude components

The findings of this study confirm the results of earlier studies that have shown stigma to be a multidimensional construction [27–29]. The dimensions found are dependent, at least, on what kind of attitude survey items are used and also on the type of mental disorder targeted. Our statements referred to "mental health problems," in general, on the one hand, and to depression specifically on the other. The statements selected were primarily chosen to serve a research interest in public attitudes towards the use of health services, and secondly, to aid the planning of a public awareness campaign. Two of the dimensions found applied to depression: the first is "depression is a matter of will" and the second "one should be careful with antidepressants." The components "mental problems have negative consequences" and "you never recover from mental problems" consisted of items referring to both depression and mental health problems.

The first component "depression is a matter of will" challenges the respondent to consider the nature of depression. Does the respondent see depression as a real medical condition, and if not, is depression a matter of personal weakness and laziness? This latter viewpoint would indicate the view that persons are responsible for their illness and for their recovery. This is a common stereotypical belief, identified in many studies [17, 18, 24, 30]. The self-responsibility view is most strongly linked to substance abuse and eating disorders, but also to depression, which is more strongly associated with self-responsibility than schizophrenia [24, 30, 31]. On the other hand, in psychotherapies one of the aims is to courage people to take more responsibility over their life choices, problem solving and welfare. Advice given to a person with depression along the lines of "pull yourself together" does not necessarily mean negative attitudes.

It has also been suggested that the willingness of people to be in contact with a person suffering from mental illness is dependent on the supposed cause of mental illness, although results to date have been inconsistent [32–34]. Jorm and Wright's [29] study among young Australians identified a survey component they labelled as "weak not sick." This component seems to correspond conceptually to the controllability dimension identified in the present study. Jorm and Wright also found that respondents' exposure to ongoing awareness campaigns reduces the stigma effect among young people particularly in this dimension [29].

The dimension "mental problems have negative consequences" indicates those various negative consequences a person might face if other people know about his or her mental illness. The statements forming this dimension challenge the respondents to think about whether the risk of telling someone about a mental problem is worth taking. A high score on a scale consisting of the items of this dimension reveals that the respondent is aware of the common manifestations of discrimination and of the risk of being stigmatized. According to Corrigan and Rüsch [10], treatment for mental illness will entail taking into account adverse effects associated with others knowing of such treatment. Such "potential consumers" consider themselves as members of the public and do not want to be identified as belonging to the "mentally ill" minority. A potential consumer is also aware of the prevailing prejudicial stereotypes and shares most of them.

Statements about the adverse effects caused by antidepressants constitute the third dimension in our data. Studies have shown that the public get easily confused antidepressants for sedatives and therefore are afraid of their addictive nature and adverse effects [35]. On a behavioural level, this can be seen as an unwillingness to seek or adhere to treatment that uses medication as a primary or sole option. There is also evidence that earlier experiences of adverse effects while taking medication diminish adherence to treatment [36]. However, it is important to remember that antidepressants, although they are not addictive, do have some adverse effects [37]. Well-informed people may be aware of adverse effects and therefore be critical of the use of antidepressants. Thus, this dimension does not necessarily reflect stigmatizing beliefs, but may also reflect a lack of knowledge and appropriate skepticism.

The dimension "you never recover from mental problems" reveals not only respondents' conceptions about mental illnesses, but also the levels of optimism associated with treatment. Studies have shown that the public are even more optimistic in relation to recovery from schizophrenia and severe depression than professionals, especially if the treatment programme includes psychotherapy. The public are more suspicious, however, of medication [7, 38–40].

The most common stereotype that the public share is the unpredictability and dangerousness of mentally ill patients [24, 31, 32]. In our questionnaire, the statement "people suffering from mental illness are unpredictable" was dealt with as a separate item to the formulated scales because of its weak loading to two dimensions at the same time. The statement "society should invest more into community care instead of hospital care" was also left outside the model as a separate statement: respondents expressed their opinion about the development of mental health services and whether people should be treated in their own communities or separately in institutions.

The construct validity of the scales

The preliminary examination of the construct validity supported the factor solution chosen. The results gained are in line with previous studies that establish links between attitudes and the three socio-demographic variables analysed. However, socio-demographic variables explain only a small part of the total variance of the attitude measurements while previous studies are also inconsistent in their results. The effect of socio-demographic variables may be determined through several mediating variables. Such mediating variables could be, for example, personal familiarity with people suffering from mental illness, susceptibility to depression, psychological distress, knowledge about mental illnesses, conceptions of causes of mental illness or stereotypical attitudes [34, 41].

The characteristics of the investigated population samples and the use of different instruments measuring stigma components probably explain the inconsistencies of previous results. The scale developed by Link et al. [42, 43] analyses respondents' beliefs about other peoples negative attitudes (perceived stigma), whereas the research tradition started by Corrigan et al. [44] studies the respondents' own personal views of, for example, depression (public stigma). Griffiths et al. [30] have developed a Depression Stigma Scale (DSS) consisting of two parts: the first measuring respondents personal attitudes (personal stigma) and the second the respondents' assessment of other people's attitudes (perceived stigma). The results from these two subscales have varied significantly even within the same samples [30, 41]. Another approach is represented by Thornicroft et al. [45], who have developed a scale to measure the outcome of stigmatisation, i.e. the perceived and anticipated discrimination of people with schizophrenia. The items in our survey measure public stigma as conceptualised by Corrigan, though this is similar to that of Griffiths' conception of personal stigma.

The scales measuring "depression is a matter of will" and "mental problems have negative consequences" varied somewhat in their associations to socio-demographic variables. The age-variable component correlated more clearly with that of the consequences-component, with older people seeing more negative consequences. This may be because older people have more experiences of mental illnesses and with the negative consequences linked to them. In Finland, the educational level of older generations is also notably lower, which can have a covariate effect on age associations in both dimensions. There were also differences between the genders: women were more optimistic in their assessments than men and women did not blame the mentally ill for being responsible for their illness as much as men did.

When analysing the association between the amount of contact with persons suffering from mental problems and

two of the attitude dimensions, namely "depression is a matter of will" and "mental problems have negative consequences," it seems that persons who are familiar with people suffering from mental problems can more easily understand that people with depression are not responsible for their illness. On the other hand, these people who have familiarity probably also have experiences of the negative consequences linked with mental illnesses, with close family ties to persons with mental health problems implying more realistic views about the discriminating reactions of others. If a respondent was familiar with a mentally ill person from his work or friendship, the responses on the consequences-dimension were slightly more positive than those of respondents who were not familiar.

Limitations of the study

There are two ideal ways to build up a new stigma scale. The first one is to do it from theoretical basis, such as, for example, Link et al. [42] or Corrigan [44]. The other way is to start from earlier qualitative research into patients' or the public's experiences and views of mental illness. The work of Michael Kings' group [46] is a good example of this kind of approach.

Our point of view was pragmatic. We wanted simply to find out, what our statements really measure and whether they are a good enough tool for evaluating future population-level interventions. We were also interested in the possible attitude dimensions behind our items. The short scales we extracted are nothing but a starting point for a standardised stigma scale. For example, many of the statements were presented in the negative, emphasising perhaps the stigmatizing attitudes. It is possible that this affected some answers in a negative direction though a bias in the opposite direction may also arise from respondents giving socially desirable answers, though such a source of bias would be expected to be smaller in a postal survey than in interviews [47]. For future purposes, it could be relevant to reverse some of the statements and see if there is any difference in results. The internal consistency of the scales could also become stronger with some additional items. One problem in these kinds of statements is that we cannot know if the answer to the individual item tells about a stigmatising belief or a lack of knowledge or perhaps of own negative experiences. The statements about antidepressants are a good example of this and also some of the items in the consequences scale. We know, for example, that the risk of not being taken seriously by the health care professionals is a realistic one [15].

Since the items measuring attitudes were part of an extensive mental health survey, the number of questions on attitudes was limited. Items on aetiology of mental disorder had to be excluded, while the set of statements measuring attitudes had to be brief. Vignettes to describe symptoms were not used and it was therefore not possible to avoid using potentially stigmatizing terms like "depression" and "mental health problems." Previous population surveys have shown that attitudes towards different types of mental disorders vary significantly [24, 30, 31], and also the seriousness of the disorders is of significance [48]. The fact that we analysed, the attitudes towards depression in particular and referred to other disturbances as "mental problems," was in part imposed by the objectives of the Ostrobothnia project, which were to develop the identification and treatment on the one hand and to encourage the public to participate in the development of mental health work on the other.

Conclusion

This study offers a general picture of the prevailing beliefs on mental health problems and attitudes towards persons suffering from mental illnesses in Finland.

It has been shown that future statistical analyses can make use of not only responses to the individual statements, but also the two scales built up by means of PCA. The first scale measures the belief that people with depression are responsible for their illness and their recovery. The second scale measures perceptions of the consequences if a person reveals his or her mental illness to others.

Our results support the usefulness of these dimensions and individual items in future follow-up surveys to assess the effectiveness of the Ostrobothnia project. The scales "depression is a matter of will" and "mental problems have negative consequences" can also be used as independent variables when modelling determinants that shape discriminative attitudes towards the mentally ill.

The analysis of public attitudes can help support the planning and evaluation of future public awareness campaigns. In particular, people's views about how responsible mental patients are for their condition can be addressed. It is also important to be aware that people link the revealing of mental disorders with negative consequences. One such consequence may be that those with serious mental illnesses will decide not to seek professional treatment for fear of the stigma that will come if such a move were to become publicly known.

Acknowledgments This research was funded by the Medical Research Fund of the Vaasa Hospital District and the Competitive Research Funding of the Pirkanmaa Hospital District.

References

1. The WHO World Mental Health Survey Consortium (2004) Prevalence, severity, and unmet need for treatment of mental disorders in the World Health Organization World Mental Health Surveys. JAMA 291:2581–2590
2. Kessler RC, Berglund PA, Bruce ML, Koch R, Laska EM, Leaf PJ et al (2001) The prevalence and correlates of untreated serious mental illness. Health Serv Res 36:987–1007
3. Torrey WC, Drake RE, Dixon L, Burns BJ, Flynn L, Rush AJ et al (2001) Implementing evidence-based practices for persons with severe mental illnesses. Psychiatr Serv 52:45–50
4. Jorm AF (2000) Mental health literacy: public knowledge and beliefs about mental disorders. Br J Psychiatry 177:396–401
5. Angermeyer MC, Dietrich S (2006) Public beliefs about and attitudes towards people with mental illness: a review of population studies. Acta Psychiatr Scand 113:163–179
6. Jorm AF, Korten AE, Jacomb PA et al (1997) Helpfulness of interventions for mental disorders: beliefs of health professionals compared with the general public. Br J Psychiatry 171: 233–237
7. Angermeyer MC, Matschinger H (1996) Public attitudes towards psychiatric treatment. Acta Psychiatr Scand 94:326–336
8. Cramer JA, Rosenheck R (1998) Compliance with medication regimens for mental and physical disorders. Psychiatr Serv 49:196–201
9. Corrigan PW, Watson AC (2003) Factors that explain how policy makers distribute resources to mental health services. Psychiatr Serv 54:501–507
10. Corrigan PW, Rusch N (2002) Mental illness stereotypes and clinical care: do people avoid treatment because of stigma? Psychiatr Rehab Skills 3:312–334
11. McNair BG, Highet Nj, Hickie IB, Davenport TA (2002) Exploring the perspectives of people whose lives have been affected by depression. Med J Aust 176:69–76
12. Cooper AE, Corrigan PW, Watson AC (2003) Mental illness stigma and care seeking. J Nerv Ment Dis 191:339–341
13. Barney LJ, Griffiths KM, Jorm AF, Christensen H (2006) Stigma about depression and its impact on help-seeking intentions. Aust N Z J Psychiatry 40:51–54
14. Lauber C, Anthony M, Ajdacic-Gross V, Rössler W (2004) What about psychiatrists' attitude to mentally ill people? Eur Psychiatry 19:423–427
15. Lauber C, Nordt C, Braunschweig C, Rössler W (2006) Do mental health professionals stigmatize their patients? Acta Psychiatr Scand 113:51–59
16. Kelly CM, Jorm AF (2007) Stigma and mood disorders. Current Opin Psychiatry 20:13–16
17. Brockington IF, Hall P, Levings J, Murphy C (1993) The community's tolerance of the mentally ill. Br J Psychiatry 162:93–99
18. Taylor WC, Dear MJ (1980) Scaling community attitudes toward the mentally ill. Schizophr Bull 7:225–240
19. Link BG, Phelan JC (2001) Conceptualizing stigma. Ann Rev Soc 27:363–385
20. Corrigan PW, Markowitz FE, Watson AC (2004) Structural levels of mental illness stigma and discrimination. Schizophr Bull 30(3):481–491
21. Herberts K, Wahlbeck K, Aromaa E et al. (2006) Population mental health survey 2005, methods. National Research and Development Center for Welfare and Health (STAKES), Workpapers 13/2006 Helsinki
22. Link BG (1987) Understanding labelling effects in the area of mental disorders: an assessment of the effects of expectations of rejection. Am Sociol Rev 52:96–112
23. Link BG, Struening E, Cullen FT, Shrout PE, Dohrenwend BP (2000) A modified labelling theory approach to mental disorders: an empirical assessment. Am Sociol Rev 54:400–423
24. Crisp AH, Gelder MG, Rix S, Melzer HI, Rowlands OJ (2000) Stigmatization of people with mental illness. Br J Psychiatry 177:4–7
25. Tabachnick BG, Fidell LS (2001) Using multivariate statistics, 4th edn. Harpercollins, New York
26. Horn JL (1965) A rationale and test for the number of factors in factor analysis. Psychometrika 30:179–185
27. Wolf G, Pathare S, Craig T, Leff J (1996) Community attitudes to mental illness. Br J Psychiatry 168:183–190
28. Watson AC, Miller FE, Lyons JS (2005) Adolescent attitudes toward serious mental illness. J Nerv Ment Dis 193:769–772
29. Jorm AF, Wright A (2008) Influences on young people's stigmatizing attitudes towards peers with mental disorders: national survey of young Australians and their parents. Br J Psychiatry 192:144–149
30. Griffiths KM, Nakane Y, Christensen H et al (2006) Stigma in response to mental disorders: a comparison of Australian and Japan. BMC Psychiatry 6:21
31. Angermeyer MC, Matschinger H (2004) The stereotype of schizophrenia and its impact on the discrimination against people with schizophrenia: results from a representative population survey in Germany. Schizophr Bull 30:1049–1061
32. Martin JK, Pescosolido BA, Tuch SA (2000) On fear and loathing: the role of disturbing behavior, labels and causal attributions' in shaping public attitudes toward people with mental illness. J Health Social Behav 42:208–223
33. Read J, Law A (1999) The relationship of causal beliefs and contact with users of mental health services to attitudes to the mentally ill. Int J Social Psychiatry 45:216–229
34. van't Veer JTB, Kraan HF, Drosseart SHC, Modde JM (2006) Determinants that shape public attitudes towards the mentally ill. Social Psychiatry Psychiatr Epidemiol 41:310–317
35. Priest RG, Vize C, Roberts A, Roberts M, Tylee A (1996) Lay people's attitudes to treatment of depression: results of opinion poll for Defeat Depression Campaign just before its launch. BMJ 313:858–859
36. Dwight-Johnson M, Unutzer J, Sherbourne C, Tang L, Wells KB (2001) Can quality improvement programs for depression in primary care address patient preferences for treatment? Med Care 39:934–944
37. Hollon SD, Jarrett RB, Nierenberg AA, Thase ME, Trivedi M, Rush AJ (2005) Psychotherapy and medication in the treatment of adult and geriatric depression: which monotherapy or combined treatment? J Clin Psychiatry 66:455–468
38. Jorm AF, Korten AE, Jacomb PA, Christensen H, Rodgers B, Pollit P (1997) "Mental health literacy": a survey of the public's ability to recognize mental disorders and their beliefs about the effectiveness of treatment. Med J Aust 166:182–186
39. Lauber C, Nordt C, Falcato L, Rössler W (2001) Lay recommendations on how to treat mental disorders. Social Psychiatry Psychiatr Epidemiol 36:553–556
40. Paykel ES, Hart D, Priest RG (1998) Changes in public attitudes during the Defeat Depression Campaign. Br J Psychiatry 173:519–522
41. Griffiths KM, Christensen H, Jorm AF (2008) Predictors of depression stigma. BMC Psychiatry 8:25
42. Link BG, Struening EL, Neese-Todd S, Asmussen S, Phelan JC (2001) Stigma as a barrier to recovery: the consequences of stigma for the self-esteem of people with mental illness. Psychiatr Serv 52:1621–1626
43. Link BG, Struening EL, Rahav M, Phelan JC, Nuttbrock L (1997) On stigma and its consequences: evidence from a longitudinal

study of men with dual diagnoses of mental illness and substance abuse. J Health Soc Behav 38:177–190
44. Corrigan PW (2003) An attribution model of public discrimination toward persons with mental illness. J Health and Soc Behav 44:162–179
45. Thornicroft G, Brohan E, Rose D, Sartorius N, Leese M (2009) Global pattern of experienced and anticipated discrimination against people with schizophrenia: a cross-sectional survey. Lancet 373:408–415
46. King M, Dinos S, Shaw J, Watson R, Stevens S, Passetti F, Weich S, Serfaty M (2007) The stigma scale: development of a standardised measure of the stigma of mental illness. Br J Psychiatry 190:248–254
47. Tourangeau R, Rips LJ, Rasinski K (2002) The psychology of survey response. Cambridge University Press, Cambridge
48. Gaebel W, Zäske H, Baumann AE (2006) The relationship between mental illness severity and stigma. Acta Psychiatr Scand 113:41–45