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STUDY PROTOCOL

Knowledge, attitudes, and practices about severe mental illness and willingness-to-pay for a new integrated care model across 6 European countries: a study protocol

[version 1; peer review: awaiting peer review]

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Abstract

Background

People with Severe Mental Illness (SMI) experience a 15–20-year shorter life expectancy than the general population, with increased premature deaths from somatic illnesses, and twice to more than four times the general population's all-cause mortality risk. Integrated care could potentially improve these outcomes, but implementing it requires financial investment, and we know little about community support for integrated care for people with severe mental illness. This study aims to assess the Knowledge Attitudes and Practices (KAP) of the general population in six European countries towards SMI and integrated care. The study will also assess their preferences and Willingness to Pay (WTP) for a proposed new integrated care model for people with SMI and comorbid physical ailments.

Methods

The study will comprise an online survey with individuals aged 18+ from 6 countries, representative in terms of age, self-reported gender and education level at minima (1500 individuals by country). A

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Discrete Choice Experiment valuation method will be used to estimate the value and configuration respondents see in an innovative care model. KAP indicators will be created. Descriptive analyses and comparison between countries will be conducted on these indicators and WTP values.

Conclusions

This study will provide novel cross-national evidence on public KAP regarding severe mental illness and citizens' preferences and WTP for integrated mental and physical healthcare. By identifying which components of integrated care are most highly valued, how preferences differ across countries and population groups, and whether knowledge and attitudes are associated with societal support, the findings may inform the implementation of acceptable and sustainable integrated care models. Incorporating this broader societal perspective may help ensure that future models are responsive not only to the needs of people with severe mental illness, but also to the values and expectations of the populations that collectively finance and support healthcare systems.

Plain Language summary

In this study protocol we are announcing our upcoming research to the scientific community and the general public. The research will be an online survey of Europeans aged 18+ in six countries: Denmark, Italy, Finland, France, Poland and Sweden. A market research company will conduct the survey, contacting eligible people via email and requesting them to fill in the survey in exchange for a small incentive. Respondents to the survey will be selected to be nationally representative for self-reported gender, age and education. This means that if 55% of a population are women, the company will seek to provide 55% of responses from respondents identifying as women, and similarly for age and education. The survey will ask questions to test respondents' knowledge, attitudes and baviour, relating to severe mental illness. The survey will also investigate respondents' opinions about and value of various integrated care models – integrated care being more coordinated care between different healthcare sectors, in this instance between physical and mental health care. The reasons for the study are based in the fact that people with severe mental illness suffer shorter life expectancy than the general population, and one of the reasons for this is inadequate phyiscal care.

Keywords

Integrated care, Severe mental illness, KAP, DCE, online survey

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Background

Severe mental illnesses (SMI)—including schizophrenia, bipolar disorder, and unipolar depressive disorder—remain a profound public health concern. SMI is estimated to affect up to 6% of the population globally,[1] and individuals with SMI experience a 15–20-year shorter lifespan compared to the general population, with markedly elevated all-cause mortality and premature death due to somatic comorbidities.[2–6] This inequality stems from multifaceted contributors, among them disparities in healthcare provision.[7] Integrated care – defined broadly as coordinated, person-centred services that bridge mental and physical health – offers a promising strategy to address this disparity in healthcare provision.[8,9]

Mental health has been a growing public health concern, particularly following the Covid 19 pandemic, with many studies noting a sharp rise in depression and anxiety.[10,11] The latest Flash Eurobarometer on Mental Health revealed close to one in two respondents reporting experience of an emotional or psychological problem in the previous year.[12] Longitudinal studies have found very high proportions of study populations being treated for mental illness across study periods.[13–15] Against this backdrop of pervasive and growing experiences of mental illness and broader emotional distress, public knowledge and awareness remains underdeveloped, a situation which is exacerbated when it comes to SMI, with continued misconceptions and stigma surrounding many diagnoses, with media depictions continuing to play a likely role.[16,17] Whilst reduced stigma in some areas may have promoted better awareness of depression and anxiety the broader issue of public knowledge of and stigma around mental health remains salient.[18–21]

The constellation of factors is challenging. On the one hand, people suffering from SMI are receiving substandard somatic care, and a potential policy solution exists in promoting integrated care. On the other, public misconceptions and persistent stigma may lead to reluctance to share healthcare spaces, in addition to providing an environment in which mental illness may continue to go unreported and thereby have a greater impact on those affected.[22]

The impact of misconceptions and stigma around mental illness have been well established.[23,24] Stigma is a multi-dimensional and socially embedded process involving stereotyping, prejudice, social distancing, and discrimination, operating at individual, interpersonal, institutional, and societal levels. For people with mental illness, these processes may contribute to social exclusion, reduced opportunities in areas such as employment and housing, reluctance to disclose mental health problems or seek treatment, and poorer access to appropriate healthcare. As a result, there have been numerous campaigns to improve knowledge around mental health or Mental Health Literacy (MHL) since at least the 1980s,[25,26] with continuing campaigns aimed at reducing stigma.[16,17,27] Studies have shown varying but measurable success raising MHL through public awareness campaigns,[17,28] and a reduction in some areas of stigma, although the evidence is inconclusive. There is a distinct lack of comparable longitudinal data, and it is even more challenging to connect reported mental health knowledge and attitudes with actual behaviour.[29,30] Despite these difficulties, efforts have been made to develop standardised measures that have had their psychometric properties validated, from the extensively used Community Attitudes to Mental Illness (CAMI) scale[25,31] to the Mental Health Literacy Scale (MHLS),[32] Mental Health Knowledge Schedule (MAKS)[33] and the Reported and Intended Behaviour Scale (RIBS).[30]

When it comes to SMI public knowledge may be further limited. Some studies have focused on schizophrenia and bipolar disorder, and some looked at public understanding of causes of schizophrenia,[34] but in general MHL studies have remained at the overarching level of general mental health.[29,35] A potential consequence has been a difficulty in linking specific negative attitudes to specific mental illnesses. For example, fear of violence has been linked to schizophrenia.[36] This negative attitude could be the result of enduring misconceptions about schizophrenia and might be better addressed by improved education on specific mental illnesses and specifically on the effects of substance misuse, alongside challenging negative media depictions, rather than broad-brush mental health awareness campaigns.

Issues of stigma and public knowledge are also relevant in the acceptance of integrated care models for mental and physical illness. The developers of the CAMI scale situate the tool within a history of attempts to assess community acceptance of integration of those suffering from mental illness and their care services into the community.[25] However, the CAMI scale is a broad measure of public attitudes and prejudices and not directly focused on the integration of services, which remains under investigated when it comes to public opinion. Considering that implementing integrated care models also requires public financial investment, assessing community support for integrated care for people with severe mental disorders is of increasing importance.

Given this situation, we set out to investigate public knowledge, attitudes and practices relating to SMI and integrated care across six European countries, alongside the public's willingness to pay for a proposed new integrated care model assessed by a Discrete Choice Experiment (DCE).

Methods

Study design

Ethics approval for this study has been received from the research ethics committee of Aix-Marseille University (reference number: 2026-05-21-12). This study forms part of the research project EU-Mind (European Mental and physical health initiative for people with severe mental disorders). The project is a three-year, interdisciplinary collaboration spanning six European countries—Denmark, Finland, France, Italy, Poland, and Sweden. The project seeks to design and evaluate scalable, cross-national models of integrated care to improve the organization and quality of healthcare for people living with SMI and co-occurring physical health conditions. For the study at hand, an online survey was designed. The first part of the survey asks about citizens' knowledge, attitudes, and practices (KAP) regarding severe mental disorders and their current management. The second part of the survey asks about the priorities associated with an integrated mental/somatic health care model via discrete choice experimentation (DCE). The DCE will enable us to estimate how much European citizens are willing to pay for different models of integrated care based on different attributes.

Population

Individuals aged ≥18 years, drawn from an existing market research panel by Norstat, will be contacted via email to complete the online survey (via computer, tablet or smartphone). No personally identifying data will be collected, and Norstat are fully GDPR compliant. The company will manage the implementation of the survey, with data collection lasting two to three weeks (depending on participation rates) to reach the desired number of respondents. The study panel is recruited, not an opt-in panel, and over half of the panellists are probability samples obtained through Computer Assisted Telephone Interviews, with the remainder recruited online. Sampling will be stratified to be representative of age, sex, education level and household income, with repeated recruitment rounds until the target proportions are reached. All participants will provide electronic consent before participating in the online survey.

Sample size

Based on statistical tables presenting the different sizes of samples according to target population's size (N > 100,000) – taking a margin of error of 5% and confidence level of 99%, at minima 700 individuals will be required per country.[37] To improve the statistical quality of our results, we will target 1,500 valid questionnaires for each country, with response rates and data-collection handled by Norstat.

Knowledge, attitudes and practices survey

KAP instrument

Following a literature search of PubMed and ScienceDirect, supplemented by backward and forward citation searching of relevant articles, conducted between May and October 2025, we identified the principal existing measures of knowledge, attitudes, and practices in mental health – the most relevant, recent and validated measures being the MHLS,[32] the MAKS[33] and the RIBS,[30] alongside the longstanding and extensively used CAMI scale.[25,31] We also referenced the 2023 Eurobarometer survey on mental health.[12] As our study focused on three types of severe mental illness, schizophrenia, bipolar disorder and unipolar depressive disorder, we developed a new questionnaire informed by this literature review. The questionnaire is comprised of 15 knowledge, 15 attitude and 8 behaviour focused questions. We adapted a 'depth-of-exposure' question from the United States General Social Survey.[38] The final part of the survey is comprised of the discrete choice experiment section.

KAP indicators

Knowledge indicators will be constructed based on responses to the knowledge section of the questionnaire. Participants will first be asked to select the conditions they consider to be severe mental illnesses. An indicator will be constructed based on the number of correctly identified conditions, with a maximum of three, and the number of incorrectly selected confounders, with a maximum of five. After this initial assessment of respondents' unaided understanding, the questionnaire will specify that schizophrenia, bipolar disorder, and major depressive disorder are the severe mental illnesses addressed in the survey. Providing this common definition is intended to ensure that responses to the subsequent knowledge, attitude, and practice items are based on a shared understanding of the conditions under consideration. Based on this information, respondents are then asked to estimate the prevalence of SMI in their country, and to identify symptoms for each of the relevant illnesses – schizophrenia, bipolar and major depressive disorder. For each illness three correct symptoms and three confounder symptoms will be listed, and a knowledge score constructed based on responses. Subsequent questions will address general knowledge about SMI, in which five-point scale responses will form the basis of the composite knowledge indicator.

Attitudes will be assessed through respondents' beliefs and emotional reactions to hypothetical situations involving people with severe mental illness. Fifteen attitude items were developed based on themes identified in established mental health stigma and attitude measures, particularly the Community Attitudes to Mental Illness scale, subsequently adapted to reflect the study's specific focus on severe mental illness and integrated mental and physical healthcare. Items were reviewed to ensure contemporary, relevant, and non-stigmatising wording. Responses will be rated on a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree.

Practices will be addressed as willingness to engage in particular actions regarding someone with a SMI, as reported by the respondent. A composite indicator scale of positive to negative attitude will be constructed based on responses to the attitudes and behaviour questions.

The questionnaire will include a final section, adapted from the US General Social Survey, addressing the depth and quality of exposure of the respondent to friends or acquaintances whom they know to suffer from SMI (proximity of contact, frequency of contact, and positive or negative effects of contact).

The questionnaire is available in the extended data to this protocol.

The discrete choice experiment

The discrete choice experiment (DCE) was formulated in accordance with the DIRECT checklist for DCEs developed by Ride et al.[39]

Attribute selection

DCE methodology in healthcare holds that a healthcare model can have multiple attributes, with multiple levels within each attribute. The DCE combines different levels of different model attributes in unique combinations/scenarios and asks respondents to make choices about their preferences between various hypothetical scenarios.[40–42]

In our study these attributes will relate to a new integrated care model for people with SMI, the delineation of which is one of the aims of the broader EU-Mind project. The defining attributes of this model of care, alongside the different attribute levels, will be derived from a Delphi consensus study also nested in the EU-MIND project.[43] Envisaged examples of attributes for an integrated care model are as follows: Location of Care and the Level of Integration, Access & Convenience, Care Team & Coordination, Principal Objective of the Care Pathway, Physical Health Monitoring, Involvement in Care, User Fees, and Costs to the healthcare system. We will generate a discrete choice questionnaire based on the final list of attributes and levels relevant to somatic and mental care that emerge from the Delphi panel. Given that healthcare funding and payments at point of delivery vary across our surveyed countries, we will inform participants that the 'costs to the healthcare system' attribute is designed to assess perceived value.

Attributes' levels

The attribute levels will be selected based on the Delphi results. To ensure clarity and reduce respondent burden, the full set of choice scenarios will be divided into smaller, distinct blocks. Each participant will be assigned just one block to evaluate. Data on socio-demographic characteristics of respondents will be also collected, namely: gender, age, educational level, and household income.

Pilot study

For a qualitative usability and comprehension test of the KAP and DCE survey, we will conduct a small pilot study involving a convenience sample of 20 people in France. Participants will provide written or verbal feedback on ease of comprehension and cognitive burden on the French version of the questionnaire. Necessary changes will be made according to pilot participants' feedback. The survey will then be translated from French into target languages using AI, subsequently checked by bilingual specialists in the field of psychiatry, following suggested best practice in this emerging field.[44] We envisage only minor adjustments on the subsequent 6 language versions. Norstat will then conduct their own initial test launch of the questionnaire of an estimated 200 respondents to assess usability and comprehension.

Statistical analysis

Descriptive analysis

Sociodemographic data, KAP answers, DCE priorities and price estimates will be presented descriptively as means, medians, or proportions and will be stratified by gender and country. Parametric and non-parametric statistics will be used

to compare knowledge, attitudes, practices and maximum price differences for an integrated care model between countries and respondents' profile, using either analyses of variances for continuous variables or the Chi Squared test (or the Fisher exact test) for qualitative measures.

KAP analysis

Answers to the Knowledge questions will be presented descriptively as the means or proportions and compared using either analyses of variances for continuous variables or the Chi Squared test (or the Fisher exact test) for qualitative measures. Within these questions, and when necessary, responses originally collected on a five-point Likert scale will be converted into binary format for secondary or sensitivity analysis (with "good" or "poor" knowledge).

Data collected in the attitudes section will be used to construct a composite indicator such as "Positive attitude" or "Negative attitude", by use of multiple correspondence analysis (MCA). MCA is an exploratory method used to summarize a complex data set comprised of qualitative variables into simplified dimensions.[45] Subsequently, a hierarchical clustering approach will be used to create an attitude indicator. Finally, a generalized linear model for clustered (on country) samples will be used to probe the associations between participants with opposing attitudes and country of citizenship, adjusted for sociodemographic characteristics.

DCE analysis

Prior to analysis, response quality will be assessed. The DCE will include an attention-check DCE choice card presenting a scenario with one obviously correct choice. In addition, routine left or right selections will be considered indicators of poor quality responses. The proportion of respondents with poor quality responses will be calculated, and subsequent analysis will be based on two cases: all respondents, and only respondents with good quality answers.

The preferences for the attributes will be determined with a multinomial logistic regression model (MNL) for panel data with the choice of the respondents as the dependent variable and the attributes as independent variables.[39,46] Model estimates will be derived from dummy-coded effect attributes. The relative importance of each attribute will be determined by country using profile-based normalization.[47] We will also introduce random effects in the multinomial logit model using mixed MNLs, which provide more accurate estimates of coefficients when responses from the same patients are correlated.[48,49] Confidence intervals for revealed price ("utility") will be estimated for each attribute. We will also carry out preplanned assessments of statistical interactions between attributes and demographic characteristics or KAP indicator results to examine whether particular characteristics would be associated with attribute preferences.

All analyses will be conducted with the R Foundation for Statistical Computing, version 4.6.0,[50] using 'Apollo', 'FactoMineR','Cluster', and 'lmer' among other packages.

Discussion

This study will provide cross-national evidence on public knowledge, attitudes, and intended practices regarding severe mental illness, as well as on citizens' preferences and willingness to pay for integrated mental and physical healthcare. By combining a KAP survey with a discrete choice experiment across six European countries, the study is expected to provide insight not only into public understanding and stigma, but also into which features of integrated care are most strongly valued and supported. These findings may help inform the design and implementation of integrated care models that are both clinically relevant and societally acceptable.

The discrete choice experiment was selected because one of the principal aims of the study is to examine how European citizens value different possible configurations of integrated care. Compared with contingent valuation, which typically requires respondents to assess a clearly defined and fully specified intervention, the DCE approach allows preferences to be elicited for individual attributes and levels of a care model that had not yet been finalised at the time of study design.[51,52] This makes it possible to estimate the relative importance of different components of integrated care and the trade-offs respondents are willing to make between them. The use of structured and visually presented choice scenarios is also well suited to an online survey format. DCE methods are increasingly used in mental health research to assess preferences for services, policies, and models of care.[49,53–58]

For the KAP we chose to develop our own questions. Although there is an obvious benefit to using scales that have already had their psychometric properties assessed, and to reuse established questionnaires to provide longitudinally comparable data, several limitations made this approach not fully suitable for the present study. Principally, differences in study aims, target populations, and methodological approaches have limited standardisation across studies, contributing

to the proliferation of measurement instruments. This is also the case with our study, which focuses on the burdens of SMI and the issue of integrated care. Our study also had the dual aims of assessing public knowledge of SMI and attitudes towards people with SMI. For this reason, we included one question in which respondents selected what they considered to be SMI from a list of eight mental health conditions. We then informed respondents of the three conditions considered within our survey – schizophrenia, bipolar and unipolar depression (referred to as Major Depression in the survey, considered more comprehensible to the public). We adapted the behaviour (practices) questions from the existing MHLS, to refer to severe mental illness and developed additional general knowledge questions to target common misconceptions addressed in other scales, adjusted for our focus on severe mental illness. We then adapted attitude questions, drawing on CAMI themes, to target both severe mental illness and the issue of integrated care. Exposure is understood to affect attitudes, and in order to improve the quality of this factor we adopted a shortened version of the exposure question used in the US General Social Survey.[38]

Expectations

Broadly we expect that exposure will correlate with better knowledge and more positive attitudes, albeit not uniformly,[38] and that better knowledge will correlate with more positive attitudes. We also assume positive attitudes will translate into more positive behavioural inclinations. Lastly, we assume that, in general, better knowledge and positive attitudes will translate into a higher valuation of a new integrated care model. Within the DCE, we expect that those who select a high cost model will do so for greater intended benefit in terms of life expectancy.

Strengths and limitations

Online surveys are becoming increasingly popular as a cost-effective means of targeting large numbers of people. As access to the internet has become widespread, both via computers and smartphones, such measures have become more viable in terms of representativeness. However, the downsides to internet surveys persist. Access is mediated through market-research companies who curate panels of respondents, to varying degrees of rigour. Despite efforts to ensure panel quality, it remains difficult to identify and exclude highly experienced or frequent survey participants who may circumvent standard screening and quality-control procedures. Such respondents may participate primarily for financial incentives and may provide less attentive or less reliable responses, potentially affecting data quality.[59] This means that any data obtained in this way must be interpreted with due consideration to its limitations. With that said, it is increasingly a part of the social and scientific landscape and has become a valuable tool.

Although older meta-analyses suggest that online surveys enhanced participants perceptions of anonymity compared to interviews, thereby reducing social-desirability bias,[60] this has been questioned,[61] leaving this potential benefit uncertain. While online surveys provide flexibility to respondents in terms of time and place of completion, they probably tend to exclude people from areas with incomplete coverage, elderly people and low income households.[62]

Traditional back-translation processes prove costly and time consuming, and recent advances in the quality of AI translation suggest that the rigour of these traditional approaches does not offer a significant difference in quality.[44] However, translation difficulties remain an issue, particularly regarding more specialist language relating to severe mental illness and integrated care.

Combining the KAP and DCE components in a single questionnaire may increase respondent burden, particularly because the survey addresses complex and potentially unfamiliar topics, including severe mental illness, healthcare pathways, and integrated care. The length and complexity of the questionnaire may lead to respondent fatigue, reduced attention, incomplete responses, or attrition before completion. We hope that the potential benefit of a snapshot of public knowledge and opinion on these difficult topics will balance out the potential for low-quality responses due to respondent fatigue or the complexity or relatively specialist nature of the subject matter.

Our study does not use mental health KAP measures that have had their psychometric properties extensively validated. However, as mentioned, this was not possible considering the specific focus of this study.

Conclusion

This study will provide cross-national evidence on public knowledge, attitudes, and intended practices regarding severe mental illness, as well as on citizens' preferences and willingness to pay for integrated mental and physical healthcare. By identifying which components of integrated care are most strongly valued, how preferences vary across countries and population groups, and how these preferences relate to knowledge and attitudes, the study will generate evidence to inform the design, prioritisation, and implementation of future integrated care models. The findings may also support policymakers in developing care models that are not only clinically appropriate, but also publicly acceptable and aligned with societal priorities.

Data availability

No data are associated with this article.

Extended data

An English language draft version of the questionnaire used for the online survey is available at https://doi.org/10.5281/zenodo.22199491.[63] The final questionnaire was programmed online and delivered in Danish, Italian, Finnish, French, Polish and Swedish.

Data are available under the terms of the Creative Commons Attribution 4.0 International.

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