Acceptance of the German e-mental health portal www.psychenet.de: an online survey

Lisa Tlach, Juliane Thiel, Martin Härter, Sarah Liebherz, Jörg Dirmaier

Background. Taking into account the high prevalence of mental disorders and the multiple barriers to the use of mental health services, new forms of fostering patient information, involvement, and self-management are needed to complement existing mental health services. The study aimed at investigating acceptance regarding design and content of the e-mental health portal www.psychenet.de. **Methods**. An online cross-sectional survey was conducted between May 2013 and May 2015 using a self-administered questionnaire including items on perceived ease of use, perceived usefulness, attitude towards using, and perceived trust. Effects of different participants' characteristics on the portals' acceptance were analyzed. **Results**. The majority of the N=252 respondents suffered from mental disorders (n=139) or were relatives from persons with mental disorders (n=65). The portal was assessed as "good" or "very good" by 71% of the respondents. High levels of agreement (89-96%) were shown for statements on the perceived ease of use, the behavioral intention to use the portal, and the trustworthiness of the portal. Lower levels of agreement were shown for some statements on the perceived usefulness of the portals' content. There were no effects of different participants' characteristics on the perceived ease of use, the perceived usefulness, the attitude towards using the website and the perceived trust. **Discussion**. This survey provides preliminary evidence that the e-mental health portal www.psychenet.de appears to be a usable, useful and trustworthy information resource for a broad target group. The behavioral usefulness of the portals' content might be improved by integrating more activating patient decision aids.

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25 # Abstract

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27 barriers to the use of mental health services, new forms of fostering patient information,

28 involvement, and self-management are needed to complement existing mental health services.

29 The study aimed at investigating acceptance regarding design and content of the e-mental health

30 portal www.psychenet.de.

31 **Methods.** An online cross-sectional survey was conducted between May 2013 and May 2015

32 using a self-administered questionnaire including items on perceived ease of use, perceived

33 usefulness, attitude towards using, and perceived trust. Effects of different participants'

34 characteristics on the portals' acceptance were analyzed.

35 **Results.** The majority of the N=252 respondents suffered from mental disorders (n=139) or were

36 relatives from persons with mental disorders (n=65). The portal was assessed as "good" or "very

37 good" by 71% of the respondents. High levels of agreement (89-96%) were shown for statements

38 on the perceived ease of use, the behavioral intention to use the portal, and the trustworthiness of

39 the portal. Lower levels of agreement were shown for some statements on the perceived

40 usefulness of the portals' content. There were no effects of different participants' characteristics

41 on the perceived ease of use, the perceived usefulness, the attitude towards using the website and

42 the perceived trust.

43   **Discussion.** This survey provides preliminary evidence that the e-mental health portal

44   www.psychenet.de appears to be a usable, useful and trustworthy information resource for a

45   broad target group. The behavioral usefulness of the portals' content might be improved by

46   integrating more activating patient decision aids.

Introduction

48 Over a third of the total EU population suffers from mental disorders with anxiety and mood

49 disorders being the most frequent mental disorders (Wittchen et al. 2011). However, mental

50 disorders are often not detected; only about one third of patients receives adequate treatment, and

51 access to treatment is complicated by system-related barriers (Mack et al. 2014). In most

52 epidemiological studies, service use of mentally ill people ranges between 2% to 18% (Wang et

53 al. 2007). Given the structural problems of the mental health care system, new forms of fostering

54 patient information, involvement, and self-management are needed to complement existing

55 mental health services. Therefore the development of innovative treatment approaches that are

56 available to a large population is recommended (Christensen & Petrie 2013).

Bridging the Gap through Web-based Health Applications

58 The Internet is widely seen as an effective complementary source for addressing these issues. As

59 it reaches a large number of people, a reduction of barriers to the use of health services is

60 facilitated by anonymity and high accessibility. It holds the opportunity to deliver interactive

61 content that is tailored to the needs of the target group at comparatively low cost to a large

62 number of users at the time, place and learning speed the individual user prefers (Arnberg et al.

63 2014). Internationally, health services have increasingly expanded into online environments

64 leading to the development of e-mental health services that are designed to complement, rather

65 than replace existing mental health services. They hold the opportunity to reach people who live

66 in remote areas or those with disabilities and without easy access to health care services

67 (Anderson et al. 2013; Benavides-Vaello et al. 2013; Carrard et al. 2006). Furthermore, people

68   who refuse to seek out traditional services, especially those who wish to remain anonymous, may

69   utilize e-mental health services (Townsend et al. 2012). E-health services may empower patients

70   to participate in treatment choices and to take control and responsibility about their own health

71   and care by improving access to services and information (Alpay et al. 2010; Alpay et al. 2011;

72   Xie et al. 2013). A German national survey found that people increasingly take advantage of

73   these opportunities (Eichenberg et al. 2013).

74   However, the quality and usability of mental health information on the World Wide Web is

75   limited (Reavley & Jorm 2011) and the effectiveness of e-health interventions is limited by high

76   attrition rates (Geraghty et al. 2013); most users visit health intervention websites only once

77   (Brouwer et al. 2010; Verheijden et al. 2007). Additionally, reading levels of web-based patient

78   materials are partially too high for the average user, not taking into account the large variance of

79   health literacy in the population (Stossel et al. 2012). As persons with lower educational levels

80   and respective persons with lower literacy levels might show less beneficial effect by using

81   patient education materials (Goossens et al. 2014; Murphy et al. 2000), effects of educational

82   levels on the acceptance – among other participants' characteristics – should be accounted for in

83   the interpretation of evaluation results.

The German E-mental Health Portal www.psychenet.de

85   A current project being part of the public-funded intersectoral research network *psychenet - the*

86   *Hamburg Network for Mental Health* is aimed at developing and evaluating an e-mental health

87   portal. With *psychenet*, the Federal Ministry of Education and Research contributes to

88   strengthening healthcare regions in Germany by establishing new trans-sectoral cooperations and

89   by implementing and evaluating selected health care innovations (Härter et al. 2012). The portal

90   www.psychenet.de is intended to increase the users´ knowledge and to empower them to be

91   active partners in medical decisions and the management of their mental strain.

92   In a first step, a basic version of the portal (comprising evidence-based patient information on a

93   wide range of mental disorders and information about local treatment services) was developed to

94   complement a region-wide awareness campaign on mental health in the metropolitan area of

95   Hamburg that includes an award-winning media campaign (placards, cinema ads, radio ads) and

96   specific educational projects (Härter et al. 2012). In order to obtain first evidence about the

97   usability of the website, common web metrics were obtained via open source web analysis tools

98   (e.g. Google Analytics). As a following project step, various modules have been developed for

99   six of the most common mental disorders - depression, somatoform disorders, eating disorders,

100   alcohol use disorders, psychotic disorders and anxiety disorders (Wittchen et al. 2011); e.g.

101   patient decision aids (PtDAs), self-help tools, and screening tools. According to the International

102   Patient Decision Aid Standard (IPDAS) collaboration criteria (Elwyn et al. 2006), the

103   development of the modules has been based on a comprehensive mixed-methods needs

104   assessment (focus groups, online-survey) among patients, relatives, and health care

105   professionals. The technical development of the website has been commissioned by a

106   professional web-design agency. The design and content of the portal and the results of the

107   website using web metrics are described in detail elsewhere (Dirmaier et al. 2015). While the

108   information about treatment services refer to the metropolitan area of Hamburg and the media

109   campaign and specific health education projects were restricted to this region, the other tools

110   (e.g. evidence based patient information (including fact sheets on several mental disorders and

111   other basic facts concerning mental health as well as PtDAs) and screening tools) are not

112   targeted specifically to this region.

113   The present study aimed at investigating acceptance regarding design and content of the basic

114   version of the e-mental health portal www.psychenet.de addressed at individuals with mental

115   disorders, their relatives, service providers, and the interested public. The portal should be

116   assessed through the following aspects of acceptance: 1) perceived ease of use, 2) perceived

117   usefulness, 3) attitude towards using the website, 4) perceived trust, and 5) overall evaluation. A

118   further aim was to explore effects of different participants' characteristics (sex, age, educational

119   level, place of residence, experience with mental disorders, first time/multiple portal users,

120   participation before or after the integration of the first PtDA) on the portals' acceptance.

Methods

121

Design and participants

122

123   The research team employed an online cross-sectional study using a self-administered survey.

124   Online convenience sampling was conducted on our e-mental health portal www.psychenet.de.

125   On each page of the portal, teasers were sited linking to a short invitation to participate in the

126   survey. Users being interested were referenced to the survey that was arranged following detailed

127   information about the studies' aim, procedure, and data security. Adult users (18 years or over)

128   who gave written informed consent to participate (asked at the beginning of the questionnaire) as

129   well as consent to data use (asked when participants had finished the questionnaire) were

130   included in the analyses. There were no additional inclusion or exclusion criteria.

131 ## Ethics Statement

132 Approval for the study was obtained from the ethics committee of the Hamburg Medical

133 Association (Process number: PV4157).

134 # Data collection

135 The data were collected between May 2013 and May 2015 (24 months). A short, face-validated

136 questionnaire comprising 33 items was developed for the study. The questionnaire comprised 3

137 main sections: (1) baseline characteristics, (2) acceptance and usability, and (3) overall

138 evaluation.

139 **Baseline characteristics**

140 Baseline characteristics were elicited using 4 items on sociodemographic variables (age, gender,

141 education, postal code). Furthermore, 3 items were used to explore respondents' experience with

142 mental disorders (4 options), how they accessed the website (3 options), and how they learned

143 about the website (8 options including the option for a free answer). Previous internet use was

144 explored on a 3-point scale ("(almost) every day", "at least once a week", "at least once a

145 month") and frequency of use of the portal was elicited on a 4-point scale ("first time", "< 5

146 times", "> 5 times", "> 10 times").

147 **Acceptance and usability**

148 In order to assess the acceptance and the usability of the portal, respondents rated up to 22 items

149 on a 4-point Likert scale (1=disagree, 2=somewhat disagree, 3=somewhat agree, 4=agree).

150 Number of scale points and wording of the Likert scale were defined based on Chang (1994).

151 According to a previous study on the acceptance of an e-health application (de Graaf et al. 2013),

152   participants were asked to rate statements covering 3 dimensions of the Technology Acceptance

153   Model (TAM); see Davis (1989) and Chau & Hu (2002): *perceived ease of use* (8 items),

154   *perceived usefulness* (10 items including 2 filter items for respondents being affected by mental

155   disorders and 1 filter item for respondents being a relative of a person with mental disorders),

156   and *attitude towards using* (2 items). The TAM dimensions were added by the dimension

157   *perceived trust* (2 items) as it was shown to be a relevant quality criterion as seen by patients

158   with long-term conditions and caregivers (Kerr et al. 2006) and it affects consumers acceptance

159   of health technologies (Lemire et al. 2008; Wu et al. 2008).

160   **Overall evaluation**

161   In order to elicit an overall rating of the portal, respondents were asked to rate the portal on a 6-

162   point scale based on the grading system used in German schools (1=very good, 2=good,

163   3=satisfactory, 4=sufficient, 5=deficient, 6=insufficient). Finally, a facultative open field for

164   comments and suggestions for improvements was provided. Before the questionnaire was used, it

165   was pilot tested among 10 student assistants and research assistants not participating in this

166   study.

167   # Data Analysis

168   **Quantitative data analysis**

169   The professional web-based online survey software EFS Survey (Questback GmbH) was used

170   for the electronic data collection. The statistical software package PASW Statistics 18 (SPSS

171   Inc., Chicago IL) was used to analyze the data. Data were primarily evaluated by quantitative

172   descriptive data analysis. In order to quantify responses, means, standard deviations, and

173   frequency distributions were calculated for each item on acceptance. A total score for each

174   dimension (*perceived ease of use*, *perceived usefulness*, *attitude towards using*, *perceived trust*)

175   was calculated by summing the scale's single items. Moreover, median, range, and frequency

176   distribution were calculated for the overall rating.

177   To explore effects of different participants' characteristics (sex, age, educational level, place of

178   residence, experience with mental disorders, first time/multiple portal users, participation before

179   or after the integration of the first PtDA) on the acceptance and usability of the website, one-way

180   analyses of variance (ANOVAs) were conducted for interval scaled variables (total scores of the

181   four dimensions of acceptance and usability) and Kruskal–Wallis H test for ordinal scaled

182   variables (overall evaluation). $P < 0.05$ was considered to be significant for all analyses. The

183   significance level was not adjusted as the tests served to generate hypotheses.

184   **Qualitative data analysis**

185   Qualitative data analysis was used to analyze the open field question using an inductive

186   approach. Responses were categorized into five main categories: 1) negative appraisals, 2)

187   positive appraisals, 3) suggestions for improvement, 4) not related to the website 5) no comment.

188   Responses that included a number of themes were subdivided into various units and separately

189   categorized. The coding was carried out by three members of the research team (LT, JT, SL).

190   # Results

191   During the investigation period of 24 months, 14.000 to 36.000 visitors per month were

192   registered through web analysis software. 1030 visitors of the portal started the web-based user

193   survey and 819 gave consent to participate at the beginning of the questionnaire. Of these, 314

194   completed the questionnaire (38.3% of those who agreed to participate). Finally, 252 participants

195   gave their consent for the use of data at the end of the questionnaire, indicating that they

196   answered the questionnaire in a meaningful way (e.g. did not answer the questions simply to

197   have a look at the questionnaire) and that their data can be used for statistical analyses (see

198   Figure 1).

199   Participants

200   Of the 252 respondents, 55.2% (n=139) were affected from mental disorders. The respondents

201   were predominantly female (64.3%, n=162), well-educated (middle or high educational level:

202   75.8%, n=191) and had a mean age of 42.2 years (SD=15.0). The majority of the participants

203   (90.5%, n=228) are using the internet (almost) every day. 57.5% of respondents (n=145) stated

204   that they learned about the portal through online search for mental illnesses. 14.3% (n=36)

205   learned about the portal through the projects' media campaign (cinema adverts, poster, YouTube

206   channel, postcards). Of the total sample, 73.4% (n=185) reported that they were visiting the

207   portal for the first time. For detailed baseline characteristics and frequency distributions of access

208   paths and website use see Table 1.

209   Acceptance of the portal

210   Table 2 shows the percentage of users who agreed/disagreed to statements covering several

211   aspects of acceptance, ordered separately for each dimension by the percentage of participants

212   who agreed.

213   Perceived ease of use

214   89 to 96% of participants agreed with the particular statements concerning the perceived ease of

215   use.

216 ANOVAs yielded no significant main effects of participants' characteristics for items associated

217 with perceived ease of use (see Table 3).

Perceived usefulness

219 Concerning the perceived usefulness, the items concerning the usefulness of the content

220 (interesting, new, appropriate amount of information, helpful, useful) gained the highest level of

221 approval (79-93%). Lower levels of agreement from the perspective of the respondents living

222 with mental disorders were shown for statements concerning the improvement of the

223 communication with relatives or health care providers (51 respectively 60%). Concerning the

224 affected peoples' relatives, 72% confirmed that they were now able to talk better about mental

225 disorders with their relative being affected.

226 ANOVAs yielded no significant main effects of participants' characteristics for items associated

227 with perceived usefulness (see Table 4).

Attitude towards using the website

229 Concerning the attitude towards using the website, more than 90% of the respondents agreed that

230 they would recommend the website to others respectively would revisit the website if needed.

231 ANOVAs yielded no significant main effects of participants' characteristics for items associated

232 with the attitude towards using the website (see Table 5).

Perceived trust

234 The majority of respondents (94-96%) agreed that the information on the website was

235 trustworthy and that the information on the website was up to date.

236   For items associated perceived trust, ANOVAs yielded no significant main effects of

237   participants' characteristics (see Table 6).

238   **Overall evaluation**

239   Almost three thirds of the respondents (71.4%, n=180) assessed the website as "very good"

240   (n=60) or "good" (n=120). 21.0% of the participants (n=53) rated the website as "satisfactory"

241   (n=39) or "sufficient" (n=14). Only 7.5% (n=19) marked the website as "deficient" (n=13) or

242   "insufficient" (n=6). Overall, the ratings of the whole sample displayed a median of 2.0 (IQR=1-

243   6).

244   Kruskal-Wallis H test revealed no significant effect of age, educational level, place of residence,

245   frequency of portal use and the date of participation (before/after the integration of the first

246   PtDA) on overall evaluation.

247   Women were more satisfied with the portal than men (p = 0.019). The experience with mental

248   disorders was also significantly associated with the overall evaluation (p = 0.037) with the best

249   rating in experts and the worst rating in people without experiences with mental disorders.

250   # Qualitative analysis

251   The open field question was responded by 58 participants. The answers were subdivided into 64

252   different statements. Seven participants explicitly mentioned that they had no comment. Five

253   statements addressed the online survey and one statement addressed the general attitude towards

254   people with mental disorders. All other statements refer directly to the e-health portal. There

255   were 31 suggestions for improvement (e.g. the need for additional tools or topics, more in-depth

256   information or regional expansion). Fifteen positive appraisals addressed knowledge and

257   empowerment, the appropriate depth of information and the usefulness for newly diagnosed

258   people among other topics. There were five negative appraisals concerning, for example,

259   incomprehensible information (too many technical terms) or the insufficient suitability for adults

260   with bipolar disorders.

Discussion
261

262   As a consequence of multiple barriers in mental health service provision and access, a

263   considerable proportion of persons living with mental disorders do not receive adequate

264   treatment (Wang et al. 2007). Internationally, but not yet in Germany, mental health services

265   have increasingly expanded into online environments leading to the development of e-mental

266   health services. Within the framework of an intersectoral research network the e-health portal

267   www.psychenet.de addressed at individuals with mental disorders, their relatives and service

268   providers has been developed recently. In this online study, acceptance regarding design and

269   content of the portal was investigated.

270   In the present study, 252 users of the e-mental health portal www.psychenet.de were included.

271   Overall, the portal was assessed as "good" or "very good" by a substantial percentage of

272   respondents. Moreover, high degrees of approval were found for statements on perceived ease of

273   use. Comparable rates of agreement were found in an evaluation study on the usability of a web-

274   based patient information system for individuals with severe mental health problems

275   (Kuosmanen et al. 2010). Likewise, high levels of agreement were shown for statements on the

276   behavioral intention to use the portal or to recommend it to others and regarding the

277   trustworthiness of the portal. Lower levels of agreement were partly shown for some statements

278   on the perceived usefulness. Concerning the usefulness of the portal in improving

279   communication, relatives show higher levels of agreement than the respondents living with

280   mental disorders. In a recent study, Berk et al. (2013) reported comparatively higher levels of

281   agreement regarding the usefulness of a website containing guidelines for caregivers of adults

282   with bipolar disorder. Likewise, a study on the acceptance of a web-based e-health intervention

283   for parents of children with infantile hemangiomas showed higher agreement rates (de Graaf et

284   al. 2013). It is assumed, that the higher acceptance was due to the fact that the respective website

285   was aimed at one target group (caregivers) and one narrowly defined topic (bipolar disorders,

286   infantile hemangiomas). However, in an evaluation study on the user acceptance of a website for

287   cancer patients with a more broad range of topics, higher levels of agreements were reported for

288   ease of use compared to usefulness as it was also shown for the current study (Wallwiener et al.

289   2010). Additionally, it should be noted that such comparisons are difficult to interpret as the

290   studies probably varied substantially with respect to relevant characteristics such as ways of

291   recruitment, response rates and users' experience with the respective portal.

292   Facing the fact that there were no effects of different participants' characteristics on the

293   perceived ease of use, the perceived usefulness, the attitude towards using the website and the

294   perceived trust, it can be assumed that the e-mental health portal is suitable for a broad range of

295   users. Concerning the overall evaluation, there are some differences depending on users'

296   characteristics: Women are more satisfied with the portal than men. As there are no sex

297   differences regarding the other items, the difference results maybe from a differing answering

298   behavior regarding overall ratings. Additionally, the overall evaluation depends on the

299   experience with mental disorders, indicating that experts are more pleased with the portal than

300   affected people and relatives and all these three groups are more pleased than people without

301   experiences with mental disorders. As the portal is targeted to experts, affected people and

302   relatives, the last-mentioned result is not surprising.

303   Fortunately, the educational level had no influence on the acceptance and usability of the portal,

304   suggesting that respondents with lower educational level are also able to benefit from the

305   information presented at the portal. However, most respondents are well-educated and we do not

306   know if this reflects the typical users' characteristics or if well-educated users are more likely to

307   participate in the survey.

308   This analysis of acceptance offers preliminary evidence that the e-mental health portal

309   www.psychenet.de appears to be a usable, useful and trustworthy publically available

310   information resource for adults living with mental illness, their relatives and experts working

311   with mental disorders. The acceptance of the portal is further resembled by the high percentage

312   of respondents that agreed their intention to recommend and to revisit the portal in case of

313   necessity. The results of the web-analysis reported by Dirmaier et al. (2015) confirmed that the

314   website is usable and highly accessed. Nonetheless, lower agreement levels concerning the

315   usefulness of the portal on a behavioral level were observed. Thus, integrating content that

316   supports active patient behavior regarding communication with relatives and with health care

317   providers as provided by high quality patient decision aids (PtDAs) might improve the

318   usefulness of the e-health portal. Previous analyses do not show an influence of the availability

319   of the first decision aid on the acceptance of the portal. However, three of the four PtDAs were

320   only available during the last weeks of the survey period. In order to further improve acceptance

321   of the portal by targeting the offers of the portal to the users' needs, qualitative studies are

322   requested to identify topics that are of high relevance to the users but have not been addressed

323   until now.

324

Limitations

326   Due to methodological limitations the results of the study need to be interpreted with caution.

327   First of all, convenience sampling was used by informing users about the survey without

328   attracting attention and not actively recruiting. This resulted in a relatively small number of

329   respondents – compared with the number of website users and the number of people who started

330   the survey. It is assumed, that respondents might have had an incentive to participate in the study

331   as a consequence of being either particularly satisfied or dissatisfied with the offers presented at

332   the portal. However, the positive ratings of the respondents suggest that they might have been

333   motivated rather by their satisfaction than dissatisfaction with the system. However, high

334   attrition rates are a common problem in online-surveys (Thielsch & Weltzin 2012).

335   As we do not know if the investigated sample was representative (e.g. if the completers represent

336   the typical users' characteristics) the results presented here might overestimate the acceptance of

337   the portal. Most non-completers (46% of the people who started the questionnaire) discontinued

338   the questionnaire during the first page (introduction), another 9% of the non-completers

339   discontinued on the second page (informed consent to participate). When it came to the questions

340   concerning the acceptance and the usability of the portal, further 11% discontinued, maybe due

341   to the complex matrix character of these questions. The other non-completers discontinued at

342   other pages. Future evaluations should be conducted using probability sampling methods to

343   confirm the present findings. As we used hardly any standardised instrument, the comparability

344   of our results is limited. However, the questionnaire was developed based on widespread theories

345   and evidence on acceptance of information technologies (Chau & Hu 2002; Davis 1989; Kerr et

346 al. 2006; Lemire et al. 2008; Wu et al. 2008) and pilot tested among 10 participants.

347 Furthermore, in order to provoke a definitive choice, no mid-point was provided. Due to the

348 forced choice, the use of a 4-point scale might have led to a biased rating. However, Weijters,

349 Cabooter & Schillewaert (2010) assumed that ambivalent or neutral respondents tend to rate

350 negatively in the absence of a midpoint.

351 Moreover, as we used self-reported information on the respondents' experience with mental

352 disorders, the validity of this information is limited.

353 # Conclusions

354 Despite the methodological limitations, this study provides first evidence on the acceptance of

355 the e-mental health portal www.psychenet.de. The results on the usefulness of the portal showed

356 that there is still room for improvement. It is assumed that the portal empowers people with

357 mental disorders and their relatives by facilitating to gather high-quality evidenced-based

358 information about their illness, to rapidly find the right treatment services without great effort,

359 and to prepare for health care provider contacts. Within the framework of this project, PtDAs for

360 common mental disorders (i.e. depression, anxiety disorders, psychosis) supporting active user

361 behavior were developed and implemented on the e-health portal www.psychenet.de based on a

362 comprehensive mixed-methods needs assessment study. In addition to the PtDAs, self-

363 management tools are currently being evaluated.

364

365 # Acknowledgements

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367   Research in the region of Hamburg which consists of more than 100 scientific and medical

368   institutions, counselling centers, the Senate and the Chamber of Commerce of the Free and

369   Hanseatic City of Hamburg, companies, as well as patients' and relatives' associations (2011–

370   2015). The vision of the project is to promote mental health today and in the future, concerning

371   early diagnosis and effective treatment of mental illnesses. For more information and a list of all

372   partners please visit www.psychenet.de.

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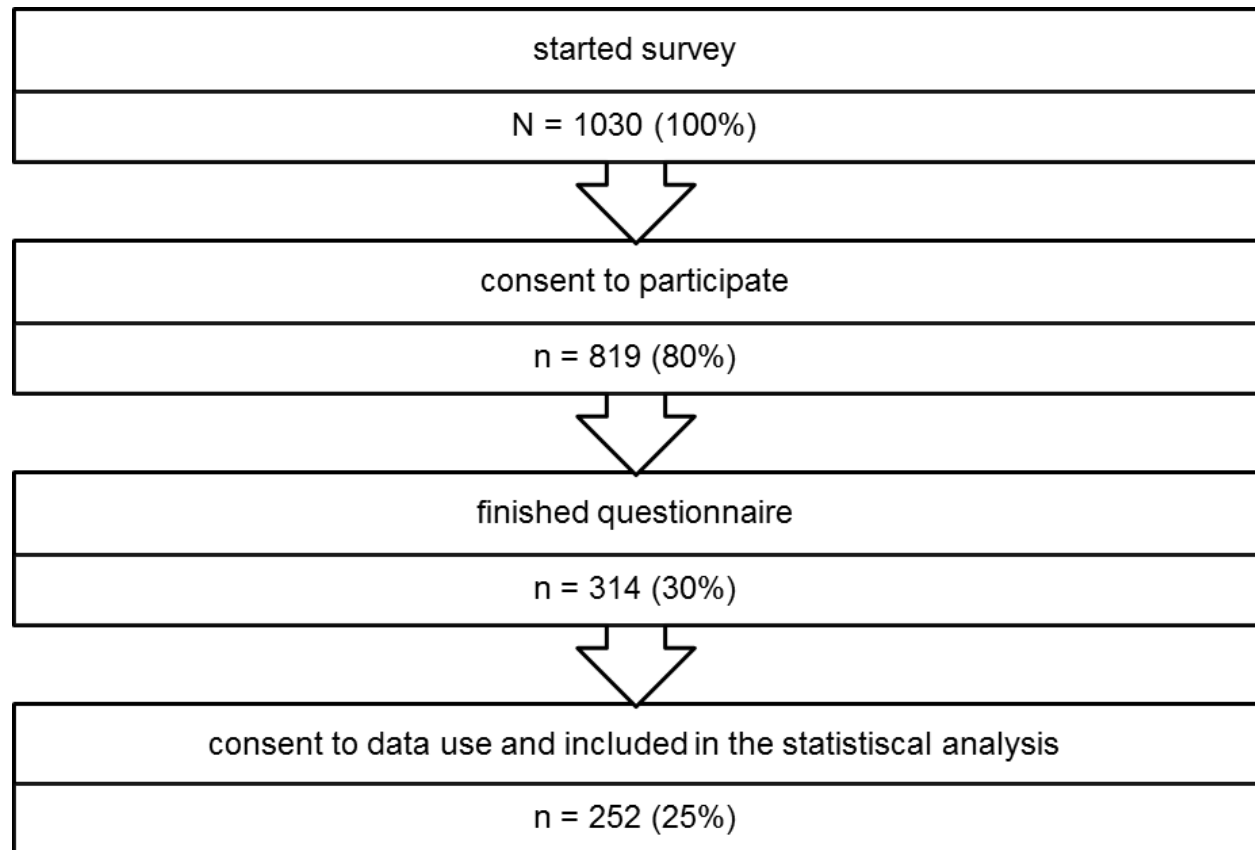
496 **Figure**

497 **Figure 1.** Participant flow chart.

498 **Tables**

499 **Table 1.** Descriptive characteristics and frequency distributions of access paths and website use
500 (N=252).

Variables		n	%
Gender	Female	162	64.3
Age (M=42.2, SD=15.0)	≤ 45	135	53.6
	> 45	117	46.4
Education	Low	61	24.2
	Middle	66	26.2
	High	125	49.6
Experience with mental disorders	Affected people	139	55.2
	Relatives	65	25.8
	Experts	25	9.9
	None	23	9.1
Residential area	Region of Hamburg	62	24.6
	Other regions	190	75.4
Internet usage	(Almost) every day	228	90.5
	At least once a week	21	8.3
	At least once a month	2	0.8
Access to the portal	Directly	122	48.4
	Via search engine	102	40.5
	Via referring website	28	11.1
Awareness of the portal through	Online searches for mental illnesses	145	57.5
	Personal recommendation	27	10.7
	Newspaper article	19	7.5
	Cinema advert	19	7.5
	Poster	7	2.8
	YouTube	6	2.4
	Postcard	4	1.6
	Other	60	23.8
Frequency of use	First time	185	73.4
	< 5 times	42	16.7
	> 5 times	12	4.8
	> 10 times	13	5.2
Date of attendance	Before the integration of the first PtDA	156	61.9
	After the integration of the first PtDA	96	38.1

501 **Table 2.** User ratings on perceived ease of use, perceived usefulness, attitude towards using the portal, and perceived trust (N=252).

Variables	agree	somewhat agree	somewhat disagree	disagree
Perceived ease of use	**% (n)**	**% (n)**	**% (n)**	**% (n)**
The font of the website is easy to read	71.0 (179)	25.0 (63)	1.6 (4)	2.4 (6)
The website is easy to use	58.7 (148)	33.7 (85)	5.2 (13)	2.4 (6)
The presentation of the information is clearly arranged	52.0 (131)	39.7 (100)	4.4 (11)	4.0 (10)
The design of the website is appealing	52.8 (133)	39.3 (99)	4.8 (12)	3.2 (8)
The information on the website is easy to understand	63.5 (160)	30.2 (76)	3.2 (8)	3.2 (8)
The colors of the website are pleasant	54.0 (136)	38.5 (97)	5.6 (14)	2.0 (5)
The pictures on the website are appropriate	44.0 (111)	46.8 (118)	6.3 (16)	2.8 (7)
I can quickly find the information that is important to me	48.0 (121)	40.5 (102)	6.3 (16)	5.2 (13)
Perceived usefulness	**% (n)**	**% (n)**	**% (n)**	**% (n)**
The content of the website is interesting	61.1 (154)	31.7 (80)	4.4 (11)	2.8 (7)
All in all, the website is useful for me	48.8 (123)	40.1 (101)	8.3 (21)	2.8 (7)
The amount of information presented on the website is appropriate	44.8 (113)	43.3 (109)	8.7 (22)	3.2 (8)
The website contains information that I need	47.2 (119)	40.1 (101)	9.5 (24)	3.2 (8)
The information on the website has helped me with my concerns	40.1 (101)	42.9 (108)	12.7 (32)	4.4 (11)
Through the website, I received references to other sources	39.7 (100)	44.8 (113)	11.9 (30)	3.6 (9)
By using this website I have learned something new	37.3 (94)	41.3 (104)	15.5 (39)	6.0 (15)
Now I'm able to talk better about mental disorders with my relative being affected[a]	21.5 (14)	50.8 (33)	21.5 (14)	6.2 (4)
Now I'm able to talk better about mental disorders with my health professional[b]	20.9 (29)	38.8 (54)	19.4 (27)	20.9 (29)
Now I'm able to talk better about mental disorders with my relative[b]	23.7 (33)	27.3 (38)	26.6 (37)	22.3 (31)
Attitude towards using	**% (n)**	**% (n)**	**% (n)**	**% (n)**
I would recommend the website to others	55.6 (140)	34.5 (87)	6.0 (15)	4.0 (10)
I will revisit the website if needed	64.3 (162)	28.6 (72)	4.4 (11)	2.8 (7)
Perceived trust	**% (n)**	**% (n)**	**% (n)**	**% (n)**
The information on the website is trustworthy	59.1 (149)	36.9 (93)	2.0 (5)	2.0 (5)
The information on the website is up to date	48.0 (121)	45.6 (115)	4.0 (10)	2.4 (6)

502   [a] Sample size was reduced to n=65 respondents that reported being relative of a person with mental disorders

503   [b]   Sample   size   was   reduced   to   n=139   respondents   that   reported   being   affected   by   a   mental   disorder

504   **Table 3**. Effects of different participants' characteristics on the *perceived ease of use* (N=252).

		N	M	SD	F	p
sex	female	162	3.49	0.51	3.35	0.068
	male	90	3.36	0.63		
age	≤45	135	3.46	0.56	0.30	0.586
	>45	117	3.43	0.56		
educational level	low	61	3.33	0.68	2.22	0.111
	middle	66	3.53	0.39		
	high	125	3.46	0.57		
residential area	region of Hamburg	62	3.42	0.56	0.18	0.668
	other regions	190	3.45	0.56		
experience with mental disorders	affected people	139	3.41	0.58	1.15	0.328
	relatives	65	3.44	0.56		
	experts	25	3.61	0.44		
	none	23	3.54	0.54		
frequency of use	first time users	185	3.43	0.59	0.63	0.428
	multiple users	67	3.49	0.46		
date of attendance	before the integration of the first PtDA	156	3.40	0.60	2.99	0.085
	after the integration of the first PtDA	96	3.52	0.48		

505   M = mean, SD = standard deviation

506

507   **Table 4**. Effects of different participants' characteristics on the *perceived usefulness*.

		N	M	SD	F	p
sex	female	162	3.49	0.51	3.35	0.068
	male	90	3.36	0.63		
age	≤45	135	3.46	0.56	0.30	0.586
	>45	117	3.43	0.56		
educational level	low	61	3.33	0.68	2.22	0.111
	middle	66	3.53	0.39		
	high	125	3.46	0.57		
residential area	region of Hamburg	62	3.42	0.56	0.18	0.668
	other regions	190	3.45	0.56		
experience with mental disorders	affected people	139	3.41	0.58	1.15	0.328
	relatives	65	3.44	0.56		
	experts	25	3.61	0.44		
	none	23	3.54	0.54		
frequency of use	first time users	185	3.43	0.59	0.63	0.428
	multiple users	67	3.49	0.46		
date of attendance	before the integration of the first PtDA	156	3.40	0.60	2.99	0.085
	after the integration of the first PtDA	96	3.52	0.48		

508   M = mean, SD = standard deviation

509

510   **Table 5**. Effects of different participants' characteristics on the *attitude towards using the*
511   *website*.

		N	M	SD	F	p
sex	female	162	3.50	0.64	0.36	0.549
	male	90	3.44	0.81		
age	≤45	135	3.46	0.72	0.36	0.551
	>45	117	3.51	0.69		
educational level	low	61	3.42	0.86	0.31	0.732
	middle	66	3.50	0.61		
	high	125	3.50	0.67		
residential area	region of Hamburg	62	3.40	0.75	0.99	0.322
	other regions	190	3.51	0.69		
experience with mental disorders	affected people	139	3.46	0.74	1.88	0.133
	relatives	65	3.45	0.67		
	experts	25	3.78	0.38		
	none	23	3.35	0.76		
frequency of use	first time users	185	3.44	0.74	1.93	0.166
	multiple users	67	3.58	0.57		
date of attendance	before the integration of the first PtDA	156	3.48	0.71	0.01	0.941
	after the integration of the first PtDA	96	3.48	0.69		

512   M = mean, SD = standard deviation

513

514   **Table 6**. Effects of different participants' characteristics on the *perceived trust*.

		N	M	SD	F	p
sex	female	162	3.48	0.58	0.33	0.565
	male	90	3.43	0.61		
age	≤45	135	3.49	0.60	0.58	0.446
	>45	117	3.43	0.59		
educational level	low	61	3.39	0.71	0.77	0.466
	middle	66	3.46	0.49		
	high	125	3.50	0.58		
residential area	region of Hamburg	62	3.47	0.64	0.01	0.934
	other regions	190	3.46	0.58		
experience with mental disorders	affected people	139	3.45	0.61	0.50	0.685
	relatives	65	3.45	0.59		
	experts	25	3.60	0.50		
	none	23	3.46	0.60		
frequency of use	first time users	185	3.44	0.61	0.72	0.398
	multiple users	67	3.51	0.55		
date of attendance	before the integration of the first PtDA	156	3.42	0.64	2.44	0.120
	after the integration of the first PtDA	96	3.54	0.50		

515   M = mean, SD = standard deviation

516