# Stigma as a barrier to recognizing personal mental illness and seeking help: a prospective study among untreated persons with mental illness

# Stigma as a barrier to recognizing personal mental illness and seeking help – a prospective study among untreated persons with mental illness.

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**Abstract (250 words)**

**Background:** It is unclear to what extent failure to recognize symptoms as potential sign of a mental illness is impeding service use, and how stigmatizing attitudes interfere with this process.

**Methods:** In a prospective study, we followed a community sample of 188 currently untreated persons with mental illness (predominantly depression) over 6 months. We examined how lack of knowledge, prejudice and discrimination impacted on self-identification as having a mental illness, perceived need, intention to seek help, and help-seeking, both with respect to primary care (visiting a general practitioner, GP) and specialist care (seeing a mental health professional, MHP).

**Results:** 67% sought professional help within 6 months. Fully saturated path models accounting for baseline depressive symptoms, previous treatment experience, age and gender showed that self-identification predicted need (beta 0.32, $p<0.001$), and need predicted intention (GP: beta 0.45, $p<0.001$; MHP: beta 0.38, $p<0.001$). Intention predicted service use with a MHP after 6 months (beta 0.31, $p<0.01$; GP: beta 0.17, $p=0.093$). More knowledge was associated with more self-identification (beta 0.21, $p<0.01$), while support for discrimination was associated with lower self-identification (beta -0.14, $p<0.05$). Blaming persons with mental illness for their problem was associated with lower perceived need (beta -0.16, $p<0.05$). Our models explained 37% of the variance of seeking help with a MHP, and 33% of help-seeking with a GP.

**Conclusions:** Recognizing one's own mental illness and perceiving a need for help are impaired by lack of knowledge, prejudice, and discrimination. Self-identification is a relevant first step when seeking help for mental disorders.

**Key words:** untreated individuals, stigma, self-identification, need, help-seeking

## Introduction

Epidemiological studies consistently show that most persons with mental illness do not seek treatment for their disorders, or only do so after considerable delay [1]. This holds true even for countries with well-developed primary care and specialized mental health services, where structural barriers to care are low [2]. Understanding why many people chose not to seek treatment despite services being available is a major challenge for mental health services research. Untreated mental disorders are associated with higher rates of chronicity, comorbidity, lower long-term quality of life [3], and considerable costs [4].

Stigma has been identified as an important barrier in the help-seeking process [5-9]. The active decision to avoid professional help in order to avoid being stigmatized by others has been conceptualized as 'label avoidance' [10], a phenomenon often reported in qualitative studies [6,8]. However, stigma seems to interact with the process of help-seeking in a more complex way. Cross-sectional and retrospective quantitative studies show that one's own stigmatizing attitudes (which of course mirror population attitudes) play a more important role for the decision not to seek help than perceptions of stigmatizing attitudes of others [11-13]. There is also evidence that personal stigma is associated with lower readiness to appraise one's own symptoms as potentially indicating a mental health problem [14,15]. Stigma might thus hinder recognition of a personal mental health problem even before the question of whether to seek help is considered [16]. To understand the service use gap between the high prevalence of mental disorders in epidemiological studies and the much lower prevalence of help-seeking among those affected, these early stages of the help-seeking process need to be examined.

So far, most studies investigating the relationship between stigma and help-seeking used cross-sectional designs [17], assessing past help-seeking behavior, current attitudes towards help-seeking or help-seeking intentions [6,18,19]. A recent systematic review [12]

identified only five prospective studies on stigma and help-seeking [20-24]. While perceived need and positive attitudes towards mental health care were associated with stronger likelihood to seek help [21,24], neither study found evidence that perceived stigma impairs help-seeking. However, so far no study prospectively examined the consequences of the persons' own stigmatizing attitudes on help-seeking for a current mental health problem, as well as the degree to which individuals consider themselves as having a mental illness.

In this study, we want to contribute empirical data on this issue. For our purpose, we conceptualize the complex process of help-seeking as four successive, interrelated steps [18,25]. First, individuals with mental health problems need to recognize that their current complaints might be part of a mental illness (step 1: self-identification as having a mental health problem). Second, individuals perceive need for treatment (step 2: need) before they develop intentions to seek help (step 3: help-seeking intentions), and, finally, seek help (step 4: help-seeking). Biddle and co-workers showed in a qualitative study of young adults, that framing present symptoms as potential clinical disorder and expressing need for treatment were both impaired by stigma [16]. While need has been identified as an important factor associated with help-seeking, for example in the World Mental Health surveys [26], there is a scarcity of quantitative studies relating stigma to perceived need [14].

It is a frequently held assumption in cross-sectional studies that need and help-seeking intentions are in fact predictive of help-seeking behavior [19]. However, the 'intention-behavior gap' [27] for mental health help-seeking has not yet been determined. Thus, longitudinal studies investigating both intention and behavior are necessary, also to validate the findings of studies relying on cross-sectional designs.

The *aim* of this prospective study is thus to investigate (1) whether self-identification, perceived need and intention to seek help are related to actual help-seeking, and (2) whether individual stigmatizing attitudes interfere with these stages of help-seeking. For our study, we

consider both using primary care (seeing a GP), and using specialized care (seeing a MHP, i.e. psychologist, psychotherapist, or psychiatrist) as desirable behavioral outcomes in the help-seeking process for untreated mental disorders.

## Methods

### Study design and sample

To recruit individuals with mental health problems who were currently not receiving treatment, we invited persons with symptoms of depression via newspaper advertisements, social network posts and flyers in the community. In these adverts, we focused on symptoms of depression, because it is one of the most common mental disorders [28] and many of its symptoms can be easily described without psychiatric terminology. Our ad described symptoms using plain language and avoided diagnostic terms or terminology referring to psychiatry or mental illness in order to reflect common experiences to which someone with undiagnosed depression might relate. The complete wording used in the adverts is provided in the online supplement. The study was approved by the local ethics committee of the Medical University of Greifswald.

429 people contacted the study center and underwent telephone screening using the PHQ-9 (Patient Health Questionnaire – Depression). PHQ-9 scores of 5-9 are considered indicating mild, 10-14 moderate, and >14 severe depression [29]. We invited all persons with a PHQ-9 score >=8 who reported that they did not currently receive any professional treatment for their complaints for a personal interview. 266 participants were invited, of which 31 (12%) did not attend after 2-3 follow-up calls and attempts to re-schedule the interview, resulting in 233 persons completing the interview. The interview lasted, on

average, 142 minutes (*SD* = 36 min.). All participants who finished the interview received an incentive of 30 Euros.

We excluded *n* = 22 participants who did not fulfil ICD-10 criteria for any current mental illness in a diagnostic interview (M.I.N.I., see below), and *n* = 4 participants who stated during the interview that they were presently receiving treatment, thus including 207 participants at baseline with a presently untreated depressive or other mental illness. We conducted follow-up interviews by telephone, at three and six months following baseline contact. Contacts were initiated over a period of 14 days by several calls at different times of the day. We reached 179 participants at 3-month follow-up (86.5%) and 155 participants at 6-month follow-up (74.9%). Participants not reached at follow-up 1 were nevertheless contacted again for follow-up 2. The follow-up interview lasted on average 15 minutes (*SD* = 6 min.). Our *final sample* includes all 188 participants with at least one follow-up interview (91 % of baseline sample). Figure 1 displays a flow chart of our sampling as well as inclusion and exclusion criteria.

##Figure 1##

Measures

The personal interview (baseline) consisted of a self-report questionnaire as well as a structured diagnostic interview (German version of the Mini International Neuropsychiatric Interview, M.I.N.I.) [30,31] at the end of the interview. The M.I.N.I. assesses psychiatric Axis-I-Disorders from DSM-IV and ICD-10 and was used to determine whether the participants had a mental illness requiring treatment. At the beginning of the self-report questionnaire, socio-demographic variables were assessed (gender, age, education, employment). We assessed the proposed stages of the help-seeking process using the following measures:

We measured *problem recognition* using the "Self-Identification as Having Mental Illness" – Scale (SELFI). Schomerus and co-workers [14] developed this five-item scale inquiring to what extent participants appraise any symptoms they currently experience as evidence for a mental illness (for example, "Current issues I am facing could be the first signs of a mental illness"). Participants rated each item on a 5-point Likert scale anchored with 1 = don't agree at all and 5 = agree completely (Cronbach's $\alpha = 0.83$).

We assessed *Perceived need for professional help* by asking respondents "Do you think you need any medical or therapeutic help for your present complaints?" (1 = very unlikely to 7 = very likely).

To measure *help-seeking intentions*, we asked participants to state whether they were planning to seek help within the next three months. We presented a list of different professionals (GP, psychologist, psychotherapist and psychiatrist), and respondents rated the likelihood of seeing every professional from "1 = very unlikely" to "7 = very likely" [32]. We created two separate scores for intentions to seek primary care (GP) and specialized mental health care (MHP). For the MHP-score, we recorded the highest single score regarding any of three mental health professionals mentioned. So both the GP and MHP intention score had a minimum of 1 and a maximum of 7.

We assessed whether participants *sought help with a MHP or a GP* at 3 and 6 months by asking: "Regarding the complaints you reported during our personal interview, have you since sought help with a (general practitioner, psychologist, psychotherapist and psychiatrist)?". Due to possible difficulties getting a prompt appointment with a MHP during the study period, we considered contacting a MHP and arranging an appointment as having sought help. Combining answers at both follow-up interviews, we computed two scores for help-seeking with a MHP or with a GP (0 = No or 1 = Yes).

Following Thornicroft's and coworkers [33] broad concept of stigma, comprising ignorance (lack of knowledge), prejudice, and discrimination, we assessed participants' knowledge and attitudes at baseline.

*Knowledge.* We used the German version of the Depression Literacy Scale (D-Lit) [34,35] to include the extent of *knowledge about depression* in our analysis. D-Lit consists of 22 true/false items treatment options and symptoms of depression, for example: "People with depression may feel guilty when they are not at fault" (Cronbach's $\alpha = .74$). Higher scores indicate greater depression literacy.

*Prejudice.* We assessed agreement with the stereotype of *blame* with four items [36,37]. Items were adapted from Corrigan and coworkers [36] as well as Angermeyer and coworkers [38]: "Persons with mental illness are to blame for their problems", "Mental disorders usually result from a weak character", "Persons with mental illness only have to pull themselves together in order to get well" and "One of the main causes of mental illness is lack of self-discipline". Items were rated on a 5-point Likert scale anchored with "1 = don't agree at all" and "5 = agree completely". (Cronbach's $\alpha = 0.79$).

*Discrimination.* We used three items to assess *support for discrimination* of persons with mental illness [39]. Discrimination refers to behavior that is intended to have a differential or harmful effect on the members of a stigmatized group and "is the behavioral result of prejudice" (p. 42, [10]). Items were: "If persons with mental illness do not consent to medical treatment, they should receive compulsory treatment", "Persons with mental illness should not be allowed to have a driving license" and "Persons with mental illness should not be allowed to hold public office", and were rated on 5-point Likert scales anchored with 1 = don't agree at all and 5 = agree completely (Cronbach's $\alpha = .71$).

The *Social Distance Scale* uses seven items that assesses respondents' willingness to interact with persons with mental illness in various everyday situations such as moving next door or spend an evening socializing [40]. A sample item is "How would you feel about

renting a room in your home to a person with severe mental illness?". Items are rated on a 5-point Likert scale with 1 = very likely to 5 = very unlikely. (Cronbach's α = .85).

Additionally, we assessed other variables potentially impacting on the help-seeking process: We inquired whether participants *had previously received any mental health treatment* (0 = No, 1 = Yes). The German version of the Patient Health Questionnaire (PHQ-D) [41,29] was used to assess self-reported *symptoms of depression* (PHQ-9) for the last two weeks (Cronbach's α = 0.79). Respondents answered the PHQ-9 both at baseline and at each follow-up.

Statistical analyses

For all scales, missing values of total scores were imputed by individual participant mean if no more than 25% of items were missing [42,43], whch was necessary in 1-4 participants/scale. Descriptive analyses were computed with STATA 14 [44]. First, we used Fisher's exact or Mann-Whitney-U tests to compare socio demographic variables and prevalence of treatment experiences between participants who could not be contacted for any follow-up ($n$ = 19) and our final sample ($n$ = 188) in order to find out to what extent panel attrition would bias our results. Second, we similarly compared those who did seek any professional help and those who did not in order to identify any significant differences between the two groups. Third, we assessed pairwise Spearman's rank correlation coefficients (because of non-normal distribution of most variables except depression knowledge) to examine the association between stigma variables (depression knowledge, blame, support for discrimination and social distance), the stages of the help-seeking process, and potential confounders (depressive symptoms, previous treatment experience). Finally, to prospectively test the hypothesized effect of stigma on the help-seeking process, we computed fully saturated path models using Mplus 8 [45] with maximum likelihood estimation, controlling for age and gender, reporting standardized regression coefficients (beta). Help-seeking with

GPs and MHPs was assessed at 3 and 6 months, all other variables included into our models were assessed at baseline. Since our measures for behavioral intention and help-seeking were specific for MHPs or GPs, we calculated two models, one for help-seeking with a GP as the final outcome, and one for help-seeking with a MHP.

## Results

### Sample characteristics

The first column of Table 1 shows socio-demographic characteristics of our sample. Participants in the final sample were on average 50.3 years old (*SD* = 16.2), 70.7% were female. Most participants were employed (38.3%) or retired (24.5%), 11.2% were students. Participants' level of education was better compared to local statistical data [46]: 34.6 % had completed 12 or 13 years of schooling (local general population: 20.3%), 55.9% had completed 10 years of schooling (local general population: 53.3%) and 6.9% had completed 9 years of schooling or less (local general population: 19.7%). 55.3% of participants had sought professional help in the past. On average, participants scored 12.7 on the PHQ-9, indicating moderate depression. Drop-outs did not differ significantly from those who completed the study. On average, drop-outs had slightly more severe depression (PHQ-9: *M* = 13.8, *SD* = 3.9) than completers, but this difference was not statistically significant ($p = 0.256$).

According to ICD-10, most participants fulfilled criteria for a mood disorder (F3: *n* = 164, 87.2%) or neurotic, stress-related and somatoform disorder (F4: *n* = 110, 58.5%). Thirteen participants fulfilled diagnostic criteria for a substance use disorder (F1: 6.9%). The most frequent disorders were recurrent depressive disorder (*n* = 64, 34.0%), major depression (*n* = 56, 29.8%) and dysthymia with a depressive episode (double depression, *n* = 20, 10.6%). Altogether, 48.4% (*n* = 91) met diagnostic criteria for one disorder, 47.3% (*n* = 89) for two

disorders and 3.2% ($n$ = 6) for three disorders, the most frequent combination being a mood disorder (F3) with a neurotic, stress-related or somatoform disorder (F4, $n$ = 90, 47.9%).

If seeking help, most participants turned to a GP ($n$ = 120, 63.8%), one in four participants sought help from a MHP ($n$ = 47, 25%), with 40 participants seeking help from both a MHP and a GP. 61 participants (32.4%) did not seek any professional help. Differences between those who did and those who did not seek help are reported in Table 1 (second and third column). Participants who did seek help were older than those who did not. University students and currently employed persons were less likely to seek any professional help. Help-seekers and non-help-seekers did not differ significantly with regard to gender, previous treatment and depression severity at baseline. Depressive symptoms declined from a mean PHQ-9 score of 12.7 to 8.8 at last follow-up. At their last follow-up, persons who did not seek help had an average PHQ-9 of 7.9, while those having sought help had an average PHQ-9 of 9.3 ($p$ = 0.079), indicating that depression improved somewhat stronger in those who did not seek help.

##Table 1##

Table 2 shows means, standard deviations and ranges of baseline attitudes and knowledge scales. Regarding self-identification, participants scored an item-level mean of 3.1, indicating that many participants were at least ambivalent regarding the presence of a current mental illness.

##Table 2##

Pairwise correlations

Table 3 shows pairwise correlation coefficients (Spearman) for help-seeking, stigma, and confounding variables. Self-identification, perceived need for professional help, help-seeking intentions and actual help-seeking were all positively interrelated (the association between

self-identification and help-seeking with a GP being weakest and below significance). Knowledge and attitudes were also interrelated, as expected: Greater knowledge was associated with less blame, less support for discrimination and less social distance, while blame, support for discrimination and social distance were all positively interrelated. Depression knowledge was associated with more self-identification ($r$ = 0.34), blame was related to lower intention to seek help from a GP ($r$ = -0.15). Support for discrimination was significantly negatively associated with self-identification ($r$ = -0.25). Desire for social distance was not related to any help-seeking variable. Depressive symptoms were positively related to self-identification and need, and to intention and help-seeking from a MHP, but unrelated to intention and help-seeking from a GP. Previous treatment experience was related to self-identification and to help-seeking with a MHP.

##Table 3##

Path models of help-seeking

Figure 2 shows path models for seeking help from a GP (model 1) and from a MHP (model 2), relating stigma variables, depressive symptoms at baseline and treatment experience to self-identification, need, intention and help-seeking after 6 months. We show significant standardized path coefficients ($p$ <= 0.05, solid lines), and those just below statistical significance ($p$ < 0.1, dotted lines). The full models with all coefficients are reported in the online supplement (table S1).

The left half (including self-identification and need) is identical in both models. Self-identification as having a mental illness was inversely related to support for discrimination, and positively related to knowledge about depression, previous treatment experience, and current depressive symptoms. Self-identification predicted greater perceived need. Blame was associated with lower, and depressive symptoms with greater perceived need. Social distance

showed no significant relationships. Age (not shown in the figure) was positively related to perceived need (beta 0.19, $p = 0.010$), while gender showed no significant relations.

Model 1 partly confirmed the proposed help-seeking process for seeing a GP. Perceived need predicted intention to seek help from a GP, but after 6 months, both self-identification and intention to seek help were only insignificantly related to seeking help from a GP ($p = 0.053$ and 0.093, respectively). Additionally, in model 1 there was an indirect effect of self-identification on intention (beta 0.14, $p = 0.001$). Overall, model 1 explained 35% of the variance of self-identification, 26% of need, 25% of intention to seek help from a GP and 33% of the variance of seeing a GP after 6 months. Model fit was excellent ($\chi^2 = 137.760$, $df = 38$, $\chi^2/df = 3.63$, $p = 0.000$; RMSEA = 0.000, CFI = 1.000, TLI = 1.000, WRMR = 0.000).

In Model 2, all proposed relationships within the process of help-seeking from a MHP were confirmed. Different from model 1, intention at baseline significantly predicted help-seeking after 6 months. Help-seeking was also predicted by depressive symptoms at baseline. Intention to seek help with a MHP was directly related to previous treatment and self-identification. Blame at baseline showed a weak negative relationship with MHP help-seeking after 6 months ($p = 0.077$). Additionally, there were indirect effects of self-identification on help-seeking intention (beta 0.12, $p = 0.001$) and of need on actual help-seeking (beta 0.12, $p = 0.011$). This model explained 30% of the variance of intention and 37% of the variance for help-seeking from a MHP. It also showed excellent model fit ($\chi^2 = 193.025$, $df = 38$, $\chi^2/df = 5.08$, $p = 0.000$; RMSEA = 0.000, CFI = 1.000, TLI = 1.000, WRMR = 0.000).

##Figure 2##

**Discussion**

In a sample of presently untreated persons with mental health problems, our proposed model of the help-seeking process was partly confirmed for help-seeking in primary care, and fully

confirmed for specialist mental health care, explaining 33-37% of the variance of actual help-seeking after 6 months. As hypothesized, stigma variables were primarily related to the early stages of help-seeking, to lower self-identification as having a mental illness and to less perceived need for professional help. Our study underlines the importance of the very first step in the help-seeking process, which was most strongly related to our stigma measures: Self-identification as having a mental illness was directly and/or indirectly related to need, help-seeking intentions, and (just below significance) to actual help-seeking from a GP. Failure to identify as having a mental illness, despite fulfilling diagnostic criteria, could thus be a reason for the widely observed service use gap in epidemiological studies.

Before discussing our findings, some limitations of our study need to be considered. First, we used a convenience sample of untreated persons with mental health problems in a high-income country (Germany), who cannot be considered representative of all persons with mental disorders. Findings might differ in other cultural and national contexts. Sampling and interviewing persons who are not in contact with services is generally challenging. A large epidemiological study would have been needed to acquire a representative sample of untreated persons with mental illness, but such studies usually address multiple research questions and pose strict limits on interview length. Still, our approach via newspaper and social media adverts yielded a diverse sample with a considerable burden of untreated mental disorders, and almost half of our sample had never sought help for their mental health problems previously. Second, it is unclear to what extent the interview itself prompted help-seeking. This is a methodological dilemma, but the fact that about one third of respondents did not seek any professional help during the follow-up period suggests that the interview did not overly reduce the variance of our main outcome. Third, it is unclear whether diagnostic criteria for a mental illness were still met at follow-up, since we only conducted a structured interview at baseline. Participants had on average lower PHQ-9 scores at follow-up, and this decline tended to be more pronounced in those who did not seek help. It is thus likely that

objective need to seek help decreased over the study period, and spontaneous remission of symptoms might explain additional variance of non-help-seeking. Fourth, 13% of our sample did not fulfil diagnostic criteria for a mood disorder, but for another mental illness. Measuring only depression literacy thus could have underestimated their specific knowledge about their disorder. Finally, our models focused particularly on early considerations of the individual and are thus a simplification of the process of help-seeking. Practical barriers/facilitators of help-seeking and attitudes more closely related to the behavior like behavioral beliefs [47] are likely to additionally impact help-seeking and could be used for more complex models of the help-seeking process.

Among the strengths of our study is its prospective design, which enables us to relate stigma and help-seeking attitudes to actual help-seeking. This reduces reverse causality, which occurs for example, when attitudes are used to explain past behavior, but have been shaped by that behavior. Other prospective studies also found perceived need [48,24] and mental health literacy [48] to be predictive of service use for persons with psychotic symptoms [48] and persons with substance use disorders [24]. The latter study did not find a link between fear of stigma and use of services for substance use problems [24]. No other prospective study has so far examined the link between personal attitudes and self-identification as having a mental illness, and help-seeking.

We found intention to seek help predictive of actual help-seeking, corroborating studies using for example Ajzen's Theory of Planned Behavior to examine help-seeking for mental illness [49,50]. The weaker relationship between intention and behavior in the GP model could be a result of GP visits initiated for other health issues, but could also reflect the lower threshold in primary care. In contrast, getting an appointment with a MHP requires more planning [51], so that a stronger intention to see a MHP is required to finally seek help. Also, MHPs are contacted exclusively for mental health problems. Only the model for MHP showed a consistent link between more severe depressive symptoms and help-seeking,

indicating that seeing a MHP was more closely associated with the severity of the mental health problem.

While our study shows the impact of individual stigmatizing attitudes on the initial steps of help-seeking when persons have not yet fully identified with the group of persons with mental illness, perceived stigma might also be important for the help-seeking process and, particularly, for adherence [52]. In our sample, many participants had previously received mental health treatment – their experiences and expectations of negative consequences were not accounted for by this study and might also impede individual help-seeking. Self-stigma and the "why try" effect likely impair self-determination and participation in mental health care [10]. Structural stigma, finally, affects the availability and distribution of services for persons with mental illness [53]. So, along the complex road towards getting and maintaining adequate mental health care, many facets of stigma pose barriers [6], and presumably, these barriers are of different relevance between individuals, stages of help-seeking, and of course between countries and socio-cultural contexts.

Future research on stigma as a barrier in the process of help-seeking should thus account for the different stages of help-seeking and adherence and their relation to individual stigmatizing attitudes, perceived stigma and self-stigma [10]. Strategies to decrease stigma and improve help-seeking should be tailored to these stages: In unlabeled persons without contact with services, increasing awareness and knowledge about mental illness and about treatment options, and reducing fear of having a mental illness by promoting stories about recovery and the continuum of mental health and illness could be important factors to facilitate help-seeking [54]. On the other hand, persons already in contact with services and labelled as having a mental illness would need alternative strategies to deal with self-stigma and to cope with experienced stigma [55] to facilitate adherence. Given the fact that our study investigated individuals with mainly mood disorders, future studies should also investigate potential differences in the role of stigma for help-seeking and coping with different mental

disorders. Our finding that lower depression literacy was associated with more blame, support for discrimination and social distance could suggest that educating the public about depression reduces stigma, but this cross-sectional correlational finding does not enable causal interpretations. It underlines, however, the interconnection of the three stigma components identified by Thornicroft [33]: ignorance, prejudice, and discrimination.

In conclusion, help-seeking starts with assessing personal complaints as potential signs of a mental illness. Our study shows that this early stage of the help-seeking process, through perceived need and help-seeking intention, is predictive of later help-seeking. Recognizing one's own mental illness and perceiving a need for help are impaired by lack of knowledge, prejudice, and discrimination.

**Ethical Standards:** The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

**Conflict of interest:** The authors declare that they have no conflict of interest.

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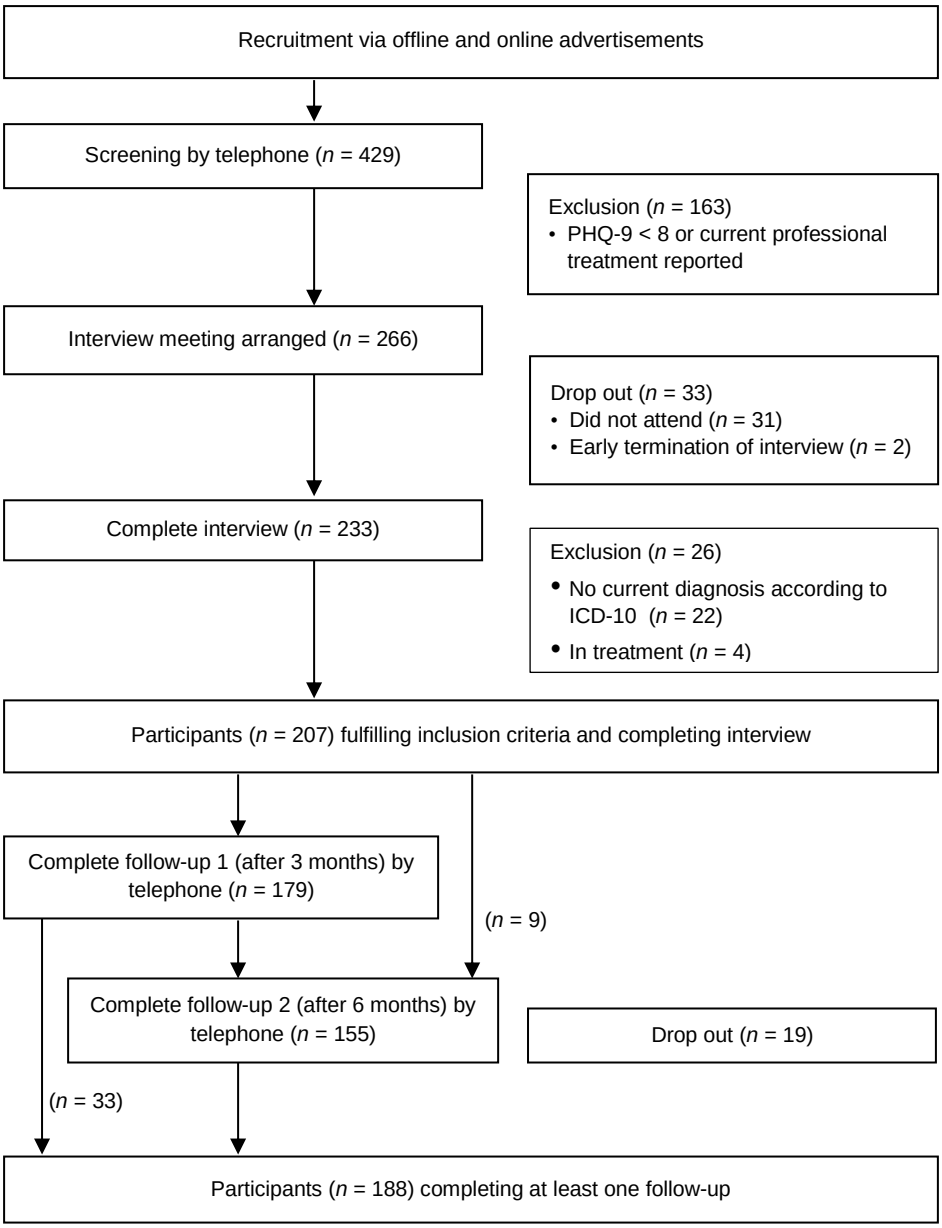


*Figure 1*. Flowchart of participants

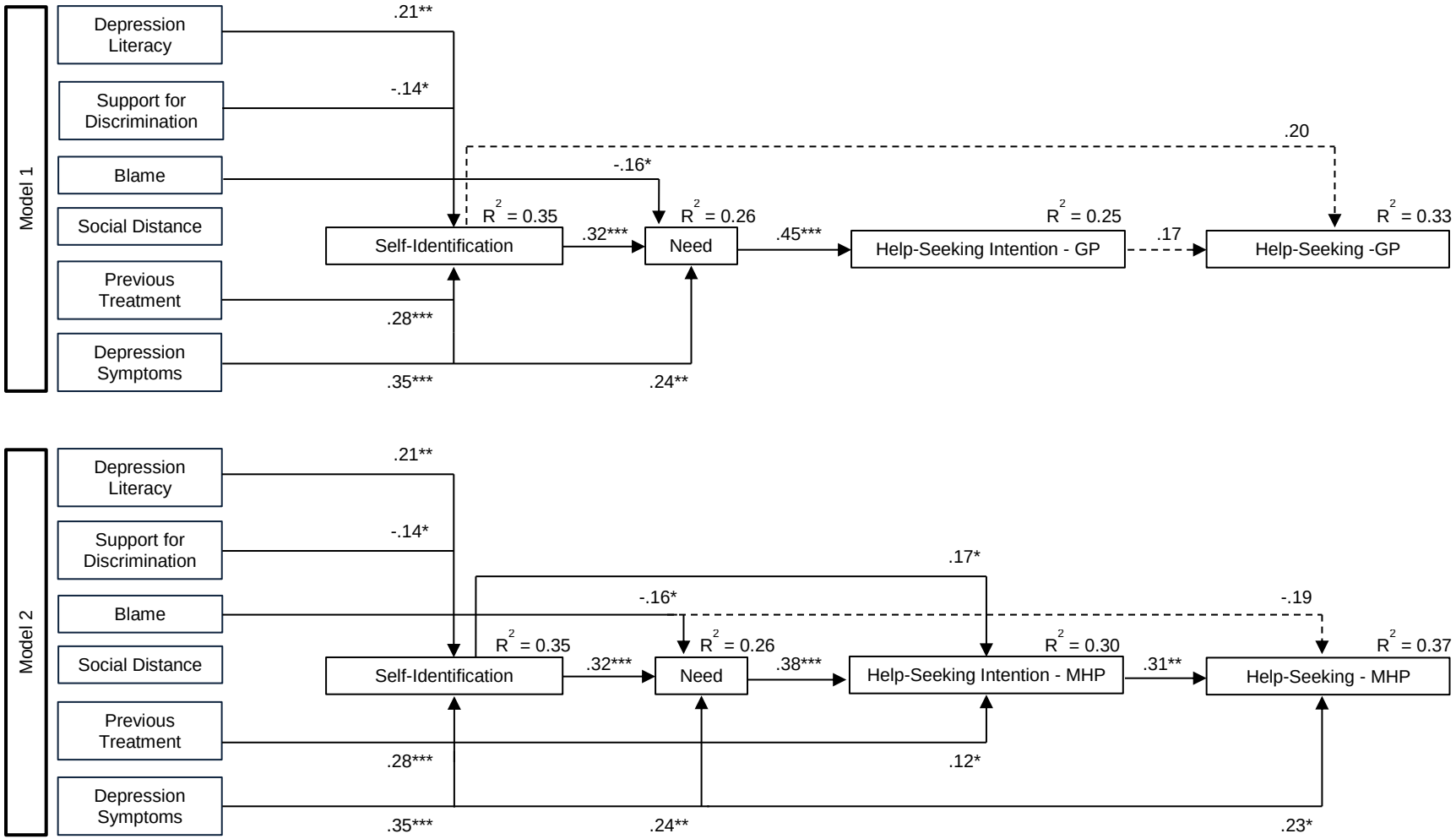


*Figure 2.* Path models of the process of seeking help with a general practitioner (GP, Model 1) and a mental health professional (MHP, Model 2), controlled for age and gender (standardized coefficients, $n = 184$). Solid lines indicate significant relationships; broken lines indicate relationships at $p < 0.10$. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 1:

Socio-demographic characteristics, past help-seeking and depressive symptoms of participants. Total sample and help-seeking / non-help-seeking participants

| | Total (n=188) | Non-help-seeking (n=61) | Help-seeking (n=127) | Statistical difference |
|---|---|---|---|---|
| | *N* (%)/ *M (SD)* | *N* (%)/ *M (SD)* | *N* (%)/ *M (SD)* | |
| Total | | 61 (32.4) | 127 (67.6) | |
| Gender | | | | |
| Female | 133 (70.7) | 40 (65.6) | 93 (73.2) | $p = 0.307$ [b] |
| Male | 55 (29.3) | 21 (34.4) | 34 (26.8) | |
| Age | 50.3 (16.2) | 43.0 (15.7) | 53.9 (15.3) | **z = -4.068, *p* < 0.001** [c] |
| Education in school years [a] | | | | |
| 12 or 13 years | 65 (34.6) | 22 (36.1) | 43 (35.3) | |
| 10 years | 105 (55.9) | 36 (59.0) | 69 (56.6) | $p = 0.776$ [b] |
| 9 years | 13 (6.9) | 3 (4.9) | 10 (8.2) | |
| Family status [a] | | | | |
| Married | 68 (36.2) | 15 (8.0) | 53 (28.2) | |
| Divorced | 40 (21.3) | 14 (7.4) | 26 (13.8) | **$p = 0.028$** [b] |
| Single | 72 (38.3) | 31 (16.5) | 41 (21.8) | |
| Employment [a] | | | | |
| University Student | 21 (11.2) | 13 (21.3) | 8 (6.3) | |
| Unemployed | 20 (10.6) | 6 (9.8) | 14 (11.0) | |
| Employed | 72 (38.3) | 28 (45.9) | 45 (35.4) | **$p = 0.006$** [b] |
| Pension/ unable to work | 12 (6.4) | 1 (1.6) | 11 (8.7) | |
| Old age pension | 46 (24.5) | 10 (16.4) | 36 (28.3) | |
| Have been previously in treatment [a] | 104 (55.3) | 32 (52.5) | 72 (56.7) | $p = 0.639$ [b] |
| Depression Symptoms (PHQ-9) | 12.7 (4.8) | 13.0 (5.1) | 12.6 (4.6) | z = 0.526, $p = 0.600$ [c] |
| Depressive Symptoms (PHQ-9) at last follow-up | 8.8 (5.3) | 7.9 (5.2) | 9.3 (5.4) | z = -1.759, $p = 0.079$ [c] |

*Note*. *N* = Number of participants, % = Percent, *M* = Mean; *SD* = Standard Deviation

[a] Total numbers of cases n < 188 due to missing data, [b] Fisher's Exact Test, [c] Mann-Whitney-U-Tests

Significant differences are in boldface.

Table 2:

Knowledge and attitudes at baseline (*n* = 188).

| | *M (SD)* | Range |
|---|---|---|
| Self-identification | 15.7 (4.8) | 5-25 |
| Perceived need | 4.6 (1.9) | 1-7 |
| Help-seeking intentions - MHP | 3.0 (2.1) | 1-7 |
| Help-seeking intentions - GP | 4.3 (2.2) | 1-7 |
| Depression literacy | 11.3 (3.7) | 1-20 |
| Blame | 7.2 (3.1) | 4-19 |
| Support for discrimination | 7.2 (3.0) | 3-15 |
| Social distance | 11.5 (3.9) | 5-25 |

*Note*. *M* = Mean; *SD* = Standard Deviation, MHP = Mental Health Professional; GP = General Practitioner

Table 3:

Pairwise correlation coefficients (Spearman) of all stages in help-seeking process (self-identification, perceived need, intention to seek help and help-seeking) with potential confounders (previous treatment and depression symptoms) and stigma related variables (depression knowledge, blame, support for discrimination and social distance), *n* = 165-188.

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Self-Identification | 1 | | | | | | | | | | | |
| 2 | Perceived Need | 0.31*** | 1 | | | | | | | | | | |
| 3 | Intention to seek Help - MHP | 0.34*** | 0.46*** | 1 | | | | | | | | | |
| 4 | Help-Seeking - MHP | 0.19** | 0.31*** | 0.35*** | 1 | | | | | | | | |
| 5 | Intention to seek Help - GP | 0.18* | 0.46*** | 0.46*** | 0.21** | 1 | | | | | | | |
| 6 | Help-Seeking - GP | 0.09 | 0.26*** | 0.16* | 0.25*** | 0.26*** | 1 | | | | | | |
| 7 | Depression Knowledge | 0.34*** | -0.10 | 0.05 | 0.06 | -0.04 | -0.15* | 1 | | | | | |
| 8 | Blame | -0.05 | -0.07 | -0.11 | -0.11 | -0.15* | -0.05 | -0.20** | 1 | | | | |
| 9 | Support for Discrimination | -0.25*** | -0.11 | -0.06 | 0.02 | 0.08 | 0.14 | -0.31*** | 0.22** | 1 | | | |
| 10 | Social Distance | -0.14 | 0.04 | -0.07 | -0.02 | 0.04 | 0.09 | -0.27*** | 0.28*** | 0.54*** | 1 | | |
| 11 | Previous Treatment | 0.36*** | 0.14 | 0.14 | 0.18* | 0.09 | 0.03 | 0.24** | -0.05 | -0.12 | -0.05 | 1 | |
| 12 | Depression Symptoms | 0.35*** | 0.26*** | 0.24** | 0.22** | 0.03 | -0.03 | 0.12 | 0.04 | -0.07 | -0.15* | 0.14 | 1 |

*Note*. Help-Seeking (1 = Yes); MHP = Mental Health Professional; GP = General Practitioner; Previous Treatment (1 = Yes)

* $p < .05$, ** $p < .01$, *** $p < .001$