Only on Invitation? How the Recruitment Strategy Determines Who Is Treated Online

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Keywords

Depression · Internet-based intervention · Recruitment · Treatment gap · Self-selection · External selection

Abstract

Background: Participants for efficacy studies on Internet-based interventions (IBI) are recruited through self-selected convenience sampling or targeted external invitations. Comparisons are necessary to determine how recruitment strategies influence sample composition. Such comparisons consequently yield potential for evaluating which conditions are more probable to fulfill IBI's promise to be an effective treatment option for underserved populations. **Methods:** A comparison of sociodemographic and clinical characteristics of differently recruited participants in an IBI for mild to moderate depression was made: (1) individuals on sick leave due to an affective disorder who were informed about the IBI by their health insurance ($n = 308$) and (2) individuals who self-selected to participate (e.g., after seeing information on the IBI in print media; $n = 699$). **Results:** Compared to the self-selected group, the externally selected group was older, less educated, spent less time on the Internet, had a less positive attitude towards IBI, and comprised more men. Groups did not differ in initial symptom severity, in-treatment symptom change, or previous psychotherapeutic experiences. **Conclusions:** The results indicate that larger

shares of underserved subpopulations (e.g., less educated, older, male, less internet-savvy) begin an IBI treatment when the insurer informs them about the IBI. Recruitment source does not influence efficacy.

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Nur auf Einladung? Wie die Rekrutierungsstrategie beeinflusst, wer online behandelt wird

Schlüsselwörter

Depression · Internet-Therapie · Rekrutierung · Unterversorgung · Selbstselektion · Externe Selektion

Zusammenfassung

Hintergrund: In Wirksamkeitsstudien zu internetbasierten Interventionen (IBI) werden Teilnehmende entweder durch Selbstselektion oder gezielte Ansprache rekrutiert. Vergleiche zwischen unterschiedlichen Rekrutierungsstrategien ermöglichen zu ermitteln, wie der Zugang zur Intervention die Stichprobenzusammensetzung beeinflusst. Gleichzeitig kann überprüft werden, unter welchen Bedingungen das Versprechen der IBI, ein wirksames Behandlungsangebot für eigentlich unterversorgte Populationen zu sein, eher eingehalten wird. **Methode:** Soziodemografische und klinische Eigenschaften unterschiedlich

rekrutierter Teilnehmer an einer IBI für leicht- bis mittelgradige Depression wurden miteinander verglichen: (1) Personen, die extern nach Krankschreibung aufgrund einer affektiven Störung von ihrer Krankenkasse über die Teilnahmemöglichkeit informiert wurden ($n = 308$); (2) Personen, die selbstselektiert (z.B. durch Printmedien) auf eine Teilnahmemöglichkeit aufmerksam wurden ($n = 699$). **Ergebnisse:** Verglichen mit der selbstselektierten Gruppe wies die extern selektierte Gruppe vor Interventionsbeginn einen größeren Männeranteil auf, war älter, hatte ein geringeres Bildungsniveau, verbrachte weniger Zeit im Internet und hatte eine weniger positive Einstellung gegenüber IBI. Kein Unterschied bestand hinsichtlich initialer Symptomschwere, psychotherapeutischer Vorerfahrungen und Symptomreduktion während der Intervention. **Schlussfolgerungen:** Die Ergebnisse weisen darauf hin, dass eigentlich unterversorgte Personen (z.B. weniger Bildung, höheres Alter, männlich, weniger internetaffin) in größerer Zahl in IBI rekrutiert werden können, wenn eine gezielte, externe Information über das Behandlungsangebot erfolgt. Die Rekrutierungsart beeinflusst dabei nicht die erzielbare Symptomreduktion.

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By Invitation Only? How Recruitment Strategy Influences Who Receives Treatment Online

Depressive episodes are among the most common mental disorders worldwide [Kessler and Bromet, 2013], with lifetime prevalence rates of 11–21%. Because of the degree of functional impairment associated with the disorder, these episodes are among the leading causes of disease-related impairment and disability internationally [WHO, 2017]. Although psychotherapy is demonstrably effective in reducing depressive symptoms [Kamenov et al., 2017], domestically and internationally only a minority of those affected take advantage of it or of other evidence-based treatments [Thornicroft et al., 2017]. Harvey and Gumpert [2015] discussed various barriers that stand in the way of psychotherapy. In addition to patients' fears of stigmatization, the authors identified difficulties in reconciling the place and time requirements of regularly scheduled psychotherapy, with the realities of their own lives. More specifically, travel difficulties and family obligations are identified as obstacles to the continued use of outpatient psychotherapy [Harvey and Gumpert, 2015]. Some of these barriers seem to be of particular concern to socioeconomically disadvantaged people, who report depressive symptoms disproportionately often, yet avail themselves of treatment very little [e.g., Arias-de la Torre et al., 2018; Vandeleur et al., 2017; Jacobi et al., 2014; Walendzik et al., 2014].

One potential option to close these treatment gaps seems to be so-called Internet-based interventions (IBIs)

[Andersson and Titov, 2014]. These are online interventions, based mostly on cognitive-behavioral theory, which deliver to those affected: psychoeducation, therapeutic tools (e.g., daily schedules, thought protocols), and/or options for communicating with practitioners [cf. Zagorscak and Knaevelsrud, 2019]. Several meta-analyses have shown that various forms of IBI can effectively reduce depressive symptoms [e.g., Karyotaki et al., 2017, 2018; Königbauer et al., 2017; Szein et al., 2018]. Furthermore, IBIs that provide clinician follow-up and feedback via the Internet are as effective as face-to-face treatments of comparable duration and structure [Carlbring et al., 2018]. At the same time, IBIs are more flexible in terms of location and time than conventional psychotherapy, since in most cases IBI participants can use them anywhere and at any time [Andersson and Titov, 2014]. The online setting also seems to reduce fears of stigmatization and self-disclosure [Bathje et al., 2014; Wong et al., 2018].

But while IBIs have the potential to overcome the barriers mentioned above, the anticipated higher use of them by underserved populations seems so far not to have occurred. Arnberg, Linton, Hultcrantz, Heintz, and Jonsson [2014], in a meta-analysis, reported that 53–61% of people who were using an IBI for depression already had experience with psychological treatments, and also reported high rates of employment and education, above the average for the general population. The authors therefore question whether the positive efficacy findings can be generalized to underserved subpopulations [Arnberg et al., 2014]. Similar findings were obtained by Späth and colleagues [2017], in a study in which people using IBI for depression were compared with a German population-representative sample. From this sample, only persons with depressive symptom severity that would have met the inclusion criteria of the IBI study were used for comparison. The comparison showed that the IBI participants were predominantly female (ca. 69%), better educated, a bit older, and more clinically burdened than those from the representative sample [Späth et al., 2017]. Interestingly, participants in IBI display sociodemographic characteristics similar to those of patients in outpatient psychotherapy, where comparable sociodemographic distortions are reported [Walendzik et al., 2014].

The reasons that underserved populations fail to use IBI have so far been insufficiently explored. There are preliminary indications, however, from studies of the general population's attitudes towards IBI: in a study by Apolinário-Hagen, Vehreschild, and Alkoudmani [2017], 83% of respondents said they were unaware of the existence of IBI. The participants also reported a more negative or ambivalent attitude towards the usefulness or accessibility of IBI [Apolinário-Hagen et al., 2017].

A related variable that could hinder the use and success of IBI is that the person lacks affinity for the Internet

or for technology in general [e.g., Carey et al., 2008]. In a recently published study, individual willingness to use new Internet services was the strongest predictor of the intention to participate in IBIs [Arjadi et al., 2018].

In this light, hypotheses can be suggested as to why underserved groups could not be recruited to use IBIs, despite the intervention's elimination of barriers: The recruitment strategy of many IBI studies relies on self-selected participants who learn from newspaper or Internet advertisements about the opportunity to participate in the study or persons on waiting lists for other online psychological treatments [e.g., Johansson et al., 2012; Kenter et al., 2016; Newby et al., 2013]. It stands to reason that such recruitment strategies are more likely to appeal to people who are already enrolled in the healthcare system or who have greater affinity for the Internet and/or IBI.

Alternatively, there are also IBI studies that recruited their participants by targeting and informing people with symptoms or pathologies that are potentially appropriate for IBI, whether through primary care practitioners [e.g., Kivi et al., 2014] or representatives of their health insurance companies [e.g., Nobis et al., 2015]. However, there has so far been insufficient research on how such differences in recruitment affect the characteristics of those who end up participating. Findings on this research question are significant in order to adapt the recruitment strategies for IBIs in research and care so that the strategies can actually reach the hitherto underserved populations.

The present study examines whether the characteristics of the participants differ depending on how they are recruited and whether the type of recruitment in turn affects the reduction of the symptoms. In light of the existing literature, we are investigating the hypotheses that previously underserved subpopulations (men, those who are less well educated, older, skeptical about the Internet, and not yet familiar with psychotherapy) can be recruited in a higher proportion in the externally selected group than in the self-selected one. We formulate no directed hypothesis about the difference in symptom reduction.

Method

Study Design and Intervention

The present study is a secondary analysis of data from a randomized controlled trial to evaluate the benefit of individualizing feedback in cognitive-behavioral IBI for people with mild to moderate depressive symptom burden [Zagorscak et al., 2018]. The intervention included seven consecutive counseling modules that were regularly completed by participants over 6–8 weeks (psychoeducation, behavioral activation and activity planning, cognitive restructuring, expressive writing, multimedia interpretation training). Participants were initially randomly assigned to one of two feedback variations. Because pretreatment analyses showed no dif-

ferences between the groups respecting clinical and psychosocial outcomes [Zagorscak et al., 2018], these groups are considered together in this study. Unlike in the previously published work, the question of the participants' characteristics, depending on how they were recruited, is of primary concern here. Recruitment strategies and selection criteria are described in detail below. The study design meets the ethical standards of the Declaration of Helsinki. It was positively reviewed by the Ethics Committee of the Freie Universität Berlin and a written consent form was obtained from all participants after receiving detailed information about the study and the intervention.

Selection Process

The study was conducted in cooperation with a large German health insurance company (Techniker Krankenkasse). Anyone insured by this company who fulfilled the study-specific inclusion criteria was eligible to participate in the intervention between March 2014 and March 2015. The recruitment process can be divided into two phases. In the first phase, people who had been on sick leave authorized by their physician for more than 7 days in the prior 4 weeks with an affective disorder diagnosis (excluding affective disorders with psychotic secondary symptoms) were contacted by telephone by employees of the health insurance company and informed about the IBI option (externally selected participation – EP). In order to reach the recruitment goals, the self-selection intervention was launched in September 2014 (phase 2) and information about participation was published in print newsletters that all policyholders receive. At that point, the external recruitment was discontinued. Interested persons who then contacted the insurance company by telephone received detailed information about the offer and alternative treatment possibilities. If interested, they were given an activation code for the intervention platform (self-selected participation – SP). A total of 8,637 persons made telephone contact with the insurance company, of whom 5,402 continued to be interested after the initial discussion and received a registration code. Ultimately 1,089 people participated in the intervention, having both met the inclusion and exclusion criteria and also completed the necessary organizational steps (sending in the letter confirming participation, registering online). From among these participants, reliable information about their recruitment path is available from $n = 1,007$ ($n_{\text{external}} = 308$; $n_{\text{self}} = 699$). A detailed flowchart of this study can be found in the previous publication [Zagorscak et al., 2018].

Inclusion and Exclusion Criteria

Regardless of how they were recruited, individuals were generally not permitted to participate if one or more of the following diagnoses had been registered (exclusion criteria according to disease history): psychological and behavioral disorders caused by psychotropic substances, schizophrenia, schizotypal or delusional disorders, intellectual disability, pervasive developmental disorder, Alzheimer's disease/dementia, infantile cerebral palsy, and/or Down syndrome.

Interested parties who did not meet any of these exclusion criteria and who were at the same time under a family doctor's care could proceed to the next step, a comprehensive online battery of questionnaires. People were excluded at this point if they exhibited too much or too little depressive burden on the Beck Depression Inventory (BDI-II, sum score 14–28) [Hautzinger et al., 2006], reported current suicidal thoughts (score on the BDI-II suicidal item >1), or were currently undergoing psychotherapeutic treatment. After the questionnaire screening, a structured clinical interview for DSM-IV (SCID-I) [Wittchen et al., 1997] (Section A for affective disorders and Section B screening for psychotic symptoms) was conducted with everyone identified as

potentially suitable. People who in the interview reported current suicidal or manic symptoms, or lifetime psychotic symptoms, were excluded from the study and given appropriate contact information.

Observed Characteristics and Measuring Instruments Sociodemographic Variables and Recruitment Pathway

The initial screening comprised numerous sociodemographic variables such as age, gender, duration of daily Internet use, highest educational attainment, and primary employment status. Two categories for the evaluation of primary employment status were created (self-employed/employed vs. students/trainees/early retirement/seeking work) to differentiate those in primary employment from other participants. The screening also probed previous outpatient psychotherapy experiences. How people became aware of the intervention (recruitment pathway) was recorded after the questionnaire screening, during the SCID telephone interview.

Attitude towards Internet-Based Interventions

A questionnaire with seven-point semantic differentials was used to study the attitude toward IBI [Ajzen, 1991, 2002]. It records the sub-construct “attitude” or “expectations” with five items (e.g., “Participating regularly in the online counseling for the next 6 weeks is for me personally –3 = disadvantageous to 3 = advantageous”). Positive values represent a more positive expectation or attitude. Variants of this questionnaire and its subscales have been used in various clinical trials, where they have proven to be reliable and valid [Lin et al., 2016; Mausbach et al., 2013; Mendez et al., 2010].

Depressive Burden

The extent of depressive burden was captured with the BDI-II [Hautzinger et al., 2006], which is regularly used as an indicator of the severity of depressive burden and has good psychometric properties [Wang and Gorenstein, 2013]. People filling out the questionnaire choose from four symptom descriptions of varying intensity, those that best describe their current experience and behavior.

Statistical Analyses

Depending on how they were recruited to the intervention (SP vs. EP), the groups were compared by *t* tests for independent samples (with Welch’s correction for inequality of variance) and χ^2 tests for age, gender, educational level, employment status, place of residence, Internet usage, previous outpatient psychotherapy, attitude towards IBI, and depressive symptom severity. To describe the effect size, Cohen’s *d* was calculated for the comparisons of means and four-field χ^2 tests. Cohen’s rule of thumb [Cohen, 1988], applied here, is 0.20 (small effect), 0.50 (medium effect), and 0.80 (large effect). In cases of inequality of variance, the greater variance was used to standardize the mean differences, resulting in a conservative estimate of the effect size. In the case of larger χ^2 tests, Cohen’s omega serves as the effect size estimator. The following rules of thumb, according to Cohen [1988], can be used to interpret this effect size: 0.10 (small effects), 0.30 (medium effects), and 0.50 (large effects). Standardized Pearson residuals (*spr*) were used to determine in which categories the two groups differed. An *spr* that exceeds 1.96 in its absolute magnitude indicates that the frequency observed deviates significantly from what would be expected if the two variables were independent.

Bonferroni-Holm correction was performed in order to prevent an α error accumulation by the repeated hypothesis testing.

Only cases could be considered in the evaluation that met all the inclusion and exclusion criteria for participation in the intervention, because the person was not asked about their access route until the telephone interview immediately before the start of the intervention. Since pensioners usually do not receive a certificate of disability from their doctor and therefore cannot be in the EP group, the analysis considered only those who were not older than 60 at the beginning of the study.

To compare changes in depressive symptom severity over the course of the IBI, the individual pre-post change in BDI-II values was calculated for each participant. These individual changes were compared with a *t* test between the selection groups. Only those participants were included in this analysis who had completed the IBI and thus filled out the final questionnaire. More detailed analyses of symptom changes during and after IBI can be found in Zagorscak et al. [2018].

Results

General Sample Description

Data were considered in the analysis from $n = 1,007$ people ($n = 308$ externally selected, $n = 699$ self-selected), all of whom had participated in the IBI. The characteristics of the two groups are shown in Table 1, which also includes the results of the statistical tests to verify the equality of the two groups.

Differences Depending on Recruitment Type

Age

The externally selected group was significantly older, with an average age of 46.7 years, than the self-selected group, whose average age was 42.6.

Gender

More than half of the participants in both groups were female. In the externally selected group, the proportion of women was 61.0% ($n = 188$), but this was significantly smaller than in the self-selected group, where 68.8% ($n = 481$) of the participants were identified as female. This is a small effect, with $d = 0.16$.

Education and Employment

There were differences between the groups regarding education and employment. The educational level showed a small to medium effect for the difference between the groups. The educational attainment of externally selected participants was lower than that of self-selected participants. Of the externally selected participants, 21.1% ($n = 65$, $spr = -5.2$) had a university degree, whereas for the self-selected group, the rate was 37.8% ($n = 264$, $spr = 5.2$). The proportion of persons whose highest education was a secondary school diploma ($spr = 3.6$) or who had no diploma or a primary or lower secondary school diploma ($spr = 4.5$) was higher in the externally selected group than in the group of self-selected participants. In addition,

Table 1. Differences between external and self-selected participants

	EP (<i>n</i> = 308)	SP (<i>n</i> = 699)	<i>t</i> (df) ^a	<i>p</i>	<i>d</i> ^c
<i>Sociodemographic characteristics</i>					
Gender: female, <i>n</i> (%)	188 (61.0)	481 (68.8)	5.79 (1)	0.016	0.08 ^d
Age, mean (SD)	46.7 (9.4)	42.6 (10.3)	6.25 (636.89)	<0.001	0.40
Daily Internet use, mean (SD), min	136.5 (108.3)	180.0 (170.1)	4.88 (880.00)	<0.001	0.26
Highest education, <i>n</i> (%)			47.69 (4)	<0.001	0.22 ^d
University	65 (21.1)	264 (37.8)			
University of applied sciences	42 (13.6)	108 (15.5)			
Baccalaureate (Abitur)	73 (23.7)	160 (22.9)			
Secondary school diploma	95 (30.8)	142 (20.3)			
None/primary school/lower secondary school diploma ^e	33 (10.7)	25 (3.6)			
Primary employment ^f , <i>n</i> (%)	279 (90.6)	570 (81.5)	13.21 (1)	<0.001	0.12 ^d
<i>Clinical characteristics</i>					
Depression (BDI-II), mean (SD)	21.9 (4.2)	21.9 (3.9)	0.14 (549.29)	0.891	–
Change pre-post, mean (SD)	–11.0 (7.7)	–11.6 (8.0)	0.85 (779)	0.393	–
Attitude towards IBI, mean (SD)	1.8 (0.9)	2.1 (0.7)	5.41 (524.41)	<0.001	0.33
Prior psychotherapeutic treatment, <i>n</i> (%)	148 (48.1)	304 (43.5)	1.99 (1) ^b	0.180	–

BDI-II, Beck Depression Inventory II; EP, externally selected participation; SP, self-selected participation. ^a *t* values with Welch's correction, unless otherwise noted. ^b χ^2 (df). ^c Cohen's *d*, unless otherwise noted (Cohen's *d* was always calculated from the larger standard deviation, resulting in a conservative estimate). ^d Cohen's omega. ^e Due to the low cell population (*n* = 7), participants without a school diploma were combined with those having a primary or lower secondary school diploma. ^f Self-employed and salaried employees are considered primarily employed persons.

tion, the proportion of primarily employed persons in the EP group (90.6%) was statistically significantly higher than in the SP group (81.5%). The effect was small here, with *d* = 0.25.

Internet Use

Internet use differed significantly between the two groups. While the externally selected participants reported that they used the Internet for an average of 136.5 min a day, the figure was 180 min for the self-selected participants.

Attitudes and Expectations

There was a significant difference in attitudes towards IBI. These were on average more positive in the SP group (2.1) than in the EP group (1.8). The standardized effect is rather small (0.33).

Clinical Characteristics

There was no difference between the two groups in BDI-II scores for depressive symptom severity, with both groups having a mean of 21.9. The pre-post change in BDI-II scores did not differ significantly between the two groups. The scores of the EP group decreased by an average of 11.0 units and in the SP group by 11.6 units. The proportion of participants who had previously used psychotherapeutic treatment did not differ significantly between the groups, with 48.1% in the EP group and 43.5% in the SP group.

Discussion

The study findings show that people from the different recruitment groups differed significantly in sociodemographic and psychosocial, but not in clinical, characteristics.

Age

First, it should be noted that the participants studied here (age range: 18–60 years) were an average of 42.6 (SP) and 46.7 (EP) years old, which is close to the German average of 44.4 [Statistisches Bundesamt, 2019]. This contradicts the occasionally expressed preconception that only young people are interested in IBI [cf. Späth et al., 2017], even though younger people are on average more open to IBI than older people [Dorow et al., 2018]. The results of our analysis indicate that older target groups could be reached by external selection who might otherwise have greater reservations about treatment over the Internet. Besides general Internet affinity, confidence in the health insurance company, which is notably stronger in older people [e.g., Balkrishnan et al., 2004], might also be a variable and mediate this connection. Further studies are needed to explain this association and, if appropriate, to determine whether older target groups have a particular inclination to consider informational offers received from their health insurance company about IBI and thus to take advantage of appropriate treatment.

Gender

The clear majority in both groups is female. This corresponds to epidemiological findings that women report more frequent depressive episodes and, consequently, more frequently seek treatment [e.g., Angst et al., 2002; Kessler and Bromet, 2013]. On the other hand, this may also be an expression of gender-specific norms regarding help-seeking behavior when a person is suffering from depression. Several studies report that men are less likely to recognize depressive symptoms and are less inclined to seek professional help [Call and Shafer, 2018; Ellis, 2018; Seidler et al., 2016]. The percentage of men in the externally selected group was higher than in the self-selected group. The results could be viewed as an indication that a certain proportion of men, despite recognizing the need for help, only consult their family doctor, but can be persuaded by external information or prompting to seek further specific treatment.

This assumption is corroborated by a study by Cusack, Deane, Wilson, and Ciarrochi [2004], which found that 96% of men surveyed said their decision to undergo psychotherapy was prompted by other people. Family doctors and life partners were those mainly identified as significant in the decision, and 37% of the men said that without their influence, they would not have had any treatment at all [Cusack et al., 2004]. Taken together with our findings, it seems likely that a targeted approach to those affected can improve care for men through psychological counseling or therapy in general and IBI in particular.

Education

A significant difference between the selection groups is also found in the participants' education. While on average, the study participants in both groups presented a higher level of education than the average for the German population [Statistische Ämter des Bundes und der Länder, 2016], this applies especially to those who were self-selected. This observation reflects previous findings that people with a high level of formal education express much greater openness to IBI as an option to treat depressive symptoms than those with a low level of education [Dorow et al., 2018]. The results of our study show that people with less formal education were more strongly represented in the externally selected group than in the self-selected group. Pending replication in experimental designs, this can be taken as an indication that external selection can reduce this form of sociodemographic distortion.

Employment

The significant difference in employment can be classified with reference to the literature. Harvey and Gumpert [2015] identified, among other things, two important bar-

riers to the use of outpatient psychotherapy. On the one hand, it is difficult to find appointments that are compatible with the other demands of daily life; on the other hand, many people do not know anything about the types of evidence-based treatment on offer, which is especially true for IBI [Apolinário-Hagen et al., 2017]. It may be particularly difficult for people in the workforce to reconcile their work schedules with outpatient psychotherapy, even if they desire treatment. If they are now referred externally to a previously unknown but more compatible treatment option, more of them might be recruited. Future studies should submit this hypothesis to further verification.

Internet Affinity

Differences between the groups were also found in the two indicators of Internet affinity: SP participants had longer daily Internet usage (SP: 180 min, EP: 136 min) and more positive attitudes towards IBI. Using data from a 2015 population-representative survey as a reference [Frees and Koch, 2015], it can be seen that the daily Internet use of both groups was above the nationwide average (ca. 108 min), but the SP group deviated even more than the EP group from this reference value. This is consistent with the results of a population-representative study in Germany that demonstrated that people who are more familiar with a particular medium could also imagine treatment of mental disorders via the same medium [Eichenberg et al., 2013]. Although our findings suggest that fewer people with Internet affinity are to be found in the externally recruited groups, more research is needed to identify why less Internet-savvy people refrain from participating in IBI.

Clinical Characteristics

The burden of depression did not differ between the participants from the two recruitment pathways, nor was the change and thus the success of the IBI affected by the method of selection. This fits with previous findings from the same sample, that symptom reduction during participation in the intervention does not differ according to sociodemographic variables [Zagorscak et al., 2018]. On the other hand, a previous study of another IBI had shown that differently recruited individuals benefit comparably well from IBI [Klein et al., 2017].

It is striking, moreover, that half of the participants from both recruitment pathways had already had outpatient psychotherapeutic treatment in the past, and the recruitment strategy had no significant effects on this finding. Considering that the lifetime prevalence of at least one mental disorder is about 29% and the prevalence of treatment is significantly lower [Mack et al., 2014; Steel et al., 2014], this value can be considered exceptionally high. Overall, our study thus confirms the tendency for IBI to be used disproportionately by people already familiar

with the psychotherapeutic care system [Arnberg et al., 2014]. This suggests that there are also people who are not receiving care who feel that their needs would be addressed by neither IBI nor outpatient psychotherapy. Future studies should focus on identifying barriers that IBI and other psychological or psychotherapeutic services have in common, in order to create tailored offerings that will reach those who, despite suffering from symptoms of psychological distress, have so far not been receiving care.

Limitations and Outlook

Some limitations of the study design should be considered when interpreting the results of this study. Since the aim of the analysis was to identify characteristic differences between the recruitment groups, each variable was considered separately, without taking into account the correlation among variables (e.g., educational status and unemployment are undoubtedly related). This method allows researchers or practitioners, based on our findings, to adapt their recruitment strategy in order to have a higher probability of reaching a specific target group.

It should also be borne in mind that the two recruitment strategies were not being used at overlapping times, which means that seasonal differences between the groups at least cannot be ruled out. Theoretically this could have resulted in distorted group differences in symptom severity [e.g., Winkler et al., 2019], because recruitment of the self-selected group was in the autumn and winter, whereas the EP group was recruited all year round. However, the core statements of the study are related to sociodemographic variables that are not affected by seasonal fluctuations.

A further limitation to the generalizability of the results is that in externally selected participants, by definition there was a diagnosis of an affective disorder (by a family doctor). It is unclear how use of this criterion would have affected the sociodemographic composition of the self-selected group.

It should be further considered that this study examined recruitment strategies that are predominantly related to a health insurance company (participants were either contacted externally by an insurance company or they encountered information provided by the insurance company on their own). It cannot be ruled out therefore that even the self-selected group in this study does not correspond to what is considered “self-selected” in other studies, where, for example, participants were recruited via Internet forums or advertising placed on various websites. Since the statutory health insurance companies enjoy a high level of confidence among the German population [Statista, 2019], this might have resulted in particularly high motivation to participate on the part of both groups studied.

Nevertheless, our study highlights the importance of recruitment strategy in making IBI more broadly accessible to different sociodemographic and socioeconomic

target groups. This is particularly important, given that there is no evidence that these groups would benefit any less from participation in IBI.

Our study specifically encourages outreach and explicit invitations to underserved subpopulations for such low-barrier options as IBI. It can be assumed that the externally selected people were informed by their family doctors about pharmacotherapeutic or outpatient psychotherapeutic options for the treatment of their symptoms but held back from those because of the existing barriers. Accordingly, care could be improved overall if those working at health insurance companies or in primary care were better informed about the opportunities and limitations of IBI and would pass this information on to mentally disturbed people who seem to be good candidates for these services or who indicate that they would be unlikely to use alternative support services.

The present study thus contributes to making the frequently cited advantages of IBI accessible to all groups of people who could benefit. Even in the externally selected group, however, there are still distortions to the detriment of people who are receiving inadequate care, which provides an impetus for further research. In order to better understand which groups of people are reached by IBI and how underserved target groups could participate more, further research should follow, with greater attention paid to variables of recruitment and selection. In future studies, for example, we recommend having a standard procedure of gathering data at different times (e.g., first telephone contact, registration, screening, clinical interviews, etc.) about people’s demographic characteristics and how they became aware of the intervention. Such systematic monitoring would make it possible to look at whether certain recruitment strategies, selection criteria (severity of burden and suicidality), or organizational requirements (sending a letter by post confirming participation) act as filters and systematically put certain subpopulations at a disadvantage. Further research should also examine which forms of information or advertising and recruitment are most likely to reach underserved subpopulations. Experimental studies are necessary for this purpose, which, for example, would randomly vary the form of the information provided (e.g., tailored to certain educational or professional situations) or manipulate the type of contact experimentally and by region (e.g., a phone call versus information presented in print media).

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