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Drop out from mental health treatment in the Saudi national mental health survey

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ABSTRACT

Objectives: To evaluate the patterns and potential risk factors associated with mental health treatment dropout in the Saudi National Mental Health Survey (SNMHS).

Methods: The SNMHS is a face-to-face community-based epidemiological survey in a nationally representative household sample of respondents aged 15–65 in the Kingdom of Saudi Arabia (KSA) (n = 4,004). The sample was limited to those who had received any type of mental health treatment during the past year (n = 168). The distribution of service use and the number of visits were examined. Predictors of treatment drop-out were analyzed using logistic regression models.

Results: Treatment drop out rate was very high overall (42.1%), with dropout occurring early (after 2 visits) in the majority of cases. Participants who were previously married or were diagnosed with a 12-month substance use disorder were significantly more likely than other participants to drop out. Those receiving care from more than three types of providers were significantly less likely than others to terminate treatment prematurely.

Conclusions: The rate of premature termination of treatment was high and positively associated with previously married status and substance use and inversely related to the number of different providers and number of visits.

KEYWORDS

Treatment dropout; premature termination; service use; mental health; SNMHS; CIDI

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Introduction

Mental health treatment dropout or premature termination, defined as stopping before completion of the recommended course of treatment or before improvement occurs (Olfson et al., 2009), is a common public health issue that hinders the delivery of effective mental health services and contributes to inefficient use of resources (Wang, 2007). Patients who do not complete the recommended course of treatment show poorer outcomes relative to those who complete treatment (Swift & Greenberg, 2012). Understanding the extent, patterns, and predictors of drop out from different types of mental health treatment are critical to identifying barriers to treatment completion, and ultimately, improving clinical practice, service delivery, and mental health policies (Wang, 2007).

The World Health Organization (WHO) World Mental Health (WMH) Survey Initiative has been conducting epidemiological surveys of common mental disorders in more than 30 countries (Kessler & Ustun, 2004; The World Mental Health Survey Initiative, 2019). It has been reported that worldwide, nearly one-fifth of adults who started mental health treatment did not complete the recommended course (Olfson et al., 2009; Swift & Greenberg, 2012). Survey findings from 24 countries have indicated an overall dropout rate of 31.7% (Wells et al., 2013), with marked variation by national income. Previously, dropout rates were highest in upper-middle-income countries (45.1%), followed by lower-middle-income countries (37.6%) and high-income countries (26.3%) (Wells et al., 2013). Similarly, in the most recent WMH survey results, dropout rates were around 30.0% in high-income and 45.0% in low/middle-income countries (Fernández et al., 2020).

The results of published studies regarding premature termination of mental health services vary, likely reflecting differences in outcome measures, data collection procedures, and other methodological factors, as well as differing definitions of the term “dropout” (Hatchett et al., 2002; Swift & Greenberg, 2012). Overall, persons who are low income, younger, and who lack health insurance appear to be the most vulnerable to dropout (Edlund et al., 2002). The most common reason for treatment dropout given among patients with mental health disorders is wanting to handle the problem on their own, followed by the perceived ineffectiveness of treatment and negative experiences with the treatment provider (Andrade et al., 2014).

The Kingdom of Saudi Arabia (KSA) is classified as a high-income country (The World Bank, 2019) and is a participant in the (WMH) surveys. The total health expenditure compromises around 4.7% of the country’s GDP compared to the USA (17.1%), Australia (9.4%), United Kingdom (9.1%) and Singapore (4.9%) (Al-Hanawi, 2017). The Saudi Ministry of Health is the largest provider of healthcare services in the KSA, and it
provides cost-free psychiatric services to all citizens (Algahtani et al., 2017). The primary health care (PHC) centers are the first point of contact for those with mental health issues (Koenig et al., 2014), where, if appropriate, patients are referred to psychiatrists in general hospitals and specialty psychiatric hospitals, and/or to psychologists and social workers. Although the training quality and therapeutic approaches of mental health professionals are unclear, they are classified and licensed through the Saudi Commission for Health Specialties (Algahtani et al., 2017).

Data for this study were drawn from the Saudi National Mental Health Survey (SNMHS), a nationally representative survey study of the general population. Recent SNMHS assessments estimated that 20.2% of the population reported some mental health disorder within the previous 12 months (Altwaijri et al., 2020), and 13.7% received treatment in some form during this period (Al-Habeeb et al., 2020). In the KSA, the most common reason for not seeking mental health services among people with a perceived need was related to attitudinal barriers (e.g., they wanted to handle the problem on their own, did not consider the problem to be severe, perceived treatment as ineffective, thought the problem would get better by itself, and/or were concerned about stigma) (Alangari et al., 2020). Despite these findings, there are no studies available that have attempted to evaluate reasons for premature termination of mental health services in the KSA. Thus, the current study aims to explore the prevalence and predictors of mental health treatment dropout in the Kingdom of Saudi Arabia.

**Methods**

**Sample**

The SNMHS is a nationally representative face-to-face household survey of respondents 15 to 65 years in the KSA that was conducted between 2011 and 2016. Excluded from the sampling frame were the two administrative areas, Jazan and Najran, due to security concerns resulting from the political conflict along the Saudi borders at the time of the survey. The survey was conducted by trained interviewers. Respondents were selected using stratified, multistage probability sampling to derive a sample that was proportionate to the 2010 population as estimated by the General Authority for Statistics in the KSA (Hyder et al., 2017).

The estimated individual-level response rate for the SNMHS was 61%, which is similar to rates in other WMH survey countries (The World Mental Health Survey Initiative, 2019). The household screening rate was 84% and the conditional interview response rate was 73% (Altwaijri et al., 2020). The individual-level response rate was estimated because household
listing in some areas was not available, and the resident eligibility data were estimated based on the available listing in the same area.

Similar to other WMH surveys, the interviews were divided into two parts to reduce the interview burden on respondents who did not meet criteria for Part I diagnoses. In Part I, the core diagnoses (anxiety disorders, mood disorders, substance use disorders and personality disorders) were determined for all respondents \((n = 4,004)\), while Part II \((n = 1,981)\) assessed risk factors, correlates, service use, and other noncore disorders of participants who had reported any lifetime mental health disorder in Part I. Part II also included a probability subsample of other Part I respondents (noncases, i.e., those participants indicating no lifetime mental health disorder). Weights were applied to adjust for differences in the probability of selection and for nonresponse, as well as to poststratify the sample to approximate the Saudi general population. Weights were also applied to adjust for selection to Part II of the study which was carried out in a subpopulation of Part I participants. The present analyses were limited to the participants who had received any type of mental health treatment during the past year \((n = 168\) of the 1981 Part II participants).

Informed written consent was obtained before the interview, and recruitment procedures were approved through the institutional review board of the Office of Research Affairs at King Faisal Specialist Hospital and Research Center (RAC#: 2091093). Detailed information concerning other SNMHS survey methods (training procedures, translation protocols, and quality control procedures) for interviewers can be found elsewhere (Aradati et al., 2019; Hyder et al., 2017; Shahab et al., 2017, 2019).

**Measures**

**Treatment dropout**

Dropout was defined based on asking whether respondents received treatment during the previous 12 months for problems with their mental health or use of alcohol or drugs. If they received treatment, they were asked about the status of the treatment. Individuals who terminated treatment with the provider(s) in a given service category before the provider(s) recommended that they stop, and did not continue treatment with a provider in the same category, were classified as Premature Termination from that specific treatment category. Additionally, those who dropped out from all treatment categories were categorized as “overall dropouts”.

**Sociodemographic predictor variables**

Variables were categorized as in previous SNMHS analyses (Al-Habeeb et al., 2020; Alangari et al., 2020), sociodemographic variables included
gender and age in quartiles of (15–24, 25–34, 35–49 and 50+). Completed years of education were classified as: low (0–6 years), low-average (7–9 years), high-average (10–15 years), and high (16+ years). These four categories were based on levels of primary school, secondary school, high school, at least three years of college, and college graduates. Family income status was calculated based on the household income divided by the number of people in that household and classified based on the median of the entire sample as follows: low (less than 50% of the median), low-average (50 to 99% of the median), high-average (100–300% of the median), and high (greater than three times the median). Marital status was classified as married, previously married (separated, widowed or divorced) or never married.

**Diagnostic assessment of 12-month mental disorders**
The SNMHS uses the World Health Organization Composite International Diagnostic Interview (CIDI) version 3.0, a fully structured lay-administered diagnostic interview, to generate diagnoses (Kessler & Ustun, 2004). The CIDI is based on the American Psychiatric Association’s Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) and the WHO International Classification of Disease (ICD 10) criteria (Kessler & Ustun, 2004).

The 12-month (CIDI) disorders included: mood disorders (bipolar I and II disorders, subthreshold bipolar disorder, and major depressive disorder), anxiety disorders (panic disorder, agoraphobia without panic disorder, social phobia, generalized anxiety disorder, posttraumatic stress disorder, obsessive-compulsive disorder and adult separation anxiety disorder), disruptive behavior disorders (attention-deficit/hyperactivity disorder, conduct disorder, intermittent explosive disorder), and substance use disorders (alcohol and drug abuse and dependence). The number of mental disorders (one vs. two or more) was used as an indicator of comorbidity. We applied the exclusion of diagnoses based on organic reasons such as physical causes. We also did not apply diagnostic hierarchy rules for diagnoses. Hierarchy rules imply that certain diagnoses should not be made if a disorder is more appropriately explained by a different disorder, that is, that certain diagnoses should not be made if a disorder is more appropriately explained by a different disorder.

**Use of services**
The 12-month service use was evaluated by asking respondents whether they had visited any professionals for problems with mental health, emotions, nerves, alcohol or drug use during the 12 months prior to the interview. The list of providers included psychiatrists, mental health professionals
(psychologist, other nonpsychiatric mental health professionals, social workers, or mental health counselors), general medical providers (primary care physicians or other general physicians), human services professionals (religious or spiritual advisors, or counselors in a setting different than a specialty mental health setting), and complementary and alternative medicine (CAM) practitioners (e.g., any other type of healers, such as herbalists, chiropractors, or participating in self-help or support groups).

Analyses included the history of mental health care use prior to the previous 12 months, the number of different providers seen within the past 12 months, and the number of visits during that period. Analyses were restricted to respondents who received treatment during the 12 months prior to the survey.

Statistical analysis

Part II data were weighted to adjust for differential within-household probability of selection, differential nonresponse, and under-sampling of non-cases from Part I respondents into Part II. Descriptive statistics were calculated based on these weights. The distribution and prevalence of service use as well as the number of visits in each service category were examined. Kaplan–Meier curves were used to estimate the cumulative percentage of dropout by the number of visits. Unadjusted logistic regression analyses were performed to estimate the crude relationship between these predictors and treatment drop out based on discrete-time survival analysis with person-visit. Since the limited sample size, coupled with the relatively large number of predictors precluded use of all predictors in multivariable models, only those factors significantly associated with treatment dropout in the unadjusted analyses were included in the multivariate models with categories collapsed as appropriate. The logistic regression coefficients and their standard errors were exponentiated to produce odds-ratios (ORs) and 95% confidence intervals. Wald $\chi^2$ was used to determine significance and the standard errors were calculated using the Taylor series method adjusting for clusters, stratification and weights. All statistical tests were two-sided and the alpha level was set at $p < 0.05$ for statistical significance. All analyses were performed using SAS® software version 9.4 (SAS Institute Inc., Cary, NC).

Results

Dropout rates

For the 168 respondents who had received any treatment during the previous 12 months for mental health or substance use problems, the median number of visits was 1.7 (IQR= 1.0–5.0) (Table 1). The most common
Source of treatment were General Medical practitioners (56.8%), followed by Psychiatrists (23.0%), and Human Services (20.8%). CAM (9.6%) and Other Mental Health professionals (9.9%) were the least commonly reported providers. However, the highest median number of visits was to CAM providers (Median = 4.3; IQR = 1.3–17).

Among the 168 respondents who had received treatment during the previous year, 42.1% had terminated the treatment prematurely, 14.4% had completed the treatment and 43.5% were still in treatment at the time of the interview (Table 2). Premature termination varied significantly by provider type ($\chi^2 = 16.5; p$-value = 0.002). Dropout was most commonly reported from CAM (73.4%), Human Services (53.1%), General Medical (48.3%), and Other Mental Health providers (36.9%), and less commonly from Psychiatrists (14.5%). Conversely, completion of recommended treatment was most commonly reported by patients seeking care from psychiatrists (40.8%), and least commonly by those receiving services from CAM (5.1%) and General Medical (4.7%) providers. In contrast, service use by those still in treatment did not differ significantly by provider type ($\chi^2 = 4.2; p$-value = 0.4).

**Table 1.** Distribution of respondents who had received mental health treatment in the past 12 months in the Saudi National Mental Health Survey by provider.

<table>
<thead>
<tr>
<th>Service provider</th>
<th>Received treatment</th>
<th>Number of visits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n\textsuperscript{a}</td>
<td>%\textsuperscript{b}</td>
</tr>
<tr>
<td>Psychiatrist</td>
<td>44</td>
<td>23.0</td>
</tr>
<tr>
<td>Other Mental Health</td>
<td>23</td>
<td>9.3</td>
</tr>
<tr>
<td>General Medical</td>
<td>78</td>
<td>56.8</td>
</tr>
<tr>
<td>Human Services</td>
<td>41</td>
<td>20.8</td>
</tr>
<tr>
<td>CAM</td>
<td>17</td>
<td>9.6</td>
</tr>
<tr>
<td>Any</td>
<td>168</td>
<td>100.0</td>
</tr>
</tbody>
</table>

\textsuperscript{a}Unweighted number of respondents. \textsuperscript{b}Proportions calculated using Part II weights.

**Table 2.** Treatment status by provider among respondents who had received mental health treatment in the past 12 months (Saudi National Mental Health Survey).

<table>
<thead>
<tr>
<th>Treatment status\textsuperscript{c}</th>
<th>Premature termination</th>
<th>Completed treatment</th>
<th>Still in treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Among service providers</td>
<td>n\textsuperscript{b}</td>
<td>% \textsuperscript{b}</td>
<td>(SE)</td>
</tr>
<tr>
<td>Psychiatrist</td>
<td>10</td>
<td>14.5</td>
<td>(5.8)</td>
</tr>
<tr>
<td>Other Mental Health</td>
<td>8</td>
<td>36.9</td>
<td>(13.6)</td>
</tr>
<tr>
<td>General Medical</td>
<td>50</td>
<td>48.3</td>
<td>(10.6)</td>
</tr>
<tr>
<td>Human Services</td>
<td>23</td>
<td>53.1</td>
<td>(14.5)</td>
</tr>
<tr>
<td>CAM</td>
<td>8</td>
<td>73.4</td>
<td>(13.7)</td>
</tr>
<tr>
<td>Any</td>
<td>82</td>
<td>42.1</td>
<td>(6.4)</td>
</tr>
</tbody>
</table>

\textsuperscript{c}Significant at the .05 level, two-sided test.

\textsuperscript{a}The percentages sum to more than 100% since some respondents endorsed multiple providers and calculated using Part II weights. \textsuperscript{b}Unweighted number of respondents. \textsuperscript{c}Significance tests cannot be calculated due to small numbers.
The cumulative probability of treatment dropout by overall number of visits and provider sector during the previous 12 months is shown in Figure 1. The cumulative probability of dropout rose steeply from 11.5% after the first visit to 47.0% after the second visit, increasing gradually thereafter to a plateau by the 10th visit. Cumulative dropout probability following the second visit was highest for General Medical (53.1%) providers, followed by, Human Services providers (49.4%), Other Mental Health professionals (43.0%), CAM providers (28.3%), and Psychiatrists (27.4%).

**Predictors of treatment drop out**

Crude and adjusted associations of treatment dropout to sociodemographic predictors (age, gender, marital status, education and household income), health insurance status, number of visits, prior mental health treatment, number of providers, type of service provider, type of mental disorders, and number of disorders are presented in Table 3. Treatment dropout was significantly associated with income, prior history of mental health treatment, number of providers, and number of visits in the unadjusted analyses. Specifically, participants in the low-average income were less likely to dropout relative to those in the high-income category (OR 0.0, 95% CI 0.0–0.4), as were those who reported a previous history of mental health treatment (OR 0.2, 95% CI 0.0–0.9). Respondents who had visited three or more types of providers were also less likely to drop out than those who
Table 3. Predictors of treatment drop out among the Saudi National Mental Health Survey respondents who had received mental health treatment in the past 12 months, across all providers.\(^a\)

<table>
<thead>
<tr>
<th></th>
<th>Across all sectors (n = 82)(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unadjusted OR (95% CI) (\chi^2) d.f. (p)-value</td>
</tr>
<tr>
<td>Income</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>0.7 (0.3–1.5) 9.3 3 0.03*</td>
</tr>
<tr>
<td>Low-Average</td>
<td>0.0 (0.0–0.4) 0.0 2 0.96</td>
</tr>
<tr>
<td>High-Average</td>
<td>0.3 (0.1–1.9) 1.2 2 0.66</td>
</tr>
<tr>
<td>High</td>
<td>1.0 Ref</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
</tr>
<tr>
<td>Previously married</td>
<td>0.4 (0.0–3.3) 7.8 2 0.02*</td>
</tr>
<tr>
<td>Currently married</td>
<td>1.0 Ref</td>
</tr>
<tr>
<td>Never married</td>
<td>1.3 (0.4–3.8) 1.7 3 0.18</td>
</tr>
<tr>
<td>Number of visits in</td>
<td></td>
</tr>
<tr>
<td>past 12 months</td>
<td>22.7 1 &lt;0.001*</td>
</tr>
<tr>
<td>1 or 2</td>
<td>31.8 (7.7–131.8) 16.6 6 0.001</td>
</tr>
<tr>
<td>3+</td>
<td>1.0 Ref</td>
</tr>
<tr>
<td>Prior mental health</td>
<td>4.5 1 0.03*</td>
</tr>
<tr>
<td>treatment (ever)</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>0.2 (0.0–0.9) 0.7 3 0.001</td>
</tr>
<tr>
<td>Number of providers</td>
<td></td>
</tr>
<tr>
<td>1 or 2</td>
<td>10.7 1 0.02*</td>
</tr>
<tr>
<td>3+</td>
<td>1.0 Ref</td>
</tr>
<tr>
<td>Mental disorders</td>
<td></td>
</tr>
<tr>
<td>Any substance use</td>
<td>0.3 (0.0–2.0) 1.4 1 0.24</td>
</tr>
</tbody>
</table>

CI: confidence interval; df: degrees of freedom; OR: odds ratio. \(^*\)Significant at \(p < 0.05\) level. \(^a\)The models were estimated in the Part II sample. \(^b\)The models were based on a discrete time survival framework with a person-visit file. \(^c\)Adjusted for income (binary variable: Low/low average vs. High/High average), Number of visits in past 12 months (binary variable: 1 or 2 vs 3+), prior mental health treatment (binary variable: ever vs never), and number of providers (binary variable: 1 or 2 vs 3+). Non-significant results in both unadjusted and adjusted: age, gender, education, any mood disorder, any anxiety disorder, any impulse disorder, service provider, number of disorders, and insurance.

reported seeing 1 or 2 types of providers (OR 0.2, 95% CI 0.0–0.2). If participants continued in treatment for three visits or more, they tended to remain in treatment; (OR 31.8, 95% CI 7.7–131.8). In contrast, age, gender, education level, marital status, insurance status, service provider, mental disorders, and the number of disorders were unrelated to treatment dropout in this sample.

Adjustment for factors significant in the unadjusted analyses (i.e., income, number of visits during the past 12 months, prior mental health treatment, number of providers) attenuated the association of income level to treatment drop out \(\chi^2 = 2.2; \ p\)-value= 0.42) and strengthened that of marital status and specific mental health disorders to premature termination. Notably, respondents who were previously married were over four times more likely to dropout relative to those who were currently married after adjustment for other factors (adjusted OR (AOR) 4.1, 95% CI 1.5–11.2). Those diagnosed with any substance use disorder were over three times as likely to drop out after adjustment for potential confounders (AOR 3.2, 95% CI 1.5–6.9). In contrast, age, gender, education level, and
insurance status were unrelated to treatment dropout in either the unadjusted or adjusted analyses.

**Discussion**

The objective of this study was to explore the prevalence and predictors of mental health treatment dropout in the KSA. During the 12 months preceding study participation, the overall rate of treatment drop out was 42.1%, which is considerably higher than the overall dropout rate of 31.7% in other countries participating in the WMH surveys (Wells et al., 2013) and much higher than that of other high-income countries (26.3%). The rate is also markedly higher than dropout rates previously reported in the United States (19–21%) (Edlund et al., 2002; Olfson et al., 2009) and Canada (17–22%) (Wells et al., 2013).

Our results also show that the median number of treatment visits was 1.7, which is relatively low compared to other surveyed countries (Fernández et al., 2020). Reasons for treatment initiation and treatment drop out in the KSA might be related to the perception of need. Previous SNMHS results found that 50.7% of those who were diagnosed with a disorder in the last 12 months did not think they needed help, and 56.1% terminated the service early for the same reason (Alangari et al., 2020).

The most common source of treatment for mental health in this survey were General Medical providers (56.8%), perhaps reflecting the manner in which patients are triaged in the KSA health service (i.e., first to medical personnel). Although we lacked information on triage procedures and the sequence of providers in this study, triage may be more medically oriented in the KSA given that the Saudi Ministry of Health is the primary provider of health services in the country (Walston et al., 2008). Primary health care (PHC) centers are the first point of contact to those with mild mental disorders, and any PHC physician can refer more severe cases to psychiatrists in general and specialized hospitals (Koenig et al., 2014).

With respect to dropout rates by type of provider, we found that the highest dropout rates were from non-conventional or non-healthcare treatments (73.4% among CAM users and 53.1% among Human Services), although cumulative dropout probability following the second visit was substantially lower for CAM services (28%). While reasons for the higher drop-out rates from these providers are unclear, these services may often not have well-structured plans of treatment, and some provider services may not represent evidence-based practices. In contrast, the dropout rate from psychiatric services was 14.5%, perhaps reflecting the perceived efficacy of treatment and/or preference for pharmacological treatment either alone or in combination with psychotherapy.
Studies from 11 countries (Argentina, Austria, Belgium, France, Italy, South Africa, Sweden, Switzerland, the United States, the United Kingdom, and Venezuela) have found lower dropout rates and higher treatment adherence with a combination of pharmacotherapy and talk therapy (Wang et al., 2000). Likewise, findings from the United States National Comorbidity Survey and the Mental Health Supplement to the Ontario Health Survey indicated lower dropout rates in respondents receiving a combination of pharmacotherapy and talk therapy than in those receiving single-modality treatment (e.g., pharmacotherapy only, talk therapy only or spiritual counseling only) (Edlund et al., 2002). This might, in part, explain the low rate of dropout from psychiatric services compared to other types of therapies, as psychiatrists may have been providing this combination treatment (i.e., medications in combination with psychotherapy). Psychotherapy in the KSA is provided primarily by psychologists, social workers, and psychiatrists who receive relevant training (Algahtani et al., 2017). However, we do not have information about drug prescriptions in our data, so this aspect could not be investigated further.

In our sample, the only sociodemographic factor significantly associated with treatment dropout after adjustment for confounders was marital status, with previously married (separated, widowed or divorced) individuals significantly more likely to terminate treatment prematurely than those who were currently married. Conversely, in the United States National Comorbidity Survey Replication (NCS-R) study, currently married patients had higher odds of dropout from treatment by psychiatrists and other mental health professionals relative to previously married patients (Olfson et al., 2009). This disparity in findings may in part reflect cultural differences in both family structure and in the role that family social support may play with respect to seeking and remaining in mental health treatment in the two countries. In the KSA, the family is considered sacred and taking care of the family, especially those family members in need, is considered a religious duty. In addition, most marriages are arranged and consanguinous marriages are legal and common (Algahtani et al., 2017).

A large survey study in Singapore adults reported similar results, with married individuals less likely to drop out than single individuals (Sagayadevan et al., 2015). Studies from other countries have yielded inconsistent findings regarding the relation of sociodemographic factors to mental health treatment dropout across all providers, with some demonstrating no associations (Olfson et al., 2009; Wells et al., 2013), and others reporting significantly higher dropout rates among those who were younger (Edlund et al., 2002).

Our results suggest that participants who drop out of mental health treatment tend to do so early in the process. Drop out was significantly
more likely to take place after one or two visits than after 3 or more visits, regardless of service type. Moreover, the number of providers was inversely associated with treatment dropout. These results are in agreement with findings of other WMH surveys (Fernández et al., 2020; Wang, 2007; Wells et al., 2013) and might, in part, reflect disorder severity and associated patient need for services. Based on this literature, it is possible that those with severe mental illness may be more likely to seek multiple types of care, and to be less likely to drop out because of need. Disorder severity was correlated with the probability of treatment in earlier analyses from 14 countries (Olfson et al., 2009), as well as in the most recent WMH survey study in 28 countries (Fernández et al., 2020). However, previous findings of SNMHS found no association between overall severity and service use (Al-Habeeb et al., 2020). We also found that those with any substance use (alcohol and drug abuse and dependence) were more likely to drop out than those without a diagnosed substance use disorder. This pattern has previously been reported only in Upper-middle-income countries (Wells et al., 2013).

To our knowledge, this is the first study to evaluate dropout in mental health treatment in the KSA using a representative sample of respondents. Other strengths of our study include the relatively high response rate as well as the use of survey methodology consistent with that of other WMH surveys, allowing direct comparisons to findings from other countries. Notably, the same DSM-IV/CIDI diagnostic tool was used to ascertain mental health disorders as in prior studies, and most importantly, the same definition of dropout was employed.

Nonetheless, our study also has several limitations. The first is the small sample size available for analysis, reducing our ability to identify potential additional correlates of treatment dropout (e.g., lifestyle and health status factors) and limiting our ability to adjust for a larger number of potential confounders. In addition, the CIDI instrument does not include all alternative predictors of premature termination of treatment such as poor skills of mental health care providers, weak treatment relationship with patients due to time constraints, communication issues and not disclosing the duration of treatment to the patients, and poor appointment system. Second, the survey is based on retrospective self-report data, raising the possibility of recall bias. In addition, the survey collected data only from patients; hence, the treatment plans are not known from the provider’s perspective. Third, it is also difficult to compare dropout from different providers, especially between non-healthcare and healthcare. Each provider has unique treatment procedures and treatment plans, including the recommended number of sessions, session duration, and time between sessions. Moreover, providers work alongside each other in some cases, and cross-referrals among providers are common.
In conclusion, understanding the level, patterns, and predictors of dropout from mental health services is important for guiding improvements in clinical practice, service delivery, and mental health policies. Premature termination of mental health services creates a potential for increased healthcare costs and poorer health outcomes that needs to be addressed. Although the results are not definitive, study findings suggest that mental health treatment dropout rates in the KSA are high (42.1%), especially when compared with other high-income countries. The probability of dropout increase steeply after the second visit. In the adjusted analyses, participants who were previously married were more likely to drop out, as were those diagnosed with a substance use disorder.

Additional prospective studies are needed to further elucidate the role of family structure and marital status, mental health history and burden, as well as lifestyle characteristics and physical health history in treatment dropout rates. It may also be helpful to conduct further assessments of need in separated, widowed and divorced individuals in a larger sample. Identification and implementation of cost-effective interventions to help maximize the rate of treatment adherence are also of clear importance; for example, enhancing mental health literacy may reduce treatment dropout by increasing awareness of potential consequences of mental health complications (Edlund et al., 2002). Also, improving patient–provider communication may be in order. Sending out reminders at least 24 hours before the appointment has also been found to be a cost-effective way to encourage treatment compliance (Reda & Makhoul, 2001).

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Data availability statement

Available upon request.

Ethics approval and consent to participate

Informed written consent was obtained before the interview. Recruitment procedures were approved through the institutional review board of the Office of Research Affairs at King Faisal Specialist Hospital and Research Center (RAC#: 2091093).

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