Patterns of Youth Mental Health Service Use and Discontinuation: Population Data From Australia's Headspace Model of Care

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Objective: Young people (ages 12–25) experience the highest risk of developing mental disorders; however, their uptake of and engagement with treatment is low. The study explored sociodemographic predictors of attendance and discontinuation of mental health services in a large, population-based sample.

Methods: Data were from the minimum data set collected from young people (ages 12–25) who attended headspace, Australia's National Youth Mental Health Foundation, from 2013 to 2017 (N=80,502). Data on key demographic and clinical variables and practitioner ratings of need for ongoing care were analyzed. Cox regression was used to examine the association between sociodemographic factors and rates of discontinuation based on practitioner-rated need for ongoing treatment.

Results: The mean±SD number of sessions attended during the first episode of care was 4.6±4.4 sessions (median=3). Session-by-session discontinuation rates ranged from 14% to 19% across 10 sessions. The proportion discontinuing treatment before session 11 was 71.2%. Analysis of a subgroup (N=40,039) showed that 24% of those who discontinued treatment later returned to the same headspace center for a second episode of care. Those who were most at risk of discontinuation were older (ages 18–25), male, heterosexual, Aboriginal or Torres Strait Islander, and living in a rural location.

Conclusions: Sociodemographic factors were found to be associated with treatment discontinuation, and some young people followed a pathway in and out of mental health treatment. Further exploration is needed to determine the appropriate length and type of care for specific sociodemographic groups and how best to tailor treatment accordingly.

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There is increasing global attention focused on improving the mental health and well-being of young people (1). Young people ages 16 to 24 have the highest reported prevalence rates of many mental health conditions (2, 3), and effective treatment is hampered by a reluctance to seek professional care (2, 4). Barriers to help seeking experienced by young people are diffuse, including poor symptom recognition, difficulties navigating the system, financial limitations, and perceived stigma and embarrassment (5, 6). Particularly at-risk populations of young people in Australia include those with the following backgrounds: Aboriginal or Torres Strait Islander, culturally and linguistically diverse (CALD), and sexuality diverse (i.e., LGBTIQ), as well as those residing in rural or regional areas (7). Furthermore, across these groups, young men remain a particular challenge to reach, engage, and retain in treatment (8). The elevated suicide rate for young men (9) highlights the priority for gender-informed interventions and strategies to enhance engagement (10, 11).

HIGHLIGHTS

- In 2006, the Australian government funded headspace, the National Youth Mental Health Foundation, to better respond to the high prevalence of mental health problems among young people.
- Findings indicate that discontinuation from headspace is common and that targeted engagement protocols are needed for key groups, including those ages 18–25 and those identifying as male, heterosexual, or Aboriginal and Torres Strait Islander and those living in rural areas.
- A quarter of young people who discontinued treatment later returned to their headspace center for a second episode of care.
- Even though headspace was designed as an early intervention service, nearly half the young people who attended an intake self-reported severe levels of distress.

Efforts to reduce treatment gaps and structural barriers have increased accessibility of mental health care for young people (12). Nonetheless, for young people able to access mental health care services, an estimated 30%–75% will discontinue treatment early (13). Among adults in the general population, the estimated range is lower, from 20% to 40% (14, 15). This is a key issue for investigation, because untreated mental illness with onset during adolescence has been shown to persist into adulthood, with deleterious effects on education, employment, and psychosocial functioning (1, 16). Moreover, compared with young people who complete treatment, those who discontinue are more likely to have ongoing symptoms, future impairment or relapse, and lower treatment satisfaction and are less likely to seek help again (5, 17).

Prior research exists in this area, but methodological shortcomings have included inconsistent definitions of discontinuation, mixed study settings, and restricted samples, which have made it difficult to accurately delineate the prevalence of discontinuation among young people (18). In most studies, treatment discontinuation has been defined by practitioner rating; that is, the young person ceases attending despite a practitioner's recommendation for ongoing treatment (e.g., 17). Others have defined discontinuation as the young person's failure to attend a set number of sessions (e.g., 19). Overall, the extant literature is limited by this practitioner-centric focus, largely disregarding the autonomous decision making of young people.

Regardless of definition, research indicates that young people who discontinue treatment are most likely to do so within the first three sessions (20). Existing studies lack generalizability to most real-world settings, because they typically include young people with a single mental disorder and recruitment from a single geographical location or as part of a randomized controlled trial and involve manualized treatment with a finite end point (13, 17). Trials are important in demonstrating treatment efficacy. However, in exploring discontinuation rates, trials involve small and typically Caucasian cohorts ($N<500$), of high socioeconomic status, with more severe and single disorders, and from specific clinics (13). Thus larger and more diverse populations are needed to explore real-world discontinuation. In Australia, little research has been conducted in this area beyond Johnson and colleagues' (21, 22) study of 520 young people in community-based child and adolescent mental health services. Almost half the sample discontinued over 12 months, but no single factor was associated with discontinuation across diagnoses.

The limited literature reports that young people who are older, have a CALD background, are socioeconomically disadvantaged, and are from single-parent households are more likely to discontinue (13, 18, 20, 23). Clinically, suicidal thoughts and increased psychological distress have been linked with increased rates of discontinuation (13). Other factors, such as gender, show mixed findings, which may be related to discontinuation in different settings (18, 20). Gender is particularly important among young people, because even though the need for mental health treatment is greatest at this time of life, 16- to 24-year-old males are the least likely of any age or gender group to access care, are less likely than young females to self-report experiencing any distress, and are the most difficult of any gender or age group to engage in treatment (3, 12, 24). Underpinning young men's problematic relationship with help seeking is poor symptom recognition and mental health literacy, as well as high levels of self-stigma and shame (10, 25). Evidence indicates that these poor help-seeking and therapeutic engagement rates may stem from a rigid conformity to dominant masculine ideals, including stoicism and self-reliance (26).

In 2006, the Australian government funded headspace, the National Youth Mental Health Foundation, to better respond to the high prevalence of mental health problems among young people and provide a nationwide, early intervention service developed with their specific needs in mind. At headspace centers, young people can obtain free or low-cost, easy-access services to address their broad needs across mental and general medical health. The centers also provide vocational and substance misuse counseling, with links to local community and specialist services. The headspace model actively integrates youth participation and preferences. At the time of writing, 110 centers were operational across Australia, complemented by an online youth mental health service called eheadspace, making headspace the largest national network for youth mental health treatment worldwide (27).

Referrals can be made by young people, family, friends, or health or community service providers. Young people typically undergo an initial intake assessment and are then provided treatment with one or more mental health practitioners (e.g., psychologist) depending on symptom severity for up to 10 subsidized sessions, including medication review where indicated. Services provided by headspace focus on early and preventive interventions, targeting symptoms prior to development of serious and persistent mental health conditions. However, since the inception of headspace, it has been argued that centers have been required to take on roles for which the model was not designed or funded, namely treatment of young people with complex and acute mental health issues (28). Examining patterns of attendance and discontinuation—in the context of presenting psychological distress and demographic factors—is important to identify areas where engagement could be strengthened.

The aim of this study was to assess mental health treatment uptake, discontinuation, and potential service reengagement by young people attending headspace centers in Australia. We sought to inform efforts to improve treatment delivery, engagement, and outcomes, mindful of the cyclical and complex patterns of engagement, driven by the preferences and decision making ("experiential knowledge") of young people attending for support in accordance with their needs (29).

METHODS

Design and Study Cohort

A retrospective cohort study was undertaken to identify and examine factors associated with discontinuation among young people ages 12–25 seeking help for the first time from headspace services across 100 centers in Australia. All participants accessed the service initially for a psychological, substance misuse, or situational concern. The headspace service user pathway generally includes a psychosocial intake assessment, undertaken by an intake worker. Young people who attended only this assessment were excluded from the sample. In Australia, 10 sessions annually is the standard cap for government-supported rebates for mental health treatment; however, a "minimally adequate" course of treatment is six services in any one referral—or fewer depending on the referral and the client's clinical need (30, 31). Given this government-supported cap and given that over 90% of the headspace population attended 10 or fewer sessions, this study described attendance rates beyond 10 sessions for the entire sample but reported only the results of session-by-session and cumulative discontinuation rates up to 10 mental health sessions.

Data Source

The study data represent a census of headspace clients, sourced from routine data collection. Headspace centers collect a minimum data set (MDS) from all clients, asking key demographic (e.g., age, sexuality, and education) and clinical (e.g., Kessler Psychological Distress Scale [K10] [32]) questions at assessment and subsequent service occasions. The treating practitioner completes a questionnaire after each service occasion, reflecting on client functioning, concerns, and future pathways in the service or referral to another provider.

This analysis reports on data from 80,502 young people who accessed headspace for active mental health treatment (rather than intake assessment) with a mental health practitioner (e.g., psychologist, psychiatrist, or social worker) for the first time between April 1, 2013, and March 31, 2017 (a client flow diagram is included in an online supplement to this article).

Measures

Discontinuation. A uniform definition of young person–initiated treatment discontinuation was applied. Following each session, the headspace practitioner classified the client's need for ongoing care across 19 options that were grouped under the following categories: continue treatment, not continue treatment, refer to another service, or met treatment goals. Clients who were classified as continue treatment but who did not attend the next session were defined as "discontinued" regardless of the number of sessions attended overall. "No discontinuation" was defined as instances in which the practitioner referred the young person to another service; noted that treatment goals had been reached; or noted that both had mutually agreed to terminate, even if therapy goals had only been partially achieved. Each young person had 90 days to reengage with headspace, after which this first episode of care was considered discontinued and no further sessions were included in this analysis of treatment engagement.

Reengagement. Young people reentering treatment in the same headspace center from April 1, 2014, to March 31, 2017, for any duration or number of sessions following a previous discontinuation were classified as "reengaged." This secondary analysis was conducted with a subsample of young people, ages 12–24 (to exclude those ages 25 and older who were no longer within the age range of the service), who completed their first episode of treatment between April 1, 2014, and April 1, 2016, in order to focus on those returning to their headspace center for a second episode (see below). This approach allowed young people who discontinued in 2016 up to 12 months to reengage.

Client Characteristics

Self-reported demographic characteristics included age (legal minors [ages 12–17] or adults [ages 18–26]), Aboriginal or Torres Strait Islander (identifying [yes or no] as Aboriginal or Torres Strait Islander), sexuality (identifying as lesbian, gay, bisexual, queer/questioning [LGBQ], or heterosexual-straight), geographical location (three categories [major city, regional, and remote] based on the person's postcode and compared with Australian Bureau of Statistics remoteness data), and gender (male or female).

Clinical characteristics included K10 scores of psychological distress (32). K10 scores were grouped into four levels of psychological distress: likely to be well (scores 10–19), likely to have a mild mental disorder (20–24), likely to have a moderate mental disorder (25–29), and likely to have a severe mental disorder (30–50). These groups are informative bands with clear clinical significance. The external validity and interpretability of results are greater with these bands in mind. Given the large sample, grouping of the K10 continuous variable had little effect on statistical power.

Statistical Analysis

Descriptive statistics were used to characterize the sample. Chi-square analyses evaluated differences in number of sessions attended grouped into four categories (one to three sessions, four to six sessions, seven to 10 sessions, and 11 or more sessions) and differences in grouped K10 scores (well, mild, moderate, and severe) across demographic groups. All chi-square tests were reported with standardized residuals to measure the strength of difference between observed and expected values. Bonferroni comparisons for column proportions were analyzed with adjusted p values, and Cramer's V effect sizes were reported based on Cohen's (33) criteria for all analyses.

Life tables were constructed to quantify the number of individuals discontinuing treatment at each session and to

create corresponding hazard and survival proportions at each treatment session. Multivariate Cox regression was used to examine associations between group-based demographic factors and discontinuation over time to estimate relative risk of discontinuation across groups. The predictor variables entered into this model were those without considerable missing data, deemed potential predictors of discontinuation both separately and together, and based on the extant literature. All variables were entered at the same time. Given the sample size, we opted for a conservative alpha level of ≤0.001 and report 99% confidence intervals. All analyses were replicated independently by two researchers (Z.E.S. and J.M.) to ensure consistency and accuracy in reporting. All analyses were conducted using IBM SPSS Statistics, version 24.

RESULTS

Sample Characteristics

In the study sample of 80,502 young people, 61% of participants were female, 17% identified as LGBQ, 8% identified as Aboriginal or Torres Strait Islander, and 62% lived in major cities (excluding missing data; Table 1). The mean±SD age of participants was 17.1±3.40 (range 11–26). The secondary reengagement analyses included a subsample of 40,039 young people, and the demographic profile of this subgroup was similar to that of the total sample.

TABLE 1. Sociodemographic characteristics of young people who attended headspace between April 1, 2013, and March 31, 2017 (N=80,502)

Characteristic	N	%	Valid %[a]
Gender			
Male	28,164	35.0	38.7
Female	44,617	55.4	61.3
Other or missing	7,721	9.6	—
Age			
12–17	45,269	56.2	59.7
≥18	30,537	37.9	40.3
Missing	4,696	5.8	—
Aboriginal or Torres Strait Islander			
No	67,609	84.0	92.4
Yes	5,593	6.9	7.6
Did not identify or missing	7,300	9.1	—
Sexuality			
Non-LGBQ[b]	57,331	78.0	82.7
LGBQ	11,980	16.3	17.3
Undisclosed sexuality or missing	11,191	5.2	—
Rurality (based on young person's address)			
Major city	46,847	58.2	61.8
Regional	28,013	34.8	36.9
Rural	991	1.2	1.3
Missing	4,651	5.8	—

[a] These percentages were derived from the number of respondents for whom data were available (excludes "missing").
[b] Lesbian, gay, bisexual, queer/questioning.

Distress

Psychological distress, measured by the K10, was in the severe range for 49% of the sample (Table 2). A larger proportion of males than females scored in the well range (25% versus 13%), and the proportion of females with severe scores was significantly larger than the proportion of males with severe scores (54% versus 39%; χ^2=2,213.70, N=70,594, df=3, p<0.001, V=0.18). Regarding age, a larger percentage of older clients (ages ≥18) scored in the severe range, compared with younger clients (ages 12–17) (56% versus 44%; χ^2=1,663.83, N=71,539, df=3, p<0.001, V=0.15). Aboriginal or Torres Strait Islander young people were significantly more likely to score in the well range, compared with young people who did not identify as Aboriginal or Torres Strait Islander (21% versus 17%; χ^2=65.00, N=71,303, df=3, p<0.001, V=0.03).

Patterns of Attendance

On average, participants attended a mean±SD of 4.6±4.4 sessions (median, three sessions; range, one to 35 sessions) and remained in the service for a mean of 119±111.18 days (median, 86; range, one to 1,160 days) or 17 weeks. More than half the participants (53%) attended one to three sessions, and the remaining young people attended four to six sessions (25%), seven to 10 sessions (14%), and 11 or more sessions (8%) (Table 3). Males were significantly more likely than females to attend only one to three sessions (χ^2=227.36, N=72,781, df=3, p<0.001, V=0.06). Similarly, compared with younger clients, older clients were significantly more likely to attend only one to three sessions (χ^2=62.81, N=75,806, df=3, p<0.001, V=0.03). Aboriginal or Torres Strait Islander clients were also significantly more likely than those who did not identify as belonging to these groups to attend only one to three sessions (χ^2=221.32, N=73,202, df=3, p<0.001, V=0.06).

Patterns of Treatment Continuation, Discontinuation, and Return

In Table 4, results are reported at each session, including the number of participants who discontinued and the hazard proportion, survival proportion, cumulative survival proportion, and number who completed 10 sessions. Across sessions 1 to 10 of mental health treatment, the session-by-session rate of overall discontinuation progressively decreased, ranging from 19% to 14% (see the bar graph in the online supplement). The treatment completion and external referral rate steadily increased from 4% to 9% by session 10.

Results of the subgroup analysis of young people (N=40,039) who completed their first episode of treatment between April 1, 2014, and April 1, 2016, indicated that the proportion who discontinued and did not return to the headspace center during that period was 9% at its lowest (session 10), and 15% at its highest (session 1) (see online supplement). Of those who discontinued by session 11, 24%

TABLE 2. Scores on the Kessler Psychological Distress Scale (K10) of young people who attended headspace, by sociodemographic characteristics[a]

	K10 distress group[b]												
	Total		Well (score range, 10–19)			Mild (score range, 20–24)			Moderate (score range, 25–29)			Severe (score range, 30–50)		
Characteristic	N	%	N	%	SR[c]	N	%	SR[c]	N	%	SR[c]	N	%	SR[c]
Gender	70,594	100												
Male	27,153	39	6,761	25	28.0	4,664	17	9.3	5,131	19	0	10,597	39	−22.1
Female	43,441	61	5,758	13	−22.2	5,923	14	−7.3	8,211	19	0	23,549	54	17.5
Age	71,539	100												
12–17	42,875	60	9,362	22	20.8	6,854	16	5.7	7,833	18	−2.7	18,826	44	−14.0
≥18	28,664	40	3,245	11	−25.4	3,823	13	−7.0	5,646	20	3.3	15,950	56	17.1
Aboriginal or Torres Strait Islander	71,303	100												
No	65,954	92	11,411	17	−1.8	9,840	15	−.1	12,559	19	1.2	32,144	49	.4
Yes	5,349	8	1,138	21	6.4	805	15	.2	877	16	−4.1	2,529	47	−1.4
Total			12,621	17	—	10,684	15	—	13,485	19	—	34,788	49	—

[a] Denominators for the percentages were the number of respondents for whom data were available. The row percentages may sum to greater than 100% because of rounding.
[b] K10 possible scores range from 10 to 50, with higher scores indicating greater psychological distress.
[c] Standard residual.

later returned for a second episode of care. Those who discontinued between sessions 2 and 10 in their first episode of care were significantly more likely than those who discontinued after only one session in their first episode to return for a second episode (26% versus 18%; χ^2=150.58, N=30,397, df=1, $p<0.001$, V=0.07).

Of the 80,502 young people in the sample, 71.2% (N=57,279) had cumulatively discontinued treatment after session 10. Of these, 45.0% (N=25,801) discontinued before session 3. The median-modal survival time for treatment was 4.5 sessions. Of all clients (not just those who discontinued), 17.0% (N=13,685) returned for a second episode of care at the same center within the timeframe of the data collection.

A multivariable Cox regression of overall survival that examined predictors of discontinuation across treatment was conducted (Table 5). In this model, several factors were significant predictors of elevated risk of discontinuation from treatment, including older age, male gender, Aboriginal or Torres Strait Islander identification, rural setting (compared with major city), and heterosexual orientation (compared with LGBQ). Moreover, young people who self-reported moderate distress on K10 had significantly less risk of discontinuation from treatment, compared with those whose scores were in the well range.

Higher-order two-way and three-way interactions (e.g., gender × age × K10) were analyzed but provided no additional predictive value.

DISCUSSION

We aimed to explore the longitudinal patterns and predictors of attendance, discontinuation and reengagement in a large cohort of young people attending community-based, early-intervention mental health centers across Australia, headspace. Analyses indicated session-by-session rates of discontinuation ranging from 14%−19%. Overall, 71.2% of the 80,502 young people in the sample discontinued treatment by session 11, even though the treating practitioner noted in the MDS that he or she expected the young person to return for further treatment. Of note, under this model, government subsidization is capped at 10 sessions.

Young people of male gender, older age, rural location, and heterosexual orientation and those who identified as Aboriginal or Torres Strait Islander were more at risk of discontinuing treatment. Moreover, young people who reported moderate distress at assessment had a lower risk of discontinuation, compared with those whose scores were in the well range. Further subgroup analysis revealed, however, that 24% of those who discontinued returned to the same center for a further episode of care within the data collection period.

Although the overall discontinuation rate of 71.2% is in the higher range of previously reported rates of 30%−75% (13, 34), a number of explanations are possible, based on the methodology, setting, and sample. First, the measure of discontinuation was based on clinicians' recording in the MDS that the young person had a need for further care; however, this item was not designed to be a post hoc measure of discontinuation, and it thus may lack strong validity. Because the MDS does not include the young person's reasons for discontinuation, it was not possible to corroborate the clinician's report with the young person's experience. Therefore, the one-sided classification must be interpreted with caution. Discordance frequently exists between clinicians and young people and their families with respect to treatment goals and when they are achieved. With young clients, clinicians may be conservative when noting need for ongoing mental health support to reach clinical improvement.

TABLE 3. Session attendance patterns of young people who attended headspace, by sociodemographic characteristics[a]

			Session attendance group											
	Total		1–3			4–6			7–10			≥11		
Characteristic	N	%	N	%	SR[b]	N	%	SR[b]	N	%	SR[b]	N	%	SR[b]
Gender	72,871	100												
Male	28,164	39	15,511	55	7.2	7,025	25	−2.1	3,572	13	−5.0	2,056	7	−7.6
Female	44,617	61	22,334	50	−5.7	11,580	26	1.6	6,471	15	4.0	4,232	10	6.1
Age	75,806	100												
12–17	45,269	60	23,418	52	−3.3	11,752	26	3.4	6,235	14	1.5	3,864	9	.6
≥18	30,537	40	16,663	55	4.1	7,322	24	−4.1	4,008	13	−1.8	2,544	8	−.7
Aboriginal or Torres Strait Islander	73,202	100												
No	67,609	92	34,446	51	−2.8	17,561	26	1.5	9,583	14	2.0	6,019	9	1.6
Yes	5,593	8	3,416	61	9.7	1,233	22	−5.4	582	10	−7.0	362	7	−5.7
Total			42,425	53	—	20,226	25	—	10,942	14	—	6,909	8	—

[a] Denominators for the percentages were the number of respondents for whom data were available. The row percentages may sum to greater than 100% because of rounding.
[b] Standard residual.

Young people themselves may place less importance on accessing continued mental health support, believing that they have obtained sufficient benefit (18). As a consequence, the young person and the family may discontinue treatment before obtaining the benefits expected by the clinician. Our study's strength in reviewing and illustrating session-by-session continuation and discontinuation rates sheds some light on this underlying complexity of attendance patterns and highlights the fluidity of decision making by service users over time.

Previous studies of psychotherapy visits have shown that discontinuation rates at session 1 are typically much higher than rates at subsequent sessions, with an estimated 35% of clients not returning for a second visit (35). Therefore, the study reported here is unique in that headspace session 1 discontinuation rates were not markedly higher than rates for subsequent sessions. The reason for this positive initial uptake may be related to the purposeful integration of youth advocacy and codesign of the service by headspace (e.g., from layout to language used) to provide young people with a treatment setting that they find is made for them and by them (27). The fact that those who discontinued after more than one session at headspace were more likely to reengage later suggests that practitioners should be striving for early commitment to treatment to achieve long-term benefits on engagement. An initial destigmatizing experience may be sufficient to promote future help seeking and delay illness progression (36). This initial experience is especially important, given the heterogeneity of young people's interactions with headspace, which ranged widely across individuals in number of sessions attended and separate episodes of care.

The nature of headspace services is important in contextualizing our findings. As an early intervention model of mental health care, headspace was not designed to respond to severe or complex mental health problems. However, K10 scores for almost half the study sample fell into the severe range. Indeed, the finding that young people who presented with moderate distress had a lower risk of discontinuing treatment highlights that the headspace model best engages those it was designed to engage. However, because of an overall lack of specialist community mental health services for young people, sometimes referred to as "the missing middle," headspace may be fulfilling a role of treating severely distressed young people—one for which it was not originally designed (28). If headspace centers were able to dedicate their limited resources to providing early intervention only for those with mild to moderate distress (as opposed to the large numbers of young people presenting with complex needs), then engagement rates would likely be higher. Services upstream of emergency departments and downstream of headspace are limited, which leaves at-risk and vulnerable young people devoid of appropriate services to treat their concerns (28). In the interim, headspace would benefit from implementing a staging model to minimize the chances that a young person with mild-to-moderate illness accesses more treatment than necessary and to ensure that those in the missing middle are able to receive more intense intervention when required (28). Different strategies to promote engagement at these illness stages may be necessary to improve the efficiency of the headspace model in future.

It is important to support the young person's views or "experiential knowledge" in the decision-making process, rather than to assume that those who discontinued treatment were unaware of the seriousness of their mental health concerns or would have benefited from return sessions. Indeed, many young people who discontinued may have made the right decision, given their circumstances (37). Future exploration with these young people, their families, and practitioners is essential to understand reasons for discontinuation and reengagement and to empower and promote young persons' lived experience to improve early engagement. In addition, some of these young people and many who never engage face to face may be using eheadspace, a

TABLE 4. Life table of treatment survival or discontinuation rates after each session among young people who attended headspace

Session count	N entering session	Completers (N)[a]	Discontinuations (N per session)	Proportion discontinued (hazard ratio)	Proportion remaining in treatment (survival)	Cumulative proportion remaining in treatment
0	80,502	—	—	—	1.00	1.00
1	80,502	4,031	14,953	.19	.81	.81
2	61,518	2,410	10,848	.18	.82	.66
3	48,260	2,005	8,178	.17	.83	.55
4	38,077	1,542	6,500	.17	.83	.45
5	30,035	1,060	5,620	.19	.81	.37
6	23,355	1,633	3,871	.17	.83	.30
7	17,851	987	2,475	.14	.86	.26
8	14,389	901	1,983	.14	.86	.22
9	11,505	961	1,596	.14	.86	.19
10	8,948	784	1,255	.15	.85	.16

[a] No discontinuation, not referred on, not discharged.

Web-based chat-counseling platform that has been shown to reach a unique client group (38).

Although there is little consistency in previous results related to gender and discontinuation (39), preliminary qualitative evidence collected from young men engaged with the headspace model suggests that Australian young men, in particular, may find it difficult to engage in mental health treatment (6). Our findings suggest that over time, young men are less likely to attend treatment and more likely to attend fewer sessions and are at greater risk of discontinuation. This pathway for men, in and out of treatment, has been reported in the literature (e.g., 40). Poor mental health literacy could be a core problem, because males may be more likely to experience difficulty understanding and describing mental health concerns (25, 41) while manifesting their difficulties as externalizing symptoms, such as substance use, risk taking, or anger (42). Our results suggest a link to K10 scores, because males were significantly less likely than females to report high distress. Although this finding is in line with reporting in the general population (43), it is at odds with the large number of suicides of young males in Australia (31). These findings are particularly worrying given research reporting that males are less likely than females to take up eheadspace (38). Therefore, engaging young men on their terms and building rapport with language that they understand and an empowering, goal-focused approach early in treatment may engage them as active participants in continued treatment (44).

The fact that young people ages 18 and older and males were more likely to discontinue is consistent with other studies of this population. Parental involvement in the treatment of young people under age 18 may account for the difference between age groups. Previous research suggests that parents may be able to facilitate initial attendance of older youths; however, the feeling of being in treatment only to appease others may hinder long-term engagement (4, 45). The role of extrinsic facilitators (e.g., parents) for engagement in treatment was outside the scope of this study, but future research should build on existing findings from headspace showing the reduced role of parents as young people mature (4) to identify these factors and leverage them for improved attendance.

Similarly, young people who were Aboriginal or Torres Strait Islander have been reported as the most disadvantaged and challenging to engage in mental health treatment, with persistently poorer mental health outcomes, compared with their non-Indigenous peers (46). Reducing service discontinuation through the continued provision of interventions that are accessible, appropriate, and respectful and that understand and respond to Indigenous culture in the treatment model through community integration and governance is key to reducing suicide in this population (47).

A possible explanation for the significance of regional and rural location as a predictor of discontinuation by session 6 is the ongoing burden of travel, stigma, cost, difficulty maintaining confidentiality in small communities, treatment waitlists, and lack of after-hour service access for the young person and family (48). Awareness of these barriers and finding ways to reduce structural impediments to care for this population are integral to improving mental health outcomes, including reviewing barriers to use of headspace's existent national telehealth service and eheadspace (49, 50).

The finding that young people identifying as LGBQ were significantly less likely than heterosexual young people to discontinue treatment is at odds with the generic mental health literature and the "minority stress" theory (51). It is possible that headspace's purposeful efforts to include voices from the LGBQ community in its training, advertising, and clinical programs, with help-seeking campaigns and social groups aimed at this population and integrated into its model, are working (52).

The study had a number of limitations. Most notably, it was conducted using data routinely collected through an MDS process. The data were not designed to address the research aims of this study, which were fitted in a post hoc way to the data set. Consequently, although the data can shed some light on understanding discontinuation in this population, the MDS questions were not designed with this in mind and may not have been answered appropriately by respondents. In particular, clinicians may not have answered the ongoing care question appropriately, especially given 19 possible options. Moreover, the large number of sites and diversity of clinician experience makes the consistency and reliability of discontinuation responses hard to ascertain,

and each young person may have seen multiple clinicians throughout the episode of care. Given the size and diversity of this national data set, item interpretation is a confounding but currently unavoidable factor in data analysis that is acknowledged.

The small magnitude of between-group differences in the discontinuation analysis must be taken into consideration. The size of the sample made it likely that we would find statistical significance in discontinuation rates, but clinical significance more broadly is harder to quantify. We further examined differences in the number of sessions attended across the same groups, and these rates matched the discontinuation rates. Therefore, instead of using these findings to draw attention to differences between groups, the findings should be regarded as a call to action for clinicians to further consider their work engaging with specific groups of young people.

Data on many factors known to affect mental health service use were unavailable for analysis. These include appointment and clinician availability and wait times, family socioeconomic status, parental involvement, therapeutic alliance, disorder type, medication use, and suicidality. Nonbinary young people were excluded from this study of gender, and although no differences across key variables were noted in a pre-exclusion analysis of this group, it will be important to delve into the unique mental health service experience of this subpopulation in specific analyses in future.

The inclusion of the subgroup analysis to examine rates of return after discontinuation is a strength of this study. It permitted a longitudinal follow-up and an exploration of the often lengthy trajectory of engagement with services. However, although this analysis was designed to ensure that each young person in the subgroup had a minimum of 12 months to return to the headspace center, application of subgroup proportions to describe the entire sample is not without statistical limitations, and these results should be contextualized with this in mind.

It is important to note that the notion of a full course of treatment may be a false assumption in the context of how all people access mental health services, regardless of age. Although the occasions of discontinuation in this study were considered premature by the practitioner, the young person may have seen treatment as unnecessary, complete, or unhelpful and may have decided not to return or may have lost motivation to continue attending. Indeed, Garcia and Weisz (53) found that problems in the therapeutic relationship accounted for the most variance in discontinuation among young people, and Watsford and Rickwood (45) found that many young people felt that they had had their needs met in treatment, although this view was not shared by their clinician. Although these limitations frame our findings, much can be learned from the previous findings because they imply that openness, transparency, and communication between practitioner and client are critical and that engagement will only improve with strengthening of the alliance.

TABLE 5. Analysis of variables as predictors of treatment discontinuation from sessions 1 to 10 among young people who attended headspace[a]

Variable	Hazard ratio	99% CI
Age 18–25 (reference: 12–17)	1.10*	1.08–1.13
Male (reference: female)	1.08*	1.06–1.12
Aboriginal or Torres Strait Islander (reference: no)	1.17*	1.15–1.26
K10 score (reference: well)[b]		
Mild	.96	.92–1.00
Moderate	.94*	.90–.98
Severe	.99	.96–1.02
Rurality (reference: major city)		
Regional	1.01	.98–1.03
Rural	1.22*	1.08–1.38
LGBQ sexual orientation (reference: heterosexual)[c]	.86*	.83–.88

[a] Models are multivariate (all predictors were entered at the same time) and based on a survival framework (with person-session file).
[b] K10, Kessler Psychological Distress Scale.
[c] LGBQ, lesbian, gay, bisexual, queer/questioning.
*p<.001.

Long-term treatment may not be necessary or desired by the young person, and short-term or even single-session interventions should be considered and tested for efficacy and satisfaction in this population.

Service providers in youth mental health services may be better able to integrate and cater to individuals' experience by asking if they intend to return for the next session and, if not, the reasons for this decision. For instance, routinely integrating a brief "session rating" by the young person at the end of each session would go beyond assessing only clinical outcomes to provide important data to link perceived satisfaction with subsequent attendance (54). This is especially important for the first sessions of treatment, because almost half the discontinuation took place before session 3. Moreover, future research should build on this limitation by examining how process-oriented variables, such as therapeutic alliance, satisfaction, and treatment perception, and potential structural barriers to treatment may interact with the demographic predictors of discontinuation found in this study.

Some studies employ face-to-face interviews with participants to solicit information from them regarding their treatment course and to determine reasons for discontinuation. However, use of data from the national deidentified MDS made this impossible. Thus this study was not able to determine whether a young person who discontinued treatment received appropriate care before leaving treatment. Moreover, we did not evaluate whether discontinuation was associated with worse clinical outcomes. However, the fact that the K10 scores of many of those who discontinued treatment at headspace were in the severe range for distress does not augur well. Despite the measurement constraints, this study has provided important insights,

given headspace's unique community-based setting and the large study sample.

CONCLUSIONS

Discontinuation from headspace was common. As treatment continues, headspace practitioners must be aware that clients who are male, Aboriginal or Torres Strait Islander, over age 18, or living in rural areas are at greater risk of discontinuation. However, this was balanced by the finding that 24% of young people who discontinued treatment later reentered treatment, which suggests that many young people may require multiple approaches to fully engage with mental health care. In the future, community-based mental health services may gain from development and evaluation of treatment engagement protocols for young people, responsive to the predictors of discontinuation identified in this study and inclusive of best-practice methods for engaging certain demographic groups (39). The findings highlight the need for in-depth research into the prevalence and predictors of treatment engagement, with the goal of developing increasingly effective national youth mental health initiatives.

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