

The internet as a setting for mental health service utilisation by young people

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Adolescence and young adulthood are critical periods for the onset of mental health problems. Almost 50% of syndromes emerge by age 14, with 75% of disorders having their onset before 24 years of age.¹ The past decade in Australia has seen considerable resources dedicated to improving mental health, including large community awareness campaigns,^{2,3} universal school-based interventions^{4,5} and focused primary care-based mental health services.⁶⁻⁹ Despite this investment, the prevalence of mental disorders has not shifted: 20% of Australians still experience a mental disorder in a 12-month period, but only 35% of these seek professional help.¹⁰

The situation for young people is particularly unacceptable. The 2007 National Survey of Mental Health and Wellbeing reports that 26.4% of those aged 16–24 years have had an anxiety, depressive or substance use disorder in the previous 12 months, with only 13.2% of males and 31.2% of females using a clinical service.¹⁰ The reasons clinical services fail to reach young people are complex and include: societal stigma; lack of awareness of available services; poor mental health literacy; mistrust in primary and secondary health care systems; and a strong preference for using non-professional support (primarily family and peers).^{11,12} Many young people try to manage emotional problems alone, stating concerns relating to confidentiality, a fear that no person or service could help, and the feeling that the problem is too personal.^{13,14}

A major alternative to clinical care has emerged with the widespread uptake of the internet.¹⁵ Most young Australians have access to the internet,¹⁶ and those who use it to access health information can do so anonymously and privately; they are not restricted by geographical or physical constraints; and a variety of information is always available.¹⁷ These factors contribute to young people feeling empowered online, and many report feeling confident in exploring sensitive or stigmatised issues.¹⁸⁻²¹

Broadband technology and the emergence of “Web 2.0” (an interactive, participatory and collaborative approach that encourages self-expression and the building of online communities)^{22,23} has created an

ABSTRACT

Objective: To explore patterns of internet use by young people in Australia and assess the usefulness of online resources for mental health problems, exploring functionality that may be relevant in the development of online mental health services.

Design and participants: Cross-sectional survey of a nationally representative sample of young people (2000 randomly selected participants aged 12–25 years), via telephone interview, conducted in January–March 2008.

Main outcome measures: Patterns of internet use including type of use, social networking, sources of information about mental health, alcohol or other substance use problems and levels of satisfaction with the information, and type of information accessed via websites.

Results: Young people reported using the internet to connect with other young people (76.9%; 1464/1905) and to seek information about a mental health problem, regardless of whether they had a problem themselves (38.8%; 735/1894). Twenty per cent of young people (398/1990) had personally experienced a mental health problem in the previous 5 years; when these people were asked about sources of information used for this problem, 30.8% (70/227) reported searching the internet. Patterns of internet use and types of resources used differed by age and sex.

Conclusion: Our findings suggest that technology is important in the everyday lives of young people, and online mental health services that encompass promotion and prevention activities should include a variety of resources that appeal to all ages and both sexes, such as “question and answer” forums and email.

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opportunity to explore the internet as a setting in which health services can be delivered to large populations, with the possibility of individuals tailoring their online experience to suit their needs.^{15,24} Although we have some information about community perceptions of the helpfulness of mental health websites,²⁵ more needs to be known about national patterns of technology use and assessments of the usefulness of online resources if technology is to play a genuine role in reforming the delivery of mental health care in Australia.

Here, we report findings from the 2008 *headspace* National Youth and Parent Community Survey, which explored awareness, perceptions, knowledge and attitudes regarding accessing care for mental health, alcohol or substance use problems.²⁶ The survey included items designed to investigate young people's patterns of internet use related to health care, with a specific focus on type of use, social networking, sources of information and levels of satisfaction with the information, and the type of information accessed via websites.

METHODS

Survey participants

A cross-sectional, computer-assisted telephone interview was used to conduct a survey of 4000 participants across Australia in January–March 2008. Random digit dialling was used and 17 883 calls were made to capture the 4000 participants (22% response rate). Participants included 2000 young people aged 12–25 years, 1000 parents (or carers) of at least one child aged 12–25 years, and 1000 general population members. Analyses for this report were restricted to the subsample of 2000 young people aged 12–25 years.

Participants were excluded if they had English language difficulties or were uncomfortable with the interview being conducted in English. Stratification ensured the sample was representative of the normal population in terms of age, sex and geographic location across all Australian states and territories. While the survey was designed by the investigators, the telephone interviews were conducted by an independent contract

1 Survey items about internet use in the 2008 *headspace* National Youth and Parent Community Survey

- Q1 Do you use the internet?
- Q2 Where do you most commonly access the internet?
- Q3 About how many hours a day would you spend using the internet?
- Q4 Do you use the internet after 11 pm at night?
- Q5 How often? (Less than once a week; 1 to 3 nights a week; 4 to 5 nights a week; 6 to 7 nights a week)
- Q6 How do you spend most of your time using the internet?
- Q7 In general, do you use the internet to contact other young people?
- Q8 How do you use the internet to contact other young people?
- Q9 Are there any other ways you stay in contact with young people on the internet?
- Q10 Have you ever talked about your problems on the internet with other young people (eg, chat rooms, blogs, MSN or Gmail messenger)?
- Q11 Did you find this harmful, helpful or neither?
- Q12 Have you ever used the internet to find information for a physical health problem?
- Q13 Have you ever used the internet to find information for a mental health, alcohol or other substance use problem?
- Q14 When searching for information about a mental health, alcohol or other substance use problem, how would you usually begin?
- Q15 If you deliberately accessed a specific website, which one?
- Q16 Where did you find the information about a mental health, alcohol or other substance use problem?
- Q17 Did chatting with other people via the internet help?
- Q18 What particular function(s) of the website(s) helped you the most? (eg, "Q and A" forums, anonymity)
- Q19 Are there any other functions that helped you find the information about a mental health, alcohol or other substance use problem?
- Q20 By using the internet, did you get the kind of information you needed? (Not at all; somewhat; very much)
- Q21 Did the internet help you deal more effectively with the problem? (Made it a lot worse; made it a little worse; neither; helped a little; helped a lot)
- Q22 If a close friend or family member were in need of similar information, would you recommend the internet to them? (Definitely not; probably not; probably; definitely)
- Q23 Overall, how satisfied were you with the information you received on the internet? (Very dissatisfied; somewhat dissatisfied; somewhat satisfied; very satisfied)
- Q24 To what extent did you discuss the information found on the internet with: family; close friends; a mental health professional; other health professionals; other people on the internet; online or email counselling; online discussion/support group(s)? (Never; not often; sometimes; nearly always; always). ◆

company, the Social Research Centre (Melbourne, Vic). The survey took between 10 and 20 minutes to complete and included 24 items about internet use by young people (Box 1).

Statistical analyses

Data were analysed using SPSS 17.0 for Windows (SPSS Inc, Chicago, Ill, USA). Univariate statistics were used to describe all demographic and internet-related items. Differences between groups were assessed using χ^2 analyses, and binary logistic regression was used to investigate possible predictors of internet use (reported as odds ratios [ORs] and 95% confidence intervals). For

statistical tests, a significance level of $P < 0.05$ was used.

Ethics approval

This study had institutional ethics committee approval from the University of Sydney Human Research Ethics Committee (08-2007/10336). For all participants aged 12–17 years, consent was sought from a co-resident parent as well as the young person before commencement of the survey. Participants were advised that they could cease participation at any time and that their responses were confidential and not identifiable. The Social Research Centre's code of practice requires that all interviewers speak-

ing with people aged less than 18 years must pass police and Working with Children checks.

RESULTS

Survey participants

Of the 2000 young people aged 12–25 years who completed the survey, 50% ($n = 1000$) were female. Participation rates varied across states and territories (35.8% [$n = 716$] from New South Wales and the Australian Capital Territory; 27.4% [$n = 548$] from Victoria and Tasmania; 18.8% [$n = 376$] from Queensland; and 18.0% [$n = 360$] from Western Australia, South Australia and the Northern Territory). Fifty-six participants (2.8%) identified as Aboriginal or Torres Strait Islander origin; and 15.9% ($n = 318$) spoke a language other than English at home.

Two-thirds of the population (65.8%; $n = 1316$) were in full-time study at school, Technical and Further Education (TAFE) institutions, or university; 20.1% ($n = 401$) were employed full-time (30 or more hours per week); and 6.4% ($n = 127$) were employed part-time (less than 30 hours per week). Further, 3.7% ($n = 74$) were unemployed but currently seeking work, 2.4% ($n = 48$) were engaged solely with home duties, and 0.6% ($n = 12$) were not working but receiving sickness allowance or disability support pensions.

Internet use and access patterns

Comparable with Australian figures,¹⁶ internet use was high among respondents, with 95.3% of 12–25-year-olds (1906/2000) using the internet. Young people aged 12–17 years were slightly more likely to report using the internet than those aged 18–25 years (96.5% [965/1000] v 94.1% [941/1000]). There was no difference in internet use by sex (95.6% [956/1000] of males and 95.0% [950/1000] of females). Most young people accessed the internet at home (90.8%, 1731/1906), with smaller proportions doing so at work (6.8%, 129/1906) or their school, TAFE or tertiary institution (14.9%, 284/1906). Very few reported using public libraries and internet cafes to access the internet (2.3%, 44/1906).

The time young people spent using the internet each day ranged from 2 minutes to 20 hours (Box 2). The average time spent online per day was 1.7 hours (SD, 1.7) for 12–17-year-olds and 2.0 hours (SD, 2.1) for 18–25-year-olds. A small proportion of respondents (4.3%, 81/1878) spent more

2 Average time spent online by young people each day, by sex and age group

Hours	Male		Female	
	12–17 years (n = 478)	18–25 years (n = 467)	12–17 years (n = 472)	18–25 years (n = 461)
≤ 1.0	246 (51.5%)	209 (44.8%)	259 (54.9%)	248 (53.8%)
1.1–3.0	179 (37.4%)	162 (34.7%)	170 (36.0%)	146 (31.7%)
3.1–5.0	38 (7.9%)	64 (13.7%)	30 (6.4%)	46 (10.0%)
> 5.0	15 (3.1%)	32 (6.9%)	13 (2.8%)	21 (4.6%)

3 How young people use the internet to contact other young people, by age group

	12–17 years (n = 762)	18–25 years (n = 702)
Accessing chat rooms/forums	26 (3.4%)	47 (6.7%)
Checking email	260 (34.1%)	394 (56.1%)
Playing games	14 (1.8%)	12 (1.7%)
Social network websites*	355 (46.6%)	412 (58.7%)
Using an instant messenger†	592 (77.7%)	385 (54.8%)

* Such as MySpace, Facebook, Bebo. † Such as MSN or Gmail messenger. ♦

than 5 hours per day on the internet. Overall, 34.9% of young people (664/1903) reported late-night (after 11 pm) internet use, which was associated with being male (20.1%, 382/1903 v 14.8%, 282/1903; $\chi^2 = 21.7, P < 0.001$). Late-night access was reported by 26.1% (252/965) of 12–17-year-olds (72.4% of these [181/250] on more than 1 night a week); and 43.9% (412/938) of 18–25-year-olds (85.2% [345/405] on more than 1 night a week).

What young people use the internet for

Young people aged 12–17 years reported using the internet to: conduct research for school, work or personal reasons (45.8%, 442/965); use instant messengers such as MSN or Gmail (42.7%, 412/965); or to access social network websites such as MySpace, Facebook or Bebo (31.4%, 303/965). Young adults aged 18–25 years reported using the internet to check email (43.1%, 406/941); to conduct research for school, work or personal reasons (29.9%, 281/941); or to access social network websites (29.3%, 276/941). Young people aged 12–25 years also reported playing games alone (9.4%, 180/1906), playing games with others (9.5%, 182/1906) or accessing chat rooms (6.5%, 123/1906).

Overall, 76.9% (1464/1905) of the sample used the internet to connect with other young people (largely via instant messaging, social networking and checking email). Playing games and accessing chat rooms or forums were not popular ways to contact other young people (Box 3). Interestingly, female participants reported checking email (55.8% [365/654] v 44.2% [289/654]; $\chi^2 = 13.1, P < 0.001$) and accessing social networking websites (56.2% [390/694] v 43.8% [304/694]; $\chi^2 = 16.3, P < 0.001$) significantly more than male participants. Male participants, however, played significantly more games (88.5% [23/26] v 11.5% [3/26];

$\chi^2 = 15.6, P < 0.001$). Further, 12–17-year-olds used instant messengers significantly more than 18–25-year-olds (60.6% [592/977] v 39.4% [385/977]; $\chi^2 = 85.7, P < 0.001$); while the older group were significantly more likely to access chat rooms (64.4% [477/73] v 35.6% [26/73]; $\chi^2 = 6.3, P < 0.05$) and check email (60.2% [394/654] v 39.8% [260/654]; $\chi^2 = 40.8, P < 0.001$).

The internet as a mental health service

Twenty per cent of the young people (398/1990) had personally experienced a mental health, alcohol or other substance use problem in the 5 years before the survey. When they were asked about the sources of information they had used for this problem, 21.4% (12/56) of 12–17-year-olds and 33.9% (58/171) of 18–25-year-olds reported that they had specifically searched the internet. Variables that predicted using the internet as an information source included being female (OR, 2.9; 95% CI, 1.7–5.1) and using the internet after 11 pm (OR, 2.0; 95% CI, 1.2–3.5). For male participants, using the internet after 11 pm was the only predictor (OR, 2.1; 95% CI, 1.1–4.3).

Of the 12–25-year-olds who used the internet to contact other young people, 33.9% (496/1463) reported talking about their problems with other young people. A majority of the 12–17-year-olds (75.1%, 190/253) and the 18–25-year-olds (68.3%, 166/243) said this was “helpful”.

Young people also reported searching the internet for information about physical or mental health problems regardless of whether they had a problem themselves. Young people aged 18–25 years were more likely than those aged 12–17 years to seek information on the internet about a physical health problem (56.6% [530/936] v 37.4% [358/958], $\chi^2 = 70.5, P < 0.001$) or a mental health problem (45.7% [429/938] v 32.0% [306/956], $\chi^2 = 37.6, P < 0.001$). Females

were more likely than males to report using the internet to seek information for both physical and mental health problems ($\chi^2 = 8.6, P < 0.01$, and $\chi^2 = 14.6, P < 0.001$, respectively).

When young people were asked about how they used the internet to find information for a mental health, alcohol or other substance use problem, most reported using a search engine such as Yahoo or Google (93.3%, 686/735) rather than deliberately accessing a specific website (6.7%, 49/735). Less than half (44.4%, 326/735) sourced information from mental health websites, while 50.7% (373/735) sourced information from other websites, including government websites, online encyclopaedias, medical journals, pharmaceutical information, research databases and tertiary education websites. Forums, bulletin boards and discussion or support groups were not common sources of information (3.9%, 29/735).

When asked about the particular functions of websites that helped the most with a mental health, alcohol or other substance use problem, only 25% of the survey population (499/2000) were able to identify the kind of information that was important (Box 4). General information and “question and answer” forums were important, while fact sheets, stories, pamphlets and brochures did not rate highly. Anonymity was not considered helpful.

While 78.1% (571/731) of young people aged 12–25 years felt that the internet had helped a little or a lot with a mental health, alcohol or other substance use problem, 85.0% (621/731) would recommend it to a friend or family member, and 94.0% (687/731) felt somewhat or very satisfied with the information they received. Further, 55.1% (167/303) of 12–17-year-olds and 44.9% (192/428) of 18–25-year-olds felt the internet provided the kind of information they needed.

4 Particular functions of websites that helped the most with a mental health, alcohol or other substance use problem, by age group

	12–17 years (n = 216)	18–25 years (n = 283)
Anonymity	3 (1.4%)	10 (3.5%)
Fact sheets	13 (6.0%)	12 (4.2%)
General information	90 (41.7%)	129 (45.6%)
Online journals, articles, books	4 (1.9%)	14 (4.9%)
Other people's stories	5 (2.3%)	18 (6.4%)
Pamphlets and brochures	1 (0.5%)	3 (1.1%)
"Question and answer" forums	31 (14.4%)	63 (22.3%)
Search engines/links	16 (7.4%)	24 (8.5%)
Other (not specified)	53 (24.4%)	10 (3.5%)

DISCUSSION

Despite significant recent investment in mental health reform in Australia, the rates of service utilisation by young people with mental health problems remain low.^{10,27} Given the potential for premature mortality and life-long disability in those with mental health problems,²⁸ it is essential that we develop relevant and innovative pathways for young people to connect with the help they need. The results from this survey indicate that the internet is already being used by those in need, both to source relevant information and support for mental health issues and, importantly, to connect with other young people. Both of these factors are critical to achieving better long-term health outcomes.²⁹ Our results are broadly consistent with a survey of 1209 young Americans aged 15–24 years, which found that 75% access health information online,³⁰ and a convenience sample of 45 000 young Australians aged 11–24 years which indicated that, after friends (85.1%), parents (74.1%) and a relative or family friend (61.0%), young people rated the internet (20.3%) as a place they would turn for advice and support.³¹

Our results also provide important insights into the way young people are using online resources, with direct implications for the development of online services while also highlighting potential hazards. We found that many young people use the internet for more than 3 hours per day and, importantly, after 11 pm on more than 1 night a week. Late-night internet use could have negative impacts on circadian rhythms, a major risk factor for onset and persistence of affective disorders.³² However, our findings showed that late at night may also be an important time for young people to access help when they are in crisis. Females and young adults

were more likely than males or younger adolescents to check email and use social networking sites. This finding could be indicative of pro-social behaviour that delivers mental health benefits,³³ but it needs to be interpreted with caution, as increased reliance on online services may exacerbate the avoidance of face-to-face contact.³⁴

The first step in the pathway to sourcing information online was invariably a search engine rather than direct access to a website, but, once "googled", mental health and generalist websites were more popular than forums, bulletin boards, and discussion or support groups. While general information and question and answer forums rated highly, anonymity, fact sheets, online journals and other people's stories did not.

This survey's use of computer-assisted telephone interviews to explore young people's use of the internet, and the shift to Web 2.0 and the convergence between the internet and other digital services (ie, television, gaming and virtual worlds) collectively present some possible limitations (eg, a sample biased to those with landlines, who are also more likely to have internet access), but also opportunities for future research. These include:

- a focus on understanding young people's use of other technology such as mobile phones, multiuser games and virtual worlds, and how it relates to both positive and negative mental health outcomes;
- parallel research using multiple methods, including focus groups and in-depth interviews, to capture the richness and complexity of young people's stories about how they use technology in their everyday lives;
- focused research working specifically with young people at increased risk of marginalisation — including young people with a chronic illness, disability or learning difficul-

ties; young carers; young people of Aboriginal or Torres Strait Islander background; newly arrived refugees; and people from non-English speaking backgrounds — to provide insight into how they use technology; and

- longitudinal tracking to better understand if the use of technology translates into behaviour change.

Australia has been at the forefront of research into the development and delivery of effective, self-directed online therapy programs^{10,11} and online prevention activities.^{18,35–37} The results from this study suggest that further development of custom-designed online mental health services should include both question and answer forums and email. Web 2.0 technology offers new opportunities for delivery of innovative mental health services. Specifically, given the current patterns of internet use by young people, there is great potential for promoting engagement with trusted online services that can respond immediately, depending on need. Once engaged, the same environment can be used to promote treatment adherence and continuity of care (eg, through online tools, text messaging^{38,39} and moderated online forums³⁷). Additionally, this approach may promote social support and connection for young people at increased risk of marginalisation.

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COMPETING INTERESTS

None identified.

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