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Online interactive suicide support services: quality and accessibility

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Abstract

Purpose – Little research has focused on the quality and availability of interactive online support services retrieved through search engines. The purpose of this paper is twofold; first, to review and assess the availability and accessibility of interactive online support available to individuals in suicidal crisis. Second, to field test a new tool developed specifically to evaluate both the quality of online information and the quality of interactive support.

Design/methodology/approach – A collection of six terms relating to suicidal distress were generated and inputted across three major search engines (Google, Yahoo and Ask). Following initial exclusions, the remaining web sites were analysed using the SPAT (Site, Publisher, Audience and Timeliness) tool and recently developed COSAT (Crisis and Online Support Appraisal Tool) tool.

Findings – The quality of web sites retrieved was variable, with only 1.9 per cent deemed as high-quality interactive support resources. Google had the greatest precision of searching, but ease of access through search engines was generally limited. No significant difference was found in the quality of web sites located on pages 1 or 2 of search engine results. Overall, community and voluntary sector web sites averaged higher quality and interactive support ratings compared to publicly funded web sites.

Research limitations/implications – The newly developed COSAT tool may provide a positive first step towards a standardised measure of online quality and interactive support, although further testing and validation is required with a larger sample size.

Originality/value – To the authors knowledge little research has focused on the quality and availability of interactive online support services retrieved through search engines.

Keywords Internet, Crisis, Suicide, Help seeking, Interactive, Search engine

Paper type Research paper

Introduction

As the internet becomes a normative and established method for communication, the emergence of web sites disseminating health information and support has steadily increased. However, the establishment of so called “e-health” web sites has been heavily criticised regarding their varying levels of quality (Kortum *et al.*, 2008; Ofcom, 2010; Henderson *et al.*, 2012). With an ever-increasing quantity of information available, both users and professionals are at risk of “information overload”, whereby their ability to locate and assess quality online information is reduced (MacDonald *et al.*, 2011).

Social stigma towards mental illness may discourage those experiencing distress from seeking professional help (Bamford, 2005; Drost *et al.*, 2011). This provides impetus for the further development of online services for those unwilling or unable to seek face-to-face support. This paper aims to investigate the quality and availability of online, interactive mental health services for individuals seeking help in suicidal crisis, whilst pilot testing a new tool designed to allow mental health professionals to appraise the “support quality” of these web sites. The growing momentum towards online health service provision and support seeking through online mediums necessitates the need to understand the accessibility and quality of these services.

Moreover, the growing trend towards e-health has hastened the need to assess the availability of interactive and immediate online support services becoming available.

Increasing prevalence of mental health problems

There is an estimated global suicide mortality rate of 16 per 100,000, an increase of 60 per cent in the past 45 years (WHO, 2011). In 2011, there were 6,045 suicides in the UK, 4,552 were male (18.2 per 100,000), compared with 1,493 female suicides (5.6 per 100,000) (Office for National Statistics (ONS), 2012), a threefold gender disparity weighted to males. Galdas *et al.* (2005, p. 621) surmise this gender imbalance is a consequence of differing gender socialisation with males, in particular, displaying “a reluctance to seek help when they experience illness”. Drawing on theories of masculinity, one may postulate how certain masculine “values” (self-reliance, strength) prohibit men from seeking help regarding mental ill-health (Connell, 1995; Harland, 2000; O’Brien *et al.*, 2005).

A range of research has revealed that males are more likely to adopt avoidant coping strategies or conceal ill-health (Friedman, 1991; Charmaz, 1995; Courtenay, 2001). Furthermore, males have also been shown to have smaller support networks (Courtenay, 2003) which may affect not only the volume of the support available in times of ill-health or distress, but also their willingness to seek help. In effect, acknowledging emotional problems conflicts with masculine values, thus modifying help seeking behaviour (Addis and Mahalik, 2003). Online suicide support services may serve to reduce the potential emasculating consequences of stigmatising face-to-face help seeking, thus appealing to males in particular.

Reasons for use of online internet resources

Internet searching is used increasingly to seek health information (Skinner *et al.*, 2003; Jorm *et al.*, 2012). Reasons given for its use include garnering a second opinion, curiosity, lack of understanding and becoming more empowered regarding health and lifestyle choices (Bliemel and Hassanein, 2007; Fisher *et al.*, 2008; Bell *et al.*, 2011; Hasler and Ruthven, 2011). Powell and Clarke (2006) reported that 18 per cent of adult internet users had used it to seek out information in relation to their mental health. Other studies have suggested online information may complement rather than supplant traditional sources of support (Sethi *et al.*, 2010). These findings have increased support for online mental health services, with identified possible benefits including cost-effectiveness, convenience and the ability to target more diverse populations (Ralph *et al.*, 2011; Barak and Grohol, 2011). The rise of Web 2.0 technologies has increased the availability of synchronous support via online “chat” counselling (Ferguson, 1997; Christensen and Griffiths, 2000) potentially providing immediate, real time support to those in crisis.

Nevertheless, the quality and accuracy of acquired health information is highly variable (Kortum *et al.*, 2008; Andersson *et al.*, 2011; Henderson *et al.*, 2012; Jorm *et al.*, 2012). If the internet could overcome credibility and reliability issues, it could become a valuable source of health information (Lariscy *et al.*, 2011). One study by Kortum *et al.* (2008) presented students with a health related phrase and asked them to search the internet regarding the topic. Not only did students retrieve significantly different answers but an alarming volume of information was inaccurate (Kortum *et al.*, 2008). Thus, while many individuals appear able to access health information online, unearthing the appropriate web site with reliable information remains particularly difficult (Ofcom, 2010; Drost *et al.*, 2011).

Quality of online mental health services

Studies have generally shown positive results regarding online mental health service delivery (Christensen *et al.*, 2004; Beattie *et al.*, 2008; Mackinnon *et al.*, 2008). For example, UK web sites such as www.beatingtheblues.co.uk and www.downyourdrink.org have received favourable reports (Kaltenthaler *et al.*, 2006; Barak and Grohol, 2011, p. 155). Various studies have posited the ability of the internet to support those contemplating suicide (Barak, 2007; Alao *et al.*, 2006; Tam *et al.*, 2007; Kemp and Collings, 2011). However, Recupero *et al.* (2008) recognised the important role of professionals in minimising the dangers associated with

“Googling suicide”, advising that “clinicians may wish to assist patients in locating helpful supportive resources online so that patients internet use may be more therapeutic than harmful” (Recupero *et al.*, 2008, p. 878).

The interactive capabilities of the internet have created a wealth of opportunities to provide varied mental health support. “Online support communities” seem to be providing a much needed avenue of mutual support and encouragement (Greidanus and Everall, 2010; Namkoong *et al.*, 2011). Preliminary findings suggest that online “chat” support has similar benefit to that of telephone-based support (Fukkink and Hermanns, 2009).

However, there is limited evidence of the availability or effectiveness of synchronous interactive online crisis support. A Cochrane Review of web-based Interactive Health Applications (IHA) reported benefits such as improvements in users’ knowledge, social support, health behaviours and clinical outcomes (Murray *et al.*, 2005, p. 2). The review posits a relationship between IHA and increased self-efficacy perceptions, interactive components of online interventions providing increased quality of support.

Despite current concerns with e-health, the functionality of this technology provides the “potential for reaching clients in accessible and meaningful ways” (Callahan and Inckle, 2012, p. 261). In essence the quality of an online mental health service is dictated by the accuracy of information offered and the professionalism employed.

Use of search engines to access information

Over 84 per cent of the population of the UK (42.52 m) has used the internet (ONS, 2012). At no other point in history have individuals had access to such a volume of information at the mere “click of a button” (Gunther *et al.*, 2009; Ford, 2012). In the USA, 91 per cent of adults with internet access use search engines to find information (Purcell *et al.*, 2012). Currently www.google.co.uk is listed as the number one most visited web site in the UK (www.alexa.com; Purcell *et al.*, 2012). As Fox (2006, p. 4) suggests “Search engines have become like public utilities of information – more than ever, internet users rely on search results to make decisions in their lives”. Individuals may heedlessly trust this technology to display the most relevant results pertinent to their search query (Eysenbach *et al.*, 2002).

While useful for identifying a mass amount of information on a topic, search engines lack precision (Christensen and Griffiths, 2000; Fisher *et al.*, 2008) to restrict the output to what is sought. An early study on the use of the internet to locate health information noted “none of the participants used medical portals, sites of medical societies or libraries as a starting point. Rather they used search engines in an attempt to find relevant pages” (Eysenbach *et al.*, 2002, p. 575). Participants rarely checked more than the first few links displayed and seldom confirmed the quality of the information. Research has also highlighted the potential of search engines to locate harmful information such as pro-suicide web sites (Biddle *et al.*, 2008).

One of the great paradoxes of the internet is its ability to locate information pertaining to a plethora of subjects while make virtually no quality judgements on the data retrieved (Dolowitz *et al.*, 2008). The mass of irrelevant information easily outweighs relevant data, increasing dependence on search engines to sift through countless swells of web pages and links (Bruce, 2000; Ford, 2012). Bernstam *et al.* (2005, p. 1) note that “determining which sources to select, which to trust and which to avoid is essential in an age of information”. This quandary has not gone unnoticed in academic circles with the development of new “systematic searching” techniques to identify relevant information (Taylor *et al.*, 2007; McFadden *et al.*, 2012).

Methodology and design

This study was designed to: review and assess the availability and accessibility of interactive online support available to individuals in suicidal crisis; field test a new tool developed specifically to evaluate both the quality of online information and the quality of interactive support. The research design incorporated three distinct phases of data collection and analysis (see Table I).

Table 1 Methodology design outline

Steps	<i>Study design (main search page and sponsored links)</i>	
1	Research problem	
2	Advisory panel and generation of terms	
3	Selection of search engines	
4	Inclusion and exclusion criteria	
5	Searches undertaken on each of the three databases with results from the first two pages of each search being saved	
	<i>Main search results</i>	<i>Sponsored links</i>
6	Two researchers then reviewed the 360 links retrieved from the main page, applying the initial inclusion/exclusion criteria	Two researchers reviewed 107 sponsored links retrieved across all three search engines and applied initial inclusion/exclusion criteria
7	The remaining sites from the main search were reviewed separately by the first two authors using the SPAT tool	The remaining sponsored links were reviewed separately by the first two authors using the SPAT tool
8	Remaining web sites were assessed using the COSAT tool for quality and interactive support capability	Remaining websites were assessed using the COSAT tool for quality and interactive support capability
9	Each site was given a numerical score and a rating of – low, moderate and high	Each site was given a numerical score and a rating of – low, moderate and high
10	The proficiency of each search engine to retrieve links to quality sites was calculated (sensitivity) and the position of those sites within the displayed results was also calculated (precision)	n/a
11	The quality and availability of online interactive mental health support during suicidal crisis was calculated	The quality and availability of online interactive mental health support during suicidal crisis was calculated

In addition to the main results displayed on each page, the sponsored advertisements presented were recorded. These web sites were collated and assessed separately using the same data collection and analysis techniques employed within the main search results.

Advisory panel and generation of terms

Useful as systematic searching techniques may be, it is imprudent to suggest this method be adopted by an individual in suicidal distress. Rather, the researchers sought to replicate a search pattern similar to that of an individual experiencing suicidal crisis using a methodological approach comparable to Biddle *et al.* (2008). An advisory panel of mental health professionals were invited to recommend and decide on key crisis statements that may be used. The panel were chosen based on their extensive knowledge and experiences in working with mental health and suicide. The panel consisted of a senior mental health academic, a director of a leading Northern Ireland mental health charity, the owner of a suicide prevention web site, a mental health counsellor and a volunteer representative of a local mental health user forum. Due to ethical constraints and related risk issues, it was decided to exclude survivors of suicide from the advisory panel.

An extensive list of possible search terms were presented to each member of the panel consisting of both positive and negative statements related to suicide to reflect the diversity of such searches, i.e. searching for methods related to suicide. Each member of the panel was invited to suggest additional terms and rate the terms in order of relevance based on their experience. This exercise resulted in the generation of six key terms shown in the list, which were the most frequently chosen items:

1. suicide help;
2. I want to die;
3. suicide support;
4. depressed need help;
5. suicidal thoughts;
6. feeling worthless.

While the majority of statements centred on finding support, it was recognised that some individuals may be searching the internet for additional information on methods. The inclusion of

the statement “I want to die” enabled researchers to make judgements regarding the ability of search engines to direct individuals to suicide support web sites, when not specifically instructed. “Feeling worthless”, while recognised as a clinical symptom, was a key term suggested by the mental health forum representative which is widely used within health communication strategies to help individuals recognise risk and early symptoms related to depression and suicide and may be indicative of suicidal intent.

Selection of search engines

Three search engines were selected for the study based on their popularity as garnered through web-based traffic (visits) (www.alexa.com) including: www.google.co.uk; www.yahoo.com; www.ask.com. These engines are described as “single search engines” and do not favour a certain topic or type of information (Bruce, 2000; Ford, 2012).

“Bing” is a fourth search engine developed by Microsoft which “powers” the Yahoo search engine. The results on both engines were identical; therefore Yahoo was selected due to its higher volume of global traffic (www.alexa.com). Searches were carried out on the 17 September 2012 by both researchers. To replicate the possible search strategy undertaken by an individual in crisis, results were only recorded from the first two pages of search hits as previous studies have found individuals are unlikely to search past even the first page of results (Eysenbach *et al.*, 2002). No effort was made to narrow the search by country or region. However, each database does to some degree utilise geographical information when retrieving results due to internet provider (IP) address.

Inclusion and exclusion criteria (Phase 1)

Grounds for inclusion in the study were that identified web sites offered some mode of mental health support and provided a basic platform to facilitate online interaction, e.g. e-mail, forum, comment box or social networking profile. This process excluded the bulk of irrelevant sites, such as those with commercial ties and also a number of psycho-educational web sites which offered little in the way of online interaction (Barak and Grohol, 2011).

Site, Publisher, Audience, Timeliness (SPAT) tool (Phase 2)

The SPAT tool is a mnemonic instrument designed to aid in the pre-evaluation of online health information for reliability (LaRue, 2008). The tool cues individuals to analyse four components of a web page (each indicating reliability) to make an assessment regarding the quality of information displayed (LaRue, 2008).

The SPAT tool has been used in conjunction with other validated online health evaluative tools such as “DISCERN”, recording similar results and hence, justifying its inclusion in the current project (Christensen and Griffiths, 2000; Griffiths and Christensen, 2005; LaRue *et al.*, 2009). The SPAT tool was selected in place of DISCERN because of its smaller size (ten items compared to 16 items). The SPAT tool was used to appraise the generic quality of web sites being analysed within the study with web sites with a SPAT score of <3.0 excluded from further analysis.

Crisis and Online Support Appraisal Tool (COSAT, Phase 3)[1]

The COSAT was designed as part of the study to evaluate the online mental health support elements of web sites accessed. The tool focuses on mental health services, including the assessment of overall quality and usability of the web site and the interactive support services available. The measure was developed specifically within this study using previous literature to develop the key questions and areas related to online mental health resources (Kim *et al.*, 1999; Eysenbach *et al.*, 2002; Gagliardi and Jadad, 2002; Wathen and Burkell, 2002; Health On Net Foundation, 2004; LaRue, 2008; Cochrane *et al.*, 2012).

COSAT was designed with mental health professionals needs in mind. The tool provides a measure of web site support quality which may be used to evaluate the efficacy of web sites used when signposting individuals in crisis; which often occur out of helpline hours. By providing

a quick and easy tool to briefly assess the needs of a linked web site, professionals may feel more comfortable in providing online alternatives.

The COSAT was developed as an eight-item measure of quality (i.e. use of accessible language) and support services provided (i.e. support offered by a trained professional/volunteer). Using a five-point Likert scale scores ranged from eight to 40, ranging from poor (eight to 15), average (16 to 23), good (24 to 31) and high (32 to 40).

Clear marking criteria and guidance were developed prior to use and all web sites included, following Phase 2, were scored independently by two members of the research team. Scoring deviations totalling four points or more were jointly reviewed, with subsequent "non-agreement" web sites being allocated to a third researcher. Scores were combined to create an average total score.

Results

Main search

A total of 360 hits were retrieved from three different search engines. Six key terms were used independently, so that each search engine gave six database searches, totalling 18 overall. Following initial screening criteria (outlined above) and the removal of duplicate hits a total of 33 web sites (9.1 per cent) were selected for Phase 2 analysis.

Using this data the sensitivity and precision of the three search engines were calculated (see Table II). Google had the highest sensitivity retrieving 17 relevant hits and locating 51 per cent of relevant web sites. Yahoo had the second highest sensitivity (42 per cent) retrieving 14 relevant web sites. Ask had a total sensitivity of 30 per cent returning ten relevant web sites. Google also recorded the highest total precision score (14.1 per cent) accounting for nine unique web site hits (see Table II). Yahoo recorded a precision score of 11.6 per cent, with Ask showing 8.3 per cent precision. The most effective key term was "suicide support" which provided links to 12 of the 33 selected web sites (36.3 per cent). The least effective term was "I want to die" returning only one web site (3.0 per cent). The most frequently retrieved web site was www.samaritans.org which was returned on four search terms.

Reliability and quality assessment. Web sites were initially assessed for credibility and reliability using the SPAT tool (LaRue, 2008) resulting in the exclusion of a further four web sites. The remaining 29 sites (8.1 per cent) were then tested for mental health quality using the COSAT tool (developed by the authors). Both the SPAT and COSAT tools showed significant positive correlation ($r = 0.474$, $n = 29$, $p = 0.009$) showing significance with $p < 0.05$, with higher SPAT scores associated with higher COSAT scores. The COSAT measure showed a Cronbach's α coefficient of 0.771, above the recommended 0.7 denoting internal consistency within the tool (DeVellis, 2003).

Of the web sites included, the mean COSAT rating was 23.5, with a range of 20.5. Of the 29 web sites assessed, 6.9 per cent were considered poor quality, 37.9 per cent as average, 48.3 per cent as good quality and 6.9 per cent were classified as high-quality web sites. Overall high-quality web

Table II Results of searching databases (results include duplicates)

	Total hits	Relevant hits	Sensitivity (%)	Precision (%)	Unique hits
Google page 1	60	12	36	20	9
Google pages 1 and 2	120	17	51	14.1	
Yahoo page 1	60	10	30	16.6	5
Yahoo pages 1 and 2	120	14	42	11.6	
Ask 1	60	7	21	11.6	7
Ask 1 and 2	120	10	30	8.3	

Note: Total number of relevant sites (removing duplicates) 33

sites accounted for 0.56 per cent of the entire sample of hits from the combined searches. The five highest quality support web sites are shown in the list:

- www.aware.ie;
- www.childline.org.uk;
- www.thesite.org;
- www.samaritians.org; and
- www.rethink.org

A Mann-Whitney *U*-test was carried out to assess the differences in COSAT scores among web sites retrieved from pages 1 and 2 across all three search engines. The Mann-Whitney *U*-test revealed no significant difference in the COSAT scores of web sites located on either page 1 ($Md = 25, n = 20$) or page 2 ($Md = 18, n = 9, U = 58.000, Z = -1.512, p = 0.14, r = 0.28$).

Web type. Web sites were categorised into three types: community and voluntary organisations; personal web sites; and publicly funded web sites. Community and voluntary groups accounted for the majority of web sites totalling sixteen (55.2 per cent). Personal web sites accounted for eight (23.1 per cent) with five (19.2 per cent) web sites categorised as publicly funded. A Kruskal-Wallis test was carried out to examine the difference in quality scores between these groups. The Kruskal-Wallis Test revealed a highly statistically significant difference between the quality of web sites between these three groups (Group 1: community/voluntary, $n = 16$; Group 2: personal, $n = 8$; Group 3: publicly funded, $n = 5$), $\chi^2(n = 29) = 16.595, p = 0.001$. Community/voluntary web sites had the highest median score ($Mn = 27.43$), followed by publicly funded web sites ($Mn = 20.10$) and personal web sites with the lowest quality scores ($Mn = 17.88$).

Sponsored ads

Sponsored search advertising (sponsored ads) is a means whereby “advertisers pay a fee to Internet search engines to be displayed alongside organic (non-sponsored) Web search results” (Ghose and Yang, 2009, p. 1605). Sponsored advertisements amounted to 107 hits across all three search engines, with Google generating 53 links (49.5 per cent), Yahoo 5 links (4.7 per cent) and Ask 49 links (45.8 per cent). Overall, 12 sponsored web sites/advertisements (11.2 per cent) remained following initial screening (Phase 1), eight of which were unique across all three main search engine results. Following the SPAT screening; one web site was removed, leaving a total of seven hits. Mean COSAT scores for sponsored ads were calculated at 26.1, with a range of 11.0. Google was the only search engine that retrieved sponsored ads deemed suitable for Phase 2 and 3 analyses.

With duplicates removed ($n = 4$), across both the main search and sponsored ads (leaving 32 unique web sites), a Mann-Whitney *U*-test revealed significant differences in COSAT scores among web sites retrieved from the main search display ($Md = 23, n = 25$) and sponsored ads ($Md = 28, n = 7, U = 44, Z = -1.986, p = 0.047, r = 0.351$).

Discussion

Accessibility and relevance

Results showed that < 10 per cent of web sites retrieved were relevant to the search performed. In addition, a further four web sites were excluded on credibility grounds (Phase 2) due to inactivity, lack of updates (within the last year) and irrelevance to the targeted audience. As a result the total number of web sites found to be relevant for COSAT analysis was reduced to 8.1 per cent. This finding demonstrates that, even when using suitable search terms and basic exclusion criteria, over a 13 per cent of web sites which passed the initial screening during phase one had serious credibility issues. Such a finding supports previous research which complained of a mass of irrelevant information and out-of-date web sites creating a significant barrier for individuals locating appropriate and timely support during suicidal crisis (Szumilas and Kutcher, 2009; Jorm *et al.*, 2010). With such a high proportion of the web sites evaluated being

inappropriate such information overload may be a distraction and overwhelm individuals in suicidal crisis seeking support.

The study showed no significant difference in the quality of web sites located between pages 1 or 2 suggesting that high-quality mental health support sites are available on page 2. Previous research examining online health information quality has, however, found that many individuals are unlikely to search past the first few links of a search engine display (Eysenbach *et al.*, 2002). In light of these results there is concern that with many individuals unwillingly to go beyond the “first page”, valuable online web sites and support services will be missed.

Over 90 per cent of adults have reported accessing information on the internet via search engines (Purcell *et al.*, 2012). These findings suggest that individuals accessing resources regarding suicidal ideation or intent are more likely to access poor quality web sites and services when using a search engine. There was, however, differences among the three search engines used in the study. Google, the most widely used engine returned the highest percentage of high-quality web sites and recorded the highest precision scores (see Table II).

Interestingly, sponsored ads were found to be higher in quality accounting for the most unique web sites evaluated. This result indicates a positive step towards the inclusion of quality advertisements sponsored by a search engine. Due to the small sample size such a conclusion is tentative at best and future research should involve a larger sample of sponsored ads to thoroughly assess their overall worth.

Web sites found to be of higher quality were more likely accessed using terms that explicitly included references to help seeking and suicidal ideation, e.g. “Suicide Support” or “Depressed Need Help”. While “feeling worthless” is an important symptom in the diagnosis of depression (and highly linked to suicidal ideation), this term was less likely to return quality support web sites (Malone *et al.*, 1995; American Psychiatric Association, 2000; Bridge *et al.*, 2006). It appears that for those in suicidal distress, the use of search terms that include some expression of support combined with intent is needed to increase the chances of locating quality web sites.

At present suicide support web sites seem more likely to attract individuals actively seeking support rather than those in crisis. This is evidenced through the low return of quality support web sites using the negatively worded term “I want to die”. Suicide support sites and indeed search engines would do well to increase their visibility when negative terms are entered.

Interactive support

Previous research suggests internet-based health information may help those stigmatised through mental ill-health by increasing confidentiality and protecting anonymity (Szumilas and Kutcher, 2009). Moreover, if an individual prefers to access health related information online, they may also wish to access support through that same medium.

High-quality web sites (as appraised using the COSAT) offered a range of support options (e.g. chat, e-mail and telephone) which were clearly visible on the first page, easy to navigate and in most cases provided by a trained individual. One notable feature on some web sites was the inclusion of an “emergency exit button” whereby individuals had the option to be quickly re-directed to another, more neutral web site (such as Google.com), should they wish to keep their distress private. This feature may appeal in particular to young males. In addition, web sites which utilised various forms social media technology appeared to generate more user activity as evidenced by increased posting on official web site blogs or social networking profile pages (e.g. Twitter, Facebook, etc.). Further research may usefully focus on the impact of social media technology on online suicide prevention services.

Worryingly, most of the sites retrieved were geared towards young people; yet, as official figures show, the highest number of completed suicides occur among the older age groups (30-44 for males and 45-59 for females) (ONS, 2012). It is important for mental health professionals and communities to engage with online support services across all demographics.

The findings of the study demonstrated that quality and availability of interactive support for those in suicidal crisis was lacking within the key searches performed. Many of the web sites

evaluated by the researchers provided legitimate mental health information, but failed to provide adequate crisis support – instead re-directing users to “offline” or telephone-based services. The promotion of “24 hour” synchronous online “crisis” support may reduce the burden on traditional mental health services while providing an avenue to access marginalised populations. In spite of this advantage, the research team could not find any web sites which clearly provided 24-hour online synchronous support.

A focus was placed on the interactive component of services provided to address the needs of individuals in suicidal crisis. Research has emphasised that an intervention window during a suicidal crisis is limited (Deisenhammer *et al.*, 2009) and that immediate interactive interventions are required when providing support services to this population. Online support and e-health strategies may be used as a pathway to provide confidence for stigmatised individuals to approach the relevant professional in person (Luxton *et al.*, 2011).

Web type

Of the web sites evaluated, the majority were provided by community and voluntary organisations. While publicly funded web sites are associated with higher quality and credibility (Quintana *et al.*, 2001; Wathen and Burkell, 2002; Szumilas and Kutcher, 2009), they were found to score significantly lower than those in the voluntary sector. While these web sites displayed high-quality information, scores were lowered due to absent interactive support resources. This raises questions regarding gaps in statutory governed interactive online services and also the new skill base required to deliver this form of service. Crutzen and De Nooijer (2011, p. 241) argue that “mental health professionals need to acquire technological skills and skills related to communicating online” to match the needs of service users.

With a proliferation of mental health information available on the internet and a growing demand from users to engage with this form of service, it is necessary that practitioners actively participate in cyber environments (Giffords, 2009, p. 413). This may require mental health professionals and organisations to learn new skills relating to online communication and therapeutic support to address the needs of the service user while providing timely and appropriate resources. The research conducted has shown that a targeted measure of quality must be used to ensure the online support resource is suitable for the targeted population, i.e. providing interactive services online to encourage help-seeking behaviours in suicidal individuals.

Limitations

Online sources of information and support are ever-changing. The use of a robust search approach provided a representative sample of web site hits at the time of analysis. Repeat testing may produce differing results due to the exponential growth of online information. Consequently, the data is time-specific to the date the search was undertaken.

Search engine databases “search” according to the IP address location. As a result the web sites sampled within this study were skewed towards locating UK and Republic of Ireland-based services and may differ if the sampling was carried out at another location. Furthermore, as search engines use geographical information to tailor search results, these searches are unlikely to be replicated by individuals searching from within other parts of the UK. While this function may direct service users towards more local support resources, the availability (or existence) of local services in a particular area may skew the results.

The search terms used were informed by a panel of mental health professionals which may not be inclusive of terms used by service users or young people. This selection process may have been biased and overlooked key search terms that would be used by those in suicidal crisis.

Conclusions

With evidence suggesting an increased demand for online health resources it is important for those supporting vulnerable individuals to ensure that quality of online services is maintained. The first main finding of the study was that of the web sites deemed relevant: less than one-third were rated as high quality. The second main finding of the study was that web sites provided by

voluntary and community groups were generally of higher quality than private or publicly maintained sites. The third main finding of the study was that the majority of web sites found by internet search engines were irrelevant, lacked in credibility, or did not provide the interactive support required for suicidal crisis. The study also found that www.google.com delivered the most relevant and credible web sites with the sponsored advertisements of this search engine also retrieving the best quality searches.

The COSAT was found to be a useful instrument to measure online quality, and seemed fit for purpose. However, the COSAT needs further validation and usability testing across mental health services. It is recommended that future research investigate the quality of web sites accessed by service user's to ensure the definition of quality and the usability of measures are consistent across key groups.

With the findings showing low representation of publicly funded services it is vital for professionals across health and social care to engage with online support. Vulnerable groups such as those in suicidal crisis may be likely to engage with online services, and thus more professionals should be involved in the development and moderation of these web sites to ensure quality standards comparable with offline services.

Note

1. The COSAT will be made available on request by contacting the lead author.

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