Current Psychology (2024) 43:2453–2460
https://doi.org/10.1007/s12144-023-04496-2

Content analysis of suicide prevention web pages from perspective of preventive psychiatric approaches

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Accepted: 2 March 2023 / Published online: 11 March 2023

Abstract
Suicide is a serious public health problem; however, suicides are preventable with evidence-based and often low-cost interventions. This study analyzes the online content of suicide prevention and helps websites in the context of preventive psychiatry. The universe and sample of the research consisted of 147 web pages whose links can be found on the most widely used international social media platforms and websites dedicated to suicide prevention. To conduct the content analysis, the crisis hotline guide prepared by the World Health Organization for suicide prevention and the guide prepared for media professionals were used in the data collection form created by the researchers. The majority of the websites were of European origin and were prepared by mental health and suicide prevention associations for suicide prevention and crisis intervention. Telephone helplines were the most common means of communicating with consultants via the web page. On the basis of the research findings, suggestions were generated regarding the scope, content, and sustainability of web pages for crisis intervention and suicide prevention prepared at the national and international levels.

Keywords Suicide prevention · Internet · Web-based intervention · Self-help · Psychiatric nursing

Introduction

Suicide, accepted as a universal health problem, is not a disease or a diagnosis but a behavior. Taking one's own life is an act of aggression directed at the self (Tel, 2016). Suicidal ideation is defined as contemplating, desiring, or planning to commit suicide without acting; suicide attempts are defined as non-fatal actions with suicidal intent that result in self-harm or injury (Oncu, 2017).

According to WHO data, more than 700,000 people die each year due to suicide. A person commits suicide every 40 s in the world; the number of suicide attempts is reported as 20 times this rate. Suicide is the fourth cause of death in people aged 15–29 (WHO, 2021a). Also, with the social isolation experienced all over the world due to the COVID-19 pandemic, people began to experience much mental stress due to increased loneliness, panic attacks, financial concerns, depression, and anxiety, in this case, they increased their suicide attempts (Ramkissoon, 2021; Rothman & Sher, 2021). The increase in suicide attempts has once again emphasized the importance and need of using online telemedicine applications for social isolation during the pandemic period (Alheneidi et al., 2021).

Benchmarks in the development of suicidal behavior include evaluating the issue, seeking help, making decisions and acting. These can be researched on the Internet and there are anecdotal reports that people with suicidal behavior do so (Sakarya et al., 2013). The Internet has also become an important means of communication between friends and is increasingly used by people in distress to seek help.

Studies show that education to increase awareness about suicide and mental illnesses reduces negative attitudes and social stigma; they show that education is an important suicide prevention strategy that facilitates help-seeking (Chamberlain et al., 2012; Mishara & Côté, 2013; Lindow et al., 2020). The national center for crisis intervention and suicide prevention provides 24-hour support, information, and counseling to individuals considering suicide, enabling them to access rapid support systems and qualified caregivers easily.

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In partnership with the World Health Organization (WHO), organizations in more than fifty countries offer active Internet hotlines (WHO, 2008; www.befrienders.org, Befrienders Worldwide, (2012)). Some websites provide important information to people seeking a method to commit suicide that can deter them from acting (Sakarya et al., 2013). Individuals who survive a suicide attempt can be viewed as attention seekers by society and may find themselves harshly judged and stigmatized (Ozturk & Akin, 2018). Therefore, individuals seeking information insist on the anonymity offered by programs accessed by phone or online. As identity can be easily hidden on the internet and suicide is culturally and socially unaccepted behavior, the internet is an attractive help tool for suicide prevention (Boyce, 2010).

Founded by the Samaritans in 1994, the first large-scale internet-based suicide prevention service in England sent e-mail responses to individuals seeking emotional support (Mishara & Côté, 2013; Hatcher, 2013). Later, therapy was offered over the internet. Robinson et al. showed that internet-based cognitive behavioral therapy significantly decreased suicidal thoughts in 34 high school students who showed suicidal ideation over the prior month (Robinson et al., 2016) Mewton and Andrews reported that cognitive behavioral therapy over the Internet decreased depression rates from 70 to 30%, and suicide rates from 50 to 27% in 484 patients (Mewton & Andrews, 2015).

With the advancement of technology in the developing world, the roles and functionalities of psychiatric nurses have changed. With technology, psychiatric nurses can counsel individuals and their families who have suicidal thoughts and attempts; help the individual manage crises and effectively solve problems; teach effective individual communication and coping strategies and stress management; and identify social support resources and societal resources (Tel, 2016).

Due to the thought that suicide rates will increase during the pandemic period, Mucci et al. (2020) highlighted the urgent need for online telemedicine and online social support interventions to help people in stressful quarantine conditions. Nevertheless, in many countries, there is currently no telephone service or a web-based application where individuals —and the families of individuals — attempting suicide or with suicidal ideation can access information, support, and counseling 24 h a day, 7 days a week. In this context, we designed this study as a guide for web-based interventions to be developed.

Purpose

This study analyzes the online content of suicide prevention and help web sites in the context of preventive psychiatry. It creates a guide for the preparation of web pages on suicide prevention.

Materials and methods

Type of research

This research utilized qualitative and quantitative (mix) methods of content analysis, frequently used in the analysis of written and visual data that provides a scientific report of judgments made by the researcher (Kocak & Arun, 2006). This study analyzed web sites formulated for suicide prevention using preventive psychiatric approaches; these sites were all referenced in the "International Association for Suicide Prevention-IASP", "Befriends Worldwide" and "Facebook Suicide Helpline" sites.

Study population

To analyze the content of the suicide prevention and help web sites in terms of "protective psychiatric approaches", the relevance of the web pages was scanned using the keywords "suicide prevention", "helpline" and "help". The researchers determined the universe of the study to consist of 246 web pages on the internationally valid "IASP ($n=108$)" and "Befriends Worldwide ($n=53$)" and "Facebook Suicide Helpline ($n=85$)" internet and social networking sites. The research sample consisted of 147 web pages and did not include common (40) and inactive web pages (53). Research findings do not include the changes made to the websites after 15 March 2019 date. Information about the web pages included in the research can be accessed via the link https://osf.io/4g3ed.

Data collection tools

A data collection form based on WHO crisis hotlines and guides prepared for members of the media was used to examine the web sites, which were reviewed by the researcher between September 2018 and March 2019. Opinions of experts were taken for the validity and reliability of the data collection form. The each web page was analyzed considering its content and design. "Google Translate" and "ImTranslator (translation, dictionary, voice translation)" programs were used to access content utilizing languages other than English (http://about.imtranslator.net). "Mobile Compatibility Test" was used to examine the compatibility of each website with mobile phones (https://search.google.com/test/mobile-friendly).

Data analysis

In this study, which aims to determine the scope analysis of the web pages prepared for suicide prevention in terms of "protective psychiatric approaches", the content analysis method was used in the analysis of the data. Each web page was examined twice by the researcher within the scope of the data form and recorded in the SPSS 20.0 (Statistical Package for the Social Sciences) program using the coding method, one of the content analysis methods. In the analysis of the data coded in SPSS, descriptive analysis method was used, and frequency and percentage values were determined.

Limitations of the research

The research is limited by the activeness and currentness of the web pages reached and the fact that the data collection process took place between September 2018 and March 2019.

Results

This study reviewed 147 websites prepared for suicide prevention in terms of preventive psychiatric approaches; all are found on the "International Association for Suicide Prevention", "Befriends Worldwide" and "Facebook Suicide Helpline" web sites. When we look at the distribution of web sites by continent, 51.7% are in Europe and 21.8% are in Asia. Africa is the continent with the fewest sites (2.7%). Of the 76 websites in Europe the Czech Republic and Italy had the highest number of web pages (6.60%); Belgium, France and Lithuania followed (5.30%). Of 32 websites in Asia, Japan had 21.9% of them. In addition, Japan was the country with the highest number of web pages (4.8%) when all of Asia was taken into account. It was determined that 90.5% (n:133) of the websites were up-to-date.

Structural design elements on websites

Table 1 presents the features of the structural design elements of the websites. It was determined that 93.2% of the web sites use the official language of the country of origin; 23.8% of them are prepared with a multi-language option. The theme, a design element included on the ideal web page, should be light and the text dark in color. Almost all of the websites (97.3%) adopted the ideal design. The home pages of 82.3% of them include visual content, such as photographs, symbols or drawings. A search button, which provides ease of use for visitors, has in 46.3% of the sites. Introductory videos describing the purpose of the organization have on 40.1% of the websites.

Table 1 Structural design elements on websites (*n*:147)

Features		*n*	%
Using the official language of the country	Yes	137	93.2
	No	10	6.8
Using multiple languages	Yes	35	23.8
	No	112	76.2
Using a light theme	Yes	143	97.3
	No	4	2.7
Using a dark theme	Yes	143	97.3
	No	4	2.7
Using visual content	Yes	121	82.3
	No	26	17.7
Compatibility with mobile devices	Yes	88	59.9
	No	59	40.1
Using a search button	Yes	68	46.3
	No	79	53.7
Displaying an introductory video	Yes	59	40.1
	No	88	59.9

Table 2 Characteristics of the content of web pages prepared for suicide (*n*:147)

Features		*n*	%
Inclusion of the word "suicide" in the name of the website	Yes	27	18.4
	No	120	81.6
Sharing past suicidal experiences	Yes	23	15.6
	No	124	84.4
Age limit	Yes	18	12.2
	No	129	87.8
Anonymous information (identity privacy)	Yes	74	50.3
	No	73	49.7
Site visitor statistics	Yes	4	2.7
	No	143	97.3
Annual activity report	Yes	45	30.6
	No	102	69.4
Donation information	Yes	107	72.8
	No	40	27.2
Information about other helpful pages	Yes	58	39.5
	No	89	60.5
Total		147	100.0

Content of web pages prepared for suicide

Table 2 contains information about the Content of Web Pages Prepared for Suicide. It was seen that the word "suicide" was used in 18.4% of the websites' names. It was stated that 12.2%

of the web pages could not provide consultancy services to individuals under the age of 18. It was determined that the information that the searches and interviews were anonymous was stated on 50.3% of the web pages. There are donation pages on the websites, which generate the income of institutions and enable individuals to make donations. Donation information was included in 72.8% of the web pages. In addition, the address of the websites of national and international aid organizations that are effective in preventing suicide are also included on 39.5% of the webpages (Table 2).

In Table 3, information about the communication method that individuals can choose to reach consultants on the web pages is given. The most preferred method of communication was telephone. While 4 of the 5 websites that do not use telephone as a communication method communicate only through "chat" (online chat), they direct to face-to-face communication on the other page. In addition, 34.7% of web pages offer their users the opportunity to communicate via chat. About half (55.1%) of web pages use e-mail and 21.8% of them use face-to-face communication. When the information about the social media links of the web pages was examined, it was determined that most of them had social media links and 79.6% of them had a "Facebook" link. It was also seen that 42.9% of them had a Twitter, 35.4% had a YouTube link, 5.4% had a LinkedIn link and 1.4% had a Pinterest link.

In Table 4, the percentages of those who provide counseling are given according to the organizations with which the web pages prepared for suicide are affiliated. While trained volunteers provide consultancy services in the majority of the web pages established through an association, the public and a university, it is seen that only experts provide consultancy services on the web pages established through the hospitals.

Table 3 Communication methods and social media accounts used in Web Sites ($n = 147$)

	Those using		Those not using	
	n	%	n	%
Telephone	142	96.6	5	3.4
Chat (online)	51	34.7	96	65.3
E-mail	81	55.1	66	44.9
Face-to-face communication	32	21.8	115	78.2
SMS	6	4.1	141	95.9
Skype	5	3.4	142	96.6
WhatsApp	3	2.0	144	98.0
Facebook	117	79.6	30	20.4
Twitter	63	42.9	84	57.1
YouTube	52	35.4	95	64.6
Instagram	29	19.7	118	80.3
Google +	13	8.8	134	91.2
LinkedIn	8	5.4	139	94.6
Pinterest	2	1.4	145	98.6

Table 4 Percentages of consultants according to the organizations with which web pages are affiliated

Institution/Organization	Consultants			Total %
	Volunteers* %	Experts** %	Volunteers %	
Association	71.4	24.4	4.2	100.0
The Public	58.8	41.2	0.0	100.0
University	75.0	0.0	25.0	100.0
Hospital	0.0	100.0	0.0	100.0
Total	69.5	27.0	3.5	100.0

*Trained volunteers

**Expert (Psychiatrist, psychologist, therapist)

Table 5 shows the information that web pages contain on suicide prevention. The most common content was information about suicide (23.9%) and warning signs for suicide (19.6%). This was followed by information on self-help and helping another. Guidance on how to support their relatives in the grieving process after suicide is contained in 14.05% of the web pages.

In the vast majority of web pages, information about whether any therapy is provided or not could not be found. Only 24.0% of them informed that individual therapy was provided. Likewise, 15.6% of the web pages stated that group therapies are given. However, 59.5% of them did not provide any information about therapies.

Discussion

In the context of preventive psychiatry, the findings of the study conducted to perform the content analysis of the web pages containing information on suicide prevention and help sites were discussed in line with the literature.

Table 5 Characteristics of the content of the web pages for suicide prevention (*n*:147)

Content	*n*	%
Information about suicide	73	23.9
Warning signs for suicide	60	19.6
Information about self-help	45	14.7
Information about helping someone else	43	14.1
Information about depression	40	13.0
Myths and Facts	25	8.2
Helping relatives after suicide	20	6.5
Total*	306	100.0

**n* folded

Suicide rates may differ in countries located on the same continent or in similar geographies, and these differences allow countries to develop different strategies to prevent suicide. WHO has 6 units operating in different regions (Europe, America, Africa, Southeast Asia, Eastern Mediterranean and Western Pacific). The high suicide rates in Europe have been taken into account by WHO/Europe, and importance has been given to identifying risk factors and prevention studies in this region (WHO, 2021b).In this context, national suicide prevention strategies have been developed. 51.7% of the websites included in our research are of European origin. It can be said that this is due to the active role of WHO/Europe in suicide prevention strategies. On the other hand, the lowest rate of websites in our research is of African origin with a rate of 2.7%. This can be explained by the fact that the population density is high in Europe, but low in Africa, and that education and technology have not been improved in Africa.

Currentness refers to the regular updating of content. The frequency of update is an indicator of the importance given to the web page, and freshness is one of the basic features for relevance (Dalgin & Karadag, 2013; Razniewski, 2016). Examination of the current status of the web sites determined that the majority of them (90.5%) to be up-to-date. Up-to-date information and approaches to an important issue that may affect human life like suicide increases the use of web pages. Because people apply to these pages in order to reach the right information immediately according to their own or the needs of their relatives, up-to-date web pages can increase site effectiveness, to attracting the attention of users and preventing suicide.

Examination of the language options used on the websites shows 93.2% use the official local language and only 23.8% have multiple language options. A study by Guler et al. examining mobile health applications found the use of multi-language options was found to be 49%, while a study by Gulcu et al. found no multi-language option on any site.

(Gulcu & Bulut, 2010; Guler & Eby, 2015). Also, Facebook, one of the having "multilingual" social networking sites, has 111 language options (Concepcion, 2021). In addition to using the official language, having different language options provides access to stricken individuals and families living in different countries and will also enable more people to use the web page.

The ideal theme, which is determined as one of the ideal design elements that should be on the web page, should be light and the text color should be dark. It is seen that almost all of the web pages (97.3%) have an ideal design. In order for a web page to have "ideal" features, the background color of the main page should be light, and the text color should be dark to enhance high readability. A study by Kocer showed 80.0% of corporate web pages comply with this rule (Kocer, 2017). Having a light background color and a dark text color makes it easier for users to read the content on a web page and attracts attention. Also, visual design and colors are the main visual languages for expressing the emotions and content of a webpage (Kuo et al., 2022). It is also supported by the findings of studies by Faryadian and Khosravi that colors change the mood by affecting the release of neurotransmitter substances and have a healing effect. (Faryadian & Khosravi, 2015). Choosing the themes, texts, and images of web pages supporting suicide prevention will increase its healing power.

Mobile compatibility has in 59.9% of the websites. While web sites were first accessed via desktop computers, this changed with the widespread use of smartphones. The mobile compatibility of web sites is important to presenting information effectively and efficiently (Budak et al., 2017). Also, a search engine doesn't have in 53.7% of websites. Ozenç Ucak and Cakmak (2009) complained of this absence in their study. A search button facilitates and accelerates access to information, especially for individuals with the psychological problem and low attention spans.

Examination of site names that include the word "suicide" showed wide use of the following phrases: "*Suicide Prevention*", "*Suicide Prevention Center*", "*Suicide Helpline*", "*1816 Suicide Prevention Hotline*" and "*113 Suicide Prevention*". Examples of site names without the word "suicide" in their names included "*Pieta House", SOS Friends, Friends' Club, Lifeline, Hope Telephone, Telephone Friendship*". In its guide for media professionals, WHO emphasizes the word "suicide" should not be used (WHO, 2017). The fact that most of the websites do not include the word "suicide" in their names can be associated with the fact that the websites were prepared based on the guide.

Visitors can share personal stories of past suicidal experiences on the websites In our study included a forum for these kinds of experiences on 15.6% of the web pages (Table 2). Below are the experiences of a 33-year-old male counselee with the suicide prevention hotline (https://www.tele-onthaal.be/, Tele-Onthaal. (2017)).

> Sometimes I think about suicide…I called Tele-Onthaal recently when I felt hopeless. Just to hear a sound. The woman on the line told me about my grief, and it put me at ease.

Stories of others in similar situation may motivate individuals with suicidal ideation to seek help and treatment. Half of these web pages require no personal information from users and users are assured their identities remain anonymous: *"Someone is waiting for you at Suicide Line 1813. Every conversation is anonymous and free."*(https://Zelfmoord1813.Be/, Zelfmoord1813. (2019)) Individuals with suicidal ideation may not be satisfied with the fact that their identities are discovered as they do not want to be stigmatized (Robinson et al., 2016).

An age requirement for visitors has in 12.2% of the websites. Suicide rates are high in adolescence and young adulthood; at the same time, this age group uses the internet, social media and mobile applications widely. Young people who do not accept face-to-face help may seek help on the internet (Perry et al., 2016). Our study found that most of web sites accessed through the Facebook suicide prevention page target children and adolescents.

Donation pages that enable people to make donations, generating income for the activities of the institutions and associations that create and run the sites have in 72.8% of the websites. Links to the websites of national and international aid organizations that effectively prevent suicide is included in 39.5% of the websites(Table 2). These web sites provide many options for individuals seeking help on the Internet to get the help from different institutions.

The majority of websites (96.6%) use the telephone to communicate. There are examples showing that the establishment of telephone communication and crisis hotlines is protective, even lifesaving (Gilat & Shahar, 2007; Hoffberg et al., 2020). A study in which counseling services were provided through the use of telephones in nursing practices found that telephone use increases patient satisfaction and reduces hospitalizations (Hintistan & Cilingir, 2012). In addition, the fact that telephone communication is free of charge and available 24/7 facilitates help-seeking by phone. According to the strategy of "preventing suicide through accessible telephone and online help" in the Belgian Suicide Prevention Action Plan, seeking help by telephone is 6 times more common than seeking help by online chat and 7 times more common than seeking help by e-mail (Daly et al., 2018). In the automatically tailored online program developed by Batherhamm et al., the lack of a communication system with one-to-one contact with individuals reduced the effectiveness of this program (Batterham et al., 2018). The existence of a system in which one-to-one communication can be established on websites, especially by telephone, will facilitate the prevention of suicide by making it easier for individuals to get help.

Examination of the social media links of the web sites determined that 76.2% of them had existing social media links. As study findings confirm, the most widely used social media site is Facebook. While the National Suicide Prevention Lifeline Facebook page, which plays an active role in preventing suicide, had 29,300 followers in November 2011, this number increased 18 times to 528,022 in July 2022 (Till et al., 2017; https://www.facebook.com/988lifeline). Social networking sites used for suicide prevention may facilitate social connections among peers with similar experiences and raise awareness of prevention programs, crisis hotlines, and other support and educational resources (Till et al., 2017). Personal social media posts, tweets showing suicidal ideation, status updates, comments or articles can be used to identify individuals at risk (Christensen et al., 2014). A study conducted by Robinson et al. (2015) showed that social media provides the opportunity to receive emotional support from others, express feelings, talk with others about shared problems and provide help to others, and it is an venue to prevent suicide. Including social media links on web sites facilitates site entry and use.

According to information about the individuals who provide counseling on the web pages, 69.5% of them are trained volunteers; as Table 4 shows, it is important for the continuity of counseling that the those who provide counseling on the web pages are in the majority trained volunteers. It is not always possible to reach health professionals such as psychiatrists, psychologists, social workers and psychiatric nurses to prevent suicide, due to cost and manpower considerations. Trained volunteers should be considered an economical means of coping with this deficiency. A study evaluating the volunteer service on suicide prevention web sites found that 96.0% of site users were satisfied with the service they received (SOS Voz Amiga Ligue-nos, 2019). A study conducted by Roy found that communication with volunteers helps a person in distress to be aware of their current situation and think about their problems, and gives them strength and encouragement to face their problems in a more practical way (Roy, 2014).

Information about suicide is included in 23.9% of the websites (Table 5). According to the results of the study evaluating the sites providing information on suicide prevention, there was a decrease in the idea of suicide when people with suicidal ideation visited these web pages (Till et al., 2017). This was also supported by studies that showed high levels of knowledge about suicide positively affected their help-seeking behavior (Ozturk & Akin, 2018). Information about self-help, one of the methods used in crisis intervention and suicide prevention, is available on 14.7% of the websites. A randomized controlled study conducted by Van Spijker et al. in 2014 to investigate the effect of online self-help activity on suicidal ideation concluded that self-help reduces suicidal ideation in individuals. Considering the situation in which information about depression is given on the web pages, it is noteworthy that 13% of the web pages had information about depression. It is known that depression plays an active role in individuals committing suicide (Leahy et al., 2020). For this reason, including information on the signs and symptoms of depression and the need for treatment on web pages increases the possibility of suicide prevention.

Information about suicide myths and facts that need to be known is provided by 17% of websites. Myths are defined as culturally accepted false beliefs in the minds of people that do not reflect any scientific truth. Eliminating myths about suicide is important in its prevention (Pérez Barrero,

2008). Arendt et al., conducted a randomised controlled trial assessing the effects of exposure to awareness material specifically aimed at debunking suicide myths. This exposure was effective in reducing beliefs in myths and this in turn had a positive effect on participants' intentions to provide adequate help to individuals at risk of suicide (Arendt et al., 2018). Including information on "myths and facts" on web pages increases the possibility of suicide prevention.

Conclusion

In the context of preventive psychiatry, this study conducted content analysis of web sites containing suicide prevention and help pages. In view of these findings, web-based applications should be included in suicide prevention strategies; to this end, in the immediate future, web-based applications should be developed in this direction and their effectiveness should be evaluated. Multi-language options should be included in these web sites due to the increasing immigrant and refugee populations around the world. Web pages should be designed to be compatible with mobile devices to increase site accessibility and allow multi-functional communication methods. Associations and public institutions should cooperate, and with the support of volunteers trained by mental health experts, telephone, e-mail and online chat options should be included in these sites in order to provide multi-way communication and accessibility. Information about suicide and risk factors for suicide, warning signs for suicide, myths and facts for individuals who are considering suicide and their families should be included on the websites, and help others and self-help guides should be prepared and presented to users. Finally, a national action plan should be prepared for suicide prevention and psychiatric nurses should be part of the team.

Acknowledgements This research was produced from master's thesis made by the first author the supervision of the second author.

Author contributions Cigdem Şen Tepe and Fatma Eker conceptualized the study and design. Search, screening, data curation, analysis and interpretation were performed by Cigdem Sen Tepe. The first original draft of the manuscript was written by Cigdem Sen Tepe and Fatma Eker wrote a review and editing of the manuscript. All authors read and approved the final manuscript.

Data availability The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

This manuscript is not under consideration for publication elsewhere, its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and if accepted for publication, it will not be published elsewhere in the same form, in English or in any other language, including electronically without the written consent of the copyright-holder.

Ethical approval The manuscript does not contain clinical studies or patient data.

Conflict of interest The authors declare that they have no conflict of interest.

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