Health
Innovation
Network
South London

ZSA
Resources

Evidence review 5
Digital Learning and AI

Zero
Suicide
Alliance

Because
ONE life lost
is ONE too many

Introduction to the ZSA Resources and the Evidence Reviews developed by the Health Innovation Network

The Zero Suicide Alliance (ZSA) secured funding from the Department of Health and Social Care to develop a world leading 'ZSA Resources' digital suicide prevention resource for its members that work across all sectors engaged with or influenced by suicide prevention.

The ZSA Resources are based on our core belief that everyone, everywhere, in every population can take action to promote good mental health, and prevent mental ill health and suicide.

The content of the ZSA Resources has therefore a very practical focus: to constantly seek out the needs of our membership, and to provide members with the resources and implementation tools they tell us they need, to turn their ambition into action. These resources include easy access evidence briefings, new accessible data, visualised into maps of their local area, live examples of implementation solutions in practice, peer learning and support networks, 'help' clinics, virtual conferences and webinars, and links to international communities of practice, research, innovation, and more.

To develop our resource, the ZSA initially commissioned our ZSA Alliance partner, the Health Innovation Network, to undertake a stakeholder consultation of people from each of our membership sectors to identify their needs. This report is available here:
www.zerosuicidealliance.com/ZSA-Resources/introduction/zsa-evidence-briefings

The Health Innovation Network (HIN) is the Academic Health Science Network (AHSN) for south London, one of 15 AHSNs across England. As the bodies that connect NHS and academic organisations, local authorities, the third sector and industry, they are catalysts that create the right conditions to facilitate change across whole health and social care economies, with a clear focus on improving outcomes for patients. The HIN is therefore perfectly placed to identify and spread health innovation at pace and scale; driving the adoption and spread of innovative ideas and technologies across large populations.

At the request of our members, ZSA commissioned the HIN to undertake research, bring together experts, and produce a series of evidence briefings on the state of knowledge in a number of key suicide prevention areas. Rigorous desk top research took place over a period of 10.5 weeks mid May 2019 – 2 August 2019. All sections were subsequently reviewed by relevant Virtual Steering Group members. The information sources in this report are correct at time of research.

The Evidence Reviews will be continuously updated as new knowledge becomes available, and to include the impacts of COVID-19. We will reach out to our members and Alliance partners to secure feedback on how the resources are used, how they can be updated and how they can be improved to support action.

We very much hope you find these briefings useful. Please continue to tell us how we can help you save lives, to get in touch please visit: www.zerosuicidealliance.com/get-involved/contact-us

Introduction

The HIN desktop research revealed that the applications of digital learning ie. Artificial Intelligence (AI) powered to suicide prevention are in a period of rapid growth. Most of these applications were found to be at an early stage of development and not yet routinely used in real world settings. Building robust statistical or machine learning models for prediction, which collate sufficiently accurate/valid real time data on an individual to test against these models within legal, ethical and professional codes of practice are significant challenges for AI and suicide prevention. The World Economic Forum has recently published useful guidelines on how to address some of these challenges; available here.

This Evidence Review provides an overview of current use cases and research trends. It is presented in the following format:

- Methodology
- Findings
  - Technologies currently available. This section highlights of some of the most developed and widely used AI applications for suicide prevention currently in use:
    - AI analysis of private messages
    - AI analysis of social media and public messages
  - Research trends. A thematic summary of the current research trends in this area.
  - Converting UK mental health electronic health records into data assets. Description of a UK based research collaboration platform, aiming to convert mental health electronic health records into data assets.

Methodology

Given the early stages of development of these applications, the HIN could not find any systematic evaluation of AI applications to suicide prevention. Therefore, a mixed-method approach was taken to identify the most relevant examples:

- Systematic reviews and non-systematic reviews on the use of technology in the suicide prevention space (Franco-Martín et al., 2018; Vahabzadeh et al., 2016; Torous et al., 2018)
- Opinion articles of the potential of AI in the suicide prevention space (e.g. de Andrade et al., 2018; Vogel, 2018)
- Google searches using the terms "Suicide prevention machine learning", "Suicide prevention AI" and "Suicide prevention artificial intelligence" were conducted between 17/06/2019 and 20/06/2019
- Feedback from experts within our Virtual Steering Group.

Findings

Technologies currently available

AI analysis of private messages: Although at various degrees of developments and with a heterogenous evidence base, these technologies show promise in identifying those at higher risk in crisis services and in matching people in crisis services, as well as identifying those in crisis within general services to prompt access to increasingly responsive support.

- Crisis Text Line (known as Shout! in the UK) is a crisis texting service that uses machine learning to detect users with suicidal thoughts and prioritise them to receive support via text, over non-suicidal users. With this technology, Shout can now distinguish imminent risk texters from non-imminent risk texters with 90.2% accuracy. In comparison to their previous prioritisation tool based on a fixed list of 50 words, crisis text line has observed a 52% decrease in false alarms and a 13% decrease in miss rate, which has led to a decrease in wait times for texters at imminent risk (Crisis Text Line, 2017).

- Talk Life is an online platform (with more than 100,000 downloads on Google Play and available here) where people can offer and get support, posting their thoughts around specific issues and connecting with people that are experiencing similar problems (it has a matching function). This platform has several safeguarding tools/strategies (including a professional safeguarding team that removes inappropriate content or users, (trained) community volunteers that assist the safeguarding team, reporting features and filters users can apply to avoid seeing triggering content). This platform does not provide crisis services. Talk Life (along with Harvard, MIT and Microsoft) is conducting research on the prevention of self harm in young people. The specific aim of the project is to increase understanding of the risk factors and behaviours from people reporting self harm (after obtaining permission from users). The company claim that data will be used to develop "a world-first platform that uses machine learning and human-in-the-loop computing to give trained professionals the ability to offer Talk Life users assistance and services, specific to their individual circumstances, in real time".

- Talk Campus: Talk Life also has a specific AI powered platform for university students. This is a global peer support network that uses machine learning classifiers to offer support for specific problems. Talk Campus is currently conducting a randomised controlled trial at Cornell University in the US. The trial will run from 2018-2020 and will be divided into 2 phases. The first phase will examine how users with a history of self harm engage and get support on Talk Life . The second phase is a follow up study, to assess the influence of different types of support (peer support, psychological therapy) in improving the ability to tolerate distress and reduce the urge to self harm (you can find more information here).

- Woebot: is an automated conversational agent (chat bot), built based on research in Cognitive Behavioural Therapy (CBT). It's available either through Facebook's Messenger platform or via anonymous mobile apps for iOS or Android and is driven by natural language processing (more than 100,000 downloads on Android and ratings of 4.6 on Google Play and 4.5 on App Store). This tool is not specific for suicide prevention, but if the user employs language that could be interpreted as indicating self harm, then the app goes into "crisis mode", explaining to the user that it is not designed to deal with this situation and providing him/her with emergency lines and a link to suicide prevention app called "TEC TEC" (which across 3 different RCTs has been shown to reduce self cutting episodes (32%–40%), suicide plans (21%–59%), and suicidal behaviours (33%–77%), although app usage did not lead to a decrease in suicidal ideation; Franklin et al., 2016).

  It has been tested in an unblinded trial with 70 participants with self-diagnosed symptoms of anxiety and depression and has been shown to reduce depression symptoms more than an information only intervention (it also led to a reduction in anxiety score but no larger than in the information only intervention group; Fitzpatrick et al., 2017). More studies are currently being conducted.

AI analysis of social media and public messages: Although at varying degrees of development, these technologies are being used to identify people at risk, potential suicide hotspots, prioritise those who most urgently need support and understand risk factors that might not have been discovered using a hypotheses driven research methodology. Examples such as the Radar app by Samaritans (see below) illustrate some of the risks of this approach.

- **Facebook**: The standard non-AI-based reactive reporting strategy used by Facebook is described first. After that, two recently introduced Machine Learning innovations (queue prioritisation and reactive reporting) are briefly explained
  - The reactive reporting strategy allows users to report posts when suicidal content is suspected. When a report is submitted, a human review by the Facebook Community Operations is undertaken: If the specialist team determines that the post is not about suicide, the report is closed, and no action is taken
  - If the specialist team concludes that the post shows potential suicidal intent, the next time the person in distress returns to Facebook, they are presented with options to help them manage their situation (eg. country based support hotlines, online chat resources, and tips and suggestions)
  - Andrade et al. (2018) states that in extreme circumstances, the Facebook team can conclude that the person in distress is in imminent danger and contact appropriate local resources (e.g. first responders) to attempt to intervene

- **Machine learning innovations**
  - Queue prioritisation: Facebook now applies machine learning to prioritise the reports made by users that are reviewed by the specialist Community Operations team. Before this was implemented, Facebook relied on recency for report prioritization. The new approach allows posts that require immediate action to be examined sooner
  - Reactive reporting: Through AI, Facebook evaluates posts first when they are posted and again whenever a comment is added (a friend's reaction can help distinguish between a joke and post with serious intent). This allows the Community Operations team to review potential harmful posts that have not been reported by any users (if the algorithm detects that a certain threshold is reached). The post is then reviewed by the Facebook team and, if appropriate (and in the same way as if the report came from users), sends resources to the person who posted the content or reports it to first responder

- Brandwatch undertook an analysis of over 12 million public online discussions from social networks (including Twitter, Facebook and Instagram), blogs, forums and online news during the July 2014-June 2017 period (mostly from the UK but with some US data also included). The opportunity to analyse data at this scale allowed them to obtain information on risk factors, variation of risk factors for different conditions/across regions and specific conditions for which mismatch between demand and service capacity is greatest. Key insights of the study (directly taken from the main report) are listed below:
  - Bullying is a measurable catalyst for mental health symptoms. For those with mental health conditions, bullying increases references of self harm by more than 600%
  - Lack of emotional openness may be a barrier to accessing help. Mental health insults were more common in Wales and among students and sports fans. Negative attitudes towards mental health and emotional expression may prevent those experiencing bullying and MH (mental health) symptoms from accessing treatment
  - 77% of authors with multiple/recurring risk symptoms do not describe accessing treatment. Barriers to access were particularly high for body image (80%) and chronic fatigue (76%).
  - For those who do not access treatment, symptoms escalate at a faster rate
  - Online channels supplement offline treatment
  - 'Risk' symptoms vary throughout the UK. Sleep disruption over indexed in Scotland, body image in Central/North England and Northern Ireland, and fatigue in the South of England. Appetite change over indexed in London

- Anxiety and Depression disorders are more often considered the result of environment than biological/neurological. Despite this, medication was mentioned twice as often as therapy. The data shows a discrepancy between perceived causes (environmental rather than chemical) and treatments (chemical rather than environment).
- Demand outweighs supply for eating disorder advice. Eating disorders was the only category for which more authors sought advice (9%) than gave advice (7%). This shortage suggests demand for more tailored online advice allowing one to one, rather than one to many, interactions.
- Lack of awareness causes heightened Body Dysmorphic Disorder (BDD) negativity. Body dysmorphia saw the largest shares of 'anger', 'stress', 'struggling' and 'sad' tones. Sufferers felt the condition was misunderstood and misrepresented in the media.
- Political events cause widespread sleep disruption. The EU referendum and the General Election correlated significantly with sleep disruption in the UK. This disruption may cause 'trigger events', negatively impacting those with underlying symptoms".

- Advanced Symbolics conducted a pilot with the Canadian Federal Government to help identify suicide high incidence areas based on social media posts to help the government target resources to communities/areas where they are most needed (the ultimate aim was to detect potential suicide areas of high incidence. It did not identify individuals, but communities). The HIN could not identify any information about the results of this pilot

- In addition to Brandwatch and Advanced Symbolics, others are also developing natural language processing algorithms to screen for suicide risk using data from social media (Coppersmith et al., 2018)

- Radar was an app developed by the Samaritans which allowed Twitter users to opt in to receiving notifications when a person they followed posted tweet which the Radar system flagged as possibly suicidal via an AI algorithm. This was suspended as there were complaints about privacy (people whose tweets were being monitored were not notified) and about the potential for it to be used by bullies (Samaritans, 2019).

Research trends

The examples below are not intended to provide a comprehensive account of research efforts around the use of AI for suicide prevention, but to provide an overview of the main research trends based on insights from the reviews that were examined (Franco-Martín et al., 2018; Vahabzadeh et al., 2016; Torous et al., 2018). The findings of most of the studies presented below have not been validated in real world settings.

- **Analysis of acoustic and linguistic patterns**. Examples:
  - Analysis of young people's speech to stratify them into 3 different groups (suicidal, control and mentally ill) with 85% accuracy (Pestian et al., 2016)
  - Speech based detection of Post Traumatic Stress Disorder, a known risk factor of suicide, among veterans with almost 90% accuracy (Marmar et al., 2019)

- **Analysis of facial expression patterns** is also being investigated as a way to assess suicide risk, with promising results in initial studies (e.g. Laksana et al.,2017)

- **Analysis of behavioural change**. Examples:
  - The US department of Veterans Affairs has partnered with Cogito Corporation, which offers a behavioural analytics service that detects changes in smartphone usage to notify mental health professionals of potentially concerning behavioural patterns. The Cogito app also has a "diary" functionality that allows users to record shorts clips to monitor how they feel both physically and mentally. The app then runs a voice analysis algorithm and alerts mental health professionals so that they can address the needs of their most vulnerable patients, while also providing feedback veterans (Cognito Corporation, 2017). Cognito Corporations mentions a successful feasibility and acceptability pilot and intends to continue testing with the US department of Veterans Affairs, but the HIN could not find any published data from the pilot or protocols for future studies.

- **Analysis of medical records**. Examples:
    - Using a sample of more than 5,000 Electronic Health Records (EHR's) from Vanderbilt Medical Centre in the US, this study was able to develop an algorithm that was more accurate than traditional screening methods and with increasing accuracy over time (Walsh et al., 2017). Researchers at Vanderbilt are now developing an intervention based on the results of the algorithm to provide adequate support to those identified at risk (Becker's Medical Review, 2018).
    - A study including 40,000 US soldiers developed a machine learning algorithm using demographic and medical and criminal record data to predict suicide after hospitalisation (there is evidence of increased risk of suicide in the 12 months following a hospital stay). 50% percent of the soldiers who completed suicide in the following year were in the top five percent the algorithm had predicted (Kessler et al., 2016).

- **Inpatient apps/wearables:** both the desktop research and engagement with the senior stakeholders from the steering group have revealed that Mersey Care NHS Foundation Trust is a leading NHS provider in the use of AI powered apps for the prediction of suicide risk during hospital stay with the SWiM (Strength Within Me) App.

- **Hypothesis free research:**
    - Similarly to the Brandwatch study, data- mining techniques have been used to understand suicide and self harm behaviours among middle and high school students in South Korea without establishing preconceived hypotheses. This allows for the identification of risk factors for suicide that might have otherwise gone unnoticed (e.g. delinquency among the depressed and low intimacy with family members among those with few symptoms; Vahabzadeh et al., 2016).

Converting UK mental health electronic health records into data assets

CRIS project: Although not directly linked to suicide prevention, this project has potential to facilitate the use of data analytics to increase our understanding of suicide and the development of algorithms. The CRIS (Clinical Record Interactive Search system) Programme aims to transform information in Electronic Health Records into a data asset, "helping organisations to analyse how services are performing, develop new understanding about disease and care delivery, and efficiently carry out feasibility work for research studies and clinical trials.

All this is to develop a better understanding of the care and interventions being provided today (and in the future) to improve patient experience, safety and health outcomes." EHR data will also be linked to UK biobank data to allow for a combined examination of physical and mental health/risk/protective factors. Participating trusts (which in combination include more than 2.6 million clinical records) are listed in appendix 8.

Appendix 1: Comparison of all apps, including rating on Google Play and App store

App (number of downloads)	Brief description	Available on Android/ Google Play Rating	Available on iOS/ App Store Rating	NHS Library	ORCHA
Calm Harm (920,000 downloads)	This app is based in Dialectical Behaviour Therapy (DBT). It gives users tasks to help them resist of manage the urge to self harm and allows them to track progress and change.	Yes/ 4.5 /Available here	Yes /4.3 /Available here	YES	YES
Stay Alive (>75,000)	Includes resources for coping with Suicidal thoughts, guidelines to develop safety plans, customizable reasons for living, Life Box, myth buster and direct line to crisis services.	Yes/ 3.8/ Available here	Yes/ 4.2 / Available here	NO	YES
BlueIce (unkown)	This apps helps includes a mood diary, a toolbox of evidence- based techniques to reduce distress and automatic routing to emergency numbers if urges to harm continue.	Yes	Yes	YES	NO
distrACT (>1,000)	Information about self harm (myths, facts, reasons, dangers and warning signs) self help resources (chill zone with art, books) and guidance on how to navigate services and access emergency care in the UK.	Yes/ 3.2/ Available here	Yes/ 4.7/ Available here	YES	YES
Prevent Suicide - North East Scotland (42,526 users since launch NB much smaller target popn)	Suicide prevention app aimed at users in the North East of Scotland. Provides helpful info for those affected in any way by suicide, extensive contact details for (emergency) services in Aberdeen city and allows users to create their own safety plan. It also contains Information and guides for those worried about someone as well.	Yes/ ~5/ Available here	Yes/ 5/ Available here	NO	NO

App (number of downloads)	Brief description	Available on Android/ Google Play Rating	Available on iOS/ App Store Rating	NHS Library	ORCHA
MY3 - Support Network (>10,000)	This app allows users to create your support system (adding the contact information for those who can help in a crisis, a safety plan toolbox and direct access to a national Suicide Hotline (US).	Yes/ 3.8/ Available here	Yes Available here	NO	NO
Suicide? Help! (34,2888 over its lifetime)	An information app for people who are thinking about suicide or are worried about someone else. Provides detailed information about suicide, such as how to get help and what signs to look for in others, this app also provides details of services the user can contact particularly in the UK and Tayside. It also allows users to create a safety plan.	Yes/ 2.9/ Available here	Yes/ 4/ Available here	NO	NO
Suicide Safety Plan (>10,000)	Customizable warning signs of crisis, coping strategies for suicidal urges, places for distraction, friends and family, professionals you can call, methods of making your environment safe, and your own important reasons for living.	Yes/ 3.9/ Available here	Yes/ 5/ Available here	NO	YES

App (number of downloads)	Brief description	Available on Android/ Google Play Rating	Available on iOS/ App Store Rating	NHS Library	ORCHA
Suicide Prevention App (>10,000)	Step by step standardised guide to help people assist those experiencing a crisis or at risk of suicide: best practice standard way to ask the right questions about self harm and suicide. Based on the answers to these questions, this tool identifies the general safety concern, which can then be shared with mental health professionals. It also includes a map to locate mental health and medical services near the user's current location, and single click access to international crisis hotlines and crisis text services (text options currently only functioning for users in the United States)	Yes/ 3.3/ Available here	No - coming soon	NO	NO
Tec-Tec (unkown)	Tec-Tec is an app that uses a technique called evaluative conditioning. In a game like manner, it asks users to continually pair certain words and images to change the mental associations that users have between certain objects and concepts. This helps modify associations with certain factors that may increase risk for self-injurious behaviors.	NO	Yes /5 /Available here	NO	NO

Appendix 2: General Mental Health Apps

App (number of downloads)	Brief description	Available on Android/ Google Play Rating	Available on iOS/ App Store Rating	NHS Library	ORCHA
7 cups (>1,000,000 downloads on Google drive and 39,061,213 people helped)	Online chat with trained listeners, chat rooms about specific issues (eg. relationships, anxiety, LGBT and self harm issues). Self help resources and online therapy from $33/ week)	Yes/4.2/ available here	Yes/4/ available here	NO	YES
Booster Buddy (>100,000 download on Google Play)	-Check-in with how you are feeling each day -Use coping skills -Keep track of appointments and medications -Get started on tasks -Follow self care routines -Increase real life socialisation	Yes/4.4/ available here	Yes/4.4/ available here	NO	YES
Silvercloud	Cognitive Behavioural Therapy (CBT) Once registered, you work through a series of topics chosen by your therapist at your own pace, where and when it suits you. The therapist will check in with you about once every two weeks during the course to review your progress.	YES	YES	YES	YES
Talk Life (>100,000)	Talk Life is an online platform where people can offer and get support, posting their thoughts around specific issues and connecting with people that are experiencing similar problems (it has a matching function). They are currently conducting research using machine learning and data analytics to understand self harm patterns and risks and to give trained professionals the ability to aid users in real time.	Yes/4.5/ available here	Yes/ 4.4/ Available here	NO	YES

App (number of downloads)	Brief description	Available on Android/ Google Play Rating	Available on iOS/ App Store Rating	NHS Library	ORCHA
The Hope Line (>10,000)	App where you can find encouragement and support through resources, a radio show and one on one chat. It is not specific about suicide but they do offer support for people experiencing suicidal thoughts. They are not a crisis line.	Yes/ 3.3/ Available here	Yes Available here	NO	NO
Virtual Hope Box (>100,000)	A smartphone application designed for use by patients and their behavioral health providers as an accessory to treatment. The VHB contains simple tools to help patients with coping, relaxation, distraction, and positive thinking. Patients and providers can work together to personalise the VHB content on the patient's own smartphone according to the patient's specific needs.	Yes/ 4.4/ Available here	Yes/4.3/ Available here	NO	YES

Appendix 3: Most popular websites offering general guidance on coping and keeping safe

Organisation	Page title	Description	Country	Target audience	Self help intervention
Get Self Help	Dealing with suicidal thoughts	Website providing CBT self help and therapy resources	UK	Anyone	- CBT-based - Helplines - Samaritans and others - Methods to reduce the pain - Advice to avoid drugs/alcohol - Coping techniques and resources - Long term steps and planning - Self help videos and MP3s

Mind	How can I cope right now?	This page offers practical tips on what you can do right now to help yourself cope with suicidal feelings.	UK	Adults	- Steps to get safe right now
					   - Remove from harm, tell someone
					- Distraction techniques
					- Challenging suicidal thoughts
					- Long term self help
					   - Making a safety plan
					   - Learn to manage difficult feelings
					   - Value yourself
					   - Connect with people
					   - Wellbeing
					
					They also have a comprehensive guide on "how to cope with suicidal thoughts" (available here)

Help Guide	Are you feeling suicidal?	How to deal with suicidal thoughts and feelings and overcome the pain.	USA	Anyone	- Immediate actions (don't do anything now, avoid drugs/alcohol, make home safe, tell someone, have hope) - How to talk to someone (incl. helplines) - Things to do and avoid - Five steps to recovery - Worldwide suicide crisis lines

Organisation	Page title	Description	Country	Target audience	Self help intervention
Heads Up Guys	Five steps to overcoming suicidal thoughts	Five steps to overcoming suicidal thoughts.	USA	Men	- Remove yourself from danger - Slow breathing - Re-focus (visualisation, senses, relax muscles) - Tell someone - helpline, friend - Remind yourself of recovery
Mental Health Foundation New Zealand	Suicide: coping with suicidal thoughts	This information is a suicide prevention factsheet intended for someone who is having suicidal thoughts or feelings. It may also be of benefit to the people supporting them.	New Zeland	Anyone	- Tell someone - Urgent help advice - See doctor - Self help to feel better (managing thoughts, distraction, sleep, rest, exercise, avoid drugs/alcohol, recovery plan etc) - Treatment options (therapy, medication etc)
NHS Inform	Help for suicidal thoughts	NHS page on suicidal thoughts.	UK	Anyone	- Helplines - Talk to someone you trust - Tips for coping
Young Minds	Suicidal feelings	Web page for young people with suicidal feelings.	UK	Children and young people	- Warning signs - Tell someone - Helplines
Mayo Clinic	Are you thinking about suicide? How to stay safe and find treatment	Web page for people with suicidal thoughts.	USA	Anyone	- Immediate help (helplines, emergency services, healthcare providers) - Coping strategies - Create a safety plan (list of contacts, remove methods of suicide, schedule activities, support group, avoid drugs/alcohol etc)
Papyrus	Help and advice resources	Range of downloadable suicide prevention resources.	UK	Children and young people	- Apps to support wellbeing - Hope box/crisis box/book guidance - Suicide safety plan guidance and child friendly version - Coping strategies - Distraction techniques

Organisation	Page title	Description	Country	Target audience	Self help intervention
Your Health in Mind	Feeling suicidal	Web page for people with suicidal thoughts created by The Royal Australian and New Zealand College of Psychiatrists.	Australia and New Zealand	Anyone	- Urgent helplines (Australia and New Zealand) - Pause, deep breathing - Keep safe, remove harm, avoid drugs and alcohol - Talk to someone - Helplines (Australia and New Zealand, adults and children) - Online chat options - Professional help - Safety plan - Stories from survivors
Samaritans	I want to kill myself	Webpage giving advice for people who feel suicidal.	UK	Anyone	- Helpline - Other ways to contact - visit branch, write letter, email
CALM	Get help	Web page giving options for contacting CALM.	UK	Men	- Helpline - Web chat - Direction to local organisations
Childline	Coping with suicidal thoughts and feelings	Webpage giving advice to children and young people who feel suicidal.	UK	Children and young people	- Get support (helpline, talk to someone) - Keep safe (avoid drugs and alcohol etc) - Safety plan - Helpful tips (relax, exercise, comfort box, imagine, positive phrase, five senses)
American Foundation for Suicide Prevention	I'm having thoughts of suicide	A small webpage directing people to other services/organisations.	USA	Anyone	- Direction to crisis helplines - Find mental health professional
Suicide Awareness Voices of Education	I'm having suicidal thoughts	Webpage giving advice to people with suicidal feelings.	USA	Anyone	- Emergency/crisis helplines - Remove danger - Learn more - Talk to someone - helpline, trusted person - Safety plan - Physical health

Organisation	Page title	Description	Country	Target audience	Self help intervention
Vancouver Psych Safety Consulting Incorporated	Coping with suicidal thoughts: a resource for patients	Workbook helping people deal with suicidal thoughts.	Canada	Anyone	- Emergency/crisis helplines - Safety Plan - Information on why suicidal thoughts arise - Tips for coping
Lifeline	Self help tools	Toolkit	Australia	Anyone	- Reasons for living

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