

Young People & Mental Health: The Role of Information and Communication Technology

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Warwick Medical School research project funded by Comic Relief

October 2010

FINAL REPORT

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BACKGROUND

In the last few decades information and communication technologies (ICT) have become pervasive in many aspects of social life, especially among the younger generation. Young people have been referred to as “Digital Natives” (Hulme, 2009), as they communicate, seek information, engage, interact and entertain themselves through many technologies. ICTs are being harnessed to mediate and support health communication between young persons and health care practitioners. (Powell et al., 2003a). As digital technologies begin to converge and become more pervasive, the distinction between some of these tools and their mode of delivery becomes less clear. ICTs have the potential to: a) engage young people through medias which are familiar to them; b) support digital public services; c) facilitate greater involvement of informed service users; and d) reduce reliance of ‘real world’ resources and interactions. (Powell et al., 2011 forthcoming).

In April 2010 Comic Relief commissioned a four month research project to understand the ways in which ICT can be used to inform and support young people as well as to inform discussion about current or future grant programmes. The aim of this research was to evaluate the potential impact, value and methodology of using ICT with young people (11-25 years) experiencing mental health issues. In particular, the brief asked:

- What is the value of different ICT interventions (particularly in terms of efficacy and cost), from the perspective of organisations delivering projects, funders supporting services, and young people with mental health issues receiving them?
- How can ICT be used to contact the most disadvantaged and hardest to reach young people with mental health issues?
- What are the limitations on using ICT to inform and support young people with mental health issues?
- What are the potential ways of more effectively investing in the use of ICT to inform and support young people with mental health issues?

METHODS

We adopted a mixed methods approach of scoping review of the available literature, interviews with key stakeholders and experts, a structured questionnaire survey of relevant projects funded by Comic Relief, and focus groups with young people.

RESULTS

Scoping literature review

The scoping review brought together academic findings, descriptions of current practice, case studies, and policy discussions. Comic Relief proposed five headings for subdividing areas of mental health interest to them: depression, anxiety and panic; schizophrenia, bipolar affective disorder and other psychoses; eating disorders; suicide; self-harm. The review was undertaken between June and September 2010.

A heterogeneous body of literature quantifying the use of ICTs by young people with mental health conditions was identified. This showed that technology adoption is very high among young people. Mobile phone ownership is almost universal. Personal computers, games consoles, and MP3 players are also widely used. A major trend has been the recent growth in the use of online social networks. Digital exclusion is an issue for some technologies, for example home computer ownership and broadband access. Exclusion is mediated by income and educational level. Many research papers investigating the use of ICT in mental health were identified, but few papers looked specifically at young people. Studies tended to be small successful pilot studies of specific interventions. Unsuccessful projects are often not reported.

Findings from these studies are hard to generalize and it is difficult to know how valuable the interventions will be once they are moved to a different context. We have summarised key findings in this area in a narrative format. Finally, we have presented six case studies of projects which are examples of best practice and which illustrate the range of use of new technologies in mental health: Cybermentors; ReachOut!; Kooth; True Colours; MoodGym; and Healthtalkonline.

Stakeholder interviews

Sixteen stakeholders were interviewed. Participants were from the health and charity sectors, academia, government, and industry (12 public sector; 4 private sector). Themes emerged regarding the use of ICTs with young people:

- The wide variety of technologies available and their possible uses
- The benefits to young people using ICT – including anonymity, privacy, 24-hour convenience
- The benefits to services of young people using ICT – including their wide availability and accessibility; potential cost savings; and the benefit of having more informed service users
- The problems of digital exclusion, misuse of ICT, and organisational barriers to adoption
- The predominance of the mobile phone’s potential was clear from stakeholder discussions
- Stakeholders reported the need to view technologies as a means to deliver a specific intervention rather than being the intervention itself

Survey

Thirty-six projects responded to the questionnaire, a response rate of 36/64 (56%). The ICTs most commonly in use by Comic Relief funded projects were email, websites, text-messaging, and mobile phones. Social networks were much less commonly used, as were blogs, chatrooms and instant messaging. There was general agreement that ICTs were important in the lives of young people but respondents disagreed with a statement that ICTs may eventually replace face-to-face communication. Attitudes towards ICTs were mostly positive with the majority seeing them as potentially effective and cost-effective ways of supporting young people (although a significant minority disagreed with this), and disagreeing with a statement that ICTs cause harm. There was uncertainty as to the value of ICTs in including people from disadvantaged backgrounds. Technology-based interventions were considered to have several benefits including:

- Signposting and advertising services
- Facilitating peer-to-peer communication
- Empowerment and support from social media
- Wide availability and accessibility of mobile phone and text message based services
- Reaching some hard-to-reach users who engage via their mobile phones

ICTs were not considered to be suitable replacements for face-to-face communication and organisations reported that technologies also provide barriers to access, excluding those with poor written language skills and without the economic means to buy and maintain ICTs. Organisations reported a lack of a sufficient evidence-base on which to make decisions, and constraints placed upon them which hindered adoption (for example around confidentiality). Staff skills and training needs were also discussed. Costs were an issue for organisations, whether extra costs incurred by the organisation, or whether young people themselves had to fund the use of technology in order to access the service.

Focus groups

Five focus groups with a total of twenty young people from diverse ethnic backgrounds (mean age 21 years; 13 males, 7 females) were undertaken in London and the West Midlands. Two organisations provided support for young people with mental health problems and three organisations worked with vulnerable young people (for example, the homeless).

Mobile phones were the preferred form of ICT. Mobile phones were not just a facility to call people; they allow young people to access the Internet, social networking sites and send emails. Some young people were able to get advice through online social support tools. Findings from the focus groups suggest that:

- Appropriate use of terminology to describe ICTs is needed
- Young people use multiple technologies throughout their daily lives
- Young people reported being dependent on ICTs
- ICTs provide efficient communication between friends and for seeking information and support
- Some participants welcomed the idea of communicating with their health professionals via technology, however cost was an issue
- Young people in hard to reach populations want easier and cheaper access to ICTs

CONCLUSIONS

1. Young people are leading increasingly digital lives. Technology is becoming more pervasive, cheaper and easier to use. Increasingly technology is built in to everyday life, not an addition to it. Skills to adopt and use technologies are increasing. Technological change in this area is rapid and ongoing.

2. At the same time, while young people welcome technology-based services, they report wanting these to be a complimentary provision rather than a replacement for face-to-face approaches.
3. Researchers, policy makers, health professionals, and others need to keep up with developments, and be aware of the future trajectory of such technologies which is likely to be through more integrated mobile devices (predominantly mobile phones), pervasive devices, and towards ubiquity. Social networking is a rapidly evolving area with high uptake among young people.
4. Research and policy making needs to 'catch-up' with adoption, recognise that the technology by itself is usually not the intervention but simply a platform, and learn from best practice. The current evidence base is limited, with generally small studies, often not focused on young people, and often, due to the pace of change in this area, out-of-date by the time of publication. At the same time there is a need to strike a balance between harnessing innovation or using existing 'low tech' technology which has high take-up. The accumulated evidence from the research literature and from case studies of best practice shows that different interventions have been tested on various platforms, and that in differing contexts both social and clinical benefits are possible, but it is difficult to generalise.
5. Future research should be driven by the needs of young people not the technology itself. High quality research needs to focus on young people, including examining how technologies are actually used in practice (and not just within an academic study).
6. Digital exclusion in access to technology continues to be an important issue, especially in relation to home computer use and Internet access. Exclusion is generally mediated by the cost of technology, and also by educational level. In harnessing personal technology to deliver care there is also an issue about transferring cost from the services to the individual. Exclusion is less of an issue in terms of mobile phone use and 'low tech' approaches such as text messaging, where adoption is almost 100%. Some specialist services provide tools for helping access in different communities and

disadvantaged groups without personal Internet access to surf the web (e.g. YouthNet UK; <http://www.youthnet.org/>).

7. 'Access' is a complex issue, with young people using technologies on multiple platforms, often simultaneously, often transiently. Most use, and learning how to use ICTs, generally occurs in informal settings with peers.
8. The almost universal adoption of mobile phones and the rapid uptake of social networking sites among young people, indicate these as key areas for further work. The use of these technologies in mental health settings require further investigation to explore (for example) how they may be harnessed to improve communication, appointment attendance and the sharing of information between young people and with mental health professionals.
9. The stakeholders we interviewed felt that better use could be made of ICTs to support young people with mental health problems if there was greater awareness of their potential benefits, particularly if there was better sharing of expertise and examples of best practice between organisations; if more use was made of mobile phones and of social networking sites; and if resources (financial or other benefit) could facilitate access for the most disadvantaged groups.
10. Despite the promise of technological convergence, there are many different technologies in use and the whole area of ICTs in healthcare is too heterogeneous to draw a single bottom-line conclusion. In fact, the term 'ICT' is not necessarily helpful as it has a school-based connotation to many young people who do not see it including certain items such as MP3 players or games consoles. Technology is not in itself a 'good or bad thing', the various tools available can be harnessed in many ways which can either bring benefits or harms, or have no effect. Understanding how and why new tools are adopted and used by service users or professionals (including the social, financial, organisational, ethical and legal issues) is a key research need.
11. Harm is a genuine concern, although the extent of young people coming to harm through technology is probably overestimated. Young people generally feel confident

in their ability to avoid harm. Issues that continue to need addressing are cyberbullying, technology dependence, grooming, and pro-harm sites (though the social interactions on these sites are complex and not always harmful).

12. Future research needs to be robust and transparent and use clear aims, objectives and outcomes. The greater use of ICT options might improve service user engagement (as one type of good outcome, for which there is some evidence) and service user satisfaction (although we note that some young people prefer face-to-face contact whilst others prefer anonymous, ICT-facilitated contact). Further evaluation should measure both these outcomes and the short and long term effects on health and social outcomes.

RECOMMENDATIONS

1. Funding bodies such as Comic Relief need to have an agile and flexible approach to this area due to the rapidly changing nature of the technologies available, and how they are used.
2. Future programmes of work using information and communication technology to support young people living with mental health problems could bring benefit if focused on: (i) harnessing mobile technologies; (ii) harnessing social media; (iii) the use of online counseling and therapy tools; (iv) accessing hard to reach populations; (v) minimising harm arising from technology use. Many of the issues in these five areas will overlap (for example mobile technologies are the most socially inclusive).
3. In the short term specific project work, mainly using qualitative methodologies, which would benefit young people and yield valuable information for other projects would include: (i) how can we use mobile phones to engage disadvantaged young people with health and social services? (ii) Can we harness existing social media tools and peer networks such as Facebook to empower young people through providing social support and reducing social isolation, and what is the value of the experiential information shared in these networks? (iii) What are the barriers and facilitators (including social, financial, legal, ethical etc. factors) to using technology to support young people? (iv) Based on our current knowledge, what is the extent of harm (such

as cyberbullying) arising from technology use by young people, and what factors mediate this?

4. Much of the academic research in this area is of small scale pilot studies of many different interventions. It is therefore difficult to draw generalisable conclusions, and also the technology is often outdated by the time of publication. Future research should aim to be of large scale where possible, and as up to date as is feasible. Projects should be encouraged to publish evaluations in a timely manner. There would be value in developing a frequently updated collection of best practice in the area of young people, technology and mental health, which draws particularly on service evaluation work which tends to be available sooner than peer-reviewed academic papers.
5. Given the current preponderance of small-scale pilot work, research funding bodies could seek to take a coordinated systematic approach to generating robust research evidence in this area. There may be opportunities for funding bodies to work together with this aim. The current NHS research funding climate is a little uncertain but clarity will emerge following the comprehensive spending review. At present there are several public research programmes with an interest in harnessing technology for healthcare. These include Research for Innovation Speculation and Creativity (RISC) and i4i Invention for Innovation, although the future of both initiatives is currently under review. More generally the National Institute for Health Research (NIHR) has shown a willingness to fund Ehealth research through such programmes such Research for Patient Benefit and the NIHR Programme Grants. The Wellcome Trust has also shown interest in this area, particularly in a recent call in collaboration with the Department of Health which sought proposals for their Health Innovation Challenge Fund which addressed issues of telehealth and remote monitoring.
6. The major players in the technology industry see healthcare as an important area for the future and there are opportunities to work collaboratively with them. Global IT companies such as Microsoft, Google, Intel, GE Healthcare, Phillips, Siemens etc. all see healthcare as a strategically important area, particularly with an emphasis on supporting people living with long-term conditions. Telecommunications companies

such as Telefonica/O2 and BT are also investing heavily in healthcare. Much of the existing activity is aimed at the elderly population and explores areas such as home monitoring or supported self-care for conditions such as heart failure, diabetes, chronic airways disease, or dementia. There is an opportunity to partner with such organisations to support a younger population with high uptake of technology and often high levels of 'digital literacy'. The pharmaceutical industry has also begun to invest in ehealth solutions which support self-management.

7. Policy in this area is not only driven by the Department of Health (and its new Informatics Directorate) but also by other areas of government such as the Technology Strategy Board and the Department for Business, Innovation and Skills. Within the NHS there may be opportunities to partner with specific health informatics programmes such as NHS Choices (www.nhs.uk), NHS Direct (www.nhsdirect.nhs.uk), NHS Local (www.nhslocal.nhs.uk), NHS Connecting for Health (www.connectingforhealth.nhs.uk), or with mental health initiatives such as the IAPT (Improving Access to Psychological Therapies) programme.
8. Comic Relief is already receiving many applications for funding that use ICT to support and inform young people with mental health problems, these should be assessed against the following best practice criteria that this report has identified:
 - The views of young people with mental health problems are actively obtained in designing services so that those services most appropriately meet the young people's needs and lifestyles.
 - The project is aware of innovation and best practice in the use elsewhere of ICT to support young people with mental health problems.
 - There is active contact with private, public or other voluntary agencies that can provide support and assistance in using ICT to deliver services to beneficiaries.
 - Staff and volunteers are kept up to date regarding developments within ICT relevant to young people (such as social networking and mobiles).
 - Allocation is made for staff and volunteers to receive training and assistance around using ICT relevant to young people.
 - There is adequate moderation by the project of ICT usage by young people some of whom may be vulnerable.

- There are sufficient organizational policies and procedures to take on board issues arising from using ICT to deliver services to young people.

1. INTRODUCTION

Information and communication technology (ICT) tools such as text messaging, email, instant messaging, and web 2.0 social networking, are being increasingly harnessed by public, private, and third sector organisations to support communication with and between young people. As digital technologies begin to converge and become more pervasive, the distinction between some of these tools and their mode of delivery becomes less clear. Such technologies hold the promise of engaging young people through routes which are familiar to them, and at the same time supporting leaner, greener, digital public services with greater involvement of informed consumers, and reduced use of 'real world' resources. However, there has been little evaluation into whether these tools deliver value in practice and whether they engage all the people they are aimed at. As we move towards a more digital world it is important to establish the needs of the younger people to improve their accessibility to care and support.

Comic Relief supports several projects which are actively using ICT as a means to engage with young people with mental health issues. In April 2010 Comic Relief commissioned a four month research project to understand the ways in which ICT can be used to inform and support young people as well as to inform discussion about current or future grant programmes. The overall aim was to evaluate the potential impact, value and methodology of using ICT with young people (11-25 years) experiencing mental health issues. This project aimed to answer the following questions, identified by Comic Relief:

- What is the value of different ICT interventions, (particularly in terms of efficacy and cost) from the perspective of organisations delivering projects, funders supporting services, and young people with mental health issues receiving them?
- How can ICT be used to contact the most disadvantaged and hardest to reach young people with mental health issues?
- What are the limitations on using ICT to inform and support young people with mental health issues?
- What are the potential ways of more effectively investing in the use of ICT to inform and support young people with mental health issues?

In this report we describe the methods used to address these research questions and we present the findings and make recommendations.

2. METHODS

We adopted a mixed methods approach of literature review, stakeholder interviews, structured questionnaire survey, and focus groups. Warwick Medical School research ethics committee approval was obtained to undertake this work.

2.1. SCOPING LITERATURE REVIEW

A scoping review brought together academic findings, descriptions of current practice, case studies, and policy discussions. Comic Relief proposed five headings for subdividing areas of mental health interest to them: depression, anxiety and panic; schizophrenia, bipolar affective disorder and other psychoses; eating disorders; suicide; self-harm. The review was undertaken between June and September 2010. The methods were as follows:

- i) Academic literature: Using a rigorous search strategy (combining key terms with Boolean operators) we searched the peer-reviewed academic literature (using bibliographic databases such as Medline and PsycInfo) for studies which either (1) described the use of ICT by young people with mental health problems; or (2) evaluated the use of ICT tools for communicating with young people with mental health problems. We applied our inclusion criteria, and extracted potentially relevant studies.
- ii) Current practice and case studies: We undertook a comprehensive search of organisational websites currently involved with young people with mental health issues, as well as practitioner journals. We also followed up suggestions made by key contacts identified through the stakeholder work.
- iii) Policy documents: We reviewed policy documents produced by key organisations including academic, charity, and governmental organisations. Wherever possible we looked for work with hard to reach young people (e.g. Not in Employment, Education or Training [NEET]; Black and Minority Ethnic [BME] Community Networks) and which reported issues of digital inclusion/exclusion.

2.2. STAKEHOLDER WORK: KEY INFORMANT INTERVIEWS

We identified certain key organisations and individuals with relevant perspectives and expertise to contribute to our stakeholder work. We also interviewed stakeholders identified by Comic Relief. Thirty-six organisations or individuals were approached, and sixteen agreed to take part. The individuals interviewed included those working in the health sector, charity sector, academia, government, and industry (12 public sector, 4 private sector). We conducted semi-structured interviews using a topic guide. Interviews were conducted either in person (n = 2) or by telephone (n = 13) or by instant messenger (n = 1), and were audiorecorded and later transcribed for analysis. The researchers identified key themes from the transcripts.

2.3. STRUCTURED QUESTIONNAIRE SURVEY OF COMIC RELIEF FUNDED PROJECTS

A survey was undertaken to evaluate the views and concerns of those people currently on funded YPMH projects who might already be using ICT. We designed and sent a questionnaire to all sixty-four Comic Relief-funded projects related to young people and mental health. A combination of open and closed questions was used. All lead representatives for these projects were contacted in writing, follow-up emails were sent by both the research team and Comic Relief. Thirty-six projects responded (response rate of 36/64 = 56%). The research team entered the returned questionnaires into a database and data was analysed using descriptive statistics of quantitative findings and thematic analysis of comments made to open questions.

2.4. YOUNG PEOPLE'S PERSPECTIVES: FOCUS GROUPS

In order to capture the views of young people with mental health problems on the use of ICT, we undertook five focus groups with a total of twenty young people. Two of the organisations from which the five groups were recruited provide support for young people with mental health problems, the other three organisations each work with vulnerable young people (for example, the homeless). Each group was held at a location provided by the host organisation. These locations were in London (two groups) and the West Midlands (three groups). The average age of focus group participants was 21, and there were thirteen male participants and seven female participants. The sample had diverse ethnic backgrounds (twelve White-British and eight not), and a range of employment statuses (seven not in employment or education or training; nine in education or training; four in employment). Five of the participants were engaged in mental health services delivered online. At least two interviewer/researchers attended each group. A topic guide was used to prompt discussion about the use,

acceptability, satisfaction and general attitudes about using different forms of ICT. All focus groups were audiorecorded, and later transcribed. The research team identified key issues arising from the transcripts.

3. SCOPING LITERATURE REVIEW

The scoping review identified a wealth of literature quantifying the use of new technologies by young people. In this report (Section 3.1.) we have synthesized the headline findings from the most recent surveys. One of the key sources for information on this topic is Ofcom (www.ofcom.org.uk). We also identified many research papers investigating the use of ICT in mental health, but far fewer papers looked specifically at young people. The ehealth research literature in general tends to contain a large number of small pilot studies of specific interventions, often initiated by enthusiasts. This means that the findings from many of these studies are very hard to generalize, in other words it is difficult to know how valuable the interventions will be once they are moved to a different context. There is also a tendency when conducting small scale studies to write-up and publish successful findings but unsuccessful projects are often not reported. Finally, the pace of development of new communication technologies is such that many reports in the literature are out-of-date almost as soon as they are published.

With these caveats, we have provided a scoping overview (Section 3.2.) of the range of research undertaken in this area, making general points where possible, but without any attempt at 'evidence synthesis' given the significant heterogeneity in the study populations, contexts, ICT tools, and results. We looked for work within five categories which follow Comic Relief's division of their mental health activity: depression, anxiety and panic; eating disorders; bipolar affective disorder, schizophrenia, and other psychoses; risk of suicide; self-harm. We also describe evidence of harm from the use of these technologies. Regardless of benefits or harms, the Internet and related technologies need to be seen as tools for the delivery of many, varied (successful and unsuccessful) interventions, not as interventions in themselves, and harm or benefit relates to how they are used, not the technology *per se*. Finally in this chapter we have identified six case studies, from the UK and elsewhere, which illustrate some of the best practice underway in this area (Section 3.3.).

3.1. USE OF TECHNOLOGIES BY YOUNG PEOPLE

Young people aged 16 to 24 years have been referred to as “Digital Natives” (Hulme, 2009), a term used to describe those who have grown up with the Internet, mobile phones and other ICTs and who are fundamentally different from previous generations in the way they communicate, seek information, engage, interact and entertain themselves.

Platform 4 Research from Channel 4 (Platform 4, 2009) undertook a UK survey during 2009 with a group of 12 to 24 year-olds. This survey found that the most commonly owned devices were MP3 player, PC, TV, DVD player, mobile phone, stereo, games console, and digital camera. Twenty-five percent agreed that “I’d rather stay at home than go on a holiday with no Internet or phone access”. Twenty-five percent text or instant message friends they are physically with at the time.

According to Ofcom (Ofcom, 2010) 73% of the UK population had access to the Internet at home in 2010, this figure rises to over 80% for households with 15-24 year olds living in them. Home Internet access varies substantially by socio-economic group. Nearly nine in ten (88%) AB households report having a broadband connection; 80% of C1 households, 71% of C2 households and 54% of DE households. The difference in Internet take-up between men and women is less pronounced, but men are more likely than women to have access to the Internet at home, by 75% to 72%.

CHILDWISE recently published ‘Digital Lives 2010’ (CHILDWISE, 2010a). The report explored the relationship young people have with the Internet and modern technology, and the way they perceive the online / offline divide. CHILDWISE (2010a) found that more than 90% of UK children use the Internet with an average use of five times a week, and spending two hours a day online. Access is increasingly in the young person’s own room, on their own laptop, and many use mobile phones or games consoles to go online. Social gaming sites were also reported to be providing a springboard for the step up to social networking around the age of 11 years. In a second publication, the CHILDWISE Trends Report 2010 (CHILDWISE, 2010b) found that the number of 5 to 16 year olds owning their own PC or laptop is now six in ten. Mobile phone ownership is almost universal among 11 to 16 year olds, with half of those aged 5 to 10 owning a phone. Mobile phone use is now “*an intrinsic part of most young people's lives*” (Walsha, 2008).

There are differences in which devices are used to access the Internet between age groups, with 15-24 year-olds being more likely to access websites through non-PC devices (Ofcom, 2010). Access to websites through mobile phones was reported by 45% of all 15-24 year-olds. An increasing number of young people also access the Internet through their games consoles: 20% of 15-24 year-olds accessed the Internet in this way, compared to 10% of the general population (Ofcom, 2010).

While there is are clear socioeconomic gradients in home Internet access and PC-based use of the Internet, and in self-reported 'confidence' in Internet use (Ofcom, 2010), there is very little effect of socioeconomic group on mobile phone ownership, or on text messaging (SMS). However there is a socioeconomic effect for ownership of smartphones, and for web and data access over mobile phones, with those from more deprived groups being less likely to own smartphones and to use web and data. In terms of gender differences, boys report slightly higher use of games consoles, whereas girls use mobile telephones more (Ofcom, 2010).

Social networking has become increasingly important for young people. The CHILDWISE Trends Report 2010 (CHILDWISE, 2010b) identified social networking as the main online activity for 5-16 year olds, with Facebook and YouTube being the most preferred websites. Ofcom (2010) found that 77% of children aged 16 to 24 years had set up at least one social network profile, and this figure was 25% for those aged 8 to 12 years, and 66% for those aged 12 to 15 years. Many social network sites such as Facebook have instant messaging or chat features integrated into the site, in addition to email-like messaging services, and there has been a decline in the use of 'stand alone' instant messaging software.

The importance of Internet technologies to young people was demonstrated in a survey of 16 to 24 year olds by Hulme (2009) for YouthNet which showed that 75% reported that they couldn't live without the Internet; 45% felt happiest when online; 32% agreed with the statement: 'I can access all the information I need online, there is no need to speak to a real person about my problems'; and 37% would use the Internet to give advice to others on sensitive issues (Source: Life Support: Young people's needs in a digital age (YouthNet). An internal survey for NHS Choices in June 2010 found that 57% of 16 to 24 year olds reported having used the Internet to look for health information.

Horgan (2009) found in a population of university students that many had already searched for mental health information (31%), while 68% of participants that they would use the Internet for mental health support - however there were a significant preference for face-to-face support. Rogers (2009) also found that young adult Internet users preferred face-to-face consultations rather than those based online.

3.2. USE OF ICT FOR YOUNG PEOPLE WITH MENTAL HEALTH PROBLEMS

A recent report by Open Clinical identified some of the benefits and issues related to the use of ICT in healthcare. These are summarized in Box 1.

Within the mental health areas previously identified, we used this scoping review to find key examples of work which has been shown to bring benefit, and also areas where the evidence for benefit is not as good. We have not attempted to give a comprehensive synthesis of the evidence – our aim is to illustrate the range of research and identify key messages arising from it. The selected evidence is considered under the following headings:

- Treatment
- Adjunct to treatment
- Prevention
- Peer support
- Help-seeking
- Symptom monitoring
- Education
- Harm

Box 1. Summary of benefits and issues related to Ehealth (Open Clinical 2010)

Benefits
<ul style="list-style-type: none">• Supporting an individual's delivery of care, where ICT enables more informed decision making based both on evidence and patient-specific data.• Improving transparency and accountability of care processes and facilitating shared care across boundaries.• Aiding evidence-based practice and error reduction.• Improving diagnostic accuracy and treatment appropriateness.• Improving access to effective healthcare by reducing barriers created, for example, by physical location or disability.• Facilitating patient empowerment for self-care and health decision making.• Improving cost-efficiency by streamlining processes, reducing waiting times and waste.
Issues
<ul style="list-style-type: none">• Lack of rigorous and generalisable evidence of the effectiveness and cost-effectiveness of ehealth applications and technologies.• R&D will need to address human and organisational factors affecting implementation, from the perspectives of both health service staff and consumers (patients and citizens). Evaluation studies equally will require a multidisciplinary approach.• Implementation and integration of ehealth systems into care processes are constrained by insufficient levels of systems interoperability (though moves to ensure standardisation in many current ehealth implementation programmes will reduce this).• The legal and ethical implications of using health information technologies and clinical decision support systems which may result in harmful effects in certain cases are not yet clear. In awareness of this, the USA government in its 10 year Health Information Technology Plan is aiming to clarify the regulatory framework for electronic records and incentive their use. System developers need to employ quality and safety assurance methods to avoid clinical risks and legal liability.• Effects of ehealth tools on patient behaviour and patient-clinician relationship are unclear.• Potential health inequalities resulting from the digital divide, particularly affecting the disabled and the elderly, need to be minimised.• The potential roles and influences of different ehealth media and settings (e.g. kiosks, workplace) need to be explored. <p><i>The above bullet points were extracted from Open Clinical, 2010</i></p>

3.2.1. TREATMENT

The most well studied ICT-based treatment for mental health problems is computerised cognitive behavioural therapy (CCBT). There is evidence that CCBT can be an effective and acceptable treatment for a proportion of people presenting with mild to moderate depression and be part of the range of self-help options offered to patients. However, the magnitude of benefit and acceptability is not clear (Kaltenthaler, Sutcliffe, Parry, Beverly, Rees, & Ferriter, 2009). Trials of self-help Internet programs for depression (without therapist contact), have generally failed to yield positive results (Clarke, 2005), and often report low completion rates (Mitchell 2007). There is limited information on the effectiveness of CCBT for young people.

Christensen (2002, 2004, 2006, 2010) report on the development of a free Internet-based cognitive behaviour therapy intervention (MoodGYM, <http://moodgym.anu.edu.au/>) designed to treat and prevent depression in young people, available to all Internet users, and targeted to those who may have no formal contact with professional help services. For the Web-based population, both anxiety and depression scores decreased significantly as individuals progressed through the modules. Cognitive behaviour therapy (MoodGYM) reduced dysfunctional thinking and increased knowledge of cognitive behaviour therapy. Depression information (BluePages – a psychoeducation module) significantly improved participants' understanding of effective evidence based treatments for depression. Christensen concludes that both web-based cognitive behavioural therapy and psycho-education may offer practical and promising ways of addressing mental health problems. However, in evaluating primary-care patients' expectations and experiences of online cognitive behavioural therapy for depression, Beattie, Shaw, Kaur, and Kessler (2009) concluded that it is also important to establish patient preferences regarding this mode of delivery and ensure that referral practices are appropriately targeted as on-line CBT may feed into the vulnerability of depressed people, given the absence of visual cues and the immediate response of face-to-face interaction.

Moderate benefits from MoodGYM were found on self-reported depressive symptoms in 157 girls aged 15 and 16 years (O'Kearney, Kang, Christensen, & Griffiths, 2009). As highlighted in the review of qualitative evidence in earlier studies (Kaltenthaler et al., 2009), very low rates of adherence to the Internet programs for depression was found with 70% of girls in the MoodGYM group completing less than three of its modules and completion of fewer modules

was related to high depression score before intervention. Although research is starting to emerge on the effectiveness of CCBT with children and adolescents, the attitudes of clinicians towards this type of intervention with children and young people have only recently been evaluated. In a survey of 43 mental health clinicians Stallard, Richardson and Velleman (2010) found the majority were cautious yet positive about the use of CCBT with children and adolescents, particularly for the delivery of prevention programmes in the treatment of mild/moderate problems. Few clinicians felt that CCBT should be made available online without any professional support or guidance and it was concluded that the level of professional support needed should be considered further.

Carrard (2006) evaluated the effectiveness and feasibility of an online self-help treatment support program for Bulimia Nervosa. The online program was based on Cognitive Behavioural Therapy (CBT) and consisted of seven steps that patients worked through. The study found significant improvements in overall psychological health. In a follow-up study with 152 adolescent females completing a health course at a private sectarian school, Bruning Brown (2003, 2004) reported that students significantly improved on: a) Attitudes associated with eating disorders; and b) Behaviours associated with eating disorders. These results suggested that while improvements were seen, they may be short-term and indicative of a need for longer and more intensive interventions. The program demonstrates the feasibility of providing an integrated program for students and their parents with short-term positive changes in parental attitudes toward weight and shape.

Pretorius, Rowlands, Ringwood, and Schmidt (2010) explored young people's experience of accessing and using a web-based cognitive behavioural intervention for bulimic disorders. Eleven young people (n = 11) with bulimia nervosa or atypical bulimia nervosa completed a qualitative interview. Young people provided positive feedback on the programme for its accessibility, flexibility, support and information. Some participants used the intervention as an opportunity to seek further treatment. Web-based interventions have the potential to provide accessible, effective treatment to young people with bulimia nervosa.

An earlier randomised controlled trial of CD-ROM-based cognitive-behavioural self-care for bulimia nervosa used cognitive-behavioural self-care as a first step in the treatment of bulimia nervosa (Schmidt et al., 2008). Ninety-seven people with bulimia nervosa or eating disorder

not otherwise specified were randomised to either CD-ROM without support for three months followed by a flexible number of therapist sessions or to a three-month waiting list followed by 15 sessions of therapist cognitive-behavioural therapy (CBT). Clinical symptoms were assessed at pre-treatment, three months and seven months. Only two-thirds of participants started treatment. Although there were significant group and time interactions for bingeing and vomiting, favouring the CD-ROM group at three months and the waiting-list group at seven months, post-hoc group comparisons at three and seven months found no significant differences for bingeing or vomiting. CD-ROM-based delivery of this intervention, without support from a clinician, may not be the effective method in this population of young people. CCBT packages (both entirely self-guided, and those with some therapist contact) can potentially fit within a stepped care approach to the treatment of mental health problems, but even in this well studied area, more research is needed particularly within population sub-groups such as young people.

Computer-aided psychotherapy has produced a multitude of studies which assert the positive potential of online and remote delivery of psychological support (Marks, Cavanagh, & Gega, 2007), however there are a variety of other forms of Internet-delivered psychological support that have been investigated across different populations, including online counselling (Anthony, 2000; Day & Schneider, 2002; Richards & Tangney, 2008; Robinson & Serfaty, 2001) and online psycho-education and peer support for mental health issues (Johnsen, Rosenvinge, & Gammon, 2002). The few online counselling studies appear to produce positive results. Richards (2009) further explored the effectiveness of an online counselling service among students at Trinity College Dublin, including its uptake and usage, the issues and benefits of online counselling to students and whether students are satisfied with their experience of online counselling. The paper reports the positive effect of disinhibition, the therapeutic benefit of writing, satisfaction with online counselling and the service's impact within the community of users is complementary.

Mallen, Vogel, Rochlen, and Day (2005) reviewed the online-counselling literature with an emphasis on current applications. The studies included had not tested the effectiveness of online counselling directly; however, they provide some evidence that individuals can receive general support over the Internet. Current evidence indicates that online counselling may be a

viable service option for some clients, especially those who are typically isolated. Questions remain regarding the effectiveness and appropriateness of online counselling.

Williams, Bambling, King, and Abbott (2009) found in an exploratory investigation of in-session processes and behaviours between therapists and young people in online counselling, that therapists focused mainly on building rapport than accomplishing tasks. In evaluating 85 single sessions with young people the absence of verbal and non-verbal information when communicating via written messages appeared to limit the effectiveness of counselling.

3.2.2. ADJUNCT TO TREATMENT

A study by Lyneham (2006) examined the efficacy of supplementing bibliotherapy for child anxiety disorders with therapist-initiated telephone or email sessions, or with client-initiated contact in a randomised trial using a waiting list control. All treatment conditions resulted in improvement on self-report measures and clinician rated severity. Telephone sessions produced superior outcomes with 79% of children being anxiety disorder free post-treatment compared with 33% of email and 31% of client-initiated participants. Similarly, Roy (2008) explored how e-mail enabled engagement to occur. The therapeutic relationship could allow patients to explore and understand past experiences, and start resolving present problems. These results suggest that therapist supplemented bibliotherapy could provide an efficacious treatment option for families isolated from traditional treatment services.

Lohr (2007) explored the benefits and problems with the use of e-mail as an adjunct to face-to-face cognitive behavioural psychotherapy for patients with chronic psychiatric disorders. The study involved four patients (2 men, 2 women; aged 21-31 years) with a history of chronic psychiatric disorders. All patients met diagnostic criteria for various combinations of affective disorders and anxiety disorders and all met the criteria for social phobia. Two patients also suffered from one or more personality disorders. Patients initially received face-to-face treatment after which e-mail was added as an adjunct treatment modality. The results demonstrated that e-mail can be an effective supplement to face-to-face therapy for patients with complex psychiatric disorders. E-mail may be used in different ways, and these can be varied depending on the specific needs of each patient. E-mail may contribute positively to therapy especially for patients that express an interest in the use of this type of technology

and those that have problems concentrating, expressing themselves verbally, or have high levels of anxiety in face-to-face settings.

It is important to consider the extensive training required to provide E-mail counselling. There are several cybercounselling training resources available on the Internet (www.onlinecounsellors.co.uk; www.onlinetrainingforcounsellors.co.uk). These UK based programs are offered completely online. The development of a university-based cyber counselling certificate program has also been reported (Richards, 2009).

Hazelwood (2008) from ongoing work in her own practice with clients with eating disorders provided a personal insight into the potential implications for texting with patients with eating disorders: a) texting has helped to alleviate shameful feelings, allowing clients to engage more completely with their therapist in working through issues; b) text messaging has improved the therapeutic relationship in a variety of ways and, in some cases, has helped to manage suicidality; c) texting as part of the therapeutic process will become very significant in developing practice in the 21st century; d) texting may be transferable to many other areas of healthcare and could be used in areas such as crisis intervention, dietary support and supporting 'at-risk' patients.

In treating young people with a range of mental health issues including, anorexia, bulimia, and anxiety disorders, a recent publication reported the use of virtual worlds in therapy (Frenkel, 2009). An emerging technique combines role-playing in computer-generated environments with talk therapy. During the Simulated Environment for Counselling, Training, Evaluation and Rehabilitation (SECTER) the young person role plays in a 3-D virtual world and communicates with therapists through avatars. Research to explore the long-term effectiveness and acceptability of these types of adjunct treatment need further consideration.

3.2.3. PREVENTION

Newton (2006) identified five published studies on Internet-based eating disorder prevention programs. A meta-analysis indicated no significant effect for the pooled outcome data. The author concluded that there was no robust evidence on the impact of Internet-based prevention strategies for eating disordered symptomatology and putative factors that

contribute to eating disorder development. Further intervention development and consideration of appropriate study designs are needed.

A paper not included in the review by Newton was Taylor et al. (2006) who examined whether an Internet-based cognitive-behavioural psychosocial intervention can prevent the onset of eating disorders in young women at risk of developing eating disorders. College-age women with high weight and shape concerns were recruited via campus e-mails, posters, and mass media. The results found that after taking the course, participants significantly reduced weight and shape concerns for up to two years and decreased their risk for the onset of eating disorders, at least in some high-risk groups .

Seligman (2007) developed an intervention to prevent depression and anxiety. The intervention was a classroom-based cognitive-behavioural workshop along with ongoing web-based materials and e-mail coaching. The study involved 240 first year undergraduates at the University of Pennsylvania (65% female, 35% male) who were at risk for depression. The workshop group had significantly fewer depressive symptoms and anxiety symptoms than the control group, but there was no significant difference between the conditions on depression or anxiety episodes at six-month follow-up.

3.2.4. PEER SUPPORT

Internet support groups (ISGs) enable individuals with specific health problems to readily communicate online.(Powell et al., 2003b; Powell & Clarke 2006a). Peer support has been postulated to improve mental health, including depression, through the provision of social support. The current scoping review identified limited evidence on ISGs, this supports the paucity of high-quality evidence previously found concerning the efficacy or effectiveness of ISGs for depression (Griffiths, 2009). In two identified studies involving participants over 18 years, Houston, Cooper and Ford (2002) found that frequent depression ISG users were significantly more likely to recover from depression when accounting for their baseline depression severity and demographic variables, but this study did not include a comparison group. In a second depression ISG study of an online CBT intervention for depression in which a research bulletin board was used as a control condition, there was no significant effect of the bulletin board on reducing depression scores (Andersson, Bergström, Holländare, Carlbring, Kalso, & Ekselius, 2005). There has been a lack of evidence concerning the disadvantages of

ISGs. Given the growing role of ISGs for both users with depression, Griffiths (2009) concluded that there was a need to conduct high-quality randomised controlled trials of the efficacy of depression ISGs to inform the practice of consumers, practitioners, policy makers, and other relevant users and providers of online support groups.

Eysenbach, Powell, Englesakis, Rizo, and Stern (2004) evaluated the evidence on the effects on health and social outcomes of computer based peer-to-peer communities and electronic self support groups. Although these studies were not restricted to young people, there was no evidence to support concerns over virtual communities harming people. Given the abundance of unmoderated peer-to-peer groups with young people on the Internet, further research is needed to ascertain their effectiveness and acceptability as a method delivering mental health support.

Peer support telephone calls have been used for a wide range of health-related concerns. However, little is known about their effects (Dale, 2008). Rogers (2009) compared differences in emotional self-disclosure between young adult Internet users who prefer face-to-face therapy to those who prefer Internet therapy. A convenience sample of 328 was recruited from Facebook to complete an online survey. Significant differences were found with the face-to-face therapy group willing to disclose emotions of depression, jealousy, anxiety, and fear to a therapist more frequently than the IT group. The majority reported a preference for face-to-face therapy over IT.

Proudfoot et al. (2009) explored the experiences and difficulties faced by patients after receiving a diagnosis of bipolar disorder, as expressed online to expert patients trained to provide informed support. Twenty-six participants (54% female; age range 18–59 years) newly diagnosed patients were invited to participate in email communication with an Informed Supporter for eight weeks, in addition to receiving the online modules. The online setting for the research also provided advantages. Online social and self-management support applications offer anonymity and privacy, and people are often willing to self-disclose online than face-to-face (Tanis, 2007). There is growing evidence of the acceptability of online applications (Cavanagh et al., 2005) with many people preferring to communicate via computers, rather than face-to-face, when problems that are of a sensitive nature (Greist, Mundt, & Kobak, 2007). However, Proudfoot et al (2009) recognised that online

communication also has disadvantages, such as creating an illusion of privacy and exerting limits on probing for elaboration. The study showed that email support from non-clinicians within the context of an online psycho-educational program can support patients to communicate through writing, their experiences, meanings, issues and concerns following the diagnosis of bipolar disorder. Participants reported this experience was helpful and further the information gained obtained was particularly useful for health care professionals when developing treatment plans and assisting patients. Earlier work by Proudfoot and colleagues (2007a; 2007b) supports these findings.

King (2006) investigated the efficacy of the Youth-Nominated Support Team-Version 1 (YST-1), a psycho-educational social network intervention, with 289 suicidal, psychiatrically hospitalized adolescents (197 girls, 92 boys). Adolescents were randomly assigned to treatment-as-usual plus YST-1 or treatment-as-usual only. Assessments were completed pre- and post-intervention (6 months). There were no main effects for YST-1 on suicide ideation or attempts, internalizing symptoms, or related functional impairment. Relative to other girls, however, those who received YST-1 reported greater decreases in self-reported suicidal ideation and significantly greater decreases in mood-related functional impairment reported by their parents. This is the first randomised controlled clinical trial to investigate the efficacy of a social network intervention with suicidal youths.

In a cross-sectional study that recruited a diverse age-ranged population, Habermeyer (2009) evaluated the use of an Internet based discussion board that specifically addressed people with borderline personality disorder and that was continuously moderated by mental health professional. Discussion board participants were monitored over the course of the study with regard to the perceived helpfulness of the board discussion and psychological symptoms assessed with brief versions of the Symptom Checklist (SCL-10) and the Borderline Symptom List (BSL-15). Habermeyer (2009) reported the Internet based discussion board, with more than 16 000 log-ins during the final month, was found to have wide acceptance. The majority of the users stated that the Internet can easily reach people with mental health problems and reported that the continuous support by mental health professionals was helpful. Over the course of the project the web board users reported reductions with regard to the severity and frequency of borderline symptom. The results suggest that the Internet might be helpful in the

treatment of borderline patients, especially in coordination of therapeutic interventions or as an amendment of traditional face-to-face therapies.

Webb (2008) describes the development and conceptual underpinnings of the Reach Out! Online Community Forum, a moderated bulletin board, developed in consultation with, and facilitated by young people aged 16-25 years old. The Forum, although facilitated by young people, is supported and monitored by trained moderators. Anecdotal evidence collected via unsolicited feedback from young people using the Forum suggests that it is a positive, unique and helpful online experience although little is known about the impact on stigma reduction and help seeking in the offline world. Given the proliferation of unsupervised forums and chat rooms there is a need for further research to determine the effectiveness or potential dangers of online forums in mental health prevention and early intervention work.

3.2.5. HELP-SEEKING

Whilst mental health problems are a common affliction for adolescents and young adults, there is reluctance amongst some sufferers to present for treatment. Counselling services are widespread, however only 20% of sufferers seek help, leaving 80% to suffer unaided and in isolation (Joyce & Weibelzahl, 2010). There is some expectation that ICT technologies will be able to support help-seeking behaviours and facilitate engagement with these sufferers.

In an assessment of the prevalence, demographic and psychological correlates of Internet use as a help-seeking resource for emotional problems in a community, Gould (2002) recruited a sample of adolescents to complete a self-report survey. The instrument was completed by 9th-through 12th-grade students (n = 519) enrolled in health courses in six New York State high schools in the fall/winter of 1999. Nearly one fifth (18.2%) of the adolescents sought help on the Internet for emotional problems in the previous year. The proportions of males and females seeking help on the Internet did not significantly differ (15.6% and 20.8%, respectively). At-risk youths tended to combine Internet help-seeking with other sources of help, rather than substituting it for other resources. More than 20% of Internet help-seekers were dissatisfied with the help they received, and only 14% thought it had helped them very much.

Joyce and Weibelzahl (in Press) examined the use of text messaging as a method of lowering barriers to help seeking in a University counselling service. For many young people, although treatment facilities are available, they are often reluctant to make contact with services and seek help. In this paper the preferred method of communication amongst students was identified as texting. Texts were sent on a fortnightly basis to students at an Irish institution. Texts exhorting help-seeking were broadcast to all students, and the responses of students measured. Student's attitudes to receiving texts from the college on a regular basis were positive, provided they were about college matters. It was proposed that texting might have a role in encouraging reluctant and needy students to contact counselling services.

Further research undertaken by Costin (2009) evaluated a brief depression information intervention employing health e-cards (personalized emails containing links to health information presented on a Web page). Primary outcomes related to formal help seeking (consultation with a general practitioner or mental health professional) and targeted behaviours, intentions, and beliefs relating to informal help seeking. The study found no evidence that providing depression information in the form of brief e-cards encourages help seeking for depression among young adults. Involvement in the study may have been associated with increased help-seeking intentions among participants in all conditions, suggesting that mechanisms other than depression information may increase help seeking.

Internet users with eating disorders were approached by Leiberich (2004) to complete an online questionnaire assessing self-help behaviours. Respondents stated that they felt understood by their Internet peers and, therefore, were encouraged to start therapy. The authors argue that physicians need to start recognizing that active participation with peers on the Internet may promote an earlier start of expert-guided therapy, improved compliance, aftercare, and basic care independent of place and time.

Haas (2008) attempted to examine an interactive, web-based method to encourage college students at risk for suicide to seek treatment. During 2002 to 2005 students at two universities were asked to complete an online questionnaire that screened for depression and other suicide risk factors. Respondents received a personalized assessment and were able to communicate anonymously with a clinical counsellor online. A total of 1,162 students (8% of those invited) completed the screening questionnaire; 981 (84.4%) were designated as at high

or moderate risk. Among this group, 190 (19.4%) attended an in-person evaluation session with a counsellor, and 132 (13.5%) entered treatment. Students who engaged in online dialogues with the counsellor were three times more likely than were those who did not to come for evaluation and enter treatment. Results showed Internet skill, hours online, demographics, and depressive symptoms were not significantly related to online help-seeking. Statistical analysis showed likelihood of using phone helplines (the only other non-face-to-face source assessed), a suppressive problem-solving approach, and not going to offline mental health professionals, were significant predictors of going online for help with suicidal ideation.

Recupero and Rainey (2006) examined what a person seeking e-therapy services might find on the Internet, and how e-therapy websites characterize their services and providers. Fifty-five e-therapy websites were identified. Websites often contained confusing information about the nature of the service offered and did not always specify qualifications of providers. Some providers did not appear qualified to provide the services the websites advertised. Web sites were not proactive about providing resources for visitors in crisis. Less than half of the Web sites disclosed limits to client data security and confidentiality. With the variety in e-therapy services available online, health professionals may want to be more aware of what their patients might encounter online.

3.2.6. SYMPTOM MONITORING

Traditionally, patients have used paper-based tools for symptom monitoring, but these forms are associated with problems of data quality, poor compliance, high costs for data entry, and only provided limited feedback for the patient and physician (Bauer, 2006). The developments of digital technologies have provided means of electronic remote patient monitoring and disease management for a range of conditions, there is use of mobile phone programmes in the care of patients with bulimia nervosa (Bauer et al, 2003), mood (Bauer, 2006; Reid, 2009) and schizophrenia (Spaniel, 2008).

Bauer et al. (2003) developed and used a text messaging based intervention offered to bulimic patients for six months following discharge from inpatient psychotherapy. The intervention consists of weekly messages from the patients on their bulimic symptomatology and a corresponding weekly feedback that is a mixture of pre-programmed parts and individually

tailored information. Preliminary results indicate that the programme is well-accepted and gives support to bulimic patients after finishing inpatient treatment.

In a review of the development, validation and use of 'ChronoRecord', Bauer (2006) adapted computer technology to automate monitoring of patients with mood disorders. It is hoped that daily mood charting may increase patient involvement in their care, increase understanding of their condition and improve adherence with complex medication regimes. Auto-mated symptom monitoring may increase knowledge about the course and pattern of an individual's disorder, which may also allow earlier recognition of new episodes and help determine the optimal treatment strategy. In a similar study by Reid (2009), authors developed and evaluated a youth-friendly real-time mobile phone program to monitor young people's everyday experiences of mood, stress, and their coping behaviours. The program ran for 7 days, authors administered a brief questionnaire four times each day. The program captured data on the way young people's moods, stresses, coping strategies, and alcohol and cannabis use. These factors varied both between and within individuals, the program facilitated the collected of detailed qualitative and quantitative data about young people's everyday mood, stresses, responses, and general functioning.

Hazelwood (2008) reviewed the use of mobile phone text messaging as a therapeutic intervention in the treatment and monitoring of eating disorders. Two studies (Bauer et al., 2003; Robinson et al., 2006) used computer generated text messaging response services for aftercare of patients with bulimia. Robinson et al. (2006) examined 21 (62%) patients, predominantly female (n = 20), aged 19–48 years (median age 26 years). Patients were asked to rate the quality of the service. Fifty percent (7/14) said they would “probably not” participate in the text messaging service again and 36% (5/14) felt they would “definitely not”. Moreover, 60% (9/14) felt that they would “probably not” recommend the text messaging service to a friend with similar problems and 27% (4/14) would “definitely not”. In contrast, Baurer et al. (2003) found weekly text messages from patients on their bulimic symptomatology and a corresponding weekly feedback involving a mixture of pre-programmed and individually tailored information was well-accepted and supported by patients with bulimia after finishing inpatient treatment.

Spaniel (2008) investigated a mobile phone-based telemedicine solution for weekly remote patient monitoring and disease management in schizophrenia and psychotic disorders in general (ITAREPS). Health professionals were provided with home tele-monitoring systems (PC-to-phone SMS platform) that identifies prodromal symptoms of relapse, to enable early intervention and prevent unnecessary hospitalisations. Preliminary findings (from a one-year mirror-design follow-up evaluation) of the service's clinical effectiveness (45 patients) with psychotic illness demonstrate there was a statistically significant (60%) decrease in the number of hospitalizations (mean 283.3, +/- 111.9) during the days of participation in the ITAREPS , compared to the same time period before entry. Variables significantly influencing the number of hospitalizations after the ITAREPS entry suggest a critical role of the service in controlling the number of relapses and subsequent hospitalizations in psychosis.

3.2.7. EDUCATION

Proudfoot (2007) developed a free Web-based bipolar education program to provide accessible evidence-based information for patients, carers and health professionals. A randomised controlled trial evaluating the program in people with newly diagnosed bipolar disorder was undertaken although results are yet to be published. The nine-module program, reports usage data and user profiles, and overviews the aims and methodology of a randomised controlled trial to measure its impact. Customized Web reports were developed to measure usage of the Web-based program, and to profile its users on a month-by-month basis. Data on the percentage of completers of each module were also collected. More than 8,000 visitors used the online program in its first 6 months. Users were predominantly female, of a broad cross-section of ages, 43.5% with bipolar disorder, and with the remainder describing themselves as health professionals, carers/family/friends of a person with bipolar disorder or members of the general public. The majority (76%) completed the sessions they commenced.

Several research projects have aimed to design a comprehensive self-help website for students (Meyer, 2007; Oh, Jorm, & Wright, 2009; Santor, Poulin, LeBlanc, & Kusumakar, 2007). Meyer (2007) interviewed 13 students, representing diverse demographics to elicit 'coping' narratives. Ten students then formed an ongoing e-mail focus group. Following analysis and triangulation via ongoing feedback from other stakeholders, a final site at www.studentdepression.org detailing nearly 100 pages of information, self-help resources and

personal narratives was produced. The website provides a detailed account of how depression affects young people. The study highlights the importance of collaborative development with user-group representatives in order to produce a rich, accessible and comprehensive resource for young people.

Oh et al. (2009) compared young people's preference for a website with self-help books and two face-to-face counselling and mental health services through a telephone survey of 3,746 young people aged 12-25 years and 2,005 co-resident parents. Approximately 71% of respondents rated websites and books as likely to be helpful, which was less than for counselling, but more than for mental health services. Predictors of rating a website as likely to be helpful were older age (18-25 years), belief in seeking help, less social distance from peers like the one in the vignette, and being presented with the vignettes depicting either social phobia or depression with alcohol misuse. Predictors of rating a book as helpful included belief in seeking help, awareness of the national depression initiative beyondblue, less social distance, being presented with the social phobia vignette, and the belief that the person in the vignette is 'weak not sick'. Most young people are open to the idea of accessing mental health information online, especially for disorders that are often perceived as behavioural problems. These young people also believe in help-seeking in general and are more willing to associate with peers who have mental health problems.

In a similar study of within a younger cohort of students, Santor et al. (2007) examined the use and impact of a dedicated health information website for adolescents. A total of 455 (25.6%) students (mean age = 14.51 years, SD = 1.51) from four schools logged onto the website on at least one occasion. Fifty-nine percent of questions posted concerned issues of either sexuality or relationships. The remaining questions posted concerned physical health (22%), mental health and behavior (7%), substance use (2%), and bullying (1%). Information sheets focusing on sexually transmitted diseases and infections, stress, depression, peer pressure, and healthy eating were frequently accessed. The clinical benefits of mental health websites for young people are likely to be broad and far-reaching in areas of health education, early detection, help seeking, and improving health. However, the authors concluded that whether visiting this type of website leads to improved health will likely depend on a variety of other factors, including the accessibility of help and the effectiveness of available treatments.

3.2.8. HARM

Suicide

The influence of the Internet on suicidal behaviour is not well understood although it is recognised as a source of information, especially for people confronting issues around mental illness. Cybersuicide is a term to describe people who attempt or complete suicide after being influenced by interactions on the Internet (Thompson, 1999; Rajagopal, 2004; Prior, 2004).

There is ongoing debate among mental health professionals as to whether the Internet is positive (Alao, Soderberg, Pohl, & Alao, 2006; Barak, 2007; Griffiths & Christensen, 2007) or negative (Becker & Schmidt, 2004; Forsthoff, Hummel, Möller, & Grunze, 2006; Mandrusiak, Rudd, Joiner et al., 2006) for those seeking suicide-related help. For example, concerns have been raised about the existence of sites that promote suicide (Becker & Schmidt, 2004; Beatson, Hosty, & Smith, 2000).

Recupero, Harms, and Noble (2008) examined the types of resources a suicidal person might find through search engines on the Internet. Suicide-neutral and anti-suicide pages occurred most and pro-suicide resources were less frequent (41 Web pages) however they were accessible. The authors conclude that depressed, suicidal or potentially suicidal patients who use the Internet may be at risk and that clinicians may wish to assist patients in locating helpful, supportive resources online so that patients' Internet use may be more therapeutic than harmful.

Differing content was identified with four search engines when searching the Internet in May 2007 for sites providing instructions and information about methods of suicide (Biddle et al., 2008). It was suggested that it may be more beneficial for service providers to pursue website optimisation strategies to maximise the likelihood that suicidal people access helpful rather than potentially harmful sites in times of crisis.

It still remains unclear how easy it is to find sites relating to suicide on the Internet and what sort of information they contain. It is also difficult to determine the personal variables associated with those who use the Internet for suicidal purposes (Harris 2009).

Self Harm

Whitlock et al. (2006) explored the correlations between content areas raised for discussion on message boards. A total of 406 self-injury message boards were identified. Online interactions provided essential social support for otherwise isolated adolescents. Correlations were found between: a) offering informal support was correlated with disclosing that someone knows, suggesting formal treatment, seeking advice on stopping, and disclosing a history of trauma; and b) seeking advice on stopping and harm reduction were correlated with each other and with seeking advice about disclosure and sharing positive remarks about oneself. The authors suggested the interactions online normalize and encourage self-injurious behaviour and add potentially lethal behaviours to the repertoire of established adolescent self-injurers. The study supports other findings (Suzuki & Calzo, 2004) suggesting that electronic forums provide a rich source for studying issues in marginalized adolescent subgroups that are hard to identify and reach.

Self-injury message boards may provide a vehicle for administering a Web-based intervention to reach self-injurers. Baker and Fortune (2008) suggested that for health professionals and researchers to understand people who use self-harm and suicide websites, and engage them in their services, they must take a more balanced view and not focus solely on the possible risks associated with using such sites. Consideration of the method of delivering interventions is important. Mitchell and Ybarra (2007) found that three quarters (76%) of youths reporting self-harm used instant messaging and youths who engage in self-harm may be more likely to engage in online behaviours that place them in risky situations. Programs aimed at preventing deliberate self-harm should consider adding chat room and instant messaging to telephone capabilities.

Lam, Peng, Mai, and Jing (2009) examined the potential association between Internet addiction and self-injurious behaviour among 1618 Chinese adolescents (13-18 years). Participants reported having committed some form of self-injurious behaviour in the past 6 months (263, 16.3%). And had committed self-injurious behaviour six times or more (73, 4.5%). The odds ratio for self-injurious behaviour was 2.0 (95% CI 1.1 to 3.7) for those who were classified as moderately and severely addicted to the Internet when compared to the normal group. Although caution is needed in generalising these findings to other populations,

addiction to the Internet might have a detrimental impact on the mental health risk of self-injury among adolescents.

Pro-anorexia and pro-bulimia

A number of "extreme communities" have formed online, such as pro-anorexia, pro-suicide, pro-amputation and likely-psychotic groups. These serve to provide support, outside a medical and social mainstream (Bell, 2007).

Bardone-Cone (2006) reports a pilot study examining the affective and cognitive consequences of exposure to a pro-anorexia website. Young women (n = 24) were randomly assigned to view one of three websites created by the investigators: a prototypical pro-anorexia website, a website about female fashion using average-sized models, or an appearance-neutral website about home decor. Participants completed a set of questionnaires assessing mood and cognitions pre- and post-website. They examined the effects of viewing a pro-anorexia website. Female undergraduates (n = 235) were randomly assigned to view either the pro-anorexia website or one of two comparison websites related to female fashion or home décor. Participants exposed to the pro-anorexia website had greater negative affect, lower social self-esteem, and lower appearance self-efficacy post-website than those who viewed a comparison website. Additionally, they perceived themselves as heavier, reported a greater likelihood of exercising and thinking about their weight in the near future, and engaged in more image comparison. These findings provide an empirical basis for concern that pro-anorexia websites are a troubling new form of thin-ideal exposure that warrants further examination.

Pro-eating disorder websites are thought to promote "pro-anorexic" and "pro-bulimic" lifestyles, primarily among young girls (Ransom, La Guardia, Woody, & Boyd, 2010). These websites range in content, many offer basic descriptions of anorexic and bulimic lifestyles, and provide information to promote being slim and maintenance of dysregulated eating behaviours (Norris, Boydell, Pinhas, & Katzman, 2006). Furthermore, within interactive forums on websites, members focus on ways to achieve control and perfection (Fox, Ward, & O'Rourke, 2005; Giles & Brotsky, 2007). Although the focus of these websites has been on the negative content and themes, these online communities are complex structures of subgroups

with differing opinions and beliefs (Giles, 2006) that may serve positive supportive functions (Mulveen & Hepworth, 2006), such as providing a supportive network not attainable offline.

There is limited research concerning the impact of pro-eating websites and forums. Forum messages may provide a “safe space” for coping with eating disorder-related problems and might not directly contribute to an increase in eating problems (Walstrom, 2000). However, while forum users may benefit from feeling they are being understood by other forum members, some research suggests that there may still be underlying negative cognitive and affective consequences of the forum use (Tierney, 2006).

Wilson, Peebles, Hardy, and Litt (2006) found that while 37.5% of those in a clinical sample with eating disorders visited pro-eating-disorder websites for support and to meet others with eating disorders, 71% were visiting for motivation to maintain weight loss. In two further studies (Bardone-Cone & Cass, 2006; 2007) people who viewed pro-anorexic websites felt less attractive and confident in reaching their desired weight, ruminate about their weight and had lower social self-esteem compared to people who observed neutrally-themed websites.

Given both the potentially positive and negative consequences of frequenting eating disordered online forums, Ransom et al. (2010) investigated the nature of the information exchanged on a 60 forum member website. Ransom et al. (2010) explored the positive and negative behaviours encouraged on these forums and compared forum members' perceptions of support received from online and offline relationships to relationships of age-matched University student controls. The study found that both adaptive and maladaptive behaviours were encouraged on the forums, which had some influence on forum members experimenting with these behaviours. Forum members received less support for both their general concerns and eating concerns in their offline relationships as compared to their online forum relationships and also when compared to support received in relationships by age-matched controls. The research suggests that these forums also encourage dysregulated eating behaviours.

Cyberbullying

A number of definitions have been proposed for cyberbullying, however an agreed consensus in the literature has yet to be reached. Patchin and Hiduja (2006) have defined it as “willful

and repeated harm inflicted through the medium of electronic text”, which is primarily served via the Internet or mobile phone technology. Li (2008) discussed cyberbullying in relation to a range of electronic devices – “bullying via electronic communication tools such as email, cell phone, Personal Digital Assistant, instant messaging or the World Wide Web”. Strom and Strom (2005) described cyberbullying as “peer harassment via electronic means”, incorporating the use of mobile phones, instant messaging, pagers, texts, chat rooms, email or social networking to inflict fear, humiliation and helplessness on a bully’s victim.

In the past ten years, as young people have embraced digital technology, the emergence of the “cyber bully” has changed the characteristics of bullying (Vandebosch & Van Cleemput, 2009). A number of factors make cyberbullying different from “traditional” or face-to-face bullying. Whereas previously a harmful thing may be said, that moment passes. If a message is posted online, it may remain visible for months and have an audience of thousands (Slonje & Smith, 2007). Hinduja and Patchin (2010) discussed: 1) cyberbullying can involve sending harassing or threatening messages; 2) posting derogatory comments about someone on a Web site or social networking site (such as Facebook or MySpace); and 3) physically threatening or intimidating someone in a variety of online settings. Minor forms of cyberbullying include being ignored, hassled or disrespected, and the more sinister forms involve spreading rumours about someone or stalking through electronic communication methods.

Other troubling features of cyberbullying have been identified. Most cyberbullying occurs outside of school hours (Agatston, Kowalski, & Limber, 2007) leaving “no escape” for victims. As much occurs outside the classroom, it can be difficult for teachers to know that online harassment is happening (Beran & Li, 2005), and in the United States the point where cyberbullying behaviour crosses the threshold at which criminal or civil law is implicated is contentious (Hinduja & Patchin, 2010).

In comparison to traditional bullying, the perpetrators can act anonymously. This leads to a perception they can act without facing the responsibility of their actions, lessening the fear of being caught and punishment (Cooper, 2005).

Cyberbullying, like its traditional counterpart, can have serious negative impacts upon a victim. Cyberbullying has been linked with higher rates of suicidal thoughts amongst both perpetrators and victims, with victimization more strongly related to suicidal thoughts and behaviors than offending (Hinduja & Patchin, 2010). Mason (2008) identified the similar outcomes of traditional bullying and cyberbullying. In the short term these can include eating disorders, running away from home, chronic illness, avoiding the Internet, poor academic performance low self esteem, emotional distress and depression. In the long term and beyond school, former victims of traditional types of bullying tend to be more depressed and have lower self esteem than their non-victimized peers. As cyberbullying is a relatively new phenomenon - having developed in the past ten years - long term outcomes of cyberbullying have not yet been characterised.

Prevalence of cyberbullying varies widely between the literatures. In two UK surveys, Smith, Mahdavi, Carvalho, Fisher, Russell, and Tippett (2008) found cyberbullying to be less frequent than traditional bullying, but appreciable, and reported more outside of school than inside. Phone call and text message bullying were most prevalent, with instant messaging bullying in the second study; their impact was perceived as comparable to traditional bullying. Mobile phone/video clip bullying, while rarer, was perceived to have more negative impact. Pupils recommended blocking/avoiding messages, and telling someone, as the best coping strategies; but many cybervictims had told nobody about it.

In a survey of 1100 English pupils between 2002 to 2005, nearly 6% said they had received nasty or threatening text messages or emails 'once in a while' or more, in 2002 and 2003 (Noret & Rivers, 2006). This rose to 7% or more in 2004 and 2005. Girls reported this more than boys. Similarly in a survey of 3767 American elementary and middle school students, 11% had been electronically bullied in at least the last two months and 4% had electronically bullied someone else at least once in the previous couple of months (bullies only). The most common methods for electronic bullying (as reported by both victims and perpetrators) involved the use of instant messaging, chat rooms, and e-mail. Importantly, close to half of the electronic bully victims reported not knowing the perpetrator's identity (Kowalski & Limber, 2007).

Raskauskas (2010) examined the nature and prevalence of text-bullying among adolescents. A total of 1,530 students aged 11 to 18 years from three schools in New Zealand. Students completed anonymous surveys regarding text-bullying, traditional bullying, and depressive symptoms. Results indicated that 43% of students had experienced at least one incident of text-bullying with 23% of the sample experiencing more frequent text-bullying. The majority of victims of text-bullying were also victims of traditional bullying. Students who were victims of both text message and traditional bullying reported more depressive symptoms than those who experienced traditional bullying only and those not involved in bullying.

The charity BeatBullying (www.beatbullying.org) produced a document in 2009 Virtual Violence: Protecting Children from Cyberbullying (Cross, Richardson, Douglas & Vonkaenel-Flatt, 2009) which detailed a survey of 2000 young people (aged 11 to 18 years) and found 61.2% have witnessed some form of cyberbullying, one quarter (24.5%) had been sent a video clip or image of someone being bullied, one in five had seen hate sites or groups set up to bully someone online, and two thirds (61%) had seen or heard of fake profiles, hate sites or happy slapping material. Almost a third (31.3%) of cyberbullying incidents began offline. In agreement with the literature, girls were most likely to be cyberbullied or cyberbully. BeatBullying also investigated which websites cyberbullying was most likely to happen. One in three 11-16 year olds (30%) experienced the problem on Bebo, leading to its nickname of 'Bullybo' and a further 44.6% had witness online bullying on Bebo. Fifty-eight percent of young people who had experienced cyberbullying reported being bullied whilst using MSN instant messenger, 11.3% whilst using Facebook, 10.3% MySpace and 15.5% had suffered from bullying incidents circulating on YouTube.

The government responded to the rise in cyberbullying with the publication of the 2007 DCSF consultation document Safe to Learn: Embedding Anti-Bullying Work in Schools – Cyberbullying (Department of Education, 2007) which provided recommendations for schools. The 2006 education and Inspections Act (EIA 2006) reflected the problem of cyberbullying by including legal powers for headteachers to regulate off-site conduct of pupils and provide a legal defence when confiscating mobile phones and other items. The direct gov website has a dedicated stop cyberbullying site (Directgov, 2010) –“laugh at it and you’re part of it”, Childline (Childline, 2010) has a dedicated page, and the charity Act Against Bullying runs a campaign against cyberbullying called “cyberkind” (ActAgainstBullying, 2010).

Dependence

The pathological use of the Internet has been suggested as a problematic behaviour that exhibits similar signs and symptoms to other addictions since the 1990s (O'Reilly, 1996). In recent years, pathological use of the Internet has become a mental health concern among adolescents. For example, among adolescents in Taiwan and China the prevalence of reported pathological use of the Internet has increased from about 6% in 2000 to about 11% in 2004 (Chou & Hsiao, 2000; Wu & Zhu, 2004). Moreover, Internet addiction is increasingly being linked to depression, such that those who regard themselves as dependent on the Internet report high levels of depressive symptoms. Morrison and Gore (2010) recently explored the concept of Internet addiction and examined the relationship between addictive symptoms and depression. An online questionnaire was used to measure participants' 1,319 young people's Internet use and their depressive tendencies. There was a significant relationship between Internet addiction tendencies and depression, such that Internet addiction respondents were more depressed; there were also significant differences between sexes, with men showing more addictive tendencies than women. In addition, young people were significantly more likely to show addictive symptoms than were older people. In an interview for Science Daily Catriona Morrison suggests, "Our research indicates that excessive Internet use is associated with depression, but what we don't know is which comes first -- are depressed people drawn to the Internet or does the Internet cause depression? What is clear is that for a small subset of people, excessive use of the Internet could be a warning signal for depressive tendencies." Further research is needed to address the nature of the relationship between Internet addiction and depression in young people.

In a recent prospective study with adolescents aged between 13 and 18 years, Lam and Peng (2010) examined pathological use of the Internet and concluded that young people who were initially free of mental health problems, but use the Internet pathologically, could develop depression as a consequence. These findings appear to have direct implications for the prevention of mental illness in young people.

In an earlier review of excessive Internet use and depressive disorders, Mihajlović et al. (2008) suggested recent studies of Internet influence on behavioural disorders of its users, have provided a variety of opinions. It was claimed that some researchers consider the Internet to be a new medium for enabling various patterns of communication and social relations,

however some maintain that Internet use can lead to social isolation and other forms of psychological disorders, for example depression. In a review involving earlier searches of studies related to Internet and cell phone addiction in young people, Sanchez-Carbonell et al. (2008) concluded that excessive use of the Internet can lead to a mental disorder of the addictive type, and affect individuals with special emotional needs, as well as adolescents and young adults. In particular a major risk was found for the use of communicative and synchronic applications (e.g. chats and online role games). They proposed that these forms of applications permit hyperpersonal communication, playing with different identities, and projections and dissociation without consequences in real life. In contrast to the Internet, excessive use of mobile phones was considered abuse, but not addiction, since mobile phone use does not appear to lead to the rapid emotional changes or the playing with identities that that was evident in communicative and synchronic applications. However, more recent work has suggested that the use of both mobile phones and the Internet is more problematic during adolescence and normalizes with age toward a more professional and less playful use, and with fewer negative consequences (Beranuy et al., 2009).

Young men with introverted personalities have been mostly associated with Internet addiction, however it has also been shown that the rates of exhibiting the behaviours among girls is increasing (Young, 1996; Scherer, 1997).

Several studies have examined the risks of MySpace for adolescents (Moreno, Fost, & Christakis, 2008; Hinduja & Patchin, 2008; Ybarra & Mitchell, 2008; Mitchell & Ybarra, 2009). A recent study involving 105 participants (Median age was 36 years, 51% male) examined the potential benefits and harms of social network services (SNS) for depression (Takahashi et al., 2009). A cross-sectional Internet survey of participants, involving SNS log files and a questionnaire, with self-reported depressive tendencies found 90% (28/31) were mildly, moderately, or severely depressed. SNS provided opportunities to obtain support that meets users' needs for people with depressive tendencies; however the authors recognised that in some instances SNS can cause problems to get worse.

Toda et al. (2006) investigated associations between the intensity of mobile phone use and health-related lifestyle. Two hundred and seventy-five university students were recruited, with evaluations of their health-related lifestyle and mobile phone dependence. For males, there

was a significant relationship between smoking habits and mobile phone dependence. Male respondents with low health-related lifestyle scores had significantly higher mobile phone dependence. These findings suggest that, particularly for males, the intensity of mobile phone use may be related to healthy lifestyle.

In a prospective population-based investigation, Chih-Hung et al (2007) examined the incidence and remission rates for Internet addiction and the associated predictive factors in young adolescents over a one-year follow-up. Five hundred seventeen students (267 male and 250 female) were recruited from three junior high schools in southern Taiwan. The factors examined included gender, personality, mental health, self-esteem, family function, life satisfaction, and Internet activities. Findings revealed that the one-year incidence and remission rates for Internet addiction were 7.5% and 49.5%, respectively. High exploratory excitability, low reward dependence, low self-esteem, low family function, and online game playing predicted the emergence of the Internet addiction. Further, low hostility and low interpersonal sensitivity predicted remission of Internet addiction. The factors predictive incidence and remission of Internet addiction identified in this study could be provided for prevention and promoting remission of Internet addiction in adolescents. In recognising the increasing awareness of ICT addictions among young people, researchers should explore the potential costs this is having to society, for example in terms of job attendance increased sickness absence because of gaming addiction.

Grooming

Dombrowski, Gischlar, and Durst (2007) discussed the techniques that pornographic websites and sexual predators use to attract or make themselves accessible to Internet users. The use of computer software such as anti-spyware software, wireless encryptions, and antivirus software protect young computer users from a predator's attempt to access personal information. However, these programs cannot protect young users from a predator who has already received contact information voluntarily from a young person. The authors suggest that attention to a child's online activities should be the primary tool for protecting them from sexually explicit interactions with predators. The filtering of computer communications through tools like 'Net Nanny' (www.netnanny.com) can help prevent Internet exposure to inappropriate material. Other methods include discussing with children specific Internet dangers, parental monitoring of people with whom children have Internet interactions,

monitoring children's screen names and having any Internet-connected computers in a public area in the home, and being vigilant to inappropriate solicitations by reporting these to the authorities.

Physical harm

Occupational health studies suggest that ICTs can cause neck pain and lower back pain in the young people (Cook, Burgess-Limerick, & Chang, 2000; Korhonen et al., 2003; Palmer et al., 2001; Gerr et al., 2002). Only a few studies have investigated the association of computer-related activities with back or neck pain in adolescents; these tend to be cross-sectional in design and contain small samples. Jacobs and Baker (2002) examined the association between children's computer use and musculoskeletal discomfort. A significant association was found between the number of hours spent on computer and overall musculoskeletal pain in a sample of 152 adolescents. Sjolie (2004) also found computer use exceeding 15 hours per week was a risk factor for lower back pain in a sample of 88 adolescents. Furthermore, in a younger cohort of 212 students (aged 5 to 18 years) 15% experienced discomfort in the back attributable to computer use (Burke & Peper, 2002) and 60% of 10- to 17-year-olds reported discomfort in the neck region during laptop computer use (Harris & Straker, 2000). These findings were also confirmed in a larger study of 11 to 15-year-olds (n = 4404) (Alexander & Currie, 2004).

Specific computer activities such as using joystick or playing games were significantly predictive of physical discomfort (Burke & Peper, 2002) and the time spent on viewing television and video is positively related to back pain (Kristjansdottir & Rhee, 2002). In recognizing the frequent multiplatform use of ICTs among young people, Hakala, Rimpelä, Saarni and Salminen (2006) examined the use of computers, the Internet, and mobile phones, playing digital games and viewing television are related to neck–shoulder pain and low back pain in a national survey of 14- to 18-year-olds (6003 responded, response rate = 68%). Neck–shoulder pain was perceived once a week or more frequently by 26%, and LBP by 12% of 14- to 18-year-olds. Prevalence of neck–shoulder pain and low back pain was higher among girls than among boys, and increased with age. The time spent on digital gaming, viewing television, and using mobile phones were not associated with neck–shoulder pain, nor was the use of mobile phones and viewing television with low back pain after adjusting for confounding factors. The authors concluded that daily use of computers exceeding 2–3 hours appeared to be a threshold for neck–shoulder pain and exceeding 5 hours for low back pain.

Young people's views on harm

Limited research was identified on the views of young people about the potential harms of ICTs. According to Ofcom media literacy research (Ofcom, 2010), six in 10 (61%) Internet users have some concerns about the Internet. However, less than half of 16-24 year-olds were concerned (48%) compared to nearly three-quarters (74%) of 55 to 64 year-olds. It was suggested that this variation across aged may relate to the young age group being more familiar with the Internet. In terms of children's attitudes towards the Internet, around one in six children state that "it's easier to keep things private or secret on the Internet than it is in real life" (16%) with one in seven children aged 8 to 15 years said they "feel more confident online than they do in real life" (14%), or that "it's easier to talk about personal things on the Internet" (14%). Furthermore, the Ofcom Children's Media Literacy Audit found that while children had some dislikes associated with using media, relatively few children aged 8 to 15 years had concerns about being exposed to media content that makes them "feel sad, frightened or embarrassed" or content that they feel is too old for them.

Mishna, McLuckie and Saini (2009) sought to understand the phenomenon of abuse, mediated over the Internet, from children's and youths' perspectives. The authors examined anonymous posts made by young people to a free, 24-hour, bilingual phone and web counselling information service. The youths were between 11 to 24 years of age (Mean age = 14 years). Analysis provided information about their involvement in online interactions and their experiences with cyber abuse. The study revealed the regularity and importance of the Internet and communication technology for socialization and young peoples' fear of disclosing cyber abuse to adults, particularly parents. However, 16 to 24 year-olds were significantly less likely than users in general to have concerns about the offensive or illegal content and security or fraud on the Internet.

3.3. CASE STUDIES

We identified six case studies to provide examples of best practice in some of the areas described in the scoping review.

3.3.1. CYBERMENTORS

As a result of the findings of *Virtual Violence: Protecting Children from Cyberbullying* (Cross, Richardson, Douglas & Vonkaenel-Flatt, 2009) the charity BeatBullying (<http://www.beatbullying.org/>) developed a cybermentors scheme. Cybermentors (cybermentors.org.uk) is a large online chat room aimed at young people who are or have been bullied. The Cybermentors website allows young people to join an online community and draw experience from other users and from “cybermentors”. Cybermentors are young volunteers aged 11 to 25 years who have received training in moderating the forum (either in schools or online), the service has around 125 cybermentors. These young advisers may also suggest that user talks to one of the "life mentors" – volunteers aged over 25 years – or refer them to professional advisers and counsellors who are also online. The life mentors are from a diverse range of ages and social backgrounds and there are about 75 adult volunteers who have got involved in service provision.

The cybermentors scheme has led to over 400,000 users accessing the site, and as a result of the success, the development of the “ReSync” site. Cybermentor staff had noticed that the site's users had started to want to talk about a much wider range of problems and, when they asked them what other issues they'd most appreciate help with; the response was focused overwhelmingly on education and jobs. Under the new scheme (ReSync), 16 to 25 year-olds who have been out of work and education are giving advice to other young people in similar situations, the service is particularly aimed at those young people who are not in education or employment (NEETS).

3.3.2. REACH OUT!

Reach Out! is an online community created for young people to address mental health issues in Australia. It was created in 1998 by the benevolent charity the Inspire Foundation, and numbers of users have increased since.

“Reach Out!” provides an online community forum moderated by trained supervisors where users can chat and exchange experiences with one another. Alongside the community forum, there is an online interactive, “serious” game “Reach Out Central” which allows users to engage in different scenarios and “learn from experience” life skills and how to deal with real life situations. A “teachers’ network” has been developed to encourage teachers to utilize “Reach Out!” tools in the classroom, highlighting mental health issues. In 2007, Reach Out

expanded to provide a temporary television channel “Reach Out TV” over the Christmas holidays. The website also provides information on mental health problems, and links to the social networking sites Facebook and Twitter.

Reach out has mainstream acceptance amongst young Australians, with 1,429,540 unique visits in 2008, averaging to 119,128 unique visits each month.

3.3.3. KOOOTH.COM

Kooth.com is built by the private company xenzone and was founded in 2001. It provides an online support service for young people aged 11-25, which links directly to local face-to-face services, schools and other agencies.

It is provided on a three tier structure – the first tier allows universal access to basic services, and the next tiers are funded by local authorities, and allow access to further services if the users are from a funded region. These funded “tiers” allow the provision of an online chat room, magazine, news forum and blog boards, and access to British Association of Counselling and Psychotherapy accredited counselors (Kooth.com charges on average £37.50 for each hour of counselling time), who provide ongoing online assessment, counselling and support to users, and online referral, integration with local services and support to multi agency staff such as drug workers, sexual health workers and youth workers.

Kooth.com has won a number of awards, including the 2008 Local Government IT Excellence Award, and has over 21000 young persons registered as users. Of these 9% are non white, and 20% have been through the Child and Mental Health Services.

3.3.4. TRUE COLOURS

The OXTEXT research program is being run by the University of Oxford Department of Psychiatry in partnership with the Oxfordshire and Buckinghamshire Mental Healthcare Foundation NHS Trust (OBMH). “True Colours” is a monitoring system which has combined the simplest, most widely used and convenient technology – the Short Message Service on a standard mobile phone – with sophisticated software engineering.

True Colours is aimed at bipolar affective disorder patients, and allows patients to receive weekly text/email prompts, reply with their mood ratings and both patient and doctor receive graphs allowing them to track their condition. This remote monitoring with clinical supervision can reduce need for clinic appointments allowing patients to get on with their lives when symptom free but can show early signs of relapse enabling early intervention to prevent or minimize impact of relapse. It can also be used to measure the effectiveness of other interventions used.

The research team at the University of Oxford is running trials to evaluate the effectiveness the “True Colours” monitoring system (<http://oxtext.psych.ox.ac.uk/true-colours>).

3.3.5. MOODGYM

A free and independent resource developed by the Australian National University and Centre for Mental Health Research, MoodGym is an online interactive system that provides cognitive behavioural therapy (CBT) to people with depression. It is available to all Internet users, and targeted to those who may have no formal contact with professional help services.

MoodGym has been online since 2004 and has over 400,000 registered users. The programme provides five e-modules, a workbook, an interactive game, and downloadable relaxation audio files. The principles of cognitive behaviour therapy demonstrate to the user the relationship between thoughts and emotions, helping users to work through dealing with stress and relationship break-ups, as well as teaching relaxation and meditation techniques.

The benefits of MoodGym and providing cognitive behavioural therapy online have been extensively trialed and its effectiveness in depression proved. Christensen (2002, 2004, 2006b, 2010) report for the Web-based population, both anxiety and depression scores decreased significantly as individuals progressed through the modules. Cognitive behaviour therapy (MoodGYM) reduced dysfunctional thinking and increased knowledge of cognitive behaviour therapy. Depression information (BluePages – a psychoeducation module) significantly improved participants' understanding of effective evidence based treatments for depression. Christensen concludes that both web-based cognitive behavioural therapy and psycho-education may offer practical and promising ways of addressing mental health problems.

3.3.6. HEALTHTALKONLINE

The Health Experience Research Group has created a unique database of personal and patient experiences through in-depth qualitative research into over 40 different illnesses and health conditions. This collection of highly reliable data on personal and patient experiences is designed to help people to make informed decisions, regarding their own health, backed by solid evidence.

Individuals have been able to upload video to be streamed over the web to visitors of the sites (www.healthtalkonline.org and www.youthhealthtalk.org). These sites are targeted at patients, their carers, family and friends, doctors, nurses and other health professionals. “Users of our websites will find accounts – presented through video, audio and written material – which resonate with their own perspectives and experiences of issues such as reaction to diagnosis, consultation with their doctor, effect on work, social life and relationships, decisions on treatment options and side-effects of treatments” (<http://www.healthtalkonline.org/Overview>).

3.4. DISCUSSION

Children in today’s society are born into a digital world, and for many young people (“digital natives”) they have never been without ICTs affecting all aspects of their daily life. The most commonly owned devices being used by young people are MP3 player, PC, TV, DVD players, mobile phones, stereos, games consoles, and digital cameras. Young people increasingly own a PC or laptop, have access to the Internet in their own room, and social network on Facebook. Young people report a need to have access to mobile phones. Although many young people access the Internet on their mobile phones, the increased costs associated with higher specification mobile phones may impact on young people in lower socioeconomic groups. Home Internet access varies by age and socio-economic group. Factors associated with higher disposable income, greater propensity to have a fixed telephony connection and greater likelihood of using the Internet for work purposes may impact on digital divides.

The multi-platform access to a broad range of information can distort the distinction between the real and virtual world. Children often refute the rules about minimum age limits on websites, although many parents condone this behaviour, many actively encourage it (CHILDWISE, 2010a). Parents and children have expectations about standards of protection

and probity when on-line, mirroring their real life experiences. Young people have concerns about the Internet but the level varies across age groups, with the most prevalent concerns related to offensive and illegal contents on-line.

Different forms of ICTs have the potential to be used by young people with mental health disorders. However, in scoping the literature the breadth of study designs, limited research for some technologies and mental health conditions makes the magnitude of benefit difficult to determine. The scoping review highlights the lack of high quality evidence supporting more widespread implementation of ICTs for use with young people at this stage. This is a rapidly evolving area, with new technologies regularly entering the market. There is an under utilisation of some technologies such as mobile phones in mental health research with young people. The potential barriers to implementing wider use of ICTs in a healthcare setting, including adoption, training and resource issues, need greater consideration.

The main focus of research appears to be on adults, with less attention being made to younger people. There is an urgent research need to examine the future use of ICTs in mental health care provision with young people given the high prevalence of Internet use in this age group, the ever-increasing pervasiveness of ICTs, and the potential of ehealth tools to inform, empower, provide social support, and deliver services. A key area for future research is the full extent on how ICTs are being used with BME, NEETS and hard to reach populations. ICT interventions may also have collateral health affects which should be explored further through longitudinal research.

4. STAKEHOLDER INTERVIEWS

A qualitative analysis of sixteen stakeholder interviews was undertaken to identify key themes related to the use of information communication technologies (ICT) in the provision of services to young people with mental health problems, and to determine the stakeholders' opinions and experiences with regard to answering the questions posed in the Comic Relief brief.

4.1. THE WIDE VARIETY OF ICT BASED INTERVENTIONS DISCUSSED

A key point from the interviews was the breadth of services that employ ICT to engage with users. The diversity of applications of ICT in younger people's daily lives and the range of services that can be offered was a recurring theme throughout the transcripts. Two technologies that were foremost in the interviews with professionals were mobile phones and social networking sites, predominantly Facebook. Facebook allows the sharing of experiences and has been used as a powerful tool by a number of those interviewed, and was seen as a way to connect with young people, enable young people to share experiences and - in one professional's case – as a way to identify vulnerable young people.

A wide variety of ICT based interventions were discussed, these included: one to one online interactions between service providers and other users; encouraging young people to engage with music and video projects; facilitating online discussion forums; development of iPhone mobile applications; online cognitive behavioural therapy; online mood monitoring and mobile phone text based systems which links directly to clinicians; provision of online information; and the use of social networking sites and groups.

One interviewee discussed the use of telemedicine and virtual consultations in relation to mental health, and their benefit in geographically far destinations, using the provision of counselling to post traumatic stress disorders sufferers following the Sichuan earthquake in China via telemedicine from practitioners in Hong Kong as an example. Another discussed how this can be applicable to services in the UK, particularly when engaging clients in rural locations.

One of the interviewees also discussed the site Patients Like Me which is directly aimed at patients sharing experiences, with the concept:

“Sometimes... in fact, often the best people to give you advice are people who’ve been through what you’ve been through and not professionals who have never really experienced it...”

4.2. BENEFITS OF ICT

4.2.1. ANONYMITY

The importance of anonymity was particularly highlighted. A sense of anonymity combined with easy access was seen as a benefit:

“Young people may obviously feel very concerned and stigmatized by mental health problems and not want to talk about it”.

However, ICT was perceived as something that can be accessed *“without anyone knowing”*. This was seen as a benefit above face-to-face or group interactions, and is cited as a factor in the success of therapeutic computer programs.

The adoption of a persona or avatar allowed young people to:

“Not bypass that stigma (attached to mental health), but not having to face it up front, because you can go down, chat with people who appreciate how you feel”.

The web was perceived as a *“safe place”* where identity can be protected.

4.2.2. PRIVACY

The perceived importance of privacy was emphasized by the professionals interviewed. The benefit of privacy, particularly of mobiles and the Internet, was highlighted as a benefit in relation to mental or sexual health as they are often private to the individual:

“People are a lot less inclined to talk to their family and more inclined to kind of use the web as a way of cutting through the embarrassment and the stigma...”

Interestingly, one professional interviewed cited the lack of privacy inherent in technologies such as touch screen kiosks and interactive television services as a reason for their organisation no longer actively pursuing these modes of delivering services, and privacy is one reason for the expansion of services provided through mobile technology.

4.2.3. THE ACCESSIBILITY OF ICT – “PRETTY MUCH 24/7”

The availability of emails and Internet over mobile phone networks enable users to be available by this mode of communication whilst on the move. The major social networking sites such as Facebook and Twitter are also available on mobile telephones. The value of “24/7” access was recognized by the professional interviewees:

“I think we’re starting a twenty-four / seven thing, because... You know, many young people have had a bad experience and they’ve not been able to contact anyone who can help them...”

“It’s essential that there’s somewhere you can go anytime and actually, you can network with young people in other ways and get peer support”.

4.2.4. INFORMED USERS

Informing the users was discussed, which may lead to a change in traditional relationships between users and service providers:

“The power balance can be so skewed in the mental health system, because it’s such a strong system...but information delivered via the web can help young people to sort of take a bit more control back or balance at that point a bit more”.

The biggest perceived change to the “medical model” and associated services will be “when more people start asking for the kind of services they want”.

Informed users can also influence practitioner behavior:

“It may be more demanding, but you know, at the end of the day its young people being able to sort of make them more... make practitioners more accountable and that’s an opportunity for practitioners to develop”.

Young people were described as often being heavily involved in the development and evolution of interventions using ICTs:

“A lot of them [projects] realise that it’s quite easy to involve young people in designing stuff online”.

It was not felt that young people should have necessary control over the intervention but that there could be a more collective responsibility:

“How young people can participate in different ways in helping to support each other but to also volunteer and take on some responsibility and some leadership in helping to offer those services”.

Participants also identified the introduction of ICTs having broken the traditional relationships within service delivery, enabling teams to become more multi-disciplinary as *“communication is becoming easier”*.

4.2.5. THE UBIQUITY OF MOBILE TECHNOLOGIES

*“Mobile phones are almost 100% ubiquitous in the younger population”.
Teenagers are “the highest adopters of mobile technology in this country”.*

One professional interviewed described the use of mobiles as:

“Connecting them (young people) in the language that they communicate in as a standard”.

The use of mobile technology was emphasized by a number of those interviewed in relation to its potential for providing *“transactional”* information.

The *“all pervasive nature”* of mobile technology was seen as a way of overcoming remaining problems with access to ICT based services and digital divide issues:

“I think what is actually really interesting about new technology than on just being able to reach more people and support more people, is the opportunity to kind of reach people who might not have expressed a need for support in the first place”.

4.2.6. COSTS SAVINGS

It is clear that ICT was seen as a potential way to reduce costs as well as supporting patients. The professionals identified three different ways in which this can be done. The first was the provision of information online. Secondly, *“transactional services – booking appointments, prescription requests, health records”* etc. are cheaper done online and provide increased efficiency. Thirdly delivering the services in the digital space – examples included *“self-monitoring for long term conditions, diabetes”* or *“home based technologies to monitor their conditions, or in the mental health area online CBT”* may reduce the need for other types of consultations. Another example given was a mobile phone based mood monitoring systems that sends information directly to clinicians, thus negating the need for patients to attend monitoring clinics, allowing resources to be directed to need and patients unnecessary contact with professionals.

As well as accessing more users three interviewers described using ICT to access remote or rural locations, two of these discussed it in the context of third world countries, and one remote locations in the UK.

4.3. NEGATIVE ASPECTS TO ICT

4.3.1. DIGITAL EXCLUSION

A concern amongst those interviewed was the risk of digital exclusion – some of the population most needing the information and support provided by ICT may not have access:

“I think access is something which must never be forgotten despite the fact that many people talk about there being broadband access and Internet so easy to come by. I think that’s just not the case and we should never be complacent about peoples’ access to the Internet”

The issue of cost in relation to digital exclusion was interestingly discussed by one interviewee as sometimes ICT based health services may transfer the cost from the provider to the user.

Of the professionals interviewed there were a number of ways in which the digital divide could be overcome, examples included utilizing basic, most accessible technologies such as text

messaging, and on a societal scale increasing access to ICT, such as Internet in libraries. As development continues, the costs of technologies fall.

One interviewee also highlighted concerns that there can be difficulties in access to the Internet amongst, *“community staff, community nurses, community psychiatric nurses”*.

Many of the participants offered vague discussion on how they accessed hard to reach populations. Many of the participants aimed to target difficult to reach populations such as black and minority ethnic communities or those not in education, employment or training, but actual data was scarce, other than through the use of proxy measures such as user demography that engage with traditional services.

One interviewee discussed the difficulties of collecting data on users:

“So if you’re offering like a confidential service and asking people to give personal details that are not necessarily relevant to the advice and information that they’re seeking, it can be kind of problematic.”

Another interviewee suggested a unique solution to obtaining this type of data, when using mobile technology it is possible to collect geographical data and correlate this to *“pockets”* or *“clusters”* of ethnicity or unemployment.

4.3.2. MONITORING, RISK & GOVERNANCE

A number of the interview participants discussed concerns by members of their organisations about moderating user generated content (in relation to discussion boards, blogs) and a barrier to adoption was management being risk averse.

The importance of governance in interactions between users and is emphasized in a number of interviews with professionals.

Some participants discussed the need for policies and procedures to be in place to record online interactions between providers and users. Interestingly, this was discussed in relation to both worker safety, and the safety of users, and having procedures in place to deal with different scenarios:

“What is the worst case scenario, the worst that can possibly happen. That came down to either a worker being accused, right, of having an accusation, or a worker grooming right. How do we work back from that scenario and ensure that we can, you know, prevent that.”

With regards to risk associated to users three of the participants interviewed discuss the difficulties with sub cultures such as self harming, and one mentions “pro-ana” (pro-anorexia) sites and online bullying as potential harms.

A difficulty in providing services is the possibility of miscommunication:

“Communication can be easier to misinterpret sometimes because you can’t sort of... you know... how to get an idea of someone’s body language, or the context of what they’re saying”.

This limits the use of providing services via ICT:

“It’s certainly not a vehicle for doing any kind of crisis or in-depth therapeutic work...”

Two of the professionals interviewed raised the concern that in some cases, service users may only use online services when they require professional support.

4.3.3. ORGANISATIONAL BARRIERS TO ADOPTION OF ICT

Barriers experienced included lack of technical skills amongst staff, and a lack of training available. Interestingly, this was reflected throughout all grades – and at senior level (Chief Executive Officers, Financial Directors) both a lack of knowledge and confidence in ICT can be a significant hurdle to adoption of new technology.

One interviewee explained how individuals in the workplace who lack the ability to adapt to ICT can lead to subsequent exclusion, once the culture of an organisation changes to ICT based. Changing from paper based systems to ICT driven raises change management issues, which need to be addressed.

The need for significant financial investment was identified. Developing, testing and maintaining software and hardware are discussed, and from the experience of those interviewed:

“Very often people will focus on the setup costs and not look at the ongoing cost, and sometimes the ongoing cost can be much larger than people anticipate...”

Poor technological infrastructure and failure to invest was identified as a key barrier:

“We have been fraught – fraught! – with IT problems...[initial] investment was pretty minimal and as a result two years down the line, it’s costing money down the line, which would have been better to do from the start”.

Many of the professionals interviewed recognized the need to adequately staff support for these systems:

“I think there are other things that are quite often underestimated like the support that’s needed to ...you know, the human resource really to run any kind of informational support service”.

One interviewee also highlighted the need for management time to be allocated, and *“that’s clearly a distraction from your core activities, but unavoidable”.*

4.4. DISCUSSION

The stakeholder interviews provided an insight into the use of ICT by those that are directly involved in its provision to young people with mental health problems. It was clear from the interviews that ICT cannot be labeled and evaluated as one intervention. ICT should be viewed as the tool which is used to deliver a specific intervention rather than being the intervention itself.

There were clear themes regarding the stakeholders’ perceptions of benefits. The ability to engage with a service or project anonymously, privately and at any time of the day were seen as major reasons for using ICT, and the stakeholders noted how users may then become further informed on their condition. Interestingly, these benefits to the user also present some challenges to the service providers. For example, by allowing users to access services anonymously there is a difficulty in collecting data that is needed to ensure that those users

whose need is greatest are utilizing the service, and with anonymity there is a lack of accountability for users, which may lead on to problems such as negative messages being posted between users (or “cyberbullying”). Stakeholders discussed the issue of moderating user content (for example, on a social networking site), which - combined with the need for a twenty four hour, seven day a week service – can detract from an organisations core activities.

At an organizational level, stakeholders recognized the key benefits of providing greater reach to users, attracting different types of users, providing information and ‘transactional’ services to users and in delivering online services. However, there was concern over digital divide issues and access to the Internet amongst stakeholders. The mobile phone was seen as an equitable way of providing services. The predominance of this platform’s potential was clear from stakeholder discussions.

Stakeholders discussed a number of factors organisations must consider for the successful adoption of ICT based projects. The need for correct governance procedures to be applied and for the cost of both implementing and maintaining a service were the main themes that emerged. There was also a need for providers to consider possible harms to users - negative messages spreading between users and the possibility that users may turn to ICT and online peer groups in preference to traditional, face-to-face professional support when the latter is required.

The stakeholder interviews allowed us to identify what were perceived to be some of the challenges and benefits that providing services via ICT can represent to both users and organisations.

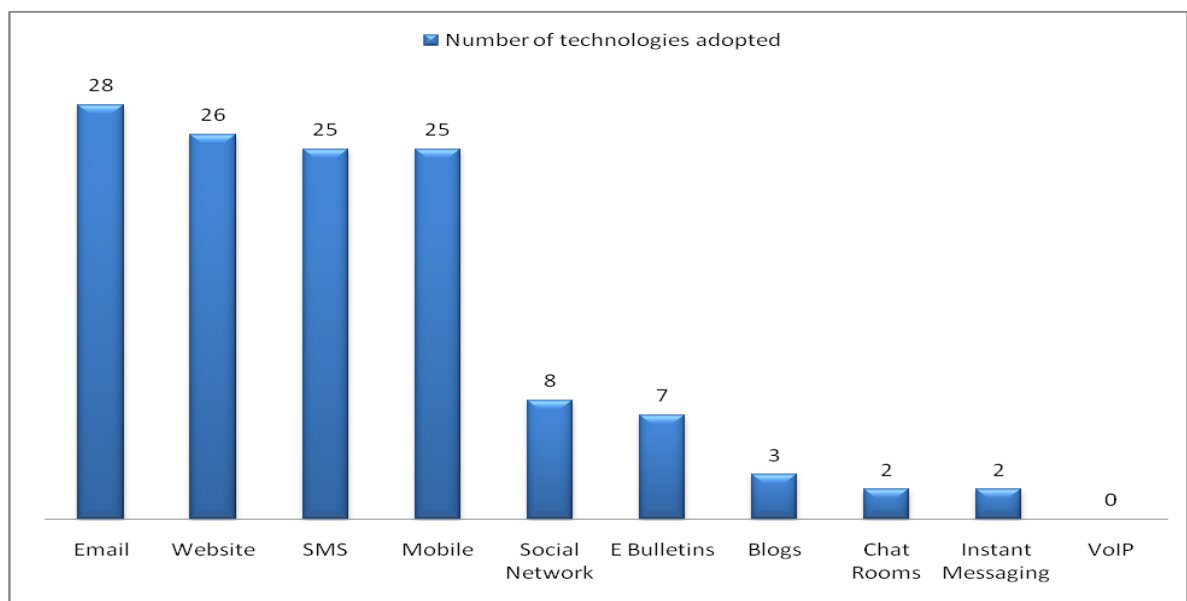
5. QUESTIONNAIRE SURVEY OF COMIC RELIEF FUNDED PROJECTS

This section gives an overview of the questionnaire results and presents the findings in relation to the research questions. Of 64 organisations approached to participate in this study, 36 completed questionnaires were returned (56% response rate).

5.1. OVERVIEW OF ICT USE

As shown in Figure 5.1, email (78%, n=28) was the most common information communication technology (ICT) used by the responding organisations in their work with young people with mental health problems. Websites (72%, n=26), calling from/to mobile phones (69%, n=25), SMS (69%, n=25) were also widely used. Other technologies being harnessed to a lesser extent included social networking sites (22%, n=8), electronic bulletins (19%, n=7) blogs (8%, n=3), chat rooms (6%, n=2), and instant messaging (6%, n=2). Voice over Internet Protocols (VoIP) were not used. In this sample of organisations, 80% (n=29) used more than one technology (for this analysis the sending of SMS messages and making mobile telephone calls were counted as using the same technology). One (n=1) organisation adopted a 'talk by text computer programme' while another utilised a private online question and answer service (n=1).

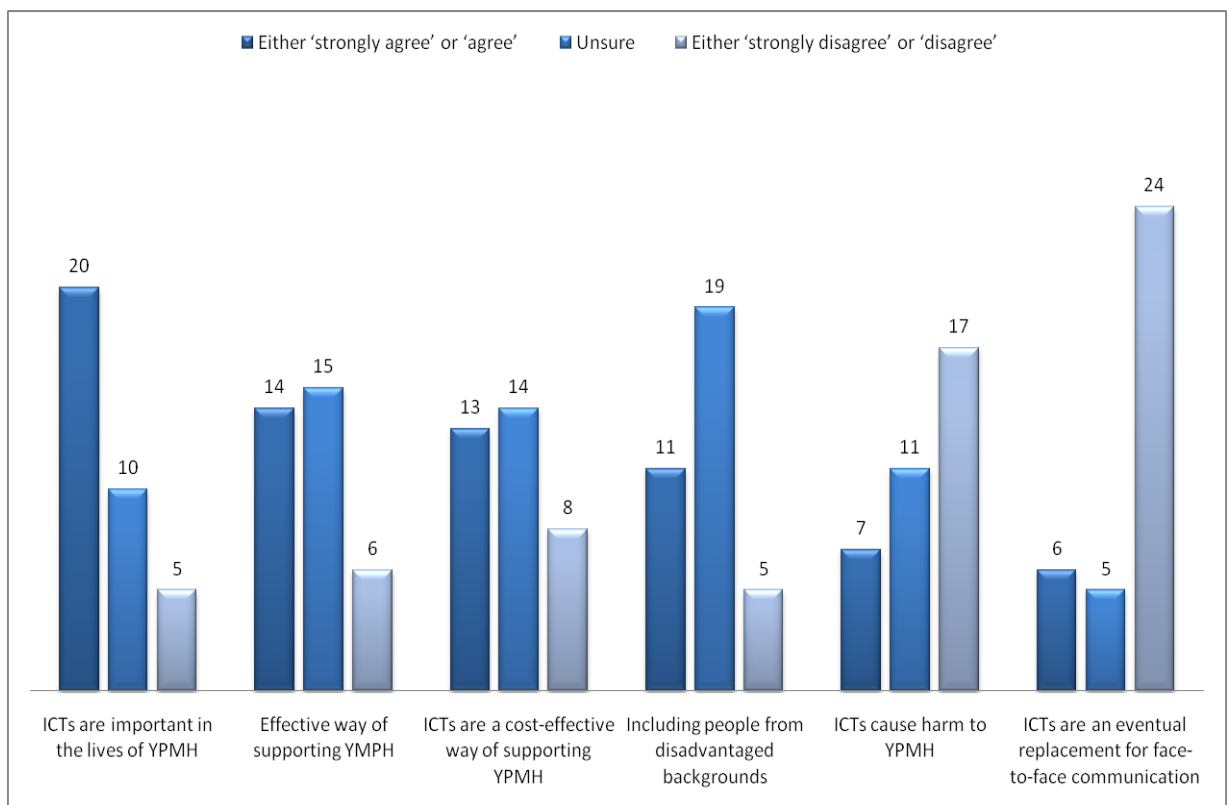
Figure 5.1. Use of technologies by Comic Relief funded organisations (n=36)



5.2. ATTITUDES TOWARDS ICT

Thirty-five of the thirty-six responding organisations replied to this question. There was wide recognition among these organisations that ICTs are important in the lives of YPMH, with 57% (20/35) of organisations either 'agreeing' or 'strongly agreeing' with this question. ICTs were perceived as an effective way of supporting young people 40% (14/35) cost-effectively (37%, 13/35). Some organisations reported that ICTs can be a way of including people from disadvantaged backgrounds (31%, 11/35) and few organisations (20%, 7/35) reported that ICTs cause harm to young people with mental health conditions (YPMH). However there was little expectation that ICTs can be an eventual replacement for face-to-face communication 46% of organisations (16/35) 'strongly disagreed' that ICTs can replace face-to-face interactions. The following figure illustrates the broad range of responses:

Figure 2. Views on ICT by Comic Relief funded organisations (35 organisations responded to this question)



The remaining questionnaire findings are presented under the headings of the four research questions posed by Comic Relief.

5.3. VALUE OF ICT INTERVENTIONS

What is the value of different ICT interventions, (particularly in terms of efficacy and cost) from the perspective of organisations delivering projects, funders supporting services, and young people with mental health issues receiving them?

5.3.1. SIGNPOSTING SERVICES

ICTs were reported to make information and services more accessible, providing an opportunity for mental health HCPs to offer young people communication, support, and to signpost referral pathways (to local and national services). A range of ICTs were used to disseminate information such as email lists, mobile phones and social networking sites. Many respondents reported that websites were especially useful for signposting, referral, information dissemination, and advertising as they often contain factsheets, question and answer services, and contact links to assist YPMH in their health decisions.

5.3.2. PEER TO PEER

Organisations reported that the peer-to-peer communication which is facilitated through ICTs can be beneficial to YPMH. Some organisational websites incorporate moderated discussion boards and forums to encourage peer-to-peer communication, however few organisations adopted instant messaging and live chat into their service provision. Message boards were used by several projects for YPMH to gain social support from peers and other service users; for example, YouthNet uses discussion boards, forums and facilitates expert chat session to engage with YPMH and to stimulate peer support; content is moderated by trained individuals.

Email communication is the most commonly ICT used by adults however organisations reported that take up of email services by young people was rare.

5.3.3. MOBILE PHONES AND TEXT MESSAGING

Short Messenger Service (SMS or 'texting') was the most widely used, and was reported to be the most accessible, ICT for young people. Organisations adopted SMS to further engage with young people in a way that was acceptable. 'Texting' was most often utilised to arrange appointments, send reminders and for basic information updates and exchange; texting appears to offer greater potential as young people do not always respond to voicemail or missed calls, and SMS offers a suitable cost-effective alternative to these. For example,

automated text messages for appointment and/or event reminders were adopted by The Howard League for Penal Reform; these SMS interactions were particularly suitable to young people and were successful in reducing absenteeism and improving communication.

The positive contribution of mobile phones to service provision resulted in organisations aspiring to launch or extend their mobile delivered support services. Those organisations which have adopted the use of ICTs would also like to launch online services delivered either through email, live chat or via instant messaging. Organisations have found that by offering online services more young people were contacting them.

“The use of ICT allows a lot of young people who are not comfortable with using the phone to be able to express themselves and ask for support in a way they are more comfortable”.

Communicating through ICTs may be more ‘normal’ for certain young people. Written communication (transmitted by e.g. email, text) were reported as useful for those who may prefer not to speak with HCPs but whom still want to engage in the self-management of their mental health. Written communication was considered by respondents to facilitate the articulation of feelings, desires and experiences. The use of video and documentary has also worked well engaging with young people.

“Young people have said they find they help and that they like to see them regularly updated”

While no organisations who responded currently use VoIP (e.g. Skype) many have identified this technology as something they would like to adopt into service provisions for YPMH.

5.3.4. SOCIAL MEDIA

Organisations have reported that ICTs may be useful as an early intervention function for those who are socially isolated and/or socially anxious. ICTs, in particular social networking, discussion and forum sites enable young people to communicate with peers; peer-to-peer communications appear to ‘empower’ young people by showing that ‘they are not alone’, and other individuals can ‘share experiences, advice and support’. Social Medias (such as Facebook and YouTube) are making it easier for traditionally hard to reach populations to access services and share experiences. This sense of community is important in understanding why

interventions may be successful; where relationships pre-exist between service users and providers, ICTs have enabled continuity of care despite issues faced by many young people around transient living arrangements, multiple care placements and transitions between services and/or providers. Where prior relationships don't exist these technologies can be used to build up support networks and sources of information. As ICTs were also reported to increase knowledge and management capacities of YPMH, they may offer the opportunity to "create a more equal relationship with clinicians" with more informed and conscientious service users.

5.3.5. SUPPORTING SERVICE PROVIDERS

Respondents identified that ICTs have enabled access to good practice guidelines and an evidence base for frontline workers to aid and assist in effective practice and decision making. Appropriate technological controls and staff supervision are important for creating more manageable ICT interventions and services. Clarity regarding expectations and boundaries are highlighted as an issue that should be incorporated into practice guidelines and protocol. Organisations have generated policy that limits or prohibits the use of ICTs (in particular social networking sites) based around perceived risks of safeguarding users and providers; policy relates to the moderation and generation of appropriate content. While restrictions to software adoption by either the organisation, contracts with other IT providers or availability are concerns relating to the uptake of new technologies.

Trepidation exists around the need to provide training and support for workers. Organisations report that large ICT systems cannot be developed and maintained without further investment in staff and resources. Service providers have expressed concern that if they are required to engage in training then there is less time for engagement in therapy "*[with] long waiting lists of suicidal clients [we] don't have the luxury of saying sorry we can't see you we're off on an ICT training course*". This is clearly a concern which requires investment to resolve; feedback from users has been used to indicate the success of interventions which have eased therapeutic and professional development conflicts for service providers.

Organisations reported that ICTs can provide young people with methods of accessing confidential and anonymous services. Importantly, online anonymity was suggested to reduce the stigma associated with having a mental health problem.

5.4. CONTACTING THE HARD TO REACH

How can ICT be used to contact the most disadvantaged and hardest to reach young people with mental health issues?

5.4.1. HOW ICTs FACILITATE ACCESS

Access to computers and computer literacy was a concern in relation to both providers and users. Familiarity and experience of ICTs were important in allowing quicker engagement with the services that are being delivered. ICT delivery systems are complex and occasionally require sophisticated architecture; those staff and users with lower ICT skills benefited from mobile phone technologies which were considered simpler to use. Mobile phones also created opportunities for direct one-to-one contact between YPMH and HCPs through calls and text. When communication is initiated from the HCP this removes the need to the young people to have credit and finances to initiate communication; costs for user initiated communication need to be considered when developing services. Another issue was the frequency with which users change their mobile phone numbers which limits their capacity for continual communication.

Findings also suggested that ICTs may be useful for those YPMH who are unable to access services directly, for example those in rural locations. ICTs allow services to support users without the need for travel and the costs associated with commuting to 'real world' services.

"Young people who are socially isolated and do not interact in the social world other than through their computers so ICTs may be a way to begin to engage".

5.4.2. HOW ICTs PROVIDE A BARRIER TO ACCESS

Written communication was considered to act as a barrier to those who were not confident in their English skills and lack confidence and/or command in conversing in written language; this was a particular concern for organisations serving ethnic minority or disabled populations.

Computers and other ICTs may be difficult for the most economically disadvantaged to purchase and use regularly. However different forms of ICT, in particular mobile phones, are 'more or less accessible to groups of young people facing different forms of disadvantage'. Some of the hardest to reach may not have ready access to ICT and need to be carefully considered, for example:

- Young people in semi-independent housing may be unable to afford or access ICTs
- Those young people not in employment, education or training (NEETS), from BME communities and with lower SES may not have the same access due to issues of resource and literacy
- Those people who live in remote areas may have poor mobile signal and poor Internet access
- The lack of provision of ICT in custody, secure hospitals and other locales means it is likely that those living in these facilities do not have adequate ICT literacy skills
- Those with learning difficulties may find it hard to use ICTs

5.5. LIMITATIONS OF ICT

What are the limitations on using ICT to inform and support young people with mental health issues?

5.5.1. INSUFFICIENT EVIDENCE

A significant limiting factor to using ICTs to support young people is the relative infancy of ICT interventions, and consequentially the limited evidence base for their feasibility, acceptability, effectiveness and efficiency. Despite the positive feedback there exists limited evidence on the beneficial clinical and non-clinical outcomes of treatment delivered over SMS. Social networks were used in a limited capacity with their primary use being for information dissemination, and advertising rather than direct interaction.

5.5.2. ORGANISATIONAL CONSTRAINTS

Security and cost were important considerations for the implementation of ICT service provision in organisations. Principally, concerns were raised over methods of effectively recording electronic meetings, exchanges, sessions and consultations. Practice guidelines and protocols were needed to address confidentiality and child protection issues; relevant documentation produced include referral forms, action plans, supervision notes, training programs, exchange recording forms, personal databases – these are required to be updated regularly.

5.5.3. LOSS OF FACE-TO-FACE CONTACT

ICT based interactions are often mediated through the written word, however written communication may be open to more interpretation due to the lack of non-visual prompts between service users and providers. Organisations identified that verbal communication is useful for the clarification of written communications. Given the concerns surrounding clarity, ICT based interventions were considered useful as an adjunct rather than a replacement for face-to-face services. Face-to-face was reported to be a vital component of successful engagement and ICT should be complimentary rather than the core component of an intervention:

“ICT should support the direct work rather than replace it”.

Organisations also report that the level of understanding and empathy is reduced in relationships initiated and maintained over ICTs. ICTs should not be relied upon for facilitating social interactions as the ‘online world’ is not necessarily ‘representative of reality’.

For many organisations face-to-face therapy continues to be the most effective and preferred method of forming meaningful relationships between users and HCPs. There were concerns that people can become overcommitted to only engaging with ICTs which may prevent the individual from ‘moving on’.

5.5.4. LIMITATIONS TO SERVICE PROVIDERS

The cost of ICT was the major barrier identified by organisations; costs can be incurred by either young people seeking assistance or by the organisation delivering the service. These can include costs of acquiring adequate equipment, maintaining the technology and/or delivering the service; while training needs are seen to be a central requirement to organisations before they begin to adopt more complex and integrated ICT systems and services. Many organisations have identified that they do not have the in-house technical expertise and skills to develop interactive tools, and the outsourcing of their development is often prohibitively expensive.

YPMH regularly needed to request the use of ICTs from the provider rather than being offered the opportunity to engage with HCPs using the technologies.

Averse staff attitudes are a major internal organisation issue, training and awareness of ICT contribution is valuable to ensure a more efficient adoption of the technologies and ICT based services. Resources to monitor usage, content and adoption were also found to be difficult to develop internally.

Moving from real to virtual environments may result in individuals or organisations developing tools without the necessary qualifications and skills to start undertaking therapeutic work. There is the challenge of writing the content and information to be provided by the organisation “... in an age appropriate way”, “even for staff who are very adept at communicating with children and young people”. Damage may be done to the therapeutic relationship if too much information is disseminated with no corresponding personal contact to contextualise the information.

5.6. POTENTIAL AREAS FOR INVESTMENT

What are the potential ways of more effectively investing in the use of ICT to inform and support young people with mental health issues?

With the absence of evidence, and in many cases of experience, the potential of ICTs to inform and support young people remains somewhat unclear. Where evidence and experience is more established, texting and mobile services reportedly work well because most young people were more likely to have access to mobile phone technology; this enabled services to be delivered without any additional equipment. Further work around some of the high usage/low evidence ICTs, such as social networking, VoIP and blogging may be worthy of investment to begin to develop the evidence base.

Those organisations which have been very successful engaged in processes involving young people in an advisory or governance capacity. These YPMH have led or assisted in the generation, design, development and delivery of services. User groups are often organised through a combination of social network sites, email and face-to-face meetings.

Successful organisations were able to engage with users in the design and development of interventions, and in operation of services.

Specific suggestions for future areas for development were:

- An evaluation of online self-help packages delivered to those under the age of 16. Focus should be on matching the user with appropriate service and counsellor
- Studies around the potential for harm where services are left completely unmediated or when young people aren't encouraged to get further help when mental health problems are extreme
- Comic relief may consider facilitating information sharing and training between affiliated organisations to improve consistency of standards and synergy between interventions

5.7. DISCUSSION

We have provided an overview of the use of ICT in organisations working with young people in the area of mental health as reported in the questionnaire survey. ICTs have a number of reported benefits; most commonly these related to abilities to signpost and advertise services. ICTs have also been reported to facilitate service user communication, in particular peer-to-peer interactions can be improved and some positive therapeutic affects are recorded. ICTs are also capable of supporting service providers through improvements in systems, architecture and governance. A number of ICTs were particularly valued as able to add value to pre-existing services, especially mobile phones.

Low cost ICTs (such as mobile phones) have been used to contact the most disadvantaged and hardest to reach young people with mental health issues, for example organisations have successfully engaged with young men, those in short term housing, BMEs and NEETs. However ICTs are not seen as complete replacements for face-to-face communication; organisations have reported that technologies can also provide barriers to access, excluding those with poor written language skills and without the economic means to buy ICTs.

6. FOCUS GROUPS WITH YOUNG PEOPLE

This section describes the analysis of the discussions held with five focus groups (n = 20 young people) about their use of ICTs. Seven key issues which were identified and are discussed below.

6.1. THE MEANING OF ICT

It was apparent from the groups that there were issues of definition to consider, and that the term “ICT” was not necessarily the most useful. Several young people did not understand the term “ICT” and it was frequently associated with school:

“I just think of school, you call it ICT at school, I don’t really associate the Internet with it”.

Certain everyday technology tools were not considered as “ICT”. As in this example describing iPods:

“I don’t I think of iPods as an ICT, I don’t know, it just doesn’t fall under that umbrella to me”.

6.2. THE RANGE OF TECHNOLOGIES BEING USED

A range of technologies were used and a wealth of knowledge and expertise was shown by participants. Young people recognised that technologies were rapidly changing and advancing. For example, increasingly young people were using laptops, iPhones and Blackberries to access the Internet:

“Mostly laptops on the Internet, I did use my iPod occasionally, but it’s quite hard to type out properly”.

Some young people share ICTs in their housing support service, but their preference was to buy their own.

There was a strong awareness of what other young people were using and a need to obtain new technologies:

“A lot of my friends have an iPhone or Blackberry if they can afford it. So, yeah, there is quite a lot of them. When they are on Facebook you can tell they’ve been accessing it on a mobile device”.

Many young people referred to specific designs of ICTs, this was most common during discussions about mobile phones:

“Yeah but back then, what you must remember is that the platform was a lot less than what it is now. Back then that would have been an SV2, now they’re running on SV9s and stuff like that”.

6.2.1. MOBILE PHONES

Mobile phones were the most popular and commonly used technology. Expensive phones such as the iPhone and Blackberry were often considered aspiration gadgets. Young people reported that they can do *“Anything on a phone”*, for example:

“We’re Googling stuff on our mobiles, we’re on social networking, we’re buying stuff through our mobiles”.

Mobiles phones were considered interactive, portable, private and provide readily available access. Mobile phones were *“Easy to use”* and are more *“Affordable”* than computers, laptops and similar portable devices.

6.2.3. FACEBOOK

The majority of young people used social networking sites (e.g. Facebook and Twitter) to chat and keep in touch with friends and family:

“Well Facebook is just keeping up with friends, and we twitter and stuff”.

There was a need to use social networking sites to keep up to date with what people are doing. Almost all young people reported regular use of social networking sites. However, not everyone liked using social networking sites:

“I don’t like Facebook but everyone is on there, so. Some of it on Facebook is self-advertising, and it makes me feel uneasy at times?”

Some young people had concerns about using Facebook:

"I know in the news Facebook have put a new button for children so they can report abusive things, I think if everyone putting their life on Facebook others can take advantage of it, steal their identity, and do stuff bad".

Social networking sites are increasingly being used instead of using text messaging through a mobile phone:

"I think Facebook has taken over text messages and things, because you can see that your friends are doing and leave each other comments?"

Social networking sites were considered to be a cheap way of communicating with peers due to lack of sign-up fee and zero cost for services:

"Facebook is free and there's not usually a time limit on it".

Free and easy access was an important consideration for many young people.

6.2.4. INTERNET DISCUSSION BOARDS

Discussion boards and chat rooms were used for sharing ideas, experiences and feelings. These technologies enabled young people to obtain feedback from a community they trusted, for example:

"I go on the website and use chat a lot and I also sometimes use the discussion forums, and if I need information on something specific then I'll search the sites, see if they've got a fact page which is relevant for things I need to find out".

These technologies provided some young people with an opportunity to openly discuss a broad range of issues in a safe and friendly environment.

6.2.5. EMAIL

Email was used by many young people. The method of accessing email varied:

"My lap top is my best friend. I check my emails at least twice a day. It drives everyone crazy".

Young people often have access to email through their phone:

"I use the BB for the Internet, BB messaging, kind of like having MSN on the phone".

The use of email to maintain regular contact was not considered to be the most efficient method for young people.

6.2.6. ON-LINE VIDEOS

Videos were being used by some young people to inform others. They were being used to enable the sharing of feelings and attitudes and were uploaded onto project websites and/or YouTube, for example:

"You can get YouTube clips, people post YouTube clips on the site, and it's quite good to see it and show to your friends, and act like you found it".

6.2.7. MP3 PLAYERS

These were a common reported device; however for many young people their mobile phone provided the same function.

6.2.8. COMPUTERS AND GAMING CONSOLES

Computers and gaming consoles were considered useful for providing entertainment, however issues related to the cost to buy and repair, and the need for a stable location (i.e. bedroom, study, and library) was a concern. Many young people relied on gaining access to computers and gaming consoles through communal facilities or through family and friends. Computer access was therefore time limited and presented difficulties if they required word processing tools (e.g. job applications). Inexpensive laptops were being used by a few people, but were often not valued, young people were more likely to repair/replace a phone rather than repair/replace a damaged laptop.

6.3. MOTIVATIONS FOR USING ICT

6.3.1. SEEKING INFORMATION AND SUPPORT

Across all the groups, young people used search engines (e.g. Google) to obtain basic information:

“Mostly Google, but also facts pages, and if its news then BBC news, I also have trusted sites I use. I usually go back to Google”.

Some young people used Google to search for information through their mobile phones:

“I’ve got a Google app as well. Where you just type it in and it gives you the answers”.

Several people reported using Google to search for information related to general information like *“Train times”, “Housing”, “Shopping”* and *“Jobs”*.

Many different forums and discussion boards were being used by some young people to obtain advice and support:

“I think quite a lot people who went on the site originally have something, an issue or problem and they want to talk to others about it’s so much easier to talk to someone, who is not sat in front of them and you can think about exactly what you want to say, its maybe more easy than approaching a friend or anybody else really, and you got to get a range of opinions and then people stick around because it’s a nice place to be”.

Many young people found support from other people in an on-line environment:

“People are very friendly toward each other...someone will come in and just be like can I ask a question, and everybody gives a sort of advice and support and any other links they can provide for that person”.

This in turn can allow relationships and a support network to develop:

“I think there are quite a few people on there that I really respect, especially when they give advice and things that are long and really thought out”.

Only a few young people reported using ICTs to correspond with medical professionals. In particular one young person suggested ICTs were, “good at a crisis point” when you need to talk.

6.3.2. ANONYMITY AND COMMUNICATION

Technology enables young people to engage in services where identity was not accessible:

“People are drawn to it in the first place, because you don’t want to be traced necessary by your friends or you don’t someone searches for a name, and you don’t want it to come up, about you posting on your problems”.

Some ICTs allow young people to bypass the stigma of many face-to-face interactions, improve privacy and provide an opportunity to talk to someone you don’t know.

6.3.3. WORK PURPOSES

Technologies were being used to search for jobs, accommodation, and health information and to search a range of topics such as capital punishment or politics. Some young people reported undertaking paid surveys to earn money online and were using ICTs for work purposes:

“I use a blackberry to receive all my emails for my disco business and I also use my laptop for discos as well”.

6.3.4. ENTERTAINMENT

ICTs provide entertainment for young people. Young people enjoy the benefits of services being delivered through many different interfaces. This allows people to watch, read, interact and listen to similar information through their preferred choice of technology.

6.4. ARE ICTs BEING USED TO HELP YOUNG PEOPLE WITH HEALTH ISSUES?

Some ICTs help young people in situations they find difficult; in particular, they have provided a method of distraction and helped maintain calm:

“I tend to use my ipod touch and listen to my music. That way I can play games on it as well. So if I go on a train journey, coz I get panicky on trains I always keep myself occupied by playing a game on there”.

Some young people reported ICTs can help relieve problems with boredom, isolation and loneliness, especially at night:

“If you are in bed at night, bored, you’re just on the phone, like on Facebook” and “If you are bored, you just put a game on”.

ICTs were being used to communicate with health professionals:

“My GP phones me up all the time and says to me like, he phones me to check how I am”

Other young people reported that:

“I get texts from my doctor”.

One young person who had type 1 diabetes and mental health issues provided the following information:

“My doctor prescribes me things down the phone cos I’ve been diabetic for nearly thirteen years. They phone me up and say ‘what do you need?’, and I say ‘I need needles and insulin, what insulin? I give them the full technical names and they say ‘right it’s ready at three, come get it’. I’ve had the mental health team phone me up and everything, all the time. Without a phone them people can’t talk to you, so in that respect, yeah, it does work”.

There was also an interest among a person who was not actively engaged with the health services to do so in the future through ICTs:

“Yeah, drop ‘em a message on Facebook, ‘I’m ill’, that would be pretty cool, send him a message”.

The use of Google to search for advice about the symptoms was frequently reported. There also seemed to be a use of trusted sites for health information. However, one young person reported that:

“Google can be dodgy for health related, because you can get some really random forums”.

Some young people used search engines to obtain advice when other people are unwell:

“There are those websites you go on to and they give you tips on like babies and that”.

6.5. HOW OFTEN ARE YOUNG PEOPLE USING ICTs?

Daily use of ICTs was reported by most groups. The frequent use of Facebook and other ICT interfaces were a commonality across all the groups. Some young people reported their ICT use as being like an addiction:

“It’s addictive”, “I’ve got too addicted”, “I had an addiction, I was a proper gamer” and “I’m a BB (Blackberry) addict”.

Many young people reported that they, *“Can’t live without phone”*, or they would *“Freak out”*. One young person reported getting *“Withdrawal”* symptoms if she can’t use her mobile phone for a period of time. There was a high level of attachment to mobile phones. For some young people not having some technologies, in particular mobile phones and Facebook, was not an option. A number of people recognised that they were over using some technologies, *“I hate myself for being on Facebook all the time”*. Some young people reported physical effects from the overuse of technology:

“I have actually locked my hands up from using the computer for too long” and “You should try playing the Playstation for forty eight hours. My thumbs lock all the time I have to crack them back, it’s horrible”.

Furthermore, some ICTs were impacting on young person’s lifestyles, gaming consoles and mobile phones are particularly good examples of technologies changing lifestyles:

“I spend about 9 hours a day playing games” and “playing the PS2 and that until 2 and 3 in the morning, by the time I get to bed its 4”.

Some young people reported taking days on sick leave to play in on-line gaming tournaments:

“I’m not going to lie, you know the number of times I’ve phoned in ‘I’m not well’. I’ve lost a few jobs because of Playstation. I’ve been quite good with this job though, I’ve only taken two days off for gaming days”.

A routine checking of various ICT interfaces was reported, for example:

“So you go through the order of checking your email and Facebook and stuff, and then you have all the windows open and you sit there and wait for something to happen”.

The use of multiple technologies in young people who had access was apparent:

“I’ve got my computer, my Playstation and that so you know like when the weekend comes I don’t remove myself from bed. I’ve got my keypad there and my phone’s there and the remote as well because I’ve got the remote to do everything. And I just sit there Googleing”.

This is also illustrated in the following discussion, *“Are there any days when you don’t go on Facebook do you think?”*, the young person responded, *“Only if I don’t have credit”*. In a follow-up question, the interviewer asked, *“So how long do you go on there in the day, do you reckon”*, the young person replied, *“Probably throughout the day”*.

6.6. WHAT ARE THE BARRIERS TO USING ICTS?

6.6.1. COSTS

Throughout all the focus groups there were repeated references to the costs of ICTs. Many people were limited in which ICTs they could buy due to the high costs involved. The following are a few examples to illustrate this:

“Expensive things stuff is. PS3 is like are still about £250 pounds. That’s expensive these days. Obviously people in our situation who live here haven’t got as much money can’t really afford it”, “Not everyone has the money to get a laptop” and “ICTs are often expensive”.

Therefore, it becomes problematic for some young people to own many ICTs; expensive technologies reduce the likelihood of continual access. Furthermore, some young people were also restricted in the amount of time they could use the ICTs they owned due to the additional costs:

“If you’re texting people and stuff then that costs money”.

Some young people were realistic about what they could afford:

“To be fair, if I can’t have it I won’t have it. I’m not really bothered. As long as I’ve got a phone”.

Although some young people were prepared to spend a lot of money, time and energy on technology and online services. One young person reported that:

“No one will touch me when it comes to a contract, not now. Because I owe probably about fifteen to seventeen grand in unpaid bills”.

Young people reported that some mobile phone contracts can become expensive if they are overused, however pay-as-you-go customers also reported spending a significant amount of money when certain services are accessed (i.e. Internet):

“Phone companies must love me, they’ve had over six grand off me for bloody phone bills. And now I’ve got T-mobile, I still go over about £6 every month, but it’s not as bad as £500”.

In a few cases, young people reported how they were breaking the law to provide themselves with ICT services, *“There is a way around things you know”*. Many young people believed that some services should be free; to allow users to gain access to some services at a cost was preventing further adoption.

Overall young people value their access to ICTs, but cost was a major concern (e.g. bill payments, repair and rental). Cost was especially important to those young people in the hard-to-reach populations.

6.6.2 FAULTY TECHNOLOGY

There were concerns raised by several young people about the rapid advances in the technologies, which might introduce exclusion:

“I reckon technology has gone a long way but there’s more problems with technology now, you get more problems with better technology”.

Young people felt that technology companies were often disingenuous or “Brainwashing”, in particular the initial cost versus the longevity of some technologies were felt to be disproportionate:

“They are trying to rip you off. They make things to break down. If they make things to last there is no business”.

A mobile for instance may be replaced frequently due to reasonable wear and/or damage. There also seemed to be a pressure to keep up-to-date, “it’s like a marble rolling”. There was some feeling that companies were purposefully releasing products with a shortened lifespan in order to maintain sales.

6.6.3. USABILITY

Not everyone will be able to use all forms of ICTs, this was raised by one young person:

“We had a user on the message board who I think, could have had a learning difficulty, so I think she found it hard to express herself”.

Some young people found it especially difficult to convey messages and seek advice online:

“I think that little bit harder to understand people when it is just words, and you don’t have any facial expressions, or tone of voice or anything so. I find it hard to tell what is sarcasm and stuff, it’s quite hard online but it’s the same everywhere on the Internet”.

6.6.4. POTENTIAL PHYSICAL AND EMOTIONAL HARM

The focus groups addressed whether the young people thought ICTs were harmful. Many young people reported:

“We don’t know some of them yet [harms]”.

Young people recognised some of the physical and emotional effects of ICT use, but they were unclear whether this would cause long-term problems and significantly impact on their lifestyles. There was little discussion around the issue of harm among all the groups.

6.7. DISCUSSION

Mobile phones were the preferred form of ICT and many young people cannot live without them. Mobile phones were not just a facility to call people; they allow young people to access the Internet, social networking sites and send emails. ICTs were mainly used for seeking information and support, anonymity and communication, work, entertainment, keeping in contact with people and supporting everyday activities. Some young people were able to get advice through online social support tools. There was varied opinion about the possibilities of using ICTs to communicate with healthcare professionals. Many young people had never considered this as an option. Some liked the idea of communicating with health professionals via mobile phones and Facebook, in particular those who were disengaged from services. Offering young people different ways of communicating was important as most young people often log onto many different interfaces at the same time. Young people want easier and cheaper access to ICTs. Some young people were resourceful in getting around the barrier of cost, whereas others were facing financial difficulties as a result of their ICT dependency.

There were limited suggestions about what further research should be undertaken to explore how ICTs might be used with young people with mental health issues. One suggestion related to the improvement of an online mental health site:

“Where a young people can fill in a form and problem and then it gets answered by a professional standard usually by a professional who can deal with it, you can get a tailored reply no problem, it should probably be free”.

Furthermore, young people expressed concerns about inequalities and the impact costs were having on accessing services.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1. CONCLUSIONS

1. Young people are leading increasingly digital lives. Technology is becoming more pervasive, cheaper and easier to use. Increasingly technology is built in to everyday life, not an addition to it. Skills to adopt and use technologies are increasing. Technological change in this area is rapid and ongoing.
2. At the same time, while young people welcome technology-based services, they report wanting these to be a complimentary provision rather than a replacement for face-to-face approaches.
3. Researchers, policy makers, health professionals, and others need to keep up with developments, and be aware of the future trajectory of such technologies which is likely to be through more integrated mobile devices (predominantly mobile phones), pervasive devices, and towards ubiquity. Social networking is a rapidly evolving area with high uptake among young people.
4. Research and policy making needs to 'catch-up' with adoption, recognise that the technology by itself is usually not the intervention but simply a platform, and learn from best practice. The current evidence base is limited, with generally small studies, often not focused on young people, and often, due to the pace of change in this area, out-of-date by the time of publication. At the same time there is a need to strike a balance between harnessing innovation or using existing 'low tech' technology which has high take-up. The accumulated evidence from the research literature and from case studies of best practice shows that different interventions have been tested on various platforms, and that in differing contexts both social and clinical benefits are possible, but it is difficult to generalise.
5. Future research should be driven by the needs of young people not the technology itself. High quality research needs to focus on young people, including examining how technologies are actually used in practice (and not just within an academic study).

6. Digital exclusion in access to technology continues to be an important issue, especially in relation to home computer use and Internet access. Exclusion is generally mediated by the cost of technology, and also by educational level. In harnessing personal technology to deliver care there is also an issue about transferring cost from the services to the individual. Exclusion is less of an issue in terms of mobile phone use and 'low tech' approaches such as text messaging, where adoption is almost 100%. Some specialist services provide tools for helping access in different communities and disadvantaged groups without personal Internet access to surf the web (e.g. YouthNet UK; <http://www.youthnet.org/>).
7. 'Access' is a complex issue, with young people using technologies on multiple platforms, often simultaneously, often transiently. Most use, and learning how to use ICTs, generally occurs in informal settings with peers.
8. The almost universal adoption of mobile phones and the rapid uptake of social networking sites among young people, indicate these as key areas for further work. The use of these technologies in mental health settings require further investigation to explore (for example) how they may be harnessed to improve communication, appointment attendance and the sharing of information between young people and with mental health professionals.
9. The stakeholders we interviewed felt that better use could be made of ICTs to support young people with mental health problems if there was greater awareness of their potential benefits, particularly if there was better sharing of expertise and examples of best practice between organisations; if more use was made of mobile phones and of social networking sites; and if resources (financial or other benefit) could facilitate access for the most disadvantaged groups.
10. Despite the promise of technological convergence, there are many different technologies in use and the whole area of ICTs in healthcare is too heterogeneous to draw a single bottom-line conclusion. In fact, the term 'ICT' is not necessarily helpful as it has a school-based connotation to many young people who do not see it including certain items such as MP3 players or games consoles. Technology is not in itself a

‘good or bad thing’, the various tools available can be harnessed in many ways which can either bring benefits or harms, or have no effect. Understanding how and why new tools are adopted and used by service users or professionals (including the social, financial, organisational, ethical and legal issues) is a key research need.

11. Harm is a genuine concern, although the extent of young people coming to harm through technology is probably overestimated. Young people generally feel confident in their ability to avoid harm. Issues that continue to need addressing are cyberbullying, technology dependence, grooming, and pro-harm sites (though the social interactions on these sites are complex and not always harmful).
12. Future research needs to be robust and transparent and use clear aims, objectives and outcomes. The greater use of ICT options might improve service user engagement (as one type of good outcome, for which there is some evidence) and service user satisfaction (although we note that some young people prefer face-to-face contact whilst others prefer anonymous, ICT-facilitated contact). Further evaluation should measure both these outcomes and the short and long term effects on health and social outcomes.

7.2. RECOMMENDATIONS

1. Funding bodies such as Comic Relief need to have an agile and flexible approach to this area due to the rapidly changing nature of the technologies available, and how they are used.
2. Future programmes of work using information and communication technology to support young people living with mental health problems could bring benefit if focused on: (i) harnessing mobile technologies; (ii) harnessing social media; (iii) the use of online counseling and therapy tools; (iv) accessing hard to reach populations; (v) minimising harm arising from technology use. Many of the issues in these five areas will overlap (for example mobile technologies are the most socially inclusive).

3. In the short term specific project work, mainly using qualitative methodologies, which would benefit young people and yield valuable information for other projects would include: (i) how can we use mobile phones to engage disadvantaged young people with health and social services? (ii) Can we harness existing social media tools and peer networks such as Facebook to empower young people through providing social support and reducing social isolation, and what is the value of the experiential information shared in these networks? (iii) What are the barriers and facilitators (including social, financial, legal, ethical etc. factors) to using technology to support young people? (iv) Based on our current knowledge, what is the extent of harm (such as cyberbullying) arising from technology use by young people, and what factors mediate this?

4. Much of the academic research in this area is of small scale pilot studies of many different interventions. It is therefore difficult to draw generalisable conclusions, and also the technology is often outdated by the time of publication. Future research should aim to be of large scale where possible, and as up to date as is feasible. Projects should be encouraged to publish evaluations in a timely manner. There would be value in developing a frequently updated collection of best practice in the area of young people, technology and mental health, which draws particularly on service evaluation work which tends to be available sooner than peer-reviewed academic papers.

5. Given the current preponderance of small-scale pilot work, research funding bodies could seek to take a coordinated systematic approach to generating robust research evidence in this area. There may be opportunities for funding bodies to work together with this aim. The current NHS research funding climate is a little uncertain but clarity will emerge following the comprehensive spending review. At present there are several public research programmes with an interest in harnessing technology for healthcare. These include Research for Innovation Speculation and Creativity (RISC) and i4i Invention for Innovation, although the future of both initiatives is currently under review. More generally the National Institute for Health Research (NIHR) has shown a willingness to fund Ehealth research through such programmes such Research for Patient Benefit and the NIHR Programme Grants. The Wellcome Trust has

also shown interest in this area, particularly in a recent call in collaboration with the Department of Health which sought proposals for their Health Innovation Challenge Fund which addressed issues of telehealth and remote monitoring.

6. The major players in the technology industry see healthcare as an important area for the future and there are opportunities to work collaboratively with them. Global IT companies such as Microsoft, Google, Intel, GE Healthcare, Phillips, Siemens etc. all see healthcare as a strategically important area, particularly with an emphasis on supporting people living with long-term conditions. Telecommunications companies such as Telefonica/O2 and BT are also investing heavily in healthcare. Much of the existing activity is aimed at the elderly population and explores areas such as home monitoring or supported self-care for conditions such as heart failure, diabetes, chronic airways disease, or dementia. There is an opportunity to partner with such organisations to support a younger population with high uptake of technology and often high levels of 'digital literacy'. The pharmaceutical industry has also begun to invest in ehealth solutions which support self-management.

7. Policy in this area is not only driven by the Department of Health (and its new Informatics Directorate) but also by other areas of government such as the Technology Strategy Board and the Department for Business, Innovation and Skills. Within the NHS there may be opportunities to partner with specific health informatics programmes such as NHS Choices (www.nhs.uk), NHS Direct (www.nhsdirect.nhs.uk), NHS Local (www.nhslocal.nhs.uk), NHS Connecting for Health (www.connectingforhealth.nhs.uk), or with mental health initiatives such as the IAPT (Improving Access to Psychological Therapies) programme.

8. Comic Relief is already receiving many applications for funding that use ICT to support and inform young people with mental health problems, these should be assessed against the following best practice criteria that this report has identified:
 - The views of young people with mental health problems are actively obtained in designing services so that those services most appropriately meet the young people's needs and lifestyles.
 - The project is aware of innovation and best practice in the use elsewhere of ICT to support young people with mental health problems.

- There is active contact with private, public or other voluntary agencies that can provide support and assistance in using ICT to deliver services to beneficiaries.
- Staff and volunteers are kept up to date regarding developments within ICT relevant to young people (such as social networking and mobiles).
- Allocation is made for staff and volunteers to receive training and assistance around using ICT relevant to young people.
- There is adequate moderation by the project of ICT usage by young people some of whom may be vulnerable.
- There are sufficient organizational policies and procedures to take on board issues arising from using ICT to deliver services to young people.

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