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SOCIAL MEDIA, HELP OR HINDRANCE: WHAT ROLE DOES SOCIAL MEDIA PLAY IN YOUNG PEOPLE'S MENTAL HEALTH?

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SUMMARY

Social media is a huge force in the lives of young people with wide ranging effects on their development; given the importance of adolescence in the genesis of mental illness, social media is a factor in the mental health of young people. Despite the role that social media obviously plays in the development of mental illness, little research has been done into the impact that social media has on in the mental illness of young people. In general, what research there is points towards social media having a large impact on young people in both positive and negative ways. In particular, certain studies show a greater incidence and severity of bullying online compared to offline which may contribute to the development of depression. This contrasts with the positive impact that social media seems to have for young people in minority groups (ethnic minorities and those with chronic disease or disability) by allowing them to connect with others who live similar lives despite geographical separation. This acts as a positive influence in these people's lives though a direct link to mental illness was not shown. Overall, several important issues are raised: firstly, the lack of research that has been conducted in the area; secondly, the gulf that exists between the generation of younger, 'digital native' generations and the older generations who are not as engaged with social media; and finally, the huge potential that exists for the use of social media as a protective influence for adolescents. With proper engagement, policy makers and health professionals could use social media to connect with young people on issues like mental health.

Key words: *social media - mental health – adolescent - young people – children – psychiatry – internet – computer - mental illness – depression - cyberbullying*

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INTRODUCTION

Since the invention of the World Wide Web in the 1989, access and use of the internet has expanded exponentially. Interconnected devices - from phones and computers to Internet capable kitchen appliances - pervade most aspects of our lives. Now, more than ever, people can communicate and exchange information regardless of geographical location or time. The umbrella term for such sharing of ideas and information on Internet or mobile platforms is social media, defined by the Oxford dictionary as: *'websites and applications that enable users to create and share content or to participate in social networking.'*

Discussions about social media can be heated, particularly in relation to its impact on the health and development of young people. It is undeniable that young people have taken to the internet with aplomb by signing up to social networking sites like Facebook. Furthermore, given how far it penetrates their lives - in terms of time and the importance young people place on it - social media is bound to have a major impact on their mental health.

Firstly, this essay will consider social media as a phenomenon and then discuss different ways in which to categorise the different aspects of social media for the sake of research. Special attention is paid to social networking sites, partly because they form an important body of research; and partly because they are an incredibly strong force in young people's lives. Finally, the focus turns to where the future lies for social media in terms of mental health research and as a tool for psychiatry to utilise in the future. The essay suggests that social media is a blank canvas with enormous potential for both positive and negative impact on the mental health of young people. Until now the digital expansion has occurred with incredibly little regulation or interference, even with regard to children's access to the social media. The effect of such unbridled access on the mental health of young people is impossible to quantify but is certainly remarkable. Therefore, changes must be made to protect young people from the negative aspects of social media without hampering the growth of, or their access to, the positive ones.

ACCESS TO SOCIAL MEDIA

As of 2013, 2.8 billion people worldwide have access to the internet and 2 billion use their phones to browse the web (International Telecommunication Unit, 2013). In the UK alone, 83% of households have internet access (21 million – Office of National Statistics, 2013). Among young people, 93% of 5-15 year olds in Britain use the internet and when that group is further broken down it includes a staggering 99% of 12-15 year olds (Ofcom 2013). Not only can the majority of children access the internet, they are doing so in increasing volumes: in a week, an average 12-15 year old will spend 17 hours on the computer, more than they spend watching television (Ofcom 2013). Teenagers and

adolescents are not the only groups who' have adopted the internet. Children are being exposed to it at increasingly young ages – even the 3-4 year old demographic spent an average of 6.2 hours a week online. We are reaching the stage where young adults cannot remember a time pre-internet; their whole upbringing has been saturated with digital devices.

Such 'digital natives' as Prensky (2012) calls them have not only spent a lot of time on the web, they have done so with very little supervision or regulation. Their comfort with the web is not shared by their forbears: 63% of parents believe that their 12-15 year old knows more about the web than they do. Shockingly, nearly a fifth of parents of a 5-7 year olds (19%) felt they knew less about the internet than their child. This lag among the older generation tin following the digital trend is reflected in internet policy making – or, indeed, the lack of it. Very little has been done to regulate what content young people can access on the internet. Prime minister David Cameron talked last year of our "extraordinary light touch" when it came to internet regulation for the protection of children (Cameron 2013). This speech follows years of the mass media reporting about the harmful effects the internet has on our children. All of this coverage has painted the picture of a perfect storm for adolescent mental health: impressionable young minds granted free roam on social media filled with disturbing content including pornography and violence. This image, however, does not reflect reality. It is important to detach oneself from this hyperbole and consider empirical evidence before any policy is enacted.

RISK, HARM AND MENTAL ILLNESS

Livingstone and Smith reviewed literature on the negative effects of the internet on young people this year (Livingstone & Smith 2014). They made an important distinction between the risk to young people, the probability of harm due to exposure to a stimuli; and harm, as an actual negative outcome. Inherent within these calculations of risk are assumptions about what is harmful to children. In the offline world, these are often well proven (busy roads are a risk for child road safety) but online such assumptions are not so concrete. Unfortunately, harm is most commonly measured by self-report through questionnaires and there have been remarkably few studies looking at objective measures of harm like symptoms of mental illness. Even fewer studies consider the interaction between mental states and social media longitudinally.

Nonetheless, the field is growing and there are already some useful classifications that are worth mentioning at this stage. In particular, the work of the EU Kids Online network has begun to categorise some of the negative stimuli that children are exposed to online. They have found 4 major categories of stimuli: aggressive, such as violent videos; sexual, such as pornography; commercial, such as unwanted advertising; and value-related, such as extremist views. They then sub-categorised these into content (what children might see), contact (who children might meet) and conduct (what children might do) risks (Haddon et al. 2012). There is immense blurring of these divisions (unwanted viagra popups exemplify a fusion of commercial and sexual content) but they provide a clear and helpful framework within which to access the current research.

CHILDREN'S EXPOSURE ON SOCIAL MEDIA

Bearing these distinctions in mind it is important to mention some of the research addressing the harm that negative stimuli cause. The most well known form of aggressive stimuli is cyberbullying, a well researched phenomenon best linked to mental health and illness. Groups have differing definitions for their constructs of cyberbullying or cybervictimisation and the term itself encompasses a range of aggressive behaviours. It is important to note that cyberbullying refers not just to online manifestations of offline bullying such as denigration and threats. Cyberbullying also includes novel modes of abuse such as cyberstalking and creation of fake profiles, possible only online (Pyzalski 2012). Furthermore, cyberbullying has the propensity for quick escalation, partly due to the anonymity social media provides and partly due to the inherent ease with which such behaviour can be distributed, endorsed and repeated by others (Bazelon 2013). It is important to mention that studies place different emphasis on aspects of cyberbullying - be it the balance of power or the repetitive nature of the abuse - though they all agree that cyberbulling has the intent to cause harm. These definitional differences between studies are important to their design and conclusions, but it is the view here that all the research is essentially describing the same behaviour.

Epidemiologically, there is little agreement about the prevalence of cyberbullying. Estimates range between 6% (Livingstone et al. 2010) and 20-40% (Tokunaga 2010), Tokunaga also found no differences between the genders and that the peak age for both victims and offenders was between 12-14. In relation to mental health, cyberbullying has been linked to affective disorders as well as a range of other psychosocial issues (Topcu et al. 2008). Several groups have not only found a link between cyberbullying and depression (Olenik-Shemesh et al. 2012, Perren et al. 2010, Wang et al. 2011), but also the severity of depression and the degree of cyberbullying (Didden et al. 2009, Ybarra 2004). Unfortunately, relatively few longitudinal studies have been done to access a causal relationship between cyberbullying and depression. Schultze-Krumbholz et al. (2012) showed that depression was preceded by cyberbullying 3-6 months before; however only among females and not among males. Furthermore, using an interesting design, Gámez-Guadix et al. (2013) suggested a vicious cycle effect whereby depression and substance use predicted later cyberbullying. Cyberbullying

has also been independently linked with substance use amongst its victims (Hinduja & Patchin 2008).

Ostensibly, this is compelling, if specific, evidence for the negative impact that social media can have on mental health in young people. However, questions remain about whether cyberbullying is just an extension of bullying that occurs offline rather than a novel phenomenon in itself. It would be helpful to tease apart a distinction between the two, though it should be noted that both online and offline types exact similar levels of harm on their victims. Livingstone and Smith (2014) presents a fuller discussion such questions.

A relationship between exposure to sexual stimuli and harm is much harder to find, where harm was assessed using self-reported distress at sexual images. Sexual exposure is relatively common among young people: Haddon et al. (2012) found that 11% of 9-16 had come in contact with sexual images online within the last year. Equally, it is tough to get a true measure of such exposure given the ethical concerns when framing questions to young people regarding sex. Researchers cannot show children sexual images for them to use as controls for obvious ethical reasons. Additionally, the taboo regarding pornography may prompt subjects to deny having viewed it. Nonetheless, of those16-17 year olds exposed to sexual images, only a fifth of them found it upsetting (Jones et al. 2012). The EU Online Kids reached similar conclusions: 15% of the 11-16 year olds they surveyed had been exposed to sexual images and 25% of them finding it distressing (Haddon et al. 2012). A question could be posed as to whether such exposure should be considered universally harmful if the majority of children are not distressed by it.

The online and offline worlds begin to blur concerning sexual solicitations. Age-old fears of paedophiles grooming young people have only developed with the digital age. There is now a fear that paedophiles use chat rooms and social media sites to get in contact with children and that this contact can lead to offline meetings. However, the EU Online Kids found that of the 9% of young people who did meet up (in person) with someone they met for the first time online, only 1 in 9 (i.e. 1% of that age group) found this contact in any way negative (Haddon et al. 2012). Mitchell and Ybarra (2007) have shown that children who have a history of prior sexual abuse are more likely to be groomed. The same study showed that children who self-harm are more likely to talk about sex with someone they only know online. This illustrates the vicious cycles that vulnerable children can get into with their internet usage, much in the same way that offline risk factors (such as substance use) are more common in those with mental illness. Whilst the research suggests that harmful outcomes from such meetings are not the norm, the consequences for this unfortunate minority can be tragic and such cases should not be dismissed as inevitable consequences of the interaction with the online world.

Of the four categories set out by the EU Online Kids network, two have been addressed with respect to mental health problems: aggressive and sexual risks. Of the remaining two, very little research has been done concerning the effect of commercial phenomena on mental health - though it should be noted that children's least favourite part of many social networking sites are the adverts (Lilley et al. 2013). More research has assessed the value related risks that are present on the internet and how they relate to children's mental health. An important area of inquiry surrounds social media's role in suicide and so-called 'suicide sites' which not only condone suicide but also may help in the planning of suicide attempts, or the formation of suicide pacts between strangers (Biddle et al. 2008, Alao et al. 2006). Both papers also address social media's potential for a positive impact on suicide, however, positing that it allows at-risk individuals to seek information and help without the stigmatization of face-to-face meetings. A similar situation exists with pro-anorexia sites: Bardone-Cone and Cass (2007) found that healthy females were more likely to view themselves as overweight, exercise and eat less after exposure to such sites however there are equally many sites criticising unrealistic body image and promoting self esteem. Switching to sites with violent or aggressive values, there is literature available from the FBI which states that visiting websites focussed on violence contributes to the development of school shooters (O'Toole 1999) though no data has been provided to support this assertion. Additionally, ascertaining whether or not mental illness somehow contributed to these crimes could only be done on a case-by-case basis.

All this forms an interesting body of research which seems to support the conclusion that social media can contribute to development of a mental illness. However, it is important to note two things: firstly, how little research has been done – there are no papers looking at cyberbullying before 2004 – and secondly, that the vast majority of young people have not experienced problems online (Livingstone et al. 2010). In fact, more than half of 9-16 year olds do not believe that the internet is problematic for people their age and younger demographics are even less concerned. Whether this reflects how comfortable these 'digital natives' are with the internet or an inability to access the harm caused by these stimuli is difficult to know and the answer is likely a mixture of both. At this stage it is important to recognise an important aspect of social media particularly important to young people: social networking sites (SNSs). By far the most important of these, both in terms of young users and research done, is Facebook.

SOCIAL NETWORKING SITES

SNSs allow users to create profiles with information about themselves and to connect with other profiles to share photos, videos or other media with each other. There has been a host of SNS's that have maintained dominance for a period of time before falling out of vogue. Arguably, Myspace was the first SNS adopted en masse, but it has declined in use and been replaced by

sites like Bebo and, subsequently, Facebook which currently holds dominance over the market. Exact numbers of young users vary, but are universally high: 67% of 9-16 year olds (Livingstone et al. 2010) use at least one SNS and when the ages are further broken down that includes 92% of 15-16 year olds and 85% of 13-14 year olds. Lenhart (2009, 2012, Lenhart et al. 2010) sets the proportion at 73% whilst Lilley et al. (2013) breaks it down further with 84% of 11-16 year olds having Facebook profiles (the next SNSs on the list are Youtube with 60% followed by Twitter at 50%). Not only do young people have profiles on these sites, they also use them regularly: late adolescents use Facebook alone for 30 minutes on average per day (Pempek et al. 2009).

It is difficult to overstate the importance of SNS's in the social lives of young people nowadays and inevitably there has been a lot of speculation around the effects that they have on child development. Shapiro and Margolin (2014) accessed the literature on SNSs and child development and tried to fit features of the sites with theories of social development. In particular, the simultaneous drive by teenagers to both stand out, by creating their own identities; and fit in as part of a larger social movement. It is the authors' view that SNSs have become such a feature in the life of a young person because it facilitates both aims: allowing individuals the chance to express themselves personally within the context of a larger social group. It is important to note that the research on SNSs is not totally separate from the previous, internet-wide research. Indeed it is safe to assume that some of the cyberbullying reported will have occurred via social networks. Therefore research specifically looking at SNSs compliments evidence for the internet as a whole and they are worth mentioning given how prevalent use of SNSs is amongst young people.

Following the trends of the internet as a whole, research has found that the majority of 'risky' content that young people are exposed to is either sexual or aggressive in nature. Overall 28% of 11-16 year olds have been upset by something on an SNS in the last 12 months (Lilley et al. 2013). More worryingly, 11% of those that had been upset had to deal with it on a daily basis with cyberbullying and sexual requests or contacts forming the majority of root causes. As previously mentioned, it is believed that the autonomy and depersonalisation of the online world lends it cyberbullying but it also has positive impacts. 55% of 11-16 believe that they are "more themselves" online; nearly half of the same group (49%) also believe that they speak about different things online than offline; whilst 29% think that it's easier to reveal and discuss private matters online than in person (Livingstone et al. 2010). Relating these facets of SNS use to mental health is difficult - some would argue that it contributes to risky and harmful behaviours online while others, like Shapiro and Margolin (2014), believe it is an example of the increasing ease of self-expression that SNSs have brought about. Shapiro and Margolin (2014) looked at studies assessing the impact of SNSs on young people and arrived at some interesting conclusions about why young people use them. They found what seemed like a U-shaped (self-reported) benefit where those with low sociability were helped by SNSs which gave them a chance to express themselves while those with high sociability also enjoyed social networking as a chance to continue socialising when physically removed from their friends. It is important to mention an interesting study done by Forest and Wood (2012) which looked more objectively at SNS use: trained students "coded" Facebook posts as either positive and negative. They found that "negative" posts were associated with fewer "likes" from their social network and were more likely to be posted by children of lower self-esteem. If this were the case, it would support the idea that Facebook has had an negative impact on those at risk of depression.

There has also been research looking into the benefits of Facebook to minority groups such as sick children, ethnic minorities and LGBT young people. Davison et al. (2000) found that SNSs were helpful for young people with a range of illness who utilised the various support groups set up on the sites. McLaughlin et al. (2012) performed an interesting experiment by creating a Facebook-esque SNS for children with cancer to share their experiences - the children that engaged with it most correlated with those who felt least supported by their friends and family. Yu et al. (2010) created online focus groups for ill children to share their stories with healthy peers. These benefited not only the sick children, but also resulted in educational and empathetic improvements for healthy children who read and engaged with the stories. It has been suggested that SNSs are also helpful for ethnic minority children by connecting them with others from their ethnic group, creating solidarity (Grasmuck et al. 2009, Tynes et al. 2008). The dual effect of this is to educate their peers about different cultures, improving tolerance and reducing the stigma they feel in the offline world. Finally, children who are LGBT can find support and solidarity on SNS's through the online LGBT community, which is particularly important if these young people are geographically separated from such communities (Hillier & Harrison 2007). Prior to social media, 'different' children (i.e. who weren't the norm due to their sexuality, race, illness et cetera) were socially isolated, leading to distress about their identity. While these problems have not disappeared with the advent of social media, things seem to be moving in the right direction.

A staggering study published in the last month looked at emotional contagion on Facebook by altering the content that users saw (Kramer et al. 2014). This research was conducted in conjunction with Facebook who allowed the researchers to selectively alter the positivity/negativity balance of stories on the 'News Feed' of 689,003 people. Since the 'News Feed' for a profile is a selection of all the possible activity a user could see, the researchers used a word-searching algorithm to artificially over or under present posts of

certain emotional state (positive or negative). This was done over a week while they measured the number of emotional words in the 'statuses' of the subjects. They found that people posted more positive or negative 'statuses' (compared to both controls and the opposite condition) depending on which emotional state of 'News Feed' they had. Those with more positive 'feeds' posted more positive 'statuses', negative 'feeds' lead to negative 'statuses' and those whose 'feed' was selected for low emotion of any kind had less emotional words in their 'statuses'. While the effect overall was small (<1%), it occurred despite no change to the interactions directed at the subject. While there are serious ethical questions about manipulating the emotions of so many people: the results are unequivocal. Facebook plays a huge role in the emotional states of its users.

All in all, SNSs are a mixed bag of positive and negative influences on the mental health of young people. Importantly, they are constantly evolving and there remain huge possibilities for minimising these negative influences, amplifying the current positive influences and introducing a whole raft of helpful developments. The next section will focus on where we go in the future and what questions remain unasked or unanswered.

FUTURE DIRECTIONS

To help stimulate progress in the field it is important to recognise the limitations of the current research that is being done. As was mentioned early on, researchers focused more on subjective risks due to stimuli experienced by children on social media. Given the subjective quality of these risks it is foolish to try and extrapolate them as a causative factor for mental illness. For example, some thinkers believe that the exposure of young people to sexual images online as a ‘risk’, predictive of problems for those individuals later. Others believe that such exposure allows exploration of sexuality in a safer environment than the offline world provides. While the debate is too extensive to relate in any real detail here, it is important to note that it transcends questions of scientific validity and is a more society-wide debate on the values of our culture. Such problems can be foreseen arising in research into value-related risk, which up until now have focussed on clear taboo behaviours like anorexia and self-harm. In the future the difficulty will be in defining what is a truly negative value and what values are likely to change (one need only remember the views on homosexuality as both a crime and a disease in the recent past). Nonetheless, the emergence of studies related to harm rather than risk is a positive step - though not one without it’s own issues. Harm, being a more objective measure provides better data on the effects of negative stimuli, however the reliance on self-report questionnaires poses as many problems as it answers. Furthermore, far more longitudinal data is needed to tease out the exact effects the internet has on young minds. Studies like Kramer et al. (2014) show a clear two-way relationship between social media use and mental state with internet usage impacting the mental state and current mental state impacting usage of the internet. An important area to look at would be social media use in young people who already have a mental illness such as ASD, OCD, ADHD or an affective disorder. This independent interaction between mental state and social media is being looked at already but it would be interesting to see how social media usage is impacted by such conditions as well as how such usage affects the maintenance, coping or improvements in those conditions. From this standpoint huge possibilities remain for interventional research on social media: where subjects real time interactions together can be studied without the researcher affecting it. At risk of overextending myself, the total invisibility the researcher can have online lends itself to a far more realistic replication of human interactions than real world studies. However like the offline studies the issues will remain, both in coding such behaviours and creating a research medium that successfully replicates the ecology of the online world. In summation, like all areas of scientific enquiry, study of social media has inherent limitations; importantly, however, authors have recognised them and understand the implications for their conclusions.

Bigger problems occur when one tries to extrapolate to the impact on mental health, which is arguably the most important question that the research is trying to answer. A portion of that can be attributed to the limitations in study design mentioned above. However, a large part is likely due to the delay in the presentation of psychiatric problems until late adolescence and early adulthood. While childhood is not without its mental illness, psychosis and bipolar affective disorder (which, together form a huge part of adult psychiatry) do not present until the early 20s, in general. That said, we know that the development of these conditions (and the long list of other adult only mental illness) will be occurring during childhood and the teenage years. Therefore, we are at a scary juncture right now. Whilst research suggests that the internet does have an effect on the development of mental illness (for example unipolar depression), we do not know the impact it has on conditions before they become symptomatic. We are reaching the stage where the first cohort of ‘digital natives’ - with social media an omnipresent feature in their lives - reaches adult mental health services. Realistically, it is unlikely that there is going to be much increase in mental illness as this cohort reaches adulthood. Nonetheless it is important to bear in mind that there is an entire generation of young people who have been guinea pigs for the internet and we are effectively flying blind as to what effects it has had on their mental health.

Most importantly, any policy aimed at trying to protect young people on the internet must be well thought out. David Cameron himself highlighted the importance of a free internet (2013) but he is correct that today’s laissez faire stance is untenable. Given the speed with

which social media is evolving and the true lack of national boundaries - any attempt to enact concrete, legal regulations is destined for failure. Instead, a more dynamic approach to shielding young people from the dangerous aspects of social media whilst recognising its potential, should be combined with an attempt to selectively harness it as a positive influence.

CONCLUSION

Several key points should have become clear: firstly, social media plays a huge part in the development of young people; secondly, that the impact of social media in relation to mental health has both positive and negative aspects; and thirdly the internet is both constantly evolving and that this evolution can be shaped and directed. With all that in mind, the question becomes how we can use social media as positive force for the mental health of young people. Given the penetration social media has in the lives of young people, there is massive scope for the creation of healthcare services which were impossible before the digital age. Information delivery becomes easier as the need for physical attendance to health centres disappears. Education about mental health can be integrated into young people's everyday lives reducing the stigma of mental illness and ensuring earlier presentation of illnesses. Coping strategies and techniques can be taught through apps that would allow real-time coaching during difficult periods. Cyber healthcare will never totally replace face-to-face medicine but it has the potential to be a powerful adjuvant. Importantly, these possibilities could allow constant access for patients and be virtually free to deliver, but will the NHS have the confidence, foresight and creativity to tap into such a potent resource.

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References

1. *Alao AO, Soderberg M, Pohl EL, Alao AL: Cybersuicide: review of the role of the internet on suicide. Cyberpsychol Behav 2006; 9:489–493. DOI: 10.1089/cpb.2006.9.489*
2. *Bardone-Cone AM, Cass KM: What does viewing a pro-anorexia website do? an experimental examination of website exposure and moderating effects. Int J Eat Disord 2007; 40:537–548. DOI: 10.1002/eat.20396*
3. *Bazelon E: Sticks and stones: Defeating the culture of bullying and rediscovering the power of character and empathy. Random House, 2013*
4. *Biddle L, Donovan, Hawton K, Kapur N, Gunnell D: Suicide and the internet. BMJ 2008; 336:800–802. DOI: 10.1136/bmj.39525.442674.AD*
5. *Cameron David: The Internet and Pornography: the Prime Minister calls for action. The British Government. Cabinet Office, 10 Downing Street, 22 July 2013. Available online at https://www.gov.uk/government/speeches/the-internet-and-pornography-prime-minister-calls-for-action, checked on 6/25/2014*
6. *Davison KP, Pennebaker JW, Dickerson SS: Who talks? The social psychology of illness support groups. Am Psychol 2000; 55:205–217*
7. *Didden R, Scholte RHJ, Korzilius H, de Moor JMH, Vermeulen A, O'Reilly M, et al.: Cyberbullying among students with intellectual and developmental disability in special education settings. Dev Neurorehabil 2009; 12:146–151. DOI: 10.1080/17518420902971356*
8. *Forest AL, Wood JV: When Social Networking Is Not Working: Individuals With Low Self-Esteem Recognize but Do Not Reap the Benefits of Self-Disclosure on Facebook. Psychological Science 2012; 23:295–302. DOI: 10.1177/0956797611429709*
9. *Gámez-Guadix M, Orue I, Smith PK, Calvete E: Longitudinal and Reciprocal Relations of Cyberbullying With Depression, Substance Use, and Problematic Internet Use Among Adolescents. Journal of Adolescent Health 2013; 53:446–452. DOI: 10.1016/j.jadohealth.2013.03.030*
10. *Grasmuck S, Martin J, Zhao S: Ethno-Racial Identity Displays on Facebook. Journal of Computer-Mediated Communication 2009; 15:158–188. DOI: 10.1111/j.1083-6101.2009.01498.x*
11. *Haddon L, Livingstone S & EU Kids Online Network: EU Kids Online: national perspectives. 2012; available online at http://www.lse.ac.uk/media40lse/research/EUKidsOnline/EU20Kids20III/Reports/PerspectivesReport.pdf checked on 25/06/2014*
12. *Hillier L, Harrison L: Building Realities Less Limited Than Their Own: Young People Practising Same-Sex Attraction on the Internet. Sexualities 2007; 10:82–100. DOI: 10.1177/1363460707072956*
13. *Hinduja S, Patchin JW: Cyberbullying: An Exploratory Analysis of Factors Related to Offending and Victimization. Deviant Behavior 2008; 29:129–156. DOI: 10.1080/01639620701457816*
14. *International Telecommunications Union: Facts and Figures. 2013; available online at http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2013-e.pdf. Checked on 26/06/2014*
15. *Jones LM, Mitchell KJ, Finkelhor D: Trends in Youth Internet Victimization: Findings From Three Youth Internet Safety Surveys 2000–2010. Journal of Adolescent Health 2012; 50:179–186. DOI: 10.1016/j.jadohealth.2011.09.015*
16. *Kramer ADI, Guillory JE, Hancock JT: Experimental evidence of massive-scale emotional contagion through social networks. Proceedings of the National Academy of Sciences 2014; 111:8788–8790. DOI: 10.1073/pnas.1320040111*
17. *Lenhart A: Teens and mobile phones over the past five years: Pew Internet looks back. Pew Internet and American Life, 2009. Available online at http://www.pewinternet.org/2009/08/19/teens-and-mobile-phones-over-the-past-five-years-pew-internet-looks-back/*
18. *Lenhart A: Teens, smartphones, and texting. Pew Internet and American Life, 2012. Available online at http://www.pewinternet.org/files/old-media//Files/Reports/2012/PIP_Teens_Smartphones_and_Texting.pdf*

19. Lenhart A, Ling R, Campbell S & Purcell K: Teens and Mobile Phones. Pew Internet and American Life, 2010. Available online at http://www.pewinternet.org/2010/04/20/teens-and-mobile-phones/
20. Lilley C, Ball R, Vernon H: The experiences of 11-16 year olds on social networking sites. NSPCC. UK. 2013; available online at http://www.nspcc.org.uk/Inform/resourcesforprofessionals/onlinesafety/11-16-social-networking-report_wdf101574.pdf, checked on 6/26/2014
21. Livingstone S & Smith PK: Annual Research Review: Harms experienced by child users of online and mobile technologies: the nature, prevalence and management of sexual and aggressive risks in the digital age. J Child Psychol Psychiatr 2014; 55:635–654. DOI: 10.1111/jcpp.12197
22. Livingstone S, Haddon L, Görzig A and Ólafsson K: Risks and safety for children on the internet: the UK report. LSE, London: EU Kids Online. 2010; Available online at http://www.lse.ac.uk/media@lse/research/EUKidsOnline/EU20Kids20II20(2009-11)/National20reports/UKReport.pdf checked 25/06/2014
23. McLaughlin M, Nam Y, Gould J, Pade C, Meeske KA, Ruccione KS & Fulk J: A videosharing social networking intervention for young adult cancer survivors. Computers in Human Behavior 2012; 28:631–641. DOI: 10.1016/j.chb.2011.11.009
24. Mitchell KJ & Ybarra ML: Online behavior of youth who engage in self-harm provides clues for preventive intervention. Prev Med 2007; 45:392–396. DOI: 10.1016/j.ypmed.2007.05.008
25. Ofcom: Children and Parents: Media Use and Attitudes Report. 2013; available online at http://stakeholders.ofcom.org.uk/binaries/research/media-literacy/october-2013/research07Oct2013.pdf checked on 25/06/2014
26. Office of National Statistics: Internet Access - Households and Individuals. 2013; available online at http://www.ons.gov.uk/ons/dcp171778_322713.pdf checked on 25/06/2014
27. Olenik-Shemesh D, Heiman T, Eden S: Cyberbullying victimisation in adolescence: relationships with loneliness and depressive mood. Emotional and Behavioural Difficulties 2012; 17:361–374. DOI: 10.1080/13632752.2012.704227
28. O'Toole ME: The school shooter: a threat assessment perspective. The Federal Bureau of Investigation. FBI Academy, Quantico, Virginia 22135. 1999; available online at http://www.fbi.gov/library/school/school2.pdf., checked on 6/26/2014
29. Pempek TA, Yermolayeva YA & Calvert SL: College students' social networking experiences on Facebook. Journal of Applied Developmental Psychology 2009; 30:227–238.
30. Perren S, Dooley J, Shaw T, Cross D: Bullying in school and cyberspace: Associations with depressive symptoms in Swiss and Australian adolescents. Child Adolesc Psychiatry Ment Health 2010; 4:28. DOI: 10.1186/1753-2000-4-28
31. Prensky M: Digital Natives, Digital Immigrants. On the Horizon 2001; 9:1–2.
32. Pyżalski J: From cyberbullying to electronic aggression: typology of the phenomenon. Emotional and Behavioural Difficulties 2012; 17:305–317. DOI: 10.1080/13632752.2012.704319
33. Schultze-Krumbholz A, Jäkel A, Schultze M, Scheithauer H: Emotional and behavioural problems in the context of cyberbullying: a longitudinal study among German adolescents. Emotional and Behavioural Difficulties 2012; 17:329–345. DOI: 10.1080/13632752.2012.704317
34. Spies Shapiro LA & Margolin G: Growing up wired: social networking sites and adolescent psychosocial development. Clin Child Fam Psychol Rev 2014; 17:1–18. DOI: 10.1007/s10567-013-0135-1
35. Tokunaga RS: Following you home from school: A critical review and synthesis of research on cyberbullying victimization. Computers in Human Behavior 2010; 26:277–287. DOI: 10.1016/j.chb.2009.11.014
36. Topçu Ç, Erdur-Baker Ö, Çapa-Aydin Y: Examination of Cyberbullying Experiences among Turkish Students from Different School Types. In CyberPsychology & Behavior 2008; 11:643–648. DOI: 10.1089/cpb.2007.0161
37. Tynes BM, Giang MT, Thompson GN: Ethnic Identity, Intergroup Contact, and Outgroup Orientation among Diverse Groups of Adolescents on the Internet. CyberPsychology & Behavior 2008; 11:459–465. DOI: 10.1089/cpb.2007.0085
38. Wang J, Nansel TR, Iannotti RJ: Cyber and Traditional Bullying: Differential Association With Depression. Journal of Adolescent Health 2011; 48:415–417. DOI: 10.1016/j.jadohealth.2010.07.012
39. Ybarra ML: Linkages between Depressive Symptomatology and Internet Harassment among Young Regular Internet Users. CyberPsychology & Behavior 2004; 7:247–257. DOI: 10.1089/109493104323024500
40. Yu J, Taverner N, Madden K: Young people's views on sharing health-related stories on the Internet. Health & Social Care in the Community 2011; 19:326–334. DOI: 10.1111/j.1365-2524.2010.00987.x

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