

THE EFFECTS OF SOCIAL MEDIA AND SOCIAL
NETWORKING SITE USAGE ON THE MENTAL HEALTH
AND WELLBEING OF ADOLESCENTS

by

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A THESIS

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Title: The Effects of Social Media and Social Networking Site Usage on the Mental Health and Wellbeing of Adolescents

Approved:  _____

Nicholas B. Allen

Background: Many questions and contradictory beliefs exist in regards to the impact social media and social networking sites may have on the mental health and wellbeing of the adolescents who use them.

Objective: To systematically review empirical studies conducted within the last 10 years on this topic in order to come to a consensus regarding the impact of social media usage on adolescent users. To identify any variables or predispositions that may moderate these effects.

Methods: A systematic review of research published between 2008 and 2016 retrieved from searches on two databases. Results were analyzed using a narrative synthesis approach and examined under the following frameworks: harmful exposure, peer support, and addiction.

Results: Database search retrieved 13 relevant studies. Social media and social networking sites were reported as being beneficial by providing peer support, a sense of acceptance amongst one's peers as well as a way to maintain social connections. Harmful effects included potential addiction, exposure to harmful experiences and a higher risk for mental health problems. Variables that increased the risk of negative effects were younger age, engaging with the sites for over two hours a day and beginning use at a younger age.

Conclusions: This review has revealed inconsistent evidence showing both benefits and harms of using social media and social networking site. Online social sites are still relatively new and are constantly changing. Future research is required in order to confidently establish short term and long-term effects.

Keywords: social media; social networking sites; adolescents; mental health; wellbeing

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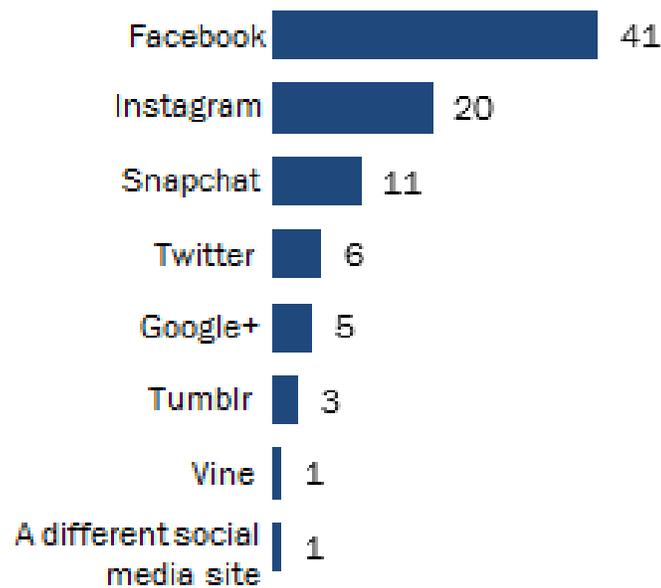
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Facebook, Instagram and Snapchat Used Most Often by American Teens

% of all teens who use _____ most often



Note: "Don't use any" responses not shown.

Source: Pew Research Center's Teens Relationships Survey, Sept. 25-Oct. 9, 2014 and Feb. 10-Mar. 16, 2015 (n=1,060 teens ages 13 to 17).

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Figure 1. Most Often Used Social Networking Sites, Lenhart (2015)

Title	Authors	Year
Ear for recovery: protocol for a prospective study on parent-child communication and psychological recovery after paediatric injury.	Alisic E, Barrett A, Bowles P, Bobi FE, Conroy R, McClure RJ, Anderson V, Mehl MR.	2015
Facebook as a recruitment tool for adolescent health research: a systematic review.	Amon KL, Campbell AJ, Hawke C, Steinbeck K.	2014
Cyberbullying: implications for the psychiatric nurse practitioner.	Carpenter LM, Hubbard GB.	2014
Use of mobile phones, computers and internet among clients of an inner-city community psychiatric clinic.	Carras MC, Mojibabi R, Furr-Holden CD, Eaton W, Cullen BA.	2014
Psychosocial correlates of internet use among Italian students.	Casale S, Fioravanti G.	2011
Adolescent suicide statements on MySpace.	Cash SJ, Thelwall M, Peck SN, Ferrell JZ, Bridge JA.	2013
Social media as social capital of LGBT individuals in Hong Kong: its relations with group membership, stigma, and mental well-being.	Chong ES, Zhang Y, Mak WW, Pang JH.	2015
A longitudinal study of the social and emotional predictors and consequences of cyber and traditional bullying victimisation.	Cross D, Lester L, Barnes A.	2015
Participatory and social media to engage youth: from the Obama campaign to public health practice.	Goodman J, Weimerstrom A, Springgate BF.	2011
Prevalence and Effect of Cyberbullying on Children and Young People: A Scoping Review of Social Media Studies.	Hamm MP, Newton AS, Chisholm A, Shulhan J, Milne A, Sundar P, Emis H, Scott SD, Harding L.	2015
Facebook Addiction and Its Relationship with Mental Health among Thai High School Students.	Hampahbet N, Manwong M, Khumsri J, Yingyuan R, Phanasahiti M.	2015
Media's role in broadcasting acute stress following the Boston Marathon bombings.	Holman EA, Garfin DR, Silver RC.	2014
Service user perspectives on the experience of illness and pathway to care in first-episode psychosis: a qualitative study within the TOP project.	Jansen JE, Woldike PM, Haahr UH, Simonsen E.	2015
Facebook addiction among Turkish college students: the role of psychological health, demographic, and usage characteristics.	Koc M, Guylager S.	2013
Communication inequalities and public health implications of adult social networking site use in the United States.	Kontos EZ, Emmons KM, Pulco E, Viswanath K.	2010
When overweight is the normal weight: an examination of obesity using a social media internet database.	Kuebler M, Yoon-Tov E, Pelleg D, Pahl RM, Muenning P.	2013
Providing health information for culturally and linguistically diverse women: priorities and preferences of new migrants and refugees.	Lee SK, Sulaiman-Hill CM, Thompson SC.	2013
A review of protective factors and causal mechanisms that enhance the mental health of Indigenous Circumpolar youth.	MacDonald JP, Ford JD, Willox AC, Ross NA.	2013
The concept of leakage in threat assessment.	Meloy JR, O'Toole ME.	2011
Longitudinal Youth-At-Risk Study (LYRIKS): outreach strategies based on a community-engaged framework.	Mittler N, Nah GQ, Bong YL, Lee J, Chong SA.	2014
Naturally occurring peer support through social media: the experiences of individuals with severe mental illness using YouTube.	Naslund JA, Grande SW, Aschbrenner KA, Elwyn G.	2014
Impact of media on children.	no author	2012
eHealth promotion and social innovation with youth: using social and visual media to engage diverse communities.	Norman, C. D., Yip, A. L.	2012
Adolescent self-harm: a school-based study in Northern Ireland.	O'Connor RC, Rasmussen S, Hawton K.	2014
Healthy connections: online social networks and their potential for peer support.	O'Dea B, Campbell A.	2011
Association between online social networking and depression in high school students: behavioral physiology viewpoint.	Pantic J, Damjanovic A, Todorovic J, Topalovic D, Bojovic-Jovic D, Ristic S, Pantic S.	2012
Online Social Networking and Mental Health	Pantic, J.	2014
Adolescents and the internet: what mental health clinicians need to know.	Rafila M, Carson NJ, DeJong SM.	2014
Network Science and Social Media	Rice, E.; Karmil, N S.	2012
Even though it's a small checkbox, it's a big deal: stresses and strains of managing sexual identity(s) on Facebook.	Rubin JD, McClelland SI.	2015
Adolescence: a foundation for future health.	Sawyer SM, Afifi RA, Bearinger LH, Blakemore SJ, Dick B, Ezzeh AC, Patton GC.	2012
Sex and the summer: comparing religious and nonreligious same-sex attracted adults on internalized homonegativity and distress.	Sowe BI, Brown J, Taylor AJ.	2014
Concerns about identity and services among people with autism and Asperger's regarding DSM-5 changes.	Spillers JL, Sensi LM, Linton KF.	2014
Access to the internet in an acute child and adolescent mental health inpatient unit.	Stanton J, Drake of Hagedorn E, Susiak K.	2015
Online social networking in adolescence: patterns of use in six European countries and links with psychosocial functioning.	Tsatsika AK, Tzavala EG, Janikam M, Olafsson K, Jurdache A, Schoenmakers TM, Tzavara C, Richardson C.	2014
eMental health experiences and expectations: a survey of youths' Web-based resource preferences in Canada.	Wetterlin FM, Mar MY, Neilson EK, Werker GR, Krausz M.	2014
How risky are social networking sites? A comparison of places online where youth sexual solicitation and harassment occurs.	Ybarra, M. L.; Mitchell, K. J.	2008

Figure 2.A PubMed Database Search Results

Title	Author	Year
The relationship between socializing on the Spanish online networking site Tuenti and teenagers' subjective wellbeing: The roles of self-esteem and loneliness.	Apollaza, Vanessa; Hartmann, Patrick; Medina, Esteban; Barroita, Jose M.; Echeburua, Carmen	2013
Utilization of technology in transition programs.	Appelbaum, Mark A.; Lawson, Erica F.; von Scheven, Emily	2012
I've 500 friends, but who are my mates? Investigating the influence of online friend networks on adolescent wellbeing.	Best, Paul; Taylor, Brian; Manktelow, Roger	2015
Internet use, Facebook intrusion, and depression: Results of a cross-sectional study.	Blachnio, A.; Przyorka, A.; Panit, I.	2015
Social networking and the social and emotional wellbeing of adolescents in Australia.	Bourgeois, Amanda; Bower, Julie; Carroll, Annemaree	2014
Use of mobile phones, computers, and internet among clients of an inner-city community psychiatric clinic.	Carris, Michelle Colter; Mojtabai, Ramin; Furr-Holden, Debra; Eaton, William; Cullen, Bernadette A. M.	2014
Adolescent suicide statements on MySpace.	Cash, Scotty J.; Thelwall, Michael; Peck, Sydney N.; Ferrill, Jared Z.; Bridge, Jeffrey A.	2013
Choosing your network: Social preferences in an online health community.	Centola, Damon; van de Rijt, Arnout	2015
Facebook diagnostics: Detection of mental health problems based on online traces.	Csepeli, György; Nagyfi, Richárd	2014
Tweeting about testing: Do low-income, parenting adolescents and young adults use new media technologies to communicate about sexual health?	Divecha, Zai; Divney, Anna; Ickovics, Jeanette; Kershaw, Trace	2012
Where do youth learn about suicides on the Internet, and what influence does this have on suicidal ideation?	Dunlop, Sally M.; More, Eian; Romer, Daniel	2011
Capturing personality from Facebook photos and photo-related activities: How much exposure do you need?	Eftekhari, Azar; Fullwood, Chris; Morris, Neil	2014
The relationship between problematic internet entertainment use and problem solving skills among university students.	Ekinci, Birsen	2014
Put on a smiley face: Textspeak and personality perceptions.	Fullwood, Chris; Quinn, Sally; Chen-Wilson, Josephine; Chadwick, Darren; Reynolds, Katie	2015
Bones, body parts, and sex appeal: An analysis of #inspiration images on popular social media.	Ghaznavi, Jannah; Taylor, Laramie D.	2015
Precursors to maladaptive adult functioning: An internet assessment of men who have sex with men.	Holland, Christine Maïre	2013
The (mal) adaptive value of mid-adolescent dating relationship labels.	Howard, Donna E.; Debnam, Katrina J.; Cham, H. J.; Czinn, Anna; Alken, Nancy; Jordan, Jessica; Goldman, Rachel	2015
Exposure to tobacco on the Internet: Content analysis of adolescents' Internet use.	Jensen, Brian P.; Klein, Jonathan D.; Salazar, Laura F.; Daluga, Nichole A.; DiClemente, Ralph J.	2009
Online social networking behaviors among Chinese younger and older adolescent: The influences of age, gender, personality, and attachment styles.	Ji, Yang; Wang, Guang-Ji; Zhang, Qi; Zhu, Zhuo-Hong	2014
Survey of quality, readability, and social reach of websites on osteosarcoma in adolescents.	Lam, Catherine G.; Roter, Debra L.; Cohen, Kenneth J.	2013
Evaluation of a campaign to improve awareness and attitudes of young people towards mental health issues.	Livingston, James D.; Tugwell, Andrew; Korf-Lizan, Kimberly; Cianfrone, Michelle; Coniglio, Connie	2013
Epidemiology of Internet behaviors and addiction among adolescents in six Asian countries.	Mak, Kwok-Kai; Lai, Ching-Man; Watanabe, Hiroko; Kim, Dong-Ii; Bahar, Norfaridha; Ramos, Mileni; Young, Kimberly S.; Ho, Roger C. M.; Aum, Na-Rae; Cheng, Cecilia	2014
Prevalence and correlates of screen-based media use among youths with autism spectrum disorders.	Mazurek, Micah O.; Shattuck, Paul T.; Wagner, Mary; Cooper, Benjamin P.	2012
Young people's views regarding participation in mental health and wellbeing research through social media.	Monks, Helen; Cardoso, Patricia; Papageorgiou, Alana; Carolan, Catherine; Costello, Lessa; Thomas, Laura	2015
Secret society 123: Understanding the language of self-harm on Instagram.	Moreno, Megan A.; Ton, Adrienne; Selkie, Ellen; Evans, Yolanda	2016
The anatomy of health care in the United States.	Moses III, Hamilton; Matheson, David H. M.; Dorsey, E. Ray; George, Benjamin P.; Sudoff, David; Yoshimura, Satoshi	2013
Adolescent self-harm: A school-based study in Northern Ireland.	O'Connor, Rory C.; Rasmussen, Susan; Hawton, Keith	2014
Internet and social media use as a resource among homeless youth.	Rice, Eric; Barman-Adhikari, Anamika	2014
Frequent use of social networking sites is associated with poor psychological functioning among children and adolescents.	Sampasa-Kanyinga, Hugues; Lewis, Rosamund F.	2015
The impact of digital media on health: Children's perspectives.	Snabel, David; Wright, Michelle F.; Cernikova, Martina	2015
Internet and social media for health-related information and communication in health care: Preferences of the Dutch general population.	Van de Belt, Tom H.; Engelen, Lucien J. L. P. G.; Berben, Sivera A. A.; Teerenstra, Steven; Samsom, Melvijn; Schoonhoven, Lisette	2013
Social services for sexual minority youth: Preferences for what, where, and how services are delivered.	Wells, Elizabeth A.; Asakura, Kenia; Hoppe, Marijyn J.; Balsam, Kimberly F.; Morrison, Diane M.; Beadnell, Blair	2013

Figure 2.B PsycINFO Database Search Results

Thesis Flow Diagram

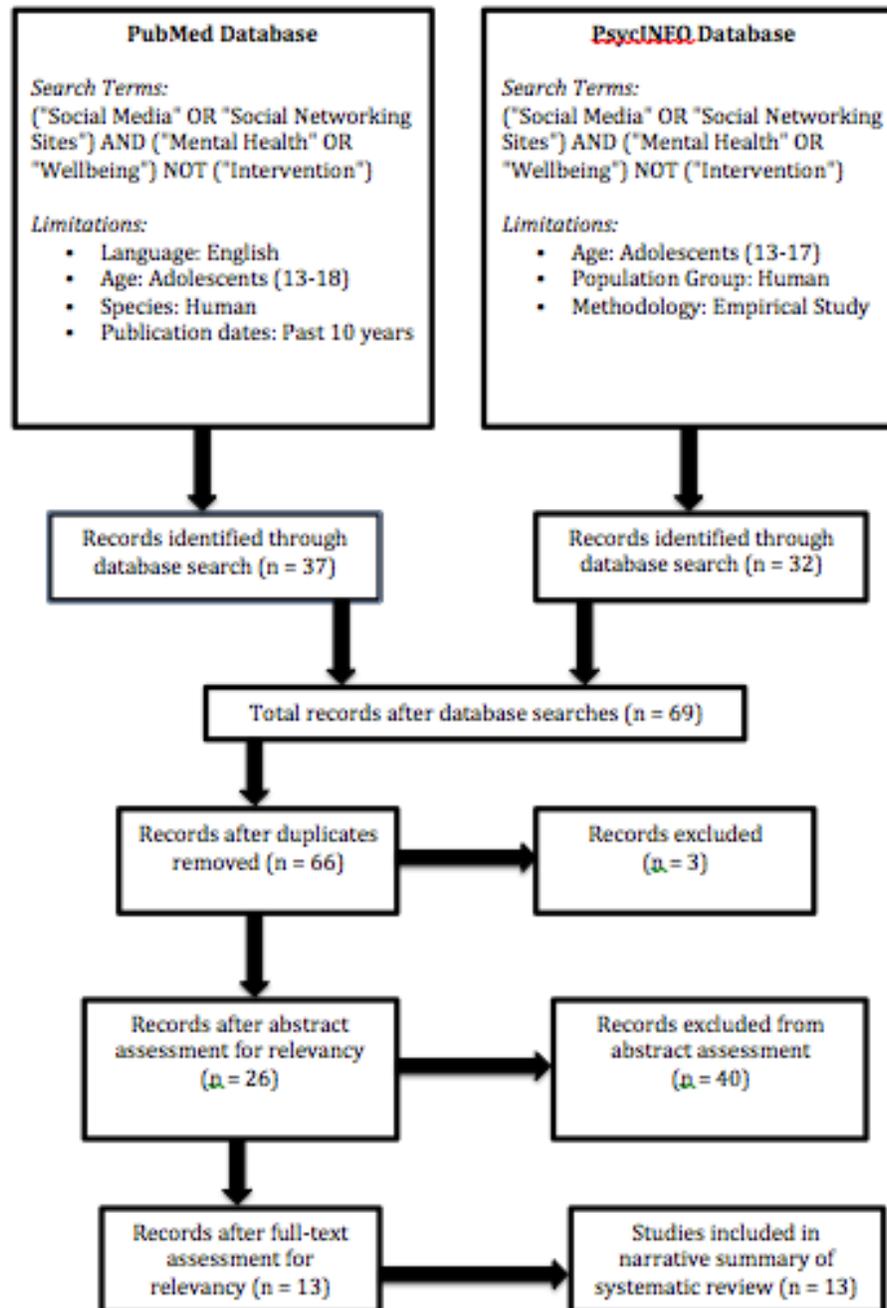


Figure 3. Overview of systematic search and elimination strategy

Year	Title	Authors	Research Question	# of Participants	Participant Demographics	Methods	Duration of Study	Results	Limitations
2008	How Risky are Social Networking Sites? A Comparison of Places Online Where Youth Sexual Solicitation and Harassment Occurs.	Ybarra, M. L., & Mitchell, K. J.	Does use of social networking sites increase sexual harassment and sexual soliciting of adolescents?	1588	10 to 15 year old youth who used the Internet at least once in the last 6 months	Used a national cross sectional online survey called The Growing up with Media Survey measuring unwanted sexual solicitation (requests to talk about sex, provide sexual information, do something sexual) and sexual harassment (rude or mean comments; spreading rumors)	One time occurrence	There was not enough evidence that use of SNS increase sexual harassment and solicitation. 4% reported unwanted sexual solicitation on SNS and 9% reported unwanted sexual harassment on SNS	Limitations include each participants privacy controls, how likely each individual is to "friend" everyone as well as their personal risk behaviors and whether they are lonely or not.
2010	Communication Inequalities and Public Health Implications of Adult Social Networking Site Use in the United States	Kontos, E.Z., Emmons, K.M., Puleo, E., & Viswanath, K.	What is the relationship between SNS-use on both health communication and psychological well-being among a representative US adult population?	4,092/352	Ages 18-75+, both genders, Hispanic whites, non-Hispanic black, Hispanic, Asian, native American, Pacific islander and multiracial	Data collected from Computer Assisted Telephone Interviews as well as from mail in survey responses. Measured whether participants were SNS-users, their socio-demographics and psychological distress based on the 1997 Adult Core Questionnaire	One time occurrence	The use of SNS may positively impact health by minimizing communication inequalities but is also negatively associated with higher levels of psychological distress. Early adult adopters of the Internet are associated with higher levels of anxiety and depression.	The low survey response rates may have increased sampling error as well as the over-sampling of minorities. This study was also unable to account for frequency of internet and social networking site usage which might play a role in the level of psychological distress
2011	Where Do Youth Learn About Suicides on the Internet, and What Influence Does This Have on Suicidal Ideation?	Dunlop, S. M., More, E., & Romer, D.	Do internet sites such as online news and social networking sites expose adolescents to suicide stories that might increase suicide ideations?	719	ages 14-24 High School Students from Pozarevac, Central Serbia. 51 males, 109 females with the average age of 18.02.	Used data from an annual telephone survey called the National Annenberg Survey of Youth from 2008 & 2009 asking about known suicide victims as well as personal experiences on the subject. The follow up interview asked about internet platforms where they had been exposed to suicide stories	Two successive waves of interviews a year apart from each other	Social networking sites were cited frequently as platform of suicide exposure and appeared to be an important communication medium for obtaining info about suicide. This exposure did not appear to increase suicidal ideation.	Failed to consider the exposure of suicidal methods in addition to suicidal stories. Also neglected to include suicidal attempts that were not completed.
2012	Association Between Online Social Networking and Depression in High School Students: Behavioral Physiology Viewpoint	Pantic, I., Damjanovic, A., Topalovic, D., Topalovic-Jovic, D., Ristic, S., & Pantic, S.	Is there a relationship between depression indicators and social networking among adolescents? What is the relationship?	160	109 females with the average age of 18.02.	Used an anonymous questionnaire and Beck Depression Inventory (second edition). Participants were asked to provide data for their weight, height, gender and average time spent daily on social networking sites	One time occurrence	The time spent on SNS is related to the risk for depression determined by the BDI.	Relatively small sample, correlation does not equal causality, should have taken in account even more potential variables that could have affected the results such as physical activity and socioeconomic status
2013	The Relationship Between Socializing on the Spanish Online Networking Site Tuenti and Teenagers' Subjective Wellbeing: The Roles of Self-Esteem and Loneliness	Apaolaza, V., Hartmann, P., Medina, E., Barria, J. M., & Echeburua, C.	What is the relationship between socializing on Tuenti and teenagers' wellbeing such as loneliness and their self-esteem?	344	Spanish adolescents ages 12-17 with online Tuenti profiles. 178 females and 166 males	Used self-administered surveys in three Spanish secondary education centers. The surveys measured the degree of socializing, loneliness, self-esteem and respondents' perceived level of personal wellbeing	January - May 2012, one time occurrence of surveys	There was an indirect relationship that was mediated by the intervening variables of self-esteem and loneliness. Found both severe depression, anxiety and insomnia as positive predictors of Facebook Addiction. Facebook may provide at-risk students with more social benefits. Found there to be no demographics that significantly predicted Facebook addiction.	The use of self-report methods may be influenced by bias or incorrect reporting. The cross sectional design prevents the establishment of causal relationships. The research design was based on prediction so no definite conclusions on causation can be made. The participants' gender was not evenly represented as well as the use of convenience sampling may not represent the general university student population. The use of self-report data is another variable affecting the results.
2013	Facebook Addiction Among Turkish College Students: The Role of Psychological Health, Demographic, and Usage Characteristics	Koc, M., & Gulayci, S.	How might these addictions affect Turkish adolescents' wellbeing?	447	Students at a technical teacher education college in Turkey. 347 were male, 100 were female. Ages ranged from 18-30; mean age of 21.64	Participants filled out a self-report survey measuring their Facebook usage as well as a general health questionnaire.	One time occurrence	Comments showed the presence of the minimization of the sense of isolation, the providing of hope, finding support through peer exchange and reciprocity, learning from shared experiences and dealing with day-to-day challenges	Lacked data on individual motivation or intention to upload videos, post comments or publicly disclose personal health information. Also could not assess the impact of the videos or comments on the actual individuals and whether YouTube interactions offered long-term benefits and genuine support. Due to the exploratory study model, findings could not be generalized to the wider population of individuals
2014	Naturally Occurring Peer Support Through Social Media: The Experiences of Individuals with Severe Mental Illness Using YouTube	Naslund, J. A., Grande, S. W., Aschbrenner, K.A., & Ehwyn, G.	How might the phenomenon of individuals with severe mental illness (SMI) such as schizophrenia, schizoaffective disorder, or bipolar disorder, who share their illness experiences through video narratives uploaded onto platforms like YouTube constitute the development of a naturally emerging peer support system?	19	Individuals who self-identified having schizophrenia (4), schizoaffective disorder (7) or bipolar disorder (8) Ages 14-17 (mean age = 15.8) of mostly ninth and tenth graders	Looked at 19 uploaded YouTube videos using the search terms, schizophrenia, schizoaffective disorder, bipolar disorder and mental illness. Then looked at a total of 3,044 associated comments for expressions of peer support. Then used a qualitative analysis of comments to look for naturally occurring peer support.	One time search	Heavy SNS usage is associated with lower academic performance and activities scores as well as higher scores of depression. Found that heavier SNS use may be associated with higher social competence for older adolescents with increased internalizing problems among younger adolescents.	The study was cross-sectional and cannot substantiate the direction of the association between heavier SNS use and psychosocial functioning. The directionality of the relationship between SNS and psychosocial problems needs to be further explored.
2014	Online Social Networking in Adolescence: Patterns of Use in Six European Countries and Links with Psychosocial Functioning	Tsitsika, A. K., Tzavela, E. C., Janikian, M., Ólafsson, K., Iordache, A., Schreinemakers, T. M., Tzavara, C., & Richardson, C.	What are the associations between heavier Social Networking Site use and adolescent competencies and internalizing problems	10,930	Participants were from Greece, Spain, Poland, the Netherlands, Romania and Iceland with around 2,000 students per country	Participants answered anonymous questionnaires asking about their social networking site use as well as the Youth Self Report problem checklist to measure internalizing behavior problems.	Data collection from October 2011 - May 2012. One time survey	Found both positive and negative associations between the two.	The results are potentially affected by recall bias, there was also not a way to account for causal inferences
2015	I've 500 Friends, But Who Are My Mates? Investigating the Influence of Online Friend Networks on Adolescent Wellbeing	Best, P., Taylor, B., & Manktelow, R.	What is the relationship between online friend networks and the mental well-being of adolescent males?	527	14-15 year old males in 11th grade from seven post-primary schools in Northern Ireland	Had participants fill out a the Warwick-Edinburgh mental wellbeing scale as well as a OSN habits and friendship survey. They then did focus group session with 6-8 people that last from 40-60 minutes.	September and November 2014	Depression is a predictor of Facebook intrusion/addiction	Limitations include self-report methods, as well as a possibly inaccurate declaration of users' amount of time spent on Facebook. This study also did not account for additional demographics such as education.
2015	Internet Use, Facebook Intrusion, and Depression: Results of a Cross-Sectional Study.	Blachnio, A., Przepiórka, A., & Pantic, I.	What are the potential associations between Internet use, depression and Facebook intrusion? Is depression and daily Internet use time related to Facebook intrusion?	672	Participants were all Polish ages 15-75 with a mean age of 27.53 years. 65% were women and all participants were Facebook users. All native Polish speakers	Participants completed two questionnaires as well as questions specifying their demographics and daily Internet use time.	September and November 2014	Facebook addiction can be associated with abnormal general mental health status, somatic symptoms, anxiety & insomnia, social dysfunction and severe depression. Students who reported unmet need for mental health support were more likely to report using SNS for 2+ hours every day. 2+ hours a day of SNS use was independently associated with poor self rating of mental health and experiences of high levels of psychological distress and suicidal ideation.	Limitations include using self-report method which may have resulted in personal bias or inaccurate reporting.
2015	Facebook Addiction and Its Relationship with Mental Health Among Thai High School Students	Hangprathet, N., Manwong, M., Khumsri, J., Khuyuen, R., & Phanasahtit, M.	What is the relationship between Facebook addiction and mental health among Thai high school students?	972	High school students from four provinces with high economic prosperity.	Facebook addiction was assessed using the Thai version of the Bergen-Facebook Addiction Scale and then mental health was evaluated using a Thai version of the General Health Questionnaire. The relationship was analyzed using multiple logistic regressions	One time occurrence	Facebook addiction can be associated with abnormal general mental health status, somatic symptoms, anxiety & insomnia, social dysfunction and severe depression. Students who reported unmet need for mental health support were more likely to report using SNS for 2+ hours every day. 2+ hours a day of SNS use was independently associated with poor self rating of mental health and experiences of high levels of psychological distress and suicidal ideation.	Limitations include using a self-report method which may have resulted in personal bias or inaccurate accounts of mental health as well as Facebook use.
2015	Frequent Use of Social Media Networking Sites is Associated with Poor Psychological Functioning Among Children and Adolescents	Sampasa-Kanyinga, H., & Lewis, R. F.	What association is there between the time spent on Social Networking sites and unmet needs for mental health support, poor self-rated mental health, and reports of psychological distress and suicidal ideation in Canadian youth?	753	Middle and high school students from Ontario, Canada grades 7-12. 55% female with a mean age of 14.1 years	Data came from the 2013 Ontario Student Drug Use and Health Survey and then multinomial logistic regression was used to examine the relationship	One time occurrence	Non-suicidal self-injury content is popular on Instagram and does not always have sufficient Content Advisory warnings which may either help non-suicidal self-injury teens feel a sense of connection or may trigger harmful behavior.	Limitations include only using the search term "#selfharmmm" and therefore the results do not document the full landscape of non-suicidal self injury. Findings were also limited because they focused on current NSSI and associated mental health concerns rather than also including past concerns. Demographics were also not recorded
2016	Secret Society 123: Understanding the Language of Self-Harm on Instagram	Moreno, M. A., Too, A., Selkie, E., & Evans, Y.	What are the meanings, popularity and content advisory warnings related to ambiguous NSSI hashtags on Instagram?	201 Instagram posts	Demographics were not recorded; participants were Instagram users who used certain hashtags	The term "#selfharmmm" was used to look at public Instagram posts and then hashtag terms co-listed were also assessed using a structured evaluation for meaning and consistency.	One time search		

Figure 4. Summary Chart of Used Studies

1. Introduction

Adolescents growing up in the 21st century spend a large portion of their time accessing the Internet through a variety of technological devices. Research by Lenhart (2015) reported 92% of American teenagers say they go online every day and 24% reported that they are online “almost constantly.” Almost three-quarters of adolescents in the U.S. have access to a smartphone allowing an increasing accessibility to the Internet (Lenhart, 2015). In response to the high number of Internet users, researchers have examined how general Internet use may be affecting adolescents’ mental health and wellbeing. For example, Belanger, Akre, Berchtold, & Michaud (2011) found both heavy Internet users and non-internet users to be at an increased risk for poorer mental health and increased somatic health problems. In comparison, there is not much knowledge of potential risks for adolescents’ use of the Internet specifically to access social media and networking sites.

Lenhart (2015) found that out of 1,060 teens interviewed, 89% reported using a form of social media or social networking site. Research by Rideout, Foehr, and Roberts (2010) also found that on average, eight to eighteen year olds spend over seven hours a day consuming media. Despite the large presence these sites play in the lives of adolescents, there is a lack of knowledge regarding what effects result from this use. The objective of this paper is to examine and summarize the preexisting studies relating to this topic with the goal of answering the following questions: *Are there any benefits or disadvantages from using these sites? If so, are adolescent users benefitted or harmed in similar ways? What are the variables and characteristics that may increase or decrease the presence of the effects?*

2. Background

2.1 Social Media and Social Networking Sites

The beginning of the modern social media and social networking phenomenon can be traced back to 1997 with a site called Six Degrees (Edosomwan, Prakasan, Kouame, Watson, & Seymour, 2011). As the first site of its kind, it allowed users to create a profile as well as an online network of friends and other acquaintances. Since 1997 many more social media and social networking sites have emerged and are constantly evolving and competing to include new features and functions. According to Lenhart (2015), the most commonly used social media sites are Facebook (41%), Instagram (20%), Snapchat (11%), Twitter (6%), Google+ (5%), Tumblr (3%), Vine (1%) and other social media sites (1%). See Figure 1.

With the adaptive and evolving nature of modern technology, social media and social networking sites are constantly being updated and changed. In addition there is a steady creation of new sites. From the beginning of 2006 to the end of 2008, a site called MySpace went from the most popular social networking site to being eclipsed by its newly emerging competitor Facebook. The constant popularity shifts between sites may act as a challenge for researchers when comparing effects of social site usage from year to year or even month to month. Research by Lenhart (2015) found that 71% of teens reported using more than one form of social site, which may also pose a challenge when comparing adolescents' social media and social networking site usage.

It is important to address the terms "social media" and "social network" and the context they are used within this paper. Originally the difference between the two could be distinguished based on their features and functions. However, as all of these sites are

updated, there is an increasing amount of overlap in the features that social media versus social networking sites offer. Originally social media sites focused on providing an outlet for broadcasting whereas social networks were used as a way of communication and connecting with others (Edosomwan et al., 2011). Now, with such a large overlap in features, both types of sites allow users to communicate and share information as well as videos and photographs to a controlled group of viewers or followers. Users are given the option to “friend” or “follow” each other giving them access to each other’s posts. These sites feature the option for users to show approval through sharing, commenting or “liking” posts. Some sites focus on two-way communication as a way of creating and maintaining connections and networks by providing features such as direct messaging, instant messaging and the ability to tag specific people in posts or comments. For the purpose of this paper, I have included both terms to prevent the exclusion of studies that may vary in their definition of social media and social networking sites.

2.2 Adolescents

The Canadian Paediatric Society (2003) defines adolescents as young adults between the ages of 10 and 19 although the age range is often loosely defined. Adolescence is an important time where young people are particularly susceptible to the presence and opinion of their peers and friends. Research by Salvy, de la Haye, Bowker, and Hermans (2012) found that the presence of friends and peers was tied to an increase in physical activity and therefore higher levels of wellbeing in adolescents. The presence of one’s friends may also increase risk-taking behavior (Gardner, M., & Steinberg, L., 2005).

Having successful and healthy friendship networks are also an important process for social development and wellbeing (Best, Taylor, & Manktelow, 2015). Social media and social networking sites act as a tool for adolescents to continue creating and maintaining relationships with peers at all hours. Adolescents also make up 89% percentage of social media and social networking site users (Lenhart, 2015). Therefore the examination of the adolescent age group is important for researching how the use of these sites can affect a person's mental health and wellbeing.

2.3 Similar Systematic Reviews

Before conducting the present systematic review, I searched for reviews that addressed similar questions to mine. The most relevant review I found was conducted by Best, Manktelow, & Taylor, (2014) using research published between 2003 and 2013 that was retrieved from eight bibliographic databases resulting in 43 relevant studies. The goal of their systematic review was to look at the effect of online communication and social media on adolescent wellbeing. Results found both beneficial and harmful outcomes making their results contradictory. Although this review is similar to the current paper, social media and social networking sites are changing so rapidly that the results of this study no longer accurately represent the social media used today by adolescents. Studies conducted between 2003 and 2013 may not include many of the popular social media and social networking sites that are commonly used today or the newly updated features they offer. The popularity of social media and social networking sites during those years compared to more recent years may also vary making the results in the systematic review an inaccurate description of what adolescents are currently

experiencing. The results of this review were also found to be contradictory making it important to further research this topic.

2.4 Mental Health and Wellbeing

The terms “mental health” and “wellbeing” are both concepts whose definitions can vary from study to study. The lack of a consistent operationalization of these constructs can make both areas of life difficult to measure. Although the studies included in this systematic review may vary in definition and measurement of these constructs, the definitions this paper will be using when referring to them are as follows. I will be defining “wellbeing” as a measurement of how well a person is flourishing or doing better than normal compared to a group average. There are many dimensions and domains of wellbeing including social, academic, emotional, physical and mental wellbeing. Measurement of one’s wellbeing may include their popularity level, their academic success, how physically active they are etc. Mental health on the other hand is a measurement of the negative emotional and psychological characteristics one expresses compared to a group average.

3. Methods

This paper reviews existing evidence exploring the effects of social media and social networking site usage on adolescent mental health and wellbeing. Due to the presence of multiple research questions, a statistical meta-analysis was not possible so a systematic review approach was used. A systematic review acts as an unbiased procedure to locate relevant studies that explore similar research questions. This systematic review was conducted consistent with the guidelines listed on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses website (Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & The PRISMA Group, 2009).

Searches were conducted through the following databases: (1) PubMed and (2) PsycINFO. PubMed is a life science and biomedical database while PsycINFO, an American Psychological Association database, has both practice literature as well as academic research in the psychology field. The focus on mental health and wellbeing makes the use of these two databases most appropriate. The search process only included these two databases since they provided the most adequate coverage of the relevant literature.

The first search was conducted on PubMed using the terms (Social Media Usage) OR (Social Media) OR (Social Networking Sites) AND (Mental Health) OR (Wellbeing). Included limitations were: free full text, studies conducted in the past 10 years, humans and adolescents (13-18). This resulted in 443 results. Based on the titles, a large portion of the results focused on social media and social networking sites as intervention and treatment tools therefore classifying them as irrelevant.

In order to narrow the search to more relevant studies, the search terms were adjusted to ("Social Media" OR "Social Networking Sites") AND ("Mental Health" OR "Wellbeing") NOT ("Intervention") with the limitations set to English, Adolescents (13-18 years in age), human and a publication date of within the last 10 years. The same search terms were then used on a PsycINFO search, but with the limitations of human, adolescents (13-17 years in age) and empirical study methodology. The updated search narrowed the results to 37 studies from PubMed and 32 studies from PsycINFO. All 69 studies were then entered into an Excel Spreadsheet and duplicates were eliminated and marked in yellow resulting in 66 studies (see Figure 2A and Figure 2B).

The next step was to read through all 66 abstracts and eliminate additional studies based on relevance. Any study that was either a systematic review or Meta-Analysis was immediately removed. Studies were included if they 1) measured the influences of social media and social networking site usage and 2) looked at moderators that may affect how adolescents' mental health and wellbeing was influenced by social media use. All studies with irrelevant abstracts were removed resulting in 26 remaining studies. (Irrelevant abstracts are marked in orange in Figure 2).

The 26 studies were thoroughly read, further eliminating 12 additional studies based on non-relevancy. An additional study was eliminated due to inability to access the full text (Bourgeois, Bower, & Carol, 2014; which is also highlighted in red). The 13 removed studies are shown in blue (Figure 2). These studies were organized into a chart (Figure 4) detailing the research question, methodology, sample size and demographics as well as the results and limitations of each study.

Utilizing the chart, the studies were analyzed using a narrative synthesis approach and examined under the following frameworks: (1) Harmful exposure, (2) Peer support and (3) Addiction Relating to Social Media and Social Networking Site Usage.

4. Results

4.1 Study Methodologies and Participant Characteristics

The methodologies of the studies used in this systematic review varied amongst studies. The majority of the studies in this systematic review (84.61%) used a type of cross-sectional methodologies in the form of questionnaires, surveys as well as various measurement scales. However research conducted by Naslund et al. (2014) and Moreno et al (2016) used an alternative approach. Both studies used specific search terms to search for public posts on YouTube and Instagram and then analyze the results for the presence of peer support, signs of social site addiction as well as harmful ideations. Both studies used a one-time search. All 13 studies used were conducted within eight years of each other ranging from 2008 to 2016.

Overall, the age of the adolescent participants ranged from age 10 (Ybarra & Mitchell, 2008) to age 30 (Koc & Gulyagci, 2013) as well as one study having participants up to the age of 75 but with a mean age of 27.53 (Blachnio, Przepiorka, & Pantic 2015). However the majority of the studies included participants within the adolescence age perimeters used by the two databases (PubMed = 13-18; PsycINFO = 13-17). The participant size also varied substantially ranging from as small as the analysis of 19 YouTube videos (Naslund et al., 2014) to sample sizes as large as almost 11,000 (Tsitsika et al, 2014).

The ethnicity of the participants in these studies also varied including participants from Central Serbia (Pantic et al., 2012); Thailand (Hanprathet et al., 2015); Greece, Poland, Romania, Iceland and The Netherlands (Tsitsika et al., 2014); Canada (Sampasa-Kanyinga & Lewis, 2015); Spain (Tsitsika et al., 2014; Apaolaza et al.,

2013); Turkey (Koc et al., 2013); Northern Ireland (Best et al. 2015) and The United States (Ybarra & Mitchell, 2008; Kontos et al., 2010; Dunlop et al., 2011; Naslund et al., 2014) with a wide range of racial and ethnic backgrounds.

The 13 studies included in this review examined a variety of social media and social networking sites. The most common site researched was Facebook (Koc et al., 2015; Blanchino et al., 2015; Hanprathet et al.2015; Sampasa-Kanyinga et al., 2015). The reoccurring use of this social networking site may be due to its large number of users with reports of over five hundred million users in 2010 (Zuckerberg, 2010). Lenhart (2015) also found that it is reported to be the most popular social media and social networking site amongst teenagers.

4.2 Social Media and Social Networking Site Usage and Exposure to Potentially Harmful Information and Ideations

A concern about adolescents using social media and social networking sites is the potential for them to encounter or be exposed to harmful information and negative experiences. Research by Dunlop et al. (2011) found that the use of Facebook had the potential to expose adolescents to information about suicide which could potentially lead to a user's own suicidal ideation. Although social media was reported to be where 25% of suicide exposure occurred, no change was found in adolescent suicidal ideation. Therefore this research shows that although the usage of Facebook as a social networking site may increase adolescents' exposure to suicidal information, its use alone does not increase the number of adolescent suicides or suicidal ideas compared to learning similar information through family and friends.

Research by Ybarra and Mitchell (2008) also addressed the concern of how social networking site usage may lead to exposure of potentially harmful information or interactions. They specifically examined the risk social networking sites presented to adolescents with respect to encountering unwanted sexual harassment and sexual soliciting through site features such as chat rooms, instant messaging and online journals. Their findings suggested that 4% of all youth reported being targeted by unwanted sexual solicitation specifically through social networking sites and 9% of all youth reported being targeted by sexual harassment through these sites. Although only a low percentage of adolescent users reported these unwanted experiences, results show that social media and social networking site use may expose young users to unwanted negative experiences that they may not experience otherwise.

A third study conducted by Moreno et al. (2016) focused on how social media use can expose adolescents to harmful ideations through the use of hashtags on Instagram. Ten ambiguous nonsuicidal self-injury hashtags were identified and examined. Since many of the identified nonsuicidal self-injury terms are ambiguous such as #cat, the overlap in terms means that adolescent viewers may come across these images by accident. These authors suggested that exposure to nonsuicidal self-injury (NSSI) from one's peers can lead to an increase in adolescents' engagement in these behaviors as well as the normalization of these actions. Results found that the type of relationship an adolescent had with NSSI affected how they responded to these hashtags. Adolescents engaged in NSSI may feel a sense of connectedness in response to these hashtags or they may trigger NSSI behavior. For adolescents who are curious about NSSI, these hashtags may provide them with instruction of how to perform self-

injury or they may normalize these actions as accessible emotional outlets. It was also found that only one third of the hashtags triggered Content Advisory warnings. It can therefore be concluded that Instagram does not have sufficient warnings when it comes to protecting adolescents from exposure to self-harm content.

4.3 Social Media and Social Networking Site Usage and Peer Support

Another question is whether social sites can provide adolescents with peer support and a feeling of connectedness, and therefore be beneficial to their wellbeing. Peer support has been shown to be beneficial to young adults in many aspects of wellbeing (Ellis et al., 2009), leading to the question of whether peer support can be received through social networking sites as well as in real life. For example, through the use of Facebook, adolescents have access to a source of social support, which is tied to higher levels of wellbeing (Ellis et al., 2009).

Research by Apaolaza et al. (2013) found that socialization on the Spanish social networking site Tuenti resulted in a significantly positive influence on adolescents' perception of their own wellbeing. This is shown through the use of social networking sites to increase socialization as well as strengthening and maintaining relationships, which in turn leads to an increase in their self-esteem and psychological wellbeing. The increase in socialization from the use of Tuenti, decreased teenagers' feelings of loneliness as well as increased feelings of acceptance and peer approval. Overall Apaolaza et al. (2013) found that the use of social networking sites improved wellbeing by lowering feelings of loneliness while increasing self-esteem, two important contributors to a person's wellbeing.

Naslund, Grande, Aschbrenner, and Elwyn (2014) found similar results showing the presence of peer support through adolescents' use of social media and social networking sites. They specifically looked at how uploading personal videos on YouTube led to naturally occurring peer support for individuals with schizophrenia, schizoaffective disorder and bipolar disorder. The uploaded videos covered topics such as challenges of seeking treatment, treatment benefits, day-to-day coping strategies, personal stories as well as how to manage symptoms and future aspirations. After analyzing video comments for signs of peer support through positive feedback, encouragement and questions, Naslund et al., (2014) found that for adolescents living with mental illnesses, social media sites such as YouTube act as an important way to receive and share information and peer support. Therefore, the use of YouTube as an outlet shows a correlation with increased wellbeing through the presence of this peer support. Long-term benefits were unable to be identified.

Best et al. (2015) found that the greater number of friends an adolescent male had online was tied to a higher score of mental wellbeing although it was also tied to negative factors such as greater exposure to strangers and embarrassing comments and posts. Having a higher number of friends online creates the perception of social support, social status and a feeling of belonging. These perceptions result in a sense of positive wellbeing overall. When faced with negative experiences such as cyberbullying, adolescents with a more supportive social network were less likely to view those experiences as harmful. Therefore, although the number of online friends relates to a higher sense of peer support and wellbeing in some cases, it was found that the quality

over the quantity of relationships is what makes a greater impact on adolescent wellbeing in males.

4.4 Social Media and Social Networking Site Addiction and Prolonged Periods of Use

Several studies used in this systematic review focused on the relationship between adolescent mental health and wellbeing and social media and social networking site addiction. Research has shown that preexisting anxiety, insomnia and depression were predictors of adolescent Facebook addiction (Koc & Gulyagci, 2013). That study also found that those who used Facebook frequently reported higher levels of addiction to Facebook. Similarly, Blanchino et al. (2015) also found that in addition to preexisting depression, adolescent males who spent an extensive amount of time online would predictably develop a Facebook addiction.

Prolonged use of Facebook may also result in the development of depressive symptoms due to low self-esteem (Blanchino et al., 2015). This low self-esteem may arise from constantly witnessing the success and accomplishment of their peers, which can cause them to negatively reflect on their own lives in comparison (Pantic et al., 2012).

Hanprathet et al. (2015) defines Facebook addiction as scoring at least 12 out of 24 points on the Thai Bergen Facebook Addiction Scale. It was found that those who were addicted to Facebook were at a significant risk of developing abnormal mental health as well as negative somatic symptoms. Sampasa-Kanyinga et al. (2015) found similar results showing that adolescents who reported using social networking sites for over two hours per day also reported more psychological distress, suicidal ideation, poor self-rated mental health or an unmet need for mental health support.

The excessive use of Facebook can also pose an increased risk of potentially harmful effects on adolescents' wellbeing by conflicting with academic performance, hours of sleep, and productivity possibly leading to depression (Koc & Gulyagci, 2013).

Research by Tsitsika et al. (2014) also showed that excessive use (two hours a day) of social networking sites was associated with lower academic performance and less offline activities. These effects were more pronounced among younger adolescents. Research by Pantic et al. (2012) found similar results where participants' reported depression increased with the time they spent on social networking sites. Results also showed that the time spent on social networks increased based on higher levels of depression. Therefore it was found that there is a relationship between depression and time spent using social networking sites but without longitudinal and intervention research, the directionality of this correlation is unclear.

Another way excessive social media and social networking site use might negatively affect adolescents is with respect to physical health. Use of computers is associated with lower physical wellbeing such as backaches and headaches (Torsheim, Eriksson, Schnohr, Hansen, Bjarnason, & Välimaa, 2010) whose severity may be minimized with moderate usage for those adolescents accessing social networks through computers. Tsitsika et al. (2014) confirmed this by finding a positive correlation between greater use of social networking sites and somatic complaints specifically back pain. The use of social networking sites can lead to negative effects on adolescents' wellbeing depending on the amount of time one spends per day on these sites.

5. Discussion

This systematic review sought to organize and summarize studies conducted within the past 10 years to help identify what effects the use of social media and social networking sites have on adolescents' mental health and wellbeing. The studies used in this systematic review have shown results supporting positive aspects of using social media and networking sites as well as harmful ones. It was found that not all adolescents respond to social site use in the same way. There are characteristics that influence what effects an adolescent might experience while using social media and social networking sites.

5.1 Moderators of Beneficial Effects of Social Media and Social Networking Sites

Through the examination of the 13 studies, I found that reported benefits of using social media and social networking sites included an increased sense of belonging, connectedness as well as a way for them to receive peer support and maintain relationships. It was found that adolescents who use social media as a coping method to deal with their mental disorders often experience peer support minimizing their sense of isolation as well as the challenges of daily life (Tsitisika et al., 2014). This effect was seen among individuals with schizophrenia, schizoaffective disorder and bipolar disorder (Naslund et al., 2014). It is important to consider that social media and social networks may give a falsified or exaggerated feeling of social support that may not be present outside of the screen.

A similar result was observed with suicidal adolescents (Dunlop et al., 2011) as well as those dealing with insomnia, depression and anxiety (Koc & Gulyagci, 2013). It can be concluded that the use of social media and social networking sites can provide

social support therefore benefiting the mental health and wellbeing of adolescents, especially those struggling with mental health issues and insomnia.

5.2 Moderators of Negative Effects of Social Media and Social Networking Site Usage

Several harmful effects of using social media and social networking sites were also found. One negative effect of using these sites is the possibility of experiencing unwanted sexual harassment. The likelihood of experiencing this effect is higher for female users. Older youth are also more likely to be targeted with online harassment usage due to the higher numbers of older youth possessing social media and social networking site accounts (Ybarra & Mitchell, 2008). The use of these sites may also lead to harmful content such as self-harm images and information.

Another harmful effect is an increase in anxiety and depression levels. Research by Kontos et al. (2010) found that adults who started using the Internet earlier in life were more likely to show higher levels of anxiety and depression compared to adults who started using the Internet later in life. The amount of time spent on these sites also affects whether users' anxiety and depression levels may increase. Pantic et al. (2012) found that the more time adolescents spent on social media, the higher the reported levels of depression. When adolescents spend more than two hours a day on social media and social networking sites, their chances of experiencing negative affects such as psychological stress and poorer mental health increase (Sampasa-Kanyinga & Lewis, 2015).

In order to minimize these negative effects, social media and social networking site users should limit their daily use time to two hours as well as start using these at an

older age. Social sites need to be aware of these harmful effects and find ways to combat exposure to harmful content and online harassment.

5.3 Limitations

These findings have some notable limitations that may have affected the results. Due to the limited amount of research on this topic, this review had a relatively small study size of only 13 relevant studies. It is possible that with a larger study size, a more concrete consensus about potential effects may have been reached. There was also a significant difference between the years in which these studies were conducted. Within the eight-year range, social media and social networking sites have changed immensely causing a social networking site in 2008 to have many different features from a site in 2016. These added features and new sites might affect adolescents differently than past features.

The difference in the nationalities of participants may also have played a part in how they interacted with social media and social networking sites due to cultural differences as well as accessibility. The inability to retrieve the full text of a relevant study (Bourgeois et al., 2014) also limited this review. Many of the included studies used a self-report method, which may show personal bias. All of these limitations are important to consider when examining the results of this systematic review as they may have influenced the data.

5.4 Future Directions

During the nine months it took to write this systematic review, it is likely that new social media and networking sites have emerged as well as the addition of new

features to preexisting sites. It is important to consider these potential changes as they may affect how relevant these results are to current adolescents. Considering the evolving nature of social media and networking sites, constant research is needed. It is therefore encouraged for researchers to continue conducting studies in order to further understand how these sites may be affecting young people.

As social media and social networking sites become increasingly prevalent in our daily life, it is also important to observe the long-term effects they may have on adolescents as they grow up. By conducting longitudinal studies in the future, a better understanding of long-term effects in all aspects of wellbeing and mental health can be reached.

In order to minimize the occurrence of negative effects, it is important for adolescents to be educated on social media and social networking site use. Parents should limit their children's daily use to two hours as well as encourage the delay of use until older in age. It is also important for social media and social networking sites to be aware of the harmful exposure adolescents may be experiencing while using their sites. By adding additional security features and content warnings, hopefully fewer adolescents will be negatively affected from their time online.

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