

**Improving Parental Monitoring of Social Media Behaviors to Reduce Negative Health
Outcomes**

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Abstract

Background/Significance: Social media plays a significant part in the lives of many teens. Inappropriate use of social media can cause negative consequences. Studies show that cyber-bullying, lack of family interaction, lower self-esteem and depression are among these consequences. Unfortunately, studies also show that many parents lack the knowledge to monitor their children's social media use.

Purpose: To evaluate and improve parents' knowledge of their teen's social media behaviors and provide strategies to monitor their teen's online activities.

Methods: This quantitative, descriptive study examined the knowledge parents have about social media and the interventions used to monitor their teens online activities before and after an educational intervention. Utilizing the University of Iowa's Professional Nursing Practice Model, the survey questions were intended to evaluate the active participation of parents and caregivers in communicating with their teens and establishing a partnership regarding the rules of social media usage. A 21-item pretest survey and a 14-item post-test survey were completed by 14 parents/caregivers of adolescents between the ages of 12-17 years old. McNemar's test was used to compare pre and post-test responses. Paired t-test was used to compare summary scores pre and post-test

Findings: An increase in parent/caregiver knowledge of social media was reported in 86% of respondents, indicating the educational intervention was helpful.

Conclusion: This study adds to the evidence that providing parents with social media education, improves their knowledge of how they can monitor the online behaviors of their teens.

Implications for Future Nursing Practice and Research: Identifying changes in health outcomes due to parents actively monitoring their children's social media activities is important to determine specific interventions that may be the most beneficial for parents to use.

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Research Problem and Project Goals

Background and Significance

Social networking has become a dominant force in the lives of today's adolescents. Although studies have shown benefits from the use of social media in moderation, such as enhanced social support and personal connections (AAP, 2016); negative consequences on the well-being of adolescents, due to overuse of social media, have also been identified. These consequences consist of; cyber-bullying, educational and mental health disorders, sexting, lack of family interaction, lower self-esteem, increased depression and personal privacy concerns.

Adolescence is the period between childhood and adulthood. During this growth stage, adolescents are developing their sense of self and personal identity. According to Christofferson (2016), Eric Erikson (1959) concluded that, "the teen may experience self-doubt, role diffusion and role confusion, if one fails in their search for identity". According to a study done by Khurana (2015), a large number of youth tend to spend more than two hours a day on social networking sites, contributing to a reduction of nearly 66% in youth social gathering. Although a substantial amount of research has been conducted that evaluates the perception of teachers and students in regard to technology use, there is little research that reports parents' perceptions of their children's use of technology (Delen, Kaya, Ritter & Sahin, 2015), including that of online social media and virtual spaces. Parents should understand and utilize monitoring techniques that will reduce the negative impact that social media can have on children and adolescents. Parental involvement has protective effects on children offline and therefore, should also be considered for online activities. The level of parental involvement and support depends on their knowledge about technology and plays a vital role on controlling the effects of

children's technology use (Delen, Kaya, Ritter Sahin, 2015). The purpose of this study was to answer the research question: *Will educating parents about strategies to monitor social media use, increase parental involvement of screening their adolescent's social media behaviors?*

Problem

Although studies have shown benefits from the use of social media in moderation, such as enhanced social support and connections (AAP, 2016); risks of social media use in the adolescent population have also been identified as including; cyberbullying, educational and mental health consequences, sexting, and privacy concerns. Parents have a responsibility to obtain knowledge about the risks that online media use may have on the well-being of their children. Social media and online gaming have become popular forms of communication and entertainment, that can provide positive and negative experiences for older children and adolescents. These negative effects can have an impact on the well-being of adolescents lasting into adulthood. A lack of parental knowledge about their children's online activities may be an obstacle of appropriate internet mediation (Symons, Ponnet, Emmery, Wlarave & Heriman, 2017).

Key Terms

- 1. Social Media:** Any internet communication tool that allows users to share content quickly and engage with the public (Hudson, 2020).
- 2. Cyberbullying:** Deliberate and repeated harmful behaviors inflicted on another person or group of persons using computers, cell phones and other electronic devices (Cyberbullying Research Center, (2019).
- 3. Sexting:** Sending or receiving explicit images (photos or videos containing nude or nearly

nude images, text messages that refer to sexual acts or simulated sex) on a smartphone or over the Internet (KidsHealth, 2019).

4. **Parental mediation:** involves the interactions between parents and children about media Use (Coyne, et.al 2017).

Cyberbullying

The act of cyberbullying allows the bully to be anonymous, enabling them to say horrendous things while typing under a screen name. Standard methods of cyberbullying are name-calling or insults, the spreading of rumors or gossip, and the distribution of unauthorized pictures.

Cyberbullying is significantly associated with an increased likelihood of depression (Hamm et al., 2015). Negative health consequences developed from social media use in the adolescent population, can carry over into adulthood. A study performed by the Highmark Foundation (2010), indicates that 30.83 percent of students who were bullied, end up suffering from a mental health disorder, with the cost of treatment for each student (\$3,567.) According to Openberg, Lanctot & Herman (2002), the economic costs of depression include direct costs, such as medical expenses acquired in diagnosis and treatment of depression, and indirect costs; such as loss of work productivity due to absenteeism, disability premature mortality. Another high cost problem a bully victim may end up facing is an alcohol use disorder, with almost 50 percent of victims dealing with an alcohol problem at some point during their lives. For each person affected, the cost of treatment is \$2,150 (Highmark Foundation, 2010)

Sexting

Electronic communication of nude, seminude, or provocative images, as well as erotic text messages, or “sexting”, is a behavior used by approximately 18% to 28% of adolescents (Houck, et al., 2014). Research suggests teenagers who participate in sexting are more likely to partake in

sexual activity. These images can be quickly distributed via the internet or cell phones without the individual in the image knowing it. Victims can suffer emotional distress and face embarrassment and humiliation (O’Keeffe & Clarke-Pearson, 2011).

According to the American Academy of Pediatrics (2016), a study identified two-thirds of children and teenagers report that their parents have “no rules” about time spent utilizing electronic forms of media. More than 60% of teenagers send and /or receive text messages after “lights out”, and they report increased level of tired-ness, including at school. “The exposure of adolescents through media to alcohol, tobacco use, or sexual behaviors is associated with earlier initiation of these behaviors” (AAP, 2016). A study performed by Durbin, Denapoles, & Lundeen (pg. 19), recommended healthcare providers, parents, teachers, and adolescents be aware of negative effects and take precautions to prevent depression, decreased self-esteem, and acts of cyberbullying. “When precautions and screening are in place, there is a better chance of combating the negative effects of social media” (Durbin, Deapolies, & Lundeed, 2018).

Project Goals

It is important to identify the ways in which parents screen their children’s activities when they are utilizing social media. It is the aim of this study that parents will be more aware of the benefits and risks of social media, and they will learn strategies to help them actively participate in the monitoring of their adolescent’s social media behaviors to reduce negative mental health effects.

Research Question

Will educating parents about strategies to monitor social media use, increase parental involvement of screening their adolescent’s social media behaviors?

Assumptions

In parents of adolescents that use social media, the following assumptions are:

1. The pre-education survey will identify parents have a poor understanding of how to screen the social media use of their adolescents.
2. Parents will have greater knowledge of the negative effects that social media use can have on the well-being of adolescents after reviewing the educational web page.
3. The post-education survey will identify parents have a significant increase in knowledge of how to participate in screening of their adolescent's social media behaviors after reviewing the educational web page.
4. The post-education survey will identify that parents have increased their role in active monitoring of their adolescent's social media behaviors within 6 weeks of viewing the educational web page.

Framework and Literature

Conceptual Framework

The theoretical framework of this study was based on the University of Iowa's Professional Nursing Practice Model. This model provides a collaborative framework for nursing practice that focuses on consistency in how nursing care is delivered. The framework defines authority, autonomy, and accountability for all registered nurses as they care for patients, families, and communities (University of Iowa, 2020). Active participation of patients and families in decision-making is encouraged. Providing the tools for parents to adequately monitor their children's use of online social media activities, promotes the development of partnerships

between the health care providers and families. Communicating and sharing information with families and patients is important in making the best health care decisions that align with the outcome goal (University of Iowa, 2020). There are six pillars that make up the foundation of the framework: Leadership, Research, Shared Governance, Evidence Based Practice, Education, and Clinical Expertise. Nurse practitioners have a unique opportunity to not only provide medical care to patients, but also empower and educate patients and families to make health care decisions. Children and adolescents are developing cognitive abilities such as decision-making skills and require guidance from parents and caregivers. This framework identifies the importance of using EBP to support standards of care and apply new knowledge.

As technology advances and social media platforms increase in number, adolescents will have more opportunities to access different types of social media. As health care providers continually learn about the risks and benefits associated with social media use by children and adolescents, it is necessary to provide the education and tools that families need to make decisions to reduce negative effects of social media use. Mental health problems can be a negative effect of inappropriate social media use, such as cyber-bullying others, being a victim of cyber-bullying, or viewing inappropriate material. The University of Iowa's nursing practice framework suggests a direct link between the nurse's clinical expertise and accountability for their practice (2020).

Review of the Literature

Studies have shown the negative effects that social media can have on the well-being of older children and adolescents. It is frequently necessary for children to utilize the internet as it has become integrated into schoolwork and other computer-based educational activities; Therefore, it is important that it be used as a positive tool.

Parental Perceptions of Online Risks

Delen, Kaya, Ritter & Sahin (2015) performed a quantitative study using a convenience sampling method of 505 parents in Southeastern Texas to explore parents' concerns of their children's communication technology use. Among 410 responses received, only 20.5% were extremely concerned about bullying, while 32.2% were not at all concerned. Approximately half of parents were either moderately or extremely concerned about physical inactivity (44.3%) and 51.9% were concerned about safety and 45.6% were concerned about content. These results are similar to those of a study by Symons, Ponnet, Emmery, Walrave & Heriman (2017), that used a multi-actor approach of data collection, including two parent families and a child in the age group of 13 to 18 years old. The study sample consisted of 357 valid triads that evaluated discrepancies between mothers, fathers and children's knowledge of online risks related to cyberbullying, inappropriate viewing of pornographic and violent content and communication with strangers. The study concluded low discrepancy between the parent's knowledge of their children's cyberbullying perpetration (81.5 % of mothers and 73.1% of fathers were not aware of cyberbullying activities), suggesting the majority of parents were not aware their children had participated in perpetrating or been a victim of cyberbullying. Another finding of interest from this study is that mothers and fathers had low discrepancy (65.2% and 62%,) in their knowledge that their children had accepted friend requests from strangers. This research concludes that parents have low knowledge of adolescent's online behaviors.

A study performed by Sorbring, Hallberg, Bohlin and Skoog (2014,) researched parental attitudes and young people's self-reported online sexual activities. The sample consisted of 496 parents (78% mothers) of adolescents age 13 years, belonging to two different cohorts (male and female adolescents). This aim of this study was to raises the question as to what knowledge

parents have about the risks of social media and online activities. The study found that parents attitudes toward online sexual activities varied both with the sex of the parent and with the sex of the young person. Fathers had a less negative opinion towards online sexual activity than mothers. The study suggests parental cognizance of internet use is another important factor in understanding how older children and adolescents may be impacted by the risks associated with online activities. Another study performed by Metzger, Flanagin and Nekmat (2015), performed a study of 2,747 parent-child dyads that identified parental feelings of self-efficacy regarding internet credibility is influenced by demographic factors, including level of education. This self-efficacy leads to enhanced parental optimism of their ability to evaluate their children's internet usage, suggesting these parents believe their children are at lower risk of making poor internet behavioral decisions.

Types of Parental Internet Mediation of Older Children and Adolescents

Parent's influence on their children's Internet usage is important in reducing the risk of negative effects on children's well-being that have been found to be associated with online gaming and social media use. Research has identified common methods of parental mediations as; active mediation, restrictive mediation and distant mediation. A study by Daneels and Vanwysberghe (2017), sampled 13 adolescents and 14 parents within 10 families, found that active mediation, communication with their children on the use of online spaces, was the most common mediation strategy used. Restrictive mediation was mostly applied by parents of younger adolescents, aged 12 to 14 years. Lastly, distance mediation is also used but was more challenging for some parents due to the complexity of digital media devices. Sasson and Mesch (2017), studied methods of parental mediation including active guidance, restrictive supervision, and non-interventions. The study revealed that parental mediation through guidance or

nonintervention, was not statistically significant in preventing their children from becoming online victims. However, parent's efforts to control their children's activities by checking their emails, IM accounts or Facebook profile (restrictive supervision), were positively associated with reducing online victimization. These results may suggest parents who feel that their child displays behaviors of concern, intervene to confirm their suspicions. Interestingly, the study conclusion on restrictive supervision varies from other studies results on the effectiveness of restricted supervision. Khurana, Bleakley, Jordan and Romer (2017), concluded parental monitoring of adolescents' online activity had a significant protective effect on online harassment, both directly and indirectly; however, parental internet restriction did not have a direct protective effect of online harassment.

Predictors of Parental Monitoring of Media Usage

Several characteristics have shown to affect how parents monitor their children's media usage, including socio-demographic factors and the age and sex of the child. In an exploratory study done by N. Top (2016), parents of adolescents (grade 5-12), were more inclined to limit their sons amount of media usage compared to their daughters. Age was a determining factor of all interventions that were studied. Parents were also more likely to monitor their younger children's media use. Socio-economic status was found to be a significant predictor in active mediation of media usage. Low-income parents were less likely to limit their children's time with media. These types of predictors can help to understand the importance of culture in the terms of media usage

Obstacles of Parental mediation of Media Usage

As children get older, they seek independence and privacy. As teens and adolescents distance themselves from their parents, it becomes more challenging for parents to protect the well-being of their children through direct supervision and online mediation. As a parent, boundary setting is important but can lead to tension between parents and teenagers. Erickson, Wisniewski, Xu, Carroll, Rosson & Perkins (2016), performed a qualitative study of 12 parent-teen pairs, which revealed five distinct challenges to parental online mediation: increased teen autonomy and decreased parental control resulting from teens unmediated online access, teens are often more knowledgeable about online spaces than parents, the use of physical boundaries by parents to control online activity, an increase in indirect boundary control strategies, the blurring of lines in virtual spaces between parents' teens and teens' friends.

Effects of Parental Monitoring

Research has shown evidence of multiple potentially negative effects of online media usage in children and adolescents including cyberbullying, problematic sexual media, privacy concerns, reduced family interaction and psychological problems. Accompanying these concerns is that of overuse of online media, which may increase the risk of negative effects. A study done by Bleakley, Ellithorpe, and Romer (2016) found that the issues of adolescents spending more time online than anticipated, is common in the United States. Parental mediation, and better relationship quality between the parents and adolescents were associated with less problematic use. This study also showed that parents who monitored their adolescent's media use, which included blocking certain websites, restricting time and tracking internet use, were less likely to report problematic behaviors. These results do not corroborate with other studies, such as a study done by Sasson & Mesch (2014), which concluded restrictive parental

supervision increased adolescents' risky behavior online. A two-wave study by Nikken & Graaf (2012), investigated if prior parental and friends' influences on adolescents' use of sexual media shaped their sexual attitudes and online behaviors. Study results did not find that parents' mediation activities of adolescents' media use resulted in less online sexual behaviors. In conclusion, this literature review has identified mixed results of the effectiveness of parental mediation of online media usage in older children and adolescents. A gap in the literature regarding parental perceptions and knowledge of how their mediation of online activity affects the well-being of their children is apparent. Future research on this matter would promote a better understanding of how parents can protect their children from the negative influences that may occur from the use of online media and virtual spaces. Providing parents with the education and tools will increase the likelihood that they will actively monitor social media activity of their children. Monitoring can be promoted by introducing education about social media effects and screening tools that can be easily used by parents of all demographic and socio-economic backgrounds.

Study Process and Data

Study Design and Methods

Participants

The participants will include a convenient sample of parents and guardians of adolescents between the ages of 12-17 years old that are active users of social media. Participants are excluded if there is no internet access in the home, their adolescent does not use social media, they do not live with the adolescent at least on a part-time basis, and they do not read or understand the English language.

Instrument

A 21-item pre-test, questionnaire survey and a 14-item post-test, questionnaire survey based on the *Parent's Questionnaire* used in the *EU Kids Online II study (2010)*, will be used as the evaluation instrument. Approval from the lead investigator of the EU Kids Online II study has granted permission to use the survey questions. A web page has been developed that provides education on the positive and negative effects of social media, strategies for parents/caregivers to help monitor their adolescent's social media behaviors, and links that will provide participants with additional information related to specific monitoring strategies and programs. This web page was developed on Wix platform, using evidence-based, published literature

Procedure

Prior to data collection, IRB approval was obtained from Edinboro University of Pennsylvania Institutional Review Board and the administration of Family Practice Centers, PC. This is a quantitative, descriptive study utilizing a pre-test, post-test design. A statement was placed on the Facebook page of Family Practice Centers, PC that invited parents of adolescents to complete the pre-test survey. Flyers were placed in the exam rooms in the Family Practice clinic. A description of and a link to the survey was also placed on this author's Facebook page. Survey Monkey was used to create the survey. There is a space at the beginning of the survey for the participant to provide their email address and electronically sign a consent to participate in the study. There is link to the educational web page at the bottom that can be accessed upon completion of the survey. A number will be assigned to each survey that will be used to match both the pre- and post-educational survey responses, to ensure participant responses are matched

correctly and protect each participants identification. A Survey Monkey post-test questionnaire will be sent to each participant, via their email address, approximately 1 month after the initial invitation is posted to the Facebook page. Responses will be retrieved by this author and analyzed.

Survey Measures

Demographics. This section will include 6 questions regarding the participants' age, level of education, relationship to the participant, age and total number of children living in the household.

Parental use of social media. Four questions about parental use of social media will be evaluated using multiple choice answers.

Parental knowledge of adolescent use of social media. Four questions about adolescents use of social media will be evaluated using multiple choice and "yes or no" responses.

Perception of Risk. This will be evaluated using "yes or no" responses to 4 questions about how parents/guardians perceive risks regarding their adolescent's use of social media.

Safety Interventions. Four questions about safety-related activities carried out by parents/guardians will be evaluated using "yes" or "no" responses. Three questions related to safety measures applied by parents will be evaluated using "yes" or "no" responses.

Post-test Survey

The post-test questionnaire will ask the participant the same questions on the pre-test survey except for the demographic questions, to evaluate if there is a change in knowledge obtained, and active monitoring strategies utilized that result from the educational web page.

Data Collection

The method for data collection will be a web-based survey. The questionnaire will explore parental demographic information, parents' perceptions about the level of risk of social media environments, and parents' current strategies being used to protect their children from risks of social media. Inclusion criteria was used to identify appropriate participants, such as an English-speaking parent/guardian of the adolescent. Also, the participant must use the Internet and know what social media is, and their adolescent child must have access to the Internet. Data from the questionnaire will be entered on a data collection form and then into a Statistical Package for the Social Sciences (SPSS) program. The SPSS program will be utilized for both storage and analysis of the data.

Data Analysis

SPSS will be the tool used to analyze the data. Statistical analysis will be descriptive in nature. I anticipate using frequencies to assess data in categories. Simple percentage and frequencies will be calculated for the demographic information, parents' perceptions about the level of risk of social media environments and parents' current strategies used to monitor social media use. A statistician will be consulted to assist with data analysis. The data will have specific codes using nominal definitions, to represent participant responses. After all data is entered, it will be double-checked for accuracy.

Cleansing

The data will be cleansed to ensure errors are discovered early on. Any unanswered questions and questions in which someone may have ticked more than one answer will be removed, as part of the data cleansing process. The numbers will be reviewed that they are in the

correct format in SPSS by setting limits on the data entry fields and not utilizing free text fields. Next, All data will be will be checked to ensure all the variables are present when importing data from the collection sheet into SPSS. Duplicated data from the same individual will not be evaluated. Assessing the frequency of missing entries for each variable will also be performed. Assessment of invalid values, such as incorrect value types and placing data in the wrong field, will also be done to ensure efficient analysis.

Missing Data

Missing rows of data will be deleted prior to importing data into SPSS. I will determine if the missing data will have an impact on the outcome of the data using my judgement, upon completion of calculating the complete data. If the errors cannot be fixed, the data will be removed.

Data Analysis and Study Results

The following sections present the data obtained from the pre-intervention and post-intervention questionnaires. Thirty-seven pre-intervention (baseline) questionnaires were returned, via SurveyMonkey, therefore 8 of these did not include any data, leaving 29 for the analysis (overall cohort). Of these 29, there were 14 (48%) that completed the post-intervention questionnaire, which will be referred to as the participants that completed both questionnaires (completers) sub-cohort. The 15 that did not return a completed post-intervention questionnaire will be referred to as non-completers. The study population was described using data from the baseline questionnaire and is presented for the overall cohort and for the participants that completed the questionnaires sub-cohort. These results are included in the series of tables below.

Table 1 describes the age, gender, and level of education of both the overall respondents compared to those that completed both the pre- and post-intervention surveys. The level of the respondent's confidence

in their internet use is also evaluated here. Table 1 shows no difference when comparing those that completed both questionnaires (n=14), to the overall study participants (n=29).

Table 1. Baseline questionnaire responses in overall study cohort (n=29) and completers (n=14)

		Overall cohort N=29	Completed both questionnaires N=14
Age of respondent	25-34	28% (n=8)	21% (n=3)
	35-44	0% (n=0)	0% (n=0)
	55-64	66% (n=19)	71% (n=10)
	45-54	7% (n=2)	7% (n=1)
Gender of respondent	Female	93% (n=27)	93% (n=13)
Relationship to child	Parent	93% (n=27)	93% (n=13)
Child with age 6-11?	Yes	24% (n=7)	14% (n=2)
Child with age 12-17?	Yes	79% (n=23)	86% (n=12)
Child with age 18+?	Yes	28% (n=8)	43% (n=6)
Highest education	High school grad	7% (n=2)	0% (n=0)
	Secondary diploma	28% (n=8)	29% (n=4)
	Undergraduate degree	31% (n=9)	21% (n=2)
	Graduate degree	34% (n=10)	50% (n=7)
Confidence in internet use	Somewhat	10% (n=3)	21% (n=3)
	Very	38% (n=11)	29% (n=4)
	Extremely	52% (n=15)	50% (n=7)

Table 2 describes things that the parents or caregiver worry about in relation to their child. There was no significant difference between what the respondents worried about when they took the pre-intervention questionnaire, as opposed to their concerns after completing the post-intervention questions.

Table 2. Thinking about your child, which of these things, if any, do you worry about?

	Overall cohort N=29	Completed both questionnaires N=14
How they are doing in school?	66% (n=19)	71% (n=10)
Being treated in a hurtful way by other children	48% (n=14)	57% (n=8)
Drinking alcohol/taking drugs	34% (n=10)	50% (n=7)
Seeing inappropriate material on the Internet	31% (n=9)	29% (n=4)
Being contacted by strangers on the Internet	41% (n=12)	50% (n=7)
Their sexual activities	17% (n=5)	29% (n=4)
Getting into trouble with the police	7% (n=2)	14% (n=2)
Being injured on the roads	41% (n=12)	64% (n=9)
None of these	3% (n=1)	0% (n=0)

Table 3 evaluates the parent or caregiver knowledge of where the child uses the internet. None of these were different when comparing those that completed the second questionnaire (n=14) to those that did not (n=15) except “His or her bedroom at home”, which was higher in non-completers (100% vs 71%, Fisher’s exact test p-value = 0.042).

Table 3. As far as you are aware, in which of these places does your child use the internet?

	Overall cohort N=29	Completed both questionnaires N=14
His or her own bedroom at home*	86% (n=25)	71% (n=10)
Living room (or other public room) at home	97% (n=28)	93% (n=13)
At school or college	90% (n=12)	93% (n=14)
In an internet café	4% (n=1)	0% (n=0)
In a public library or other public place	46% (n=13)	57% (n=8)
At a friend's home	76% (n=22)	71% (n=10)
At a relative's home	76% (n=22)	71% (n=10)
When "out and about" (e.g. phone, iPod, iPad, Tablet)	93% (n=27)	93% (n=13)

Table 4 describes the types of things that parents or caregivers at least sometimes do with their child regarding internet safety. There was no significant difference between findings from the pre-interventional questionnaire and the post-interventional questionnaire of all the study participants and those that completed both questionnaires.

Table 4. Which of the following things, if any, do you (or your partner/other caregiver) sometimes do with your child?

	Overall cohort N=29	Completed both questionnaires N=14
Talk to child/teen about what they are doing on the internet	100% (n=29)	100% (n=14)
Sit with them while they use the internet (watching what they do but no really joining in)	66% (n=19)	64% (n=9)
Stay nearby when they use the internet	76% (n=22)	64% (n=9)
Encourage child/teen to explore and learn things on the internet on their own	83% (n=24)	86% (n=12)
Do shared activities together with your child/teen on the internet	72% (n=21)	71% (n=10)

Table 5 identifies what interventions the parents or caregivers utilize to check the child's internet activities. There were no significant differences noted between the pre-intervention and post-intervention results.

Table 5. When your child uses the internet at home, do you (or your partner/other caregiver) sometimes check any of the following things afterwards?

	Overall cohort N=29	Completed both questionnaires N=14
Parental controls or other means of blocking or filtering some types of websites. This meaning, something that stops your child/teen from visiting certain websites or that stops some kinds of activities on the internet	48% (n=14)	36% (n=5)
Parental controls or other means of keeping track of the websites they visit. This meaning, something that keeps a record of the websites your child visits so you can check later what they did on the internet	48% (n=14)	29% (n=4)
A service or contract that limits the time your child spends on the internet	17% (n=5)	14% (n=2)
Software to prevent spam or junk mail or viruses	55% (n=16)	64% (n=9)

Table 6 examines if parents/caregivers feel that the interventions they use helps to make the child's internet use experience positive. There was no significant difference between those that took the pre-intervention questionnaire (overall cohort) compared to those that completed the post-intervention

questionnaire. The findings take into consideration study participants that did not complete the post-intervention questionnaire.

Table 6. Do you think the things that you (and your partner/other caregiver) do relating to how your child uses the internet, helps to make their internet experience better?

	Overall cohort N=29	Completed both questionnaires N=14
No/Don't know	21% (n=6)	21% (n=3)
Yes, a little	58% (n=17)	57% (n=8)
Yes, a lot	21% (n=6)	21% (n=3)

Table 7 identifies if parents/caregivers do anything different after they reviewed the social media educational webpage. There was no difference when comparing the results of the pre-intervention and post-intervention data.

Table 7. Do you or your partner/other caregiver do anything differently these days because your child has been bothered by something on the internet in the past?

	Overall cohort N=29	Completed both questionnaires N=14
No/Don't know	79% (n=23)	79% (n=11)
Yes	21% (n=6)	21% (n=3)

Table 8 evaluates to what extent parents or caregivers feel they can help their child deal with things on the internet that are bothersome to them. The table provides data from the overall study participants and participants that completed both questionnaires. No difference was noted.

Table 8. To what extent, if at all, do you feel you are able to help your child/teen to deal with anything on the internet that bothers them?

	Overall cohort N=29	Completed both questionnaires N=14
A little	10% (n=3)	14% (n=2)
A moderate amount	28% (n=8)	36% (n=5)
A lot	31% (n=9)	21% (n=3)
A great deal	31% (n=9)	29% (n=4)

Table 9 describes parents or caregivers' awareness of their child/children's behaviors and/or experiences while using the internet. There was no significant difference between the awareness of study participants that completed both questionnaires and the overall cohort of participants.

Table 9. In the past year, has your children done any of the following things, as far as you are aware?

	Overall cohort N=29	Completed both questionnaires N=14
Gone to a meeting with someone face to face that they first met on the internet	7% (n=2)	7% (n=1)
Seen images on the internet that are obviously sexual- for example, showing people naked or people having sex	31% (n=9)	29% (n=4)
Been treated in a hurtful or nasty way on the internet by another child/teenager. (This includes being teased repeatedly in a way that they did not like or being deliberately excluded or left out of things.	24% (n=7)	29% (n=4)
Seen or been sent sexual messages (e.g. words, pictures, or videos) on the internet	17% (n=5)	14% (n=2)
Sent someone else sexual messages (e.g. words, pictures, or videos) on the internet	3% (n=1)	7% (n=1)
Seen aggressive or violent images of people attacking or killing each other on the internet. This could include characters in cartoons or games as well as "real" people for example	72% (n=21)	86% (n=12)

Table 10 examines where parents or caregivers get information and advice about safe use of the internet. There was no difference in where they obtain internet information when comparing the overall study cohort to the cohort that completed the pre- and post- educational questionnaires.

Table 10. In general, where do you get information and advice on safety tools and safe use of the internet from? (Choose all that apply)

	Overall cohort N=29	Completed both questionnaires N=14
Your child's school	52% (n=15)	50% (n=7)
Television, radio, newspapers or magazines	34% (n=10)	21% (n=3)
Internet service providers	24% (n=7)	14% (n=2)
Government, local authorities	17% (n=5)	21% (n=3)
Children's welfare organizations/charities	10% (n=3)	0% (n=0)
Websites with safety information	59% (n=8)	57% (n=8)
Manufacturers and retailers selling the products	21% (n=6)	29% (n=4)
Family and friends	59% (n=17)	50% (n=7)
From my child/teen	21% (n=6)	21% (n=3)
Other sources	17% (n=5)	29% (n=4)
None, I don't get any information about this	0% (n=0)	0% (n=0)
Don't know	3% (n=1)	0% (n=0)

Table 11 describes where parents/caregivers want to get information and advice about the internet in the future. There was no significant difference between all the study participants and those that completed both questionnaires.

Table 11. Where would you like to get information and advice about the internet in the future?

	Overall cohort N=29	Completed both questionnaires N=14
Your child's school	38% (n=11)	36% (n=5)
Television, radio, newspapers or magazines	21% (n=6)	21% (n=3)
Internet service providers	24% (n=7)	29% (n=4)
Government, local authorities	21% (n=6)	21% (n=3)
Children's welfare organizations/charities	17% (n=5)	21% (n=3)
Websites with safety information	38% (n=11)	50% (n=7)
Manufacturers and retailers selling the products	28% (n=8)	36% (n=5)
Family and friends	17% (n=5)	14% (n=2)
From my child/teen	21% (n=6)	29% (n=4)
Other sources	24% (n=7)	21% (n=3)
None, I don't get any information about this	14% (n=4)	14% (n=2)
Don't know	17% (n=5)	14% (n=2)

Change in Responses from Pre- to Post-Intervention

The analysis below was limited to the 14 respondents that completed both questionnaires both pre and post intervention. The tables below include a comparison of pre-intervention responses to post-intervention responses. For each individual question, the percentage with each response pre and post intervention are compared using McNemar's test (note that p-values < 0.05 are considered significant). In addition to evaluating changes in each individual score, summary scores were quantified (when applicable) by summing the number of items that were responded within a question section. These were compared from pre to post intervention using a paired t-test.

Table 1. B. Confidence in internet use

	Pre-intervention	Post-intervention	p-value
Somewhat	21% (n=3)	36% (n=5)	0.157
Very/extremely	79% (n=11)	64% (n=9)	

Note that all respondents answered, "Every day" for "How often do you use the internet?"

Table 2.B. Thinking about your child, which of these things, if any, do you worry about?

	Pre-intervention	Post-intervention	p-value
How they are doing in school?	71% (n=10)	71% (n=10)	0.999
Being treated in a hurtful way by other children	57% (n=8)	71% (n=10)	0.414
Drinking alcohol/taking drugs	50% (n=7)	57% (n=8)	0.655
Seeing inappropriate material on the Internet	29% (n=4)	50% (n=7)	0.180
Being contacted by strangers on the Internet	50% (n=7)	64% (n=9)	0.317
Their sexual activities	29% (n=4)	21% (n=3)	0.564
Getting into trouble with the police	14% (n=2)	21% (n=3)	0.317
Being injured on the roads	64% (n=9)	64% (n=9)	0.999
Number of items from above, mean (SD)	3.6 (2.0)	4.2 (1.6)	0.365

Table 3.B. As far as you are aware, in which of these places does your child use the internet? (Completed by n=10 of the respondents)

	Pre-intervention	Post-intervention	p-value
His or her own bedroom at home	80% (n=8)	90% (n=9)	0.317
Living room (or other public room) at home	100% (n=10)	100% (n=10)	-
At school or college	100% (n=10)	100% (n=10)	-
In an internet café	0% (n=0)	0% (n=0)	-
In a public library or other public place	60% (n=6)	40% (n=4)	0.317
At a friend's home	80% (n=8)	80% (n=8)	0.999
At a relative's home	80% (n=8)	80% (n=8)	0.999

When "out and about" (e.g. phone, iPod, iPad, Tablet)	100% (n=10)	100% (n=10)	-
Number of items from above, mean (SD)	6.0 (1.5)	5.9 (1.4)	0.726

Table 4.B. Which of the following things, if any, do you (or your partner/other caregiver) sometimes do with your child? (Completed by n=12 of the respondents)

	Pre-intervention	Post-intervention	p-value
Talk to child/teen about what they are doing on the internet	100% (n=12)	75% (n=9)	0.248
Sit with them while they use the internet (watching what they do but no really joining in)	58% (n=7)	75% (n=9)	0.317
Stay nearby when they use the internet	67% (n=8)	83% (n=10)	0.157
Encourage child/teen to explore and learn things on the internet on their own	83% (n=10)	75% (n=9)	0.564
Do shared activities together with your child/teen on the internet	67% (n=8)	67% (n=8)	0.999
Number of items from above, mean (SD)	3.8 (1.1)	3.8 (1.4)	0.999

Table 5.B. When your child uses the internet at home, do you (or your partner/other caregiver) sometimes check any of the following things afterwards? (Completed by n=10 of the respondents)

	Pre-intervention	Post-intervention	p-value
Parental controls or other means of blocking or filtering some types of websites. This meaning, something that stops your child/teen from visiting certain websites or that stops some kinds of activities on the internet	40% (n=4)	50% (n=5)	0.317
Parental controls or other means of keeping track of the websites they visit. This meaning, something that keeps a record of the websites your child visits so you can check later what they did on the internet	30% (n=3)	40% (n=4)	0.317
A service or contract that limits the time your child spends on the internet	10% (n=1)	10% (n=1)	0.999
Software to prevent spam or junk mail or viruses	60% (n=6)	70% (n=7)	0.564
Number of items from above, mean (SD)	1.4 (1.1)	1.7 (1.3)	0.279

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Table 6.B. Do you (or your partner/other caregiver) do anything different these days because your child has been bothered by something on the internet in the past?

	Pre-intervention	Post-intervention	p-value
No/Don't know	79% (n=11)	71% (n=10)	0.317
Yes	21% (n=3)	29% (n=4)	

Table 7.B. To what extent, if at all, do you feel you are able to help your child/teen to deal with anything on the internet that bothers them?

	Pre-intervention	Post-intervention	p-value
A little, a moderate amount, or somewhat	50% (n=7)	36% (n=5)	0.317
A lot or a great deal	50% (n=7)	64% (n=9)	

Table 8.B. In the past year, has your child/teen done any of the following things, as far as you are aware? (Completed by n=10 of the respondents)

	Pre-intervention	Post-intervention	p-value
Gone to a meeting with someone face to face that they first met on the internet	10% (n=1)	10% (n=1)	0.999
Seen images on the internet that are obviously sexual- for example, showing people naked or people having sex	30% (n=3)	10% (n=1)	0.157
Been treated in a hurtful or nasty way on the internet by another child/teenager. (This includes being teased repeatedly in a way that they did not like, or being deliberately excluded or left out of things.	30% (n=3)	40% (n=4)	0.564
Seen or been sent sexual messages (e.g. words, pictures or videos) on the internet	20% (n=2)	40% (n=4)	0.157
Sent someone else sexual messages (e.g. words, pictures or videos) on the internet	10% (n=1)	0% (n=0)	0.999
Seen aggressive or violent images of people attacking or killing each other on the internet. This could include characters in cartoons or games as well as "real" people for example	80% (n=8)	90% (n=9)	0.317
Number of items from above, mean (SD)	1.8 (1.5)	1.9 (1.3)	0.780

Table 9.B. In general, where do you get information and advice on safety tools and safe use of the internet from? (Choose all that apply)

	Pre-intervention	Post-intervention	p-value
Your child's school	50% (n=7)	43% (n=6)	0.564
Television, radio, newspapers or magazines	21% (n=3)	43% (n=6)	0.180
Internet service providers	14% (n=2)	29% (n=4)	0.157
Government, local authorities	21% (n=3)	14% (n=2)	0.317
Children's welfare organizations/charities	0% (n=0)	21% (n=3)	0.248
Websites with safety information	57% (n=8)	36% (n=5)	0.180
Manufacturers and retailers selling the products	29% (n=4)	14% (n=2)	0.157
Family and friends	50% (n=7)	21% (n=3)	0.103
From my child/teen	21% (n=3)	14% (n=2)	0.655

Other sources	29% (n=4)	21% (n=3)	0.564
None, I don't get any information about this	0% (n=0)	14% (n=2)	0.480

The following final question was included only within the post-intervention questionnaire:

Do you think the online Social Media Guide for Parents helped to increase your overall knowledge of social media, and how to improve social media safety for your adolescent(s)?

*Of the 14 post-intervention respondents, there were 86% (n=12) that responded Yes.

Synthesis of Study

Discussion

The primary aim of this study was to evaluate the effect of the social media educational intervention on change in parent knowledge of their adolescents' social media behaviors. Online and digital devices bring new challenges for parents regarding monitoring and managing their children's online activities. Parents may be less familiar with the devices and do not understand the different types of online activities, more specifically, social media that children can access. Parents are generally in the best position to manage their children's media use, whether being viewed as opportunities, risks, or both (Livingstone, et al, 2015).

At the completion of the study, an increase in overall knowledge of social media was reported in 86% of the respondents, suggesting that the intervention was helpful and worthwhile. However, when evaluating change from pre to post intervention using the questionnaire, none of the specific items were statistically significant. Similarly, when summarizing sections of questions into a summary score, there were no significant changes from pre to post intervention. However, several of these scores trended in the direction of improvement including: more items that the parents/caregivers are worried about (increase from 3.6 to 4.2) and more ways that the parents/caregivers check internet use (increase from 1.4 to 1.7).

These findings are like the study by Sasson & Mensch (2017), that showed parents who used technological means to control their child's online activities were positively associated with reduced online victimization. The other summary scores had little change when comparing pre to post intervention (these included number of places child uses internet, number of items parents/caregivers do with child regarding internet use, and number of potentially harmful internet activities). Other individual items that trended in the hypothesized direction were the percent of parents/caregivers that felt they are able to help their child/teen deal with things on internet that bother them (increase from 50% to 64) and percent of parents/caregivers that do something different these days because your child/teen has been bothered by something on the internet (increase from 21% to 29%).

In the study performed by Erickson, et al (2015), parents that lacked knowledge of technology expressed loss of control and inadequacy in monitoring of their adolescents' online activities. It is unclear if the lack of statistical significance is due to a small effect or due to the small sample size that completed the pre and post intervention questionnaire. Since 86% reported that they increased their knowledge and several responses suggested trends in the hypothesized direction, we suspect that a larger sample size would reveal more conclusive and significant results. Although the number of respondents was low, the subset that completed the final questionnaire (n=14) appeared to be well representative of the overall cohort that completed the baseline questionnaire (n=29).

Limitations and Conclusions

There are a few limitations worth noting of this study. First, the number of respondents of both pre and post intervention surveys was small. The COVID-19 pandemic had directly impacted the number of patients that were coming into the family practice clinic, therefore

reducing parents/caregiver's visibility of the flyers that were placed in the waiting room and exam rooms advertising the study. Also, most of the respondents were females (93%), reducing the ability to generalize "parental" involvement in social media monitoring interventions. Even though mothers or female caregivers were much more likely to complete the survey, the fathers or male caregiver thoughts and level of social media monitoring interventions, may not have been considered. Another limitation is that this study is not representative of parents or caregivers that do not have a Facebook account to learn about the survey nor could access it. Finally, allowing more time for participants to review the social media educational webpage and apply new monitoring strategies, prior to taking the post intervention survey, may have increased the scores.

Our findings provide evidence to support that providing parents with educational tools, increases parental knowledge of social media benefits, risks, and strategies they can use to monitor their adolescent's social media behaviors. With this said, our findings did not show a statistically significant change in parental involvement in the monitoring of their adolescents social media behaviors, but did show trending data that more parents worried about their children being contacted by strangers, being treated in a hurtful way, using drugs or alcohol, school performance and being injured on the roads. The use of social media can have negative consequences on the health of adolescents (Durbin, et al., 2018). Teens are more vulnerable to negative consequences of social media due to peer pressure and evolving developmental and maturity levels (Guinta & John, 2018). Parental monitoring of social media behaviors may reduce harmful consequences of adolescents.

Recommendations

Utilizing a more diverse population of participants and a larger sample size would allow for more accurate representation of the identified population. This study is limited in that it determined if parents would be more involved in monitoring their children's online behaviors if they were educated how to do such. To reduce negative health effects from inappropriate use of social media, future research should focus on identifying change in health outcomes due to parents playing an active part in managing and monitoring their adolescent's day to day social media activities. Primary care providers play a pivotal role in promoting health and providing education to patients to promote good health outcomes. For the adolescent patients, discussions about social media usage should be included in preventative health counseling

Appendix A: Pre and Post Survey Questionnaire

The following questions will be used in a pre-education survey to evaluate demographic data and current social media monitoring strategies of parents. These questions were taken from The EU Kids Online II Study (2010). Permission to use these questions has been granted by the lead investigator from the study. The questions that are marked with * will also be used in the post-education survey.

Pre-education survey questions:

1. What is the age of your child/children? (Several answers possible-Choose all that apply)
 - A. 0-5 years
 - B. 6-11 years
 - C. 12-17 years
 - D. 18 and older

2. Does your child/children live in the same home as you at least on a part time basis?
 - A. Yes
 - B. No

3. What is your age?
 - A. 18-25
 - B. 25-40
 - C. 40-55
 - D. 55 and older

4. What is your gender?
 - A. Male
 - B. Female

5. What is your relationship to the selected child(ren)?
 - A. Father/Mother
 - B. Stepfather/Stepmother
 - C. Foster parent

D. Legal Guardian

6. What is the highest level of education you have completed?

- A. Not completed high school
- B. High School graduate
- C. Secondary diploma or certificate
- D. Undergraduate college degree
- E. Graduate degree

7. Does your child have any of the following difficulties? (All that apply)

- A. Physical disability
- B. Mental health difficulty
- C. Behavioral difficulty
- D. Learning difficulty
- E. Other disability
- F. None of the above
- G. Don't know

8. * Thinking about your child, which of these things, if any, do you worry about a lot? (choose all that apply)

- A. How they are doing at school
- B. Being treated in a hurtful or nasty way by other children
- C. Drinking too much alcohol/taking drugs
- D. Seeing inappropriate material on the internet
- E. Being contacted by strangers on the internet
- F. Their sexual activities
- G. Being a victim of a crime
- H. Getting into trouble with the police
- I. Being injured on the roads
- J. None of these
- K. Don't know

9. Do you personally use the internet?

- A. Yes
- B. No

10. * Do you use the internet in any of these places? (choose all that apply)

- A. At home
- B. At work or college
- C. From your mobile phone
- D. Other

11. * How often do you use the internet?

- A. Every day or almost every day
- B. Once or twice a week
- C. Once or twice a month
- D. Less often
- E. Don't know

12.* How confident are you in using the internet?

- A. Not at all confident
- B. Not very confident
- C. Fairly confident
- D. Very confident

13.* As far as you are aware, in which of these places does your child use the internet? Please say yes or no to each of the following:

		Yes	No	Don't know
A	His or her own bedroom (or other private room) at home			
B	Living room (or other public room) at home			
C	At school or college			
D	In an internet café			
E	In a public library or other public place			
F	At a friend's home			
G	At a relative's home			
H	When "out and about" (e.g. via a mobile phone, iPod Touch, iPad, Tablet)			

14.* Which of the following things, if any, do you (or your partner/other caregiver) sometimes do with your child? (Choose all that apply)

		Yes	No	Don't know
A	Talk to him/her about what he/she does on the internet			
B	Sit with him/her while he/she uses the internet (watching what he/she is doing but not really joining in)			
C	Stay nearby when he/she uses the internet			
D	Encourage your child to explore and learn things on the internet on their own			
E	Do shared activities together with your child on the internet			

15.* When your child uses the internet at home, do you (or your partner/other caregiver) sometimes check any of the following things afterwards?

		Yes	No	Don't know	Not applicable
A	Parental controls or other means of blocking or filtering some types of websites. This meaning, something that stops your child visiting certain websites or that stops some kinds of activities on the internet				
B	Parental controls or other means of keeping track of the websites they visit. This meaning, something that keeps a record of the websites your child visits so you can check later what he/she did on the internet				
C	A service or contract that limits the time your child spends on the internet				
D	Software to prevent spam or junk mail or viruses				

16.* Do you think the things that you (and your partner/other care-giver) do relating to how your child uses the internet help to make his/her internet experience better, or not really?

- A. Yes, a lot
- B. Yes, a little
- C. No
- D. Don't know

17.* Do you (or your partner/other caregiver) do anything different these days because your child has been bothered by something on the internet in the past, or not really?

- A. Yes, a lot
- B. Yes, a little
- C. No
- D. Don't know

18.* To what extent, if at all, do you feel you are able to help your child to deal with anything on the internet that bothers them?

- A. Not at all
- B. Not very much
- C. A fair amount
- D. A lot
- E. Don't know

19.* For the following things, please choose one answer for each. In the past year, has your child done any of the following things, as far as you are aware?

		Yes	No	Don't know
A	Gone to a meeting with someone face to face that he/she first met on the Internet			
B	Seen images on the internet that are obviously sexual-for example, showing people naked or people having sex			
C	Been treated in a hurtful or nasty way on the internet by another teenager. (This includes being teased repeatedly in a way that he/she did not like, or being deliberately excluded or left out of things)			
D	Treated another child or teenager in a hurtful or nasty way on the internet This includes having teased someone repeatedly in a way he/she did not like, or threatened, or deliberately excluded or left them out of things			
E	Seen or been sent sexual messages (e.g. words, pictures or videos) on the internet			
F	Sent someone else sexual messages (e.g. words, pictures or videos) on the internet			
G	Seen aggressive or violent images of people attacking or killing each other on the internet. This could include characters in cartoons or games as well as "real" people for example			

20.* In general where do you get information and advice on safety tools and safe use of the internet from? (Choose all that apply)

A	Your child's school	
B	Television, radio, newspapers or magazines	
C	Internet service providers	
D	Government, local authorities	
E	Children's welfare organizations/charities	
F	Websites with safety information	
G	Manufacturers and retailers selling the products	
H	Family and friends	
I	From my child	
J	Other sources	
k	None, I don't get any information about this	
L	Don't know	

21. * Where would you like to get information and advice from in the future?

A	Your child's school	
B	Television, radio, newspapers or magazines	
C	Internet service providers	
D	Government, local authorities	
E	Children's welfare organizations/charities	
F	Websites with safety information	
G	Manufacturers and retailers selling the products	
H	Family and friends	
I	From my child	
J	Other sources	
	None, I don't want more information about this	
	Don't know	

Questions with * will be repeated in the post-survey questionnaire

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