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Sexual Health Misinformation and Potential Interventions Among Youth on Social Media

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ABSTRACT

With the rise of the internet and social media, many adolescents and young adults have turned to the internet and social media for sexual health information. However, this can be problematic because sexual health misinformation on social media utilizes a variety of techniques to quickly disseminate and retain that misinformation in users. Historically, the spread of sexual health misinformation has specifically negatively impacted adolescents and young adults regarding two sexual health topics: contraceptives and HPV vaccination. Current evidence demonstrates that a combination of corrections and inoculation would be effective against general health misinformation. However, there is a lack of research on interventions aimed specifically at sexual health misinformation among adolescents and young adults. It is imperative that researchers further investigate interventions against sexual health misinformation among adolescents and young adults since confounding factors may influence the efficacy of currently studied methods

INTRODUCTION

Social media serves as an important pillar in adolescents' and young adults' social life. In fact, 97% of adolescents have created a social media profile and 51% use it daily (American Academy of Child and Adolescent Psychiatry, 2018). Adolescents commonly use social media to stay connected to friends, express themselves, and explore topics (American Academy of Child and Adolescent Psychiatry, 2018). However, social media also serves as an important source of health information for many adolescents. Current research shows that nearly half of adolescents utilize the internet for health information (Borzekowski & Rickert, 2001; Jiménez-Pernett et al., 2010). Moreover, a cross-sectional survey among New York high schoolers found that information regarding sexually transmitted diseases and sexual behaviors were among some of the most commonly explored health topics when consulting the internet (Borzekowski & Rickert, 2001).

When adolescents and young adults use social media to search for sexual health information, there are many benefits and drawbacks. The following paper discusses three aspects of adolescent and young adult use of social media for sexual health information: 1) reasons why adolescents and young adults seek sexual health information on social media, 2) consequences of sexual health misinformation on social media among adolescents and young adults, and 3) potential interventions to combat sexual health misinformation on social media among adolescents and young adults.

REASONS FOR SEEKING SEXUAL HEALTH INFORMATION ON SOCIAL MEDIA

Adolescence and young adulthood are times of significant physical, emotional, and sexual developmental changes that often leave individuals questioning why those changes are occurring. During this time, many adolescents and young adults turn to the internet and social media to get health information. This section discusses four reasons why adolescents and young adults turn to the internet and social media for advice: 1) social media guarantees a degree of anonymity, 2) social media presents health information in an aesthetically pleasing manner, 3) social media is very accessible, and 4) social media increases a sense of belonging.

Adolescents and young adults can often feel embarrassed to ask questions to parents, peers, or health providers about sensitive health issues – including sexual health. Moreover, there can be a stigma in some groups to even ask questions pertaining to sexual health (Jones et al., 2018; Springate & Omar, 2013). The internet and social media provide a degree of anonymity so that individuals do not face any personally directed backlash for asking genuine health-related questions. One study examined the use of Facebook for peer communication of sexual health and intimate relations (Yeo & Chu, 2017). Young adults unofficially affiliated with a Hong Kong University anonymously posted questions to a Facebook group regarding numerous sexual health topics and this study found that replies were mostly supportive (Yeo & Chu, 2017). The anonymity associated with social media makes it an important source for sexual health information.

In addition to anonymity, social media also provides an aesthetically pleasing manner to display health information. Most reputable government sources tend to overwhelm individuals by numerous statistics and are often presented in a plain layout, while health information on social media is often displayed in a quick manner on small infographics. In fact, a study conducted by Jones et al. (2018) demonstrated that university and high school students thought that Facebook provided more visually appealing health information than other reputable health information sites. Thus, adolescents and young adults are more likely to turn to social media to turn to information.

Furthermore, social media is very accessible. According to the Pew Research Center, 95% of adolescents had access to a smartphone and 45% of adolescents were “constantly online” in 2018 (Anderson & Jiang, 2020). Traditionally, when an individual had a pressing health-related question, they would often have to wait several months until their appointment with their primary care provider or they would have to pay handsome sums of money for an emergency room visit. Social media, on the other hand, provides a more instantaneous answer to pressing health issues. By consulting the internet and social media, individuals can prevent unnecessary medical expenses for benign issues and can prevent delay in treatment due to hesitancy toward genuinely dire health issues.

Lastly, social media can also increase a sense of belonging among adolescents. According to a committee opinion written in the *Journal of Obstetrics & Gynecology* by Dr. Loveless (2016), adolescent communication is primarily peer-oriented and those with chronic health conditions can often feel isolated. On the internet, and through social media, those with chronic conditions can find similar individuals, which can offer a source of anonymous support (Loveless, 2016). Moreover, individuals that share the same chronic condition can form peer networks of their own and feel less isolated (Loveless, 2016). Even among adolescents without chronic conditions, social media still appeals to a sense of belonging (Gruss & Abrahams, 2020).

Overall, social media exhibits several appealing factors for why adolescents and young adults turn to social media for sexual health information. The degree of anonymity, aesthetically pleasing framework, accessibility, and networking capability of social media are all compelling reasons to turn to social media; however, there are also many consequences.

CONSEQUENCES OF SEXUAL HEALTH MISINFORMATION ON SOCIAL MEDIA AMONG YOUTH

Throughout history, health misinformation, defined as “false or inaccurate information regardless of intentional authorship” of health information, has had dire consequences on public health (Southwell et al., 2019). For example, in July 1983, an article was published in a New Delhi newspaper stating that the HIV virus was created by U.S. scientists in Fort Detrick, Maryland in order to kill African Americans (Ellick et al., 2018). By late 1986, mainstream media networks were publishing this story, which further proliferated the misinformation and contributed to widespread mistrust of health science amongst African Americans (Ellick et al., 2018).

In this example, there was a considerable lag between the initial instance of misinformation and the widespread dissemination of misinformation to the public. Today, however, social media has exacerbated the spread of health misinformation, including sexual health misinformation (Ellick et al., 2018). Adolescent and young adult use of social media for sexual health information can be problematic because sexual health misinformation on social media utilizes a variety of techniques to quickly disseminate and retain that misinformation in users.

One technique often used is the emphasis on negative consequences. Currently, most journalists are not trained in reading scientific literature; that lack of skill, partnered with tight deadlines and the pressure to produce thousands of views, has led to an emphasis on negative consequences (Foran, 2019). Targeting individuals’ emotions through these negative consequences tend to garner more views and, as a result, negative consequences have had a greater chance of receiving media coverage and spreading via social media than accurately sound information (Foran, 2019).

Another technique often used is individual testimonies. Individuals often find others’ experiences more credible than other sources of information. In fact, a study conducted by Anderson et al. (2014) examined sources of information regarding IUD efficacy and ease of use. Women in this study reported that female friends and family members’ testimonials were valuable means of obtaining information regarding IUDs (Anderson et al., 2014). However, most of the testimonials were negative experiences and contained misinformation (Anderson et al., 2014). While testimonials can lead to positive outcomes, they are also an effective means to spread misinformation.

A third technique often used is perpetuation of conspiracy theories. Conspiracy theories are highly effective in

spreading misinformation on social media and tend to persist even with a lack of substantial evidence (Lewandowsky & Cook, 2020). Several factors contribute to the belief and dissemination of conspiracy theories: a feeling of powerlessness, explanation for unlikely events, disputation of mainstream politics, and coping mechanism for threats (Lewandowsky & Cook, 2020). Each of these factors prey on individuals' emotions, thereby making the circulation of misinformation easier and more effective (Bosomworth, 2014).

The following section looks at how the three aforementioned techniques contribute to the extensive spread of misinformation and how they negatively impact adolescents and young adults regarding two sexual health topics: contraceptives and HPV vaccination.

CONTRACEPTIVES

Contraceptives are crucial in preventing unwanted pregnancy among sexually active adolescents and young adults. However, contraceptive misinformation utilizes negative consequences, individual testimonies, and perpetuation of conspiracy theories to spread its message and inadvertently harm adolescents and young adults. An article written by Foran (2019) in the *European Journal of Contraception and Reproductive Health Care* discusses the utilization of all three of these strategies in contraceptive misinformation.

In late 2017, the Australian National Broadcasting Commission released a series of articles on their television channels and social media accounts that questioned the benefits and highlighted numerous adverse effects of long-acting reversible contraceptives (Foran, 2019). As evidence, these articles cited testimonials from women on social media who demonstrated physical and mental harm while using these contraceptives (Foran, 2019). Moreover, the articles perpetuated two conspiracy theories: 1) the growth in popularity of combined oral contraceptive pills resulted from marketing campaigns by pharmaceutical companies in order to make more profit after their products went off-patent and 2) Australian regulatory data regarding adverse effects associated with long-acting reversible contraception was belittled by clinicians in order to encourage use (Foran, 2019).

The articles written and posted by the Australian National Broadcasting Commission inherently emphasized the negative consequences of long-acting reversible contraceptives. While the articles included a brief comment from a local clinical expert that provided an opposing viewpoint, this comment was massively undermined by the remaining contents of the article (Foran, 2019). The emphasis of these negative consequences preyed on adolescents' and young adults' fears regarding contraceptive use and led to the further

dissemination of the misinformation. The individual testimonies cited in the articles further contributed to the emphasis of negative consequences but also increased the perceived credibility of the misinformation among social media users. Furthermore, the articles perpetuated conspiracy theories that explained why long-acting reversible contraceptives boomed in the past few decades.

The misinformation disseminated through these techniques regarding contraceptives negatively impacted adolescents and young adults. In the weeks that followed the articles published in Australia, health providers reported that many women cancelled their contraceptive consultations (Foran, 2019). Similar dissemination of misinformation via social media could lead to an increase in unintended pregnancy and an increase in unsafe abortion rates among sexually active adolescents and young adults (Springate & Omar, 2013). Moreover, pregnancy in adolescence and young adulthood is associated with higher maternal mortality due to obstetric complications and unsafe abortions (Odland, 2018).

HPV

Human papillomavirus (HPV) is the most common sexually transmitted infection in the United States and can cause serious health problems like genital warts and cancer (Centers for Disease Control and Prevention, 2021). However, vaccination can prevent majority of these issues. Vaccination is recommended for adolescents and young adults from 9-26 years old, but misinformation regarding relative risk and unproven side effects are the most commonly cited reasons for not receiving the vaccine (Centers for Disease Control and Prevention, 2021; Teoh, 2019). HPV vaccination misinformation utilizes negative consequences, individual testimonies, and perpetuation of conspiracy theories to spread its message and inadvertently harm adolescents and young adults.

An article written by Teoh (2019), published in the *American Society of Clinical Oncology Educational Book*, discusses the perpetuation of anti-HPV vaccination sentiments. Most of the misinformation associated with anti-HPV sentiments preyed on individuals' emotions by focusing on the unproven negative side effects of the vaccine. In fact, in a 2018 cross-sectional survey, almost half of respondents had heard stories about HPV vaccine, with 19% hearing only vaccine harms and 15% hearing both vaccine harms and benefits (Margolis et al., 2019). Moreover, respondents were more likely to recall harms rather than prevention on social media and, as a result, were more hesitant to get vaccinated (Margolis et al., 2019).

Individual testimonies also aided in the spread of HPV vaccine misinformation. In 2013, Japanese media and

social media covered numerous anecdotal accounts of serious adverse events attributed to the HPV vaccine (Foran, 2019). As a result of these articles, that primarily focused on these individual testimonies, HPV vaccination rates decreased from 70% to 1% in Japan (Foran, 2019). Although the Vaccine Adverse Reactions Review Committee in Japan has repeatedly concluded that anecdotal symptoms are mostly likely psychosomatic, individual testimonies had a negative impact on overall HPV vaccination rates in Japan (Muranka, 2017).

Conspiracy theories also contributed to the spread of HPV vaccine misinformation. Individuals on social media have perpetuated the belief that the government and pharmaceutical industries have ill intent by encouraging HPV vaccination (Teoh, 2019). The perpetuation of these conspiracy theories further increases hesitancy regarding HPV vaccination among adolescents and young adults.

Overall, the culmination of HPV vaccination misinformation has led to the decrease in vaccination rates among adolescents and young adults, who are the prime candidates for vaccination (Teoh, 2019). Even though countless credible sources state that HPV vaccination can prevent genital warts and various cancers, HPV vaccination misinformation can lead to an increase in HPV infections and an HPV epidemic (Centers for Disease Control and Prevention, 2021).

POTENTIAL INTERVENTIONS AGAINST SEXUAL HEALTH MISINFORMATION

Sexual health misinformation and the strategies employed to accelerate its spread have the potential for serious public health consequences, especially among adolescents and young adults. Currently, there are two major researched interventions that show promise: 1) corrections and 2) inoculation.

Corrections is defined as “the presentation of information designed to rebut an inaccurate claim or misperception” (Sylvia Chou et al., 2020). Citing highly credible factual information and providing links to expert sources via social media posts are effective methods to combat health misinformation (Lewandowsky et al., 2012; Sylvia Chou et al., 2020). Moreover, expert sources, such as medical professionals, are more effective than general users at correcting misinformation and engagement in corrections on social media does not negatively affect their credibility (Lewandowsky et al. 2021; Vraga & Bode, 2017).

Inoculation has also been shown to be an effective way to combat health misinformation. Inoculation theory, first conceived by William McGuire in 1964, drew comparisons between resistance against propaganda and biological immunization (Roozenbeek & van der Linden, 2018). In the context of health misinformation, reputable sources and users would discuss and refute weak counter

arguments of misinformation in order to “inoculate” the general public (Roozenbeek & van der Linden, 2018). Inoculation differs from corrections in that while corrections is refutation in response to misinformation, inoculation is refutation in anticipation of misinformation. A study conducted by Roozenbeek and van der Linden (2018) found that inoculation against misinformation reduced the perceived reliability and persuasiveness of the misinformation.

Posting articles, infographics, and links that utilize a combination of corrections and inoculation on social media would be effective against general health misinformation because the combination would lower the effectiveness of misinformation before and after dissemination. However, it is important to note that while extensive research has been conducted on both methods, most studies focused on overall health misinformation among adults; there is little research on interventions regarding sexual health misinformation among adolescents and young adults. As mentioned earlier, adolescents and young adults use social media as an important means of social communication, which could introduce other confounding factors that would influence the efficacy of these interventions.

CONCLUSION

Since its conception, social media has paved the way for globalization, social movements, political uprisings, and many other positive outcomes. Additionally, social media serves as an important source of sexual health information for adolescents and young adults. Some of the most commonly cited reasons why adolescents and young adults turn to the internet and social media for advice are anonymity, aestheticism, accessibility, and sense of belonging. However, social media has also exacerbated the spread of misinformation.

The three most commonly used strategies in the spread of sexual health misinformation are the emphasis on negative consequences, individual testimonies, and perpetuation of conspiracy theories. The utilization of all three of these strategies regarding sexual health topics, like contraceptive and HPV vaccination misinformation, can lead to dire consequences for adolescents and young adults.

Current evidence demonstrates that a combination of corrections and inoculation would be effective against general health misinformation. However, there is a lack of research on interventions aimed specifically at sexual health misinformation. Moreover, little research has been conducted regarding sexual health misinformation among adolescents and young adults. It is imperative that researchers further investigate interventions against sexual health misinformation among adolescents and

young adults since confounding factors may influence the efficacy of currently studied methods.

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