13 The role of social media in developing young people's health literacy

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Chapter overview

In this chapter, the notion of health literacy is explored in the context of adolescents learning about health. Up until fairly recently, the concept of health literacy has been driven mainly by health care models and has specifically targeted adult populations. This chapter uses the case studies (Chapters 2–7) provided to explore an alternative way of discussing and promoting health literacy and in ways that draw on the perspectives of young people and their frequent engagement with social media in a digital age.

What is health literacy?

A plethora of literature supports the notion that future patterns of adult health are established during childhood and adolescence (Due *et al.* 2011; Sawyer *et al.* 2012; Suppli *et al.* 2012). There is also strong evidence to suggest that the longitudinal impact of health in adolescence may continue throughout adulthood and into old age (World Health Organization 2014). It is, therefore, critically important to influence health behaviours at an early age. According to the United Nations (2015), the cost of inaction in the early years is immense. Millions will continue to die from preventable diseases and rising health care costs will continue to plunge millions of people into poverty, with non-communicable diseases (NCD) alone expected to cost low- and middle-income nations more than US$7,000,000,000,000 in the next 15 years. By better understanding the risks and drivers of adolescent health, we are better able to promote and inform health and wellbeing behaviours across the lifespan.

It is important to recognise that adolescents may not interact with public health information in the same way as adults. One critical difference is in the ways in which adolescents make extensive use of social media to interact with their friends, share ideas, seek help, and access new information (Swist *et al.* 2015; Third *et al.* 2017, 2014). Recent research suggests that more than half of adolescents now use social media daily (Mackenzie 2018), and this has possible implications for both knowledge and behaviour. In this chapter we explore the potential benefits and risks of social media use for adolescent health literacy. We

begin by considering adolescent public health more broadly. We then describe health literacy in adolescence, and apply this model to social media use in order to consider the case of Yaz presented in Chapter 3. We conclude by considering the implications for how health literacy and social media use interact to produce health-related behaviour change.

Adolescents and public health

Given the impact of adolescent health on lifetime health outcomes, a number of public health programmes and initiatives have highlighted the importance of changing the health-related behaviours of young people. These include the United Nations Sustainable Development Goals programme (United Nations 2015) that focuses on ensuring healthy lives and the promotion of wellbeing for all. A significant proportion of adolescents residing in developed/high-income nations (especially as socio-economic disparity widens) fail to meet many of the recommended healthy behaviour guidelines set by their respective government agencies (i.e. daily consumption of fruit and vegetables, sleep requirements, physical activity participation) (Elgar *et al.* 2015) and many also suffer from a growing prevalence of mental health illnesses (Steel *et al.* 2014). This is despite most adolescents in these settings having access to the systems and knowledge that can develop the recommended health-related behaviours and lead to immediate, sustained, and long-term effect on health and wellbeing.

While public health programmes and initiatives are increasingly highlighting the importance of targeting young people, these efforts have also often focused on specific risks, rather than broader health literacies. For example, strategies that address NCD risk have tended to focus on secondary prevention and treatment to reduce the conversion of risk to disease (Lobstein, Baur, and Uauy 2004; National Research Council 2009). While these approaches reduce morbidity and mortality, their impact on adolescents is limited: especially considering the tracking evidence that shows adolescence is a sensitive period in which both normative and maladaptive health-related behaviours shape future trajectories (Sawyer *et al.* 2012). Part of this sensitivity involves brain changes that create conditions for heightened receptivity to health messages and social norms. These changes are linked to the social embedding of health-related behaviours and the biological changes that occur during and beyond adolescence (Sawyer *et al.* 2012). Primary prevention/health promotion efforts, therefore, offer the unique potential to promote the development of positive health-related behaviours, consequently contributing to reducing the exponential growth of the global NCD burden (Balbus *et al.* 2013).

Developmental theorists have recognised adolescence as a critical period of both psychological and biological development (Viner *et al.* 2012). During adolescence, rapid development of the central nervous system and other biological systems interact with an individual's social development and capacity to build peer relationships. This facilitates new health-related behaviours that allow many important transitions for an individual to function as a productive adult

(Viner *et al.* 2012). The prefrontal cortex, the site of executive control functions, influences planning, emotional regulation, decision-making, and self-awareness, and is one of the brain regions that undergoes the most protracted development during adolescence (Sawyer *et al.* 2012). This explains the somewhat perplexing phenomenon that although there is substantial improvement in self-control from childhood to adulthood, young adolescents can at times be surprisingly immature in practices of risk-aversion and planning. Compounding this possibility is evidence that the limbic system, which governs reward processing, appetite, and pleasure seeking, develops earlier in adolescence than the prefrontal cortex (Casey *et al.* 2008). Thus, adolescents may have a tendency to make poor decisions not because they are less intellectually capable, but because they are more affected than adults by exciting or stressful situations. This is especially likely to be the case when making decisions in the presence of peers, and particularly on social media.

Understanding the implications of the nature and timing of adolescent neuro-cognitive maturation on health promotion efforts for young people has been somewhat limited, despite the proliferation of adolescent development theories in educational contexts. It has been argued, therefore, that building health literacy in young people could be one way to make use of what is already known and to develop a workable approach to more effective forms of public health promotion.

Healthy literacy in adolescence

The human right to education has become a necessary means for public health intervention during the early years of development, especially in adolescence (WHO 2008). Much work has been accomplished in ensuring that most young people around the world are educated at least to the level of lower secondary education (i.e. up to 15 years of age) (UNESCO 2017). The most basic foundation of the education of human beings is the ability to understand, read, write, and calculate. These essential life skills translate into the broader term of 'literacy'. As these skills are the foundational skills required in order to exercise the right to engage in education, literacy can be considered as an essential right (UNESCO 2013). Literacy is, therefore, not only a tool but an essential step in the achievement of many of the United Nations Sustainable Development Goals that are endorsed by the World Health Organization (United Nations 2015).

Over the last 50 years, theories of 'literacy' have evolved from those focused solely on changes in an individual to more complex views encompassing the broader social contexts (i.e. the 'literate society') (Dudley *et al.* 2017). There has been an evolution from viewing literacy as a simple process of acquiring basic skills, to using these skills in ways that develop the capacity for social awareness and critical reflection as a basis for personal and social change (Street 2006). The body of literature linking health and literacy is rigorous and the relationship between literacy skills and a variety of health outcomes has been established (Berkman *et al.* 2011).

Health literacy as a discipline-derived literacy can be traced back to the 1970s (Simonds 1974) and was formally documented by Kickbusch and Nutbeam (1998) in the World Health Organization's Health Promotion Glossary. In this document it was defined as:

> cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand, and use information in ways which promote and maintain good health.
>
> (World Health Organization 1998, p. 10)

According to Rudd (2017), health literacy has emerged as an important consideration and variable for investigation for health researchers, practitioners, and policy makers. In turn, it is becoming evident that health literacy acts as a determinant of health in the empirical literature (Rudd 2017). This too has implications for issues of equity as well as for health disparities within many countries. The fact that literacy can now be linked to many health outcomes means it has become the focus of an increasing number of research studies, as well as the stimulus for institutional and governmental policy in many developed countries (Berkman *et al.* 2011).

The term health literacy is now commonly used to evaluate the capabilities of people to access and act upon relevant health-related information and processes (and the systems that manage them). New questions have now arisen in the context of educative and pedagogical perspectives of health literacy (Peralta *et al.* 2017). This need for an educative focus in health literacy is partly driven by concern surrounding the influence of information about health that is readily available via social media. A recent article by Peralta *et al.* (2017) proposed a conceptual framework for health literacy in adolescence as a process of identifying and elaborating relevant interrelated elements. They included existing theoretical and empirical work on adult health literacy, media literacy, whole school health research and practice, capability development and practice, critical health literacy, and young people.

Peralta *et al.* (2017) argued that many social determinants contribute to an individual's health across their lifetime. Many of these social determinants have particular importance during adolescence. For example, safe and supportive families and schools and positive and supportive peers are crucial to helping young people develop to their full potential and attain the best health in their transition to adulthood (Peralta *et al.* 2017). Given the overwhelming acknowledgement that social determinants contribute to an individual's health, it would be remiss not to investigate the role that social media might play during this critical life phase, especially in the development of health literacy.

Young people, social media, and health literacy

In this section the relationship between health literacy and social media is analysed by drawing on the existing literature and evidence from the case study

chapters (Chapters 2–7). We examine (i) the opportunities for growth, (ii) cognitive risks and opportunities, and (iii) social risks and opportunities.

Opportunities for growth

From a health literacy perspective, social environments (including those in the virtual space like social media) should create opportunities to enhance young people's autonomy, motivation, decision-making capabilities, peer connections, and emotional control (Peralta *et al.* 2017). They do this by providing learning experiences both within and outside the controlled school environments (Peralta *et al.* 2017). These social environment opportunities allow for an exploration into the social determinants of health, and how specific social environments may influence an individual's health and the health of others with whom they interact. An exploration into social environments can also provide insights into how opportunities exist for adolescents to build on their existing knowledge, and whether these social environments prompt adolescents to reflect on the importance of this knowledge in their own lives and the lives of others. This is a key functioning part of health literacy for adolescents. In other words, adolescents should become health literate for themselves and in relation to others, while understanding the perspectives of others and of the collective. This capability cannot be developed, however, if health information is acquired in isolation or without opportunities for adolescents to apply new health information and skills across their everyday lives (Peralta *et al.* 2017).

A recent article by Roberts *et al.* (2017) suggests that social media could serve as a means of connecting people and organisations around important areas of common discourse (notably health). This is because social media platforms offer opportunities for quick and in-depth dialogue with a diverse and plentiful array of stakeholders from anywhere in the world (Roberts *et al.* 2017). Across the case study chapters (Chapters 2–7), the narratives demonstrated that young people were interacting with a diverse range of health-related stakeholders, either directly or indirectly, and were able to engage in dialogue quickly. In this sense, the opportunities to interact with a range of stakeholders is an example of how social media could support the growth of young people and the development of health literacy. Yet, as an increasing number of people (especially young people) receive their news and health information online via social media platforms (Swist *et al.* 2015), it is important to ensure content delivered through online media is not only accessible but also accurate. Swist *et al.* (2015) also argue that the effective incorporation of social media into existing health literacy programmes depends on the use of best evidence health literacy strategies, which include (but are not limited to) the use of plain language techniques.

Cognitive risks and opportunities

Related to the conceptual model of health literacy outlined above is research from the cognitive sciences that examines media literacy in a digital age.

Information about health and wellbeing can be shared widely online and public health campaigners and government departments frequently use online channels to promote messages about health policies and programmes (Australian Government Department of Health 2015). Therefore, and building on the discussions around growth, there are plentiful opportunities to connect people and organisations around important areas of health discourse. Yet the constant availability of information online is a double-edged sword, with information from non-credible sources and commercial ventures often equally prominent. Adolescents who use social media frequently may, therefore, be at particular risk of poor decision-making about their health for two main reasons. For example, there was evidence of adolescents' access to commercial information and poor decision-making in Chapter 2.

Evidence suggests that young people who lack expertise in a domain – for example, pre-existing health literacy – are at heightened risk of conceptual misunderstanding when they seek or find information online (see Poundstone 2016). When searching for health information on Google, for example, prior knowledge about various health phenomena will guide the formation of search cues. Prior knowledge will also guide the interpretation of information encountered passively via social media by underpinning critical thinking skills and whether or not adolescents are able to effectively evaluate the veracity of the information that is presented to them. Those without expertise are at heightened risk of being attracted to information that is scientifically invalid or inappropriate (Poundstone 2016), and are less likely to critique the information they find (Willingham 2007). We see this demonstrated in the case study narrative of Yaz (Chapter 3), with his uncritical use of bodybuilding videos and health-related information. The problem of a lack of critical awareness can be exacerbated on social media, where adolescents become unwitting and passive consumers of a range of populist articles and ideas, company product placement, sponsored news items, and other unregulated information about health and wellbeing that is shared with them. There was also evidence across the case study chapters (Chapters 2–7) of young people's exposure to this type of social media health-related content.

Evidence suggests that poor decision-making also relates to the range of cognitive heuristics, or 'mental short-cuts' (see Strough, Karns, and Schlosnagle 2011; Weber and Johnson 2009). The 'mental short-cuts' taken by adolescents mean that they may be less able to critically assess the health-related information they are presented with on social media (Riva *et al.* 2015). This is the case even where prior knowledge is present, and it therefore poses a particular problem to the ways in which adolescents' access and then act up on the health-related information available on social media. The problem is furthered on social media as each social media post is shared transiently and adolescents access information quickly. For example, Yaz (Chapter 2) finds the content online to be highly accessible and quick to use: 'You can look in "two minutes"'. As he is accessing information quickly it can be suggested that he is taking 'mental short cuts' and he is likely to be less able to critically evaluate that content. The interaction of

Yaz's pre-existing cognitive beliefs with the design and expediency of social media creates the perfect context for rapid influence of social media health-related content on his health and wellbeing.

One of the most common 'mental short cuts' that people use when sharing information is a short cut known as 'social loafing'. In social loafing, people intrinsically tend to reduce their effort when collaborating with others, as they assume that others will do more cognitive work for them. In a social media environment, therefore, adolescents may assume that the person sharing the information with them will already have assessed it critically and so they do not need to. There was evidence of this in Chapters 2 and 6, where Kelly and Jess each engaged with health-related content promoted by peers, commercial parties, and/or celebrities. Social loafing is made more problematic again by the presence of a second mental short cut, the familiarity bias. According to the familiarity bias, people who are not critically attending to the material that they are reading often estimate the probability that a particular piece of information is true based purely on their exposure to the idea (Begg, Anas, and Farinacci 1992; Moons, Mackie, and Garcia-Marques 2009). According to this reasoning, an idea that is heard often enough 'must be true'. Thus, Kelly's (Chapter 2) frequent exposure to FitTea advertisements leads her to view this product as healthy, because 'they must be really popular'. The workout videos frequently promoted to Yaz (Chapter 3) also leads him to begin to believe in health-related discourses such as 'no pain, no gain'. Neither Kelly or Yaz seem aware that the posts shown on social media are determined by algorithms (see Chapters 2 and 3), with the friends, products, and services that a user has previously interacted with being more likely to be seen again.

The problematic issues related to adolescents' decision-making skills when using social media are further reflected in the literature reporting variation between adolescents in their abilities to critically evaluate sources of information online. For example, Kiili *et al.* (2018) presented 426 Finnish adolescent students with an online academic health resource and an online commercial health resource. One-quarter of students performed particularly well, demonstrating a strong ability to assess the credibility of both the academic and the commercial source. Almost half of the adolescents (48.6%) however did not, and one in five (19%) failed to recognise any potential for commercial bias. This evidence suggests that adolescents require considerable support in learning how to determine the credibility of information.

Importantly, developing critical health literacy should equip young people with the skills to better assess the health information they encounter via social media. This is a case of the strong getting stronger: while social media offers a vehicle for learning about health, some degree of health literacy is needed in order to learn effectively and to rule out incorrect information. This critical literacy is particularly pertinent given that information presented via social media is typically considered only briefly, such as in the case of Yaz (Chapter 3). It is therefore critical that young people both take the time to evaluate the sources that they encounter on social media, and have the critical literacy skills to do so.

Social risks and opportunities

The above section on the cognitive risks and opportunities of developing health literacy in a digital age highlights the importance of both expertise and deliberate efforts in assessing information online. While this is true for all online sources of information, social media is also inherently social; providing a context in which social norms can be both enacted and established. Social networking and information sharing are ubiquitous in adolescent peer relationships (Swist *et al.* 2015; Third *et al.* 2017), and it is critical to understand how the social aspects of these relationships influence health outcomes. Sociologists have furthermore long proposed that social change originates from cohorts of young people with common experiences (Bolton *et al.* 2013). Social media may therefore be leading to large-scale changes in social norms and behaviours of young people in domains including health.

For several decades, theories of normative beliefs and perceived social norms have suggested a pathway through which beliefs influence behaviour. While the association between such beliefs and subsequent behaviours is not exact (Fishbein and Ajzen 1975), normative beliefs and perception of social norms have been implicated in a host of behavioural and health-related outcomes; for example, within college students' alcohol abuse (Prentice and Miller 1996), smoking behaviours (Grube, Morgan, and McGee 1986), and childhood aggressive behaviours (Huesmann and Guerra 1997). More recently, online and social media contexts have been scrutinised as a mechanism through which broader social networks and access to sources of information can influence the beliefs-behaviour relationship. For example, body dissatisfaction beliefs were linked to the tendency of college men and women to internalise media representations of thinness and attractiveness and becoming preoccupied by weight, dieting, and eating restraint (Dye 2016). Internalisation of unrealistic body ideals in video games also led to lower body satisfaction in men (Sylvia *et al.* 2014). This evidence suggests pathways from prior normative beliefs about the body towards internalisation of social norms, and also the acquisition of new beliefs or social norms after being presented with idealised images or exemplars.

In the case of Yaz and his friend Amy (Chapter 3), pre-existing normative beliefs about body image and body dissatisfaction may be linked to a preoccupation with searching for related information online. The social media sites Yaz and Amy visit could also be presenting them with social norms about male or female body types. For Amy, it was evident that she has benefited from engaging with the social media campaign, This Girl Can. The campaign was designed to alter adolescents' and young women's pre-existing beliefs about body type and present new social norms about the body and exercise. Amy benefited from this campaign as she reported that her engagement in physical activity increased through altering her perception of the type of body that was required to engage in physical activity. For example, Amy appeared to have discovered a new social norm in the campaign that showed her 'it is ok to look like an absolute slob when I run'. In contrast to Amy, Yaz (Chapter 3) did not find

sources of information about exercise relevant to young men his age. In effect, Yaz's pre-existing normative beliefs about the ideal or desirable male body were not challenged as they were for Amy, so his preoccupation with searching for information related to body building increased his vulnerability to 'helpful' search algorithms; these algorithms likely recommended content related to his initial search for exercises and thus reinforced his pre-existing beliefs of a muscular body type. In particular, Yaz engaged with the YouTube videos that may have been harmful to his health, because the exercise regimes met his pre-existing beliefs and the sites appeared to 'guarantee' success in achieving his perception of an ideal body type.

Chapter 3 also demonstrates clear differences in the ways in which young people engage with health-related information. In contrast to Yaz, Amy was able to critique Yaz's use of videos from YouTube and she was sceptical about the content that he was engaging with. This finding can be supported by evidence that suggests that not all adolescents are equally vulnerable to internalisation of projected norms or ideals or the resulting negative effects (Diviani *et al.* 2015). As we argued earlier in this chapter, health and media literacy may serve a protective function, enabling adolescents to make sensible and well-reasoned judgements about media or health-related information. A review of existing research indicates that low levels of health literacy lead to the application of unhelpful and erroneous criteria to evaluate the quality of online health information (Diviani *et al.* 2016), indicating that Yaz may have had a lower level of health literacy. Mclean *et al.* (2016) also found that media literacy could decrease the vulnerability of adolescents to media images of the thin ideal appearance, suggesting that Amy may have a higher level of media literacy. Although we do not know Amy's level of health or media literacy, the case study in Chapter 3 indicates that Amy is more aware of the health consequences of certain behaviours and more aware of the capacity of social media to 'pressure' Yaz.

Implications for addressing young people, social media, and health literacy

There is little doubt that social media platforms are becoming a powerful educational resource that exist in our digital age. They appear to be a medium in which young people are prepared to utilise health information and form decisions regarding their subsequent health behaviours. The evidence is less clear, however, about whether they are effective in supporting health literacy that leads to sustained health-change behaviours. At best, social media is a *double-edged sword* where health literacy can be challenged or reinforced. We argue that the development of adolescents' health literacy should be a central focus of health promotion initiatives and this can be achieved via peer support, as well as support from adults.

Peer support (friends and acquaintances)

The importance of peer relationships to adolescents indicates that peers will have a significant influence on social norms and health literacy. As adolescents obtain health information from a range of interpersonal (friends, family), as well as media (online) socialisation agents (Paek, Reber, and Lariscy 2011), peers with better health literacy may have the capacity to offset the negative images that adolescents are exposed to online. As shown in Chapter 3, Yaz's friend Amy demonstrates an understanding that the fitness videos to which Yaz is exposed are not appropriate for him, and that his adherence to the fitness regime may have negative consequences for his health and wellbeing. Thus, if adolescents have well-developed health literacy, they may be able recognise when their peers' uptake of social media-driven norms is problematic. Interventions to increase adolescent health literacy may be a useful way to offset the effects of exposure to problematic online content. Indeed, peer-led interventions have been successful in influencing behaviours that have direct implications for health, including substance use, diet, eating, and exercise (Crosnoe and McNeely 2008).

Whilst increased health literacy may allow peers to act as the first identifier of a problem, adolescents also need to be supported to confront any problematic behaviour or seek help to support a friend or acquaintance in need. Although adolescents find it easier to get help for others than themselves (Raviv *et al.* 2000), it may also be difficult for adolescents to offer help to their friends. For example, Byrne *et al.* (2016) found that adolescents would avoid offering support to friends if they felt that the issue was a private matter, or if they were unsure of how to help. Further, Latkin and Knowlton (2015) recommend that social network-based interventions between peers would benefit from explicit communication training to heighten (or change) social norms. Indeed, the way in which peers offer assistance may be problematic without explicit support and training. For example, research on adolescents' responses to peers with mental health problems suggests that most do not respond in a way that will facilitate getting the help required. While they are likely to offer social support, many report that they would not assist their peer to seek adult assistance (Byrne *et al.* 2015; Coles *et al.* 2006; Mason *et al.* 2015).

Adult support (teachers and parents)

Adolescents are most likely to turn to friends for support (Bullot *et al.* 2017; Crystal *et al.* 2008). Yet other relationships are also implicated in the provision of support, and these relationships offer important pathways for improving adolescent health literacy online and offline. For example, parents' level of eHealth literacy (the ability to access quality health information on the internet) is positively related to adolescents' eHealth literacy (Chang *et al.* 2015). Teachers also have a key role to play in improving adolescents' health literacy (Skopelja *et al.* 2008; Tappe and Galer-Unti 2001). For example, evaluation of the Dove campaign (see Chapter 3) in one-off classroom interventions has shown that teacher-led

interventions as opposed to researcher-led interventions had greater effects on the targeted health behaviour post intervention (Diedrichs *et al.* 2015). We also saw in Chapter 7 that Yaz appeared to be aware that teachers could offer him and his peers information to support their critical use of social media and need for health information. Taken together, it appears that adolescent relationships with their peers, parents, and teachers can support them to improve their health literacy, and reduce the impact of exposure to online content via social media.

According to Goodyear *et al.* (2018a), young people are tethered to their digital devices and social media relationships. This presents an obligation for schools to educate young people to use social media to support health literacy that can, in turn, generate positive health behaviours across the life course. Access to social media, like education, is now viewed as a right and as essential for youth wellbeing (Third *et al.* 2014). By understanding the health risks and opportunities that result from young people's access to social media, a new health literacy imperative now exists. Teachers and other adults responsible for educating young people about their health and wellbeing are confronted by the complexity that health literacy poses. However, interventions on social networking platforms support the notion that health behaviour changes can be effective in general but that effects are moderated by age and gender (Yang 2013). Given that effect sizes in these interventions are greater in young people, developing combined media/health literacy interventions during compulsory years of schooling is a worthwhile venture.

In acknowledging the contribution adults play in developing the media and health literacy of young people, adults should also engage in ongoing conversations with young people to ensure they act in ways that respect young people's media and health literacy needs (Goodyear *et al.* 2018a). In summary, we agree with Goodyear *et al.* (2018b) that adults in these roles need to be sufficiently media and health literate to protect young people from harm but also promote positive health behaviour norms and change when needed.

Summary of key messages

- Developing health literacy in young people is an important construct that should be considered in the context of engagement with social media.
- Normative beliefs shape adolescents' searches for information and their interactions on social media. In turn, social media use can reinforce social norms.
- Social media use offers potential benefits for adolescents' health literacy, with greater availability of information and with the potential for shared dialogue and positive normative beliefs that enhance healthy behaviours.
- Social media use may also place some aspects of adolescents' health at risk, with unregulated information and unhealthy social norms also easily shared.
- Interventions that target peer, parent, and teacher support may provide opportunities for improving adolescent health literacy to reduce negative impacts of exposure to online content.

Acknowledgement

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