

Social media and health information sharing among Australian Indigenous people

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Summary

Despite the enormous potential of social media for health promotion, there is an inadequate evidence base for how they can be used effectively to influence behaviour. In Australia, research suggests social media use is higher among Aboriginal and Torres Strait Islander people than the general Australian population; however, health promoters need a better understanding of who uses technologies, how and why. This qualitative study investigates what types of health content are being shared among Aboriginal and Torres Strait people through social media networks, as well as how people engage with, and are influenced by, health-related information in their offline life. We present six social media user typologies together with an overview of health content that generated significant interaction. Content ranged from typical health-related issues such as mental health, diet, alcohol, smoking and exercise, through to a range of broader social determinants of health. Social media-based health promotion approaches that build on the social capital generated by supportive online environments may be more likely to generate greater traction than confronting and emotion-inducing approaches used in mass media campaigns for some health topics.

Key words: aboriginal health, qualitative methods, social networks, social capital, health information

INTRODUCTION

In just over a decade social media sites such as Facebook, YouTube, Twitter, Instagram and more recently Snapchat and WhatsApp, have transformed media consumption, becoming a ubiquitous information source and means of communication. In the United States, social media use grew from 5% of the population in 2005 to 69% in 2017 (Pew Research Center, 2017). Growth in Australia has been similar: Facebook currently has 17 million regular users, equivalent to 70% of the total population—half of whom use it daily (Social Media Agency, 2017).

Research suggests social media use is higher among Aboriginal and Torres Strait Islander people than the general Australian population, although data are limited. A 2014 survey with a national sample of 400 Indigenous participants estimated that 60% of Indigenous people used Facebook, compared to 42% of the Australian population at that time (McNair Ingenuity Research, 2014). Other research has found that social media is used in a range of ways by Aboriginal and Torres Strait Islander people, including developing and expressing Indigenous identity (Carlson, 2013; Kral, 2014; Rice *et al.*, 2016), seeking and offering help for issues relating to suicide

and self-harm (Carlson *et al.*, 2015), citizen journalism (Sweet *et al.*, 2013), online activism and countering racism and negative stereotypes (Petray, 2013; Sweet *et al.*, 2015; Korff, 2016; Carlson *et al.*, 2017).

Social media offer enormous potential for health organizations to engage with target audiences. In Australia, the Indigenous health sector has a strong presence on social media for advocacy, public health promotion and community development (Sweet, 2013). Despite this widely recognized potential, there is an inadequate evidence base for how these platforms can be used effectively in health promotion (Moorhead *et al.*, 2013; Kite *et al.*, 2016). There is an emerging body of research about health-related content and messages that generate engagement on social media (Kite *et al.*, 2016; Shibasaki *et al.*, 2016; Beasley *et al.*, 2017) and about use of social media by Indigenous organizations and leaders for advocacy purposes (Sweet, 2013; Sweet *et al.*, 2015), however there is scant research that connects people's online engagement with their offline responses. Non-health behavioural research using social media suggests the most significant potential to influence behaviour comes from online friends who are also close offline connections (Bond *et al.*, 2012).

A scoping review of social media and health promotion for Australian Indigenous populations found limited evidence of effectiveness of social media and health app-based interventions on health behaviour (Brusse *et al.*, 2014). It concluded health promoters need a better understanding of who uses technologies, how and why. Research about health promotion and use of social media is dominated by approaches that use social media as a one-way tool for health education rather than as a community-oriented, dialogical tool (McPhail-Bell *et al.*, 2017). Many health organizations are failing to fully harness the interactive capabilities and power of social media (Wyllie *et al.*, 2016)—a missed opportunity, especially for health behaviours and conditions, which are mediated by social ties and amenable to social influence (Coiera, 2013). Leveraging the social support potential of social media is an important component of successful social media-based health promotion (Cole *et al.*, 2017). Social media-based health promotion can be a powerful assets-based approach to enact an agenda of Indigenous self-determination and empowerment, aligned with Indigenous notions of health (Sweet *et al.*, 2015; McPhail-Bell *et al.*, 2017).

This paper draws on data from a larger research project to investigate how social media can be used effectively for Indigenous tobacco control in Australia. The first of four discrete studies within the project, it aimed to understand what types of health content are being shared and reaching people within their 'natural' social media networks, as well

as how people engage with, and are influenced by, health-related information in their offline life.

METHODS

A grounded theory approach was used, adapted from the Charmaz iteration (Charmaz, 2014). Data included content collected through social media networks and participant interviews and discussion in order to situate online engagement within the offline social context of participants (Baym, 2010; Giles *et al.*, 2015).

Participants, locations and sampling

Community-based peer researchers (hereafter referred to as participants) were recruited from three sites comprising urban, rural and remote communities in the Northern Territory (NT), Australia. The NT is a large sparsely populated territory, with a population of approximately 240 000, of which 30% are Indigenous. To be eligible for inclusion, participants had to (i) identify as Aboriginal and/or Torres Strait Islander, (ii) be a regular user of social media and (iii) have a significant proportion of their social media network comprise people with whom they had regular, face-to-face contact. Social media platform(s) were not specified. We aimed to achieve a sample with maximum variation based on age, geographic location, interests, education level, employment type and gender.

The study was advertised through social media networks of health services and Indigenous community organizations. Interested potential participants completed an induction session provided by two members of the research team. It included information about research ethics, the research institution and team, what was required of participants, and measures to ensure participants' well-being throughout the study. An overview of content that could be considered health-related was included, based on a broad definition encompassing social determinants such as housing, racism and culture. Participants were asked to commit 3 h per week for a period of 8 weeks, plus participation in a project meeting after data collection and initial analysis had been completed. Due to the extensive engagement required, participants were employed as casual research assistants.

Ethics

The Human Research Ethics Committee of the Northern Territory Department of Health & Menzies School of Health Research and Central Australia Human Research Ethics Committee approved the study. Written consent was obtained from peer researchers who elected to participate after the induction session. Participants were free to withdraw at any time without penalty. For

people within the participants' social media networks, passive consent was used, as active consent was impractical, and posts on social media are public or semi-public. Prior to commencing data collection, all participants posted an announcement on their social media profile informing their networks about the study and providing an opportunity to opt out of having information collected about any of their online interactions.

Identifying information such as names and profile pictures (both participants and people within their networks) was removed from all data during analysis. Pseudonym codes have been used for direct quotes in this article.

Data collection

Two methods of data collection were used: (i) participants monitored their social media networks for health-related information on their feeds (including content from friends, as well as news or sponsored posts), took screenshots and sent them to the investigator team for analysis, and (ii) participants were interviewed regularly (weekly if possible) in order to understand their perspectives about why they considered the content health-related, how they responded to it, and the context of it being posted; for example, their relationship to the person who had posted it, whether the content related to specific experiences and shared interests, and whether it generated online and/or offline interaction. With participants' permission, interviews were recorded. All interviews were conducted by MH and VK. Data collection occurred from May to August 2016.

Participants were encouraged to include any content that they considered to be relevant to their own health and well-being, and that of their family, friends and community.

Data analysis

Data analysis was iterative and participatory. Two investigators MH and VK assigned initial codes to content in screenshots on a weekly basis; these were clarified and confirmed or revised in participant interviews. Detailed notes were taken from each interview. At the conclusion of 8 weeks of data collection, codes were compared across all screenshots and interviews to develop initial categories for each participant. We then conducted individual reflection discussions with each participant to report back our initial analysis and test emerging categories. Data from all participants, including the reflection discussion, were then collated and compared to further develop and refine categories. This preliminary analysis was presented to a face-to-face meeting for validation and further refinement. All participants were invited to attend, together with the project partners and all study investigators.

RESULTS

Twenty participants were employed at the start of the study; 16 completed the full 8 weeks of data collection and 11 participated in the project meeting. Individual feedback was provided after the meeting for participants unable to attend, with the opportunity to provide further input into the initial analysis and findings. The youngest participant was 18, the oldest over 60. Most participants (20) were female and three were male.

Most data collected came from Facebook. Three participants used both Facebook and other platforms; two used Instagram, while one used Instagram, LinkedIn, Tumblr and Twitter. Overall, the content was similar across platforms; however participants tended to use other platforms for professional use, in contrast to Facebook, which was used for a mix of personal and professional purposes. For the two Instagram users, it was largely related to a creative professional identity and treated as a platform for publicizing their work and connecting with other professionals in their field. The participant who also used LinkedIn, Tumblr and Twitter found similar content across all platforms and reported typically using the other platforms to source content for professional use, as well as sharing information about specific issues. Due to the small amount of data from other platforms, this paper focuses on Facebook.

Screenshots of 1178 posts were received from participants, covering a variety of topics. Participants reported noticing a significant proportion only due to their role in this project; these posts generated little or no engagement. The regular interviews with participants assisted with sorting these posts, which were essentially treated as 'wallpaper' on their feeds, from those that were meaningful and generated engagement. The themes presented here only represent content which generated engagement and/or influenced participants' knowledge, awareness and behaviour related to specific health-related issues.

We identified two broad themes: typologies of users, and health content areas. Underpinning these themes was how people projected, developed and refined their Indigenous identity online. An additional theme was the interplay between online and offline interaction.

User typologies

All participants were frequent social media users (typically multiple times daily), however the nature of their engagement varied considerably. Six broad user types, based on their level of engagement, are described below from lower to higher levels of engagement.

Observer

These users rarely liked or shared content and were unlikely to create their own posts or content. They gave few visible signs of engagement, although they did occasionally read or watch content with a headline or photo that caught their attention. Observers used social media in a similar way to which they might skim a magazine or newspaper during spare time; often social media had significantly displaced other media consumption. While their overall engagement was low, some used Facebook as a communication device—for example, using messaging apps instead of text messaging.

I don't normally click on links of photos . . . I think it's just not really worth it . . . [it's spam] because they only just want you to like the page and buy their products . . . I really only use [Facebook] as a way to contact friends and family, and I don't really post a lot. (D01)

Notably, these users were all younger participants in our study. Their engagement with the study mirrored their overall low social media engagement; they tended to collect fewer posts than other participants, and interviews elicited thinner data than from older participants.

Post sharer

These users were similar to observers in terms of the depth of content engagement, however they shared posts regularly. Post sharers saw this as a way of raising awareness and sharing potentially important information with their networks. Decisions about what to share were often based on headings and/or attention-grabbing words and phrases—frequently they did not read or view information before sharing. These participants tended to have a wide range of interests, reflected in the range of content shared, and social media was an important source of information.

I've learned a lot . . . off social media . . . it's like you're doing your own research and you don't even know you're doing it . . . I like to share it because I want other people to be aware of things as well . . . Indigenous people with disease, chronic health issues, there's some things that Indigenous people don't even realise that you know that if they're eating this or drinking that, they don't realise what it's actually doing to them . . . I like to share those things . . . about diabetes and all of that sort of stuff. (D06)

Positive supporter

Positive supporters were more purposeful in their sharing and engaged more deeply, particularly with personal content, in a way that was supportive to their contacts.

Online engagement was usually subtle, and sometimes simply a case of liking something positive in order to show approval. An example was participant A05, who discussed liking a post that was inspirational for Aboriginal people in her area, and featured a positive role model:

He did really well in the (international) marathon and he still campaigns for it . . . I always like those sort of posts, I think it's a really good opportunity, what they do for the Indigenous marathon – I just never thought it would be possible . . . our mob to go to the event.

Conversely, it could also be a matter of withholding likes and refraining from commenting on content of which they disapproved. A03 discussed her attitude towards alcohol in a context where many within her social circle posted about heavy drinking when socializing. For her, it was important to not react and tacitly enforce these social norms she perceived as harmful, particularly for friends who were parents of young children:

. . . You just think to yourself when are they gonna grow up? Go home and look after your children and show them right ways of life.

Educator

People in this category actively sought out knowledge and information to share with, and educate, others. They also used social media as a source of information for self-education. Educators tended to be more discerning about the type of content shared (and received), and more actively 'curated' content on their feeds. Typically, their interests were more focused and specific than the previous three categories.

There are things that I'll explore, I guess, there are things that come into my awareness because of Facebook . . . I probably have quite strong philosophies . . . thinking about and observing different things . . . they add to or might be something that opens up an idea . . . (A04)

Expert

Participants in this category did not self-identify as experts; rather, it was that they displayed caution about what they would comment on or share. For experts, there was a sense that you need to be qualified (formally or informally), to try and influence or share knowledge; having credibility was important. This was true for both the sources disseminating information, and for the participant sharing it. Credibility came from having direct experience and personal knowledge of an issue.

If it's something that I've experienced (like mental health issues) I'm happy to 'cause I know what it feels like ... obviously want people to feel better about it ... but when it comes to stuff that I haven't got experience in ... I don't feel like it's my place ... (D03)

Influencer

Influencers actively challenged social norms and injustice and raised issues with the intention of creating social change. Often they were advocates for specific issues, and their posts were strongly political. These could be local issues affecting specific communities or people directly, or broader structural or systemic issues which affect Aboriginal and Torres Strait Islander people. Influencers were typically focused on a narrower range of issues. In contrast to the other typologies, which were often connected with personal identity, there was little distinction between their personal and professional on-line identities.

I've written up this big article on my Facebook page [about an issue affecting wellbeing of my community and family] and a lot of media picked it up and ran with the story and [authorities rectified the situation] ... I see it as a positive thing – whatever I post, people take notice. (D02, uses Facebook for both professional and personal connections)

Give me a marginalised population and I'll be on their side ... you know I obviously care about those populations and their rights and I will always promote that. (D07)

Fluidity and mobility between user categories

Participants broadly aligned with one of the six user types. However, these typologies represent a continuum of overlapping rather than distinct categories; there was considerable mobility between categories, and some participants fitted multiple categories that varied according to specific health content. For example, one participant was willing to become more of an influencer in relation to nutrition if provided with appropriate knowledge and support, both for improving personal health habits and also to provide credible information to others. This participant fitted the expert category for information about mental health issues due to personal experiences of depression and anxiety but reluctant to share information about nutrition, despite considering it an important issue:

... I don't know enough about [nutrition], and I'm not comfortable talking about something I don't know much about. But when it comes to mental health, having gone through it ... it makes you feel a bit more comfortable expressing yourself and giving people your

experiences ... I don't feel comfortable if I don't understand something or I haven't been through it. (D03)

Other participants displayed a similar willingness to move between categories for some health topics.

Health-related content

Content ranged from typical health-related issues such as mental health, diet, alcohol, smoking and exercise, through to a range of broader social determinants of health. These included Aboriginal culture and connection to country, the importance of language, bush tucker, celebrating positive Aboriginal identity, and the pervasive and corrosive impact of racism and trauma. Overall, the broader social determinants were more prominent than content related to health behaviour risk and diseases, which is more typically the focus of health communications. Among these health posts, mental health and diet were more prominent than posts about alcohol, smoking or physical activity. Posts about smoking were particularly limited; this may have been influenced by the fact that many participants were smokers.

Mental health and well-being

Mental health was the most prominent of the health risk behaviour/disease topics. Almost all participants collected posts about issues such as stress, anxiety and depression, suicide prevention and links to mental health service providers. In interviews, several participants related their own experiences of mental illness and the influence this had on wanting to ensure that others in their network felt supported and aware of services. This was true for general mental well-being and also during specific events that were potentially distressing:

I was going to go on the page earlier on ... to share the stuff because of Don Dale* as well, that's originally what I was looking for and then I got that news (about an old friend who had suicided) and I thought ... we have to keep on sharing this stuff to get the support out there to everyone. (D05)

(*Don Dale refers to a news story about Indigenous young people being mistreated in juvenile detention, which received widespread coverage at the time).

In contrast with some other health issues, most participants felt comfortable sharing mental health posts, which were perceived as unambiguously supportive, and did not generate concern about the potential for being 'preachy' or judgemental. This contrasted with health behaviours such as alcohol consumption or smoking, which participants identified as having significant potential for personal blame and/or stigmatization. At the

project meeting, several participants highlighted mental health as a particularly important issue. The difference with other health issues was discussed in-depth, with general agreement that mental health issues were something experienced by most people.

I've had two family members commit suicide ... just raising awareness to people that if they feel like they are stuck there is so much support out there for them as well. (D06)

Food and diet

Prominent in the data were a range of food posts. These included styled photos of dishes from recipe books and websites, sponsored posts by fast-food chains, and humorous memes about differences in food consumption based on 'pay week' and 'non-pay week'. Screenshots of styled food posts initially appeared to be more about home cook aspirations than health or nutrition, however interviews revealed that recipes were often bookmarked and used by participants as nutrition ideas for managing conditions such as type II diabetes.

She inspires me ... when it comes to cooking and doing something healthy to change her family's eating habits. (D04, discussing a cousin whose posts help her to change her family's diet to manage health issues).

Posts about Aboriginal friends and family hunting and consuming bush tucker were also prominent. These were strongly tied up with Aboriginal identity and well-being, connected with the desire to actively practice and ensure cultural survival, and preserve (or restore) connection to country, for both physical and mental well-being:

... when you look at colonisation and how that has impacted on the everyday lifestyle of an Aboriginal person ... an example would be with so much development going on nowadays you've gotta sort of get further and further into the bush to find the bush tucker. That affects your mental health too when you're eating all the wrong foods. (D04)

Conversely, several participants also acknowledged, and in some ways celebrated, a widespread notion of fast food as being connected with contemporary Aboriginal identity:

I understand the old KFC and Aboriginal connection ... In fact, I've been on the receiving end of many a joke about my love of chicken and how that's my cultural identity coming forth. (N02)

Aboriginal identity and celebrating positive achievement, confronting racism and negative stereotypes

Most participants shared examples of positive messages about Aboriginal identity, and discussed the importance

of celebrating culture, challenging negative media portrayals of Aboriginal people, and promoting cultural practice. As A04 noted when posting about a community festival, these types of posts were seen as important for collective well-being:

... it's about mental health, it's good for Indigenous people in community ... something uplifting to bring everyone together.

Similarly, D06 discussed the importance of disseminating good news, when sharing a post about an Indigenous medical graduate:

... getting the word out there, that our Indigenous people ARE becoming doctors and making community proud ...

While pride in Aboriginal identity and the desire to promote positive images were behind the above posts, anger at structural racism and the need to counter it was also prominent, as noted by D04, discussing a post about a high profile case of an Aboriginal teenager killed by a non-Aboriginal adult:

Australia really needs to wake up and say well how is this acceptable for a white person to get away with this murder? ... Had an Aboriginal person committed that crime, my goodness! ... the law is racist ... it is designed to protect the majority which is white.

A recurring theme within Aboriginal identity and well-being was the importance of connection to country, and its impact on well-being:

Connectedness and being connected to your country is where we get our spiritual strength from so having access to our country is quite important to our mental wellbeing. (D04)

Intersecting with portrayal of Aboriginal identity was the extent to which participants reported being visually perceived as Indigenous by others, and how this impacted on their sense of identity and the burden of changing negative perceptions about Aboriginal people. A04, who posted regularly about Aboriginal issues and culture, explained the complex navigation of being between two worlds and identities:

... this shame, of knowing bits of my culture, but not knowing everything ... because we were (Nation), that was like we were one of the first peoples to get pretty much annihilated, and so there is a lot of displacement there. But my father also went and lived with mob for quite a few years, before I was born ... my brother looks like my father, so I was always jealous that he looked, I'm just going to speak in, possibly incorrect political terms, but I don't mind. He looks more Aboriginal,

much more Aboriginal than me. And there was just this thing of, ... not really fitting ... Because I don't really feel white on the inside ... how many times I've been asked how Aboriginal are you? So that brings me lots of shame.

Indigenous and non-indigenous views of health and medicine

Scepticism about, and questioning of, western 'white man's' medicine and the influence of corporate organizations on health and environment were significant themes. Several posts highlighted bush medicine and natural therapies as having a role in health and healing, which is often ignored or subjugated to dominant culture approaches. Alternative sources of news and information featured prominently, including sites such as WorldTruth.TV and others. Specific therapies featured included medicinal use of cannabis, alternative therapies such as lemon juice and turmeric for cancer, and questioning of mainstream public health measures such as vaccines.

Often the old wives' tales ... [are] tried and tested. It does work, the old wives tale.(D13, discussing a post about activating lemons' hidden cancer and inflammation-fighting powers by freezing them). I think we've created more diseases, so we need more pills to get more customers, make more money. That's how it works ... Before invasion ... we used to have a lot of good food, nobody had these sorts of diseases ... since invasion, we've accumulated a wealth of diseases that don't even belong to us ... the tablets that we're given now, our bodies aren't meant for those kinds of things.(D11, discussing a post called 'Truth about cancer' which suggests the pharmaceutical industry creates consumers rather than cures).

Community and family support, strong relationships

A striking aspect of much of the content and how people assessed whether to share posts, or how they responded to posts from others, was being supportive to people within their networks. Preserving relationships was prioritized, above challenging harmful behaviour or 'preaching' messages that may potentially help people. This contributed to maintaining social cohesion and demonstrated clearly how online interaction can influence offline relationships. Discussing the possibility of raising obesity with a relative, D03 explained why this was considered inappropriate:

I just wouldn't want to lose him out of my life ... it's fear of the unknown - what are they going to do, will

they hate me for life?... it's (also) like respect your elders kind of thing ... and saying that's gonna upset them ... it is a sort of a cultural thing I suppose.

There were also examples of people self-censoring due to the potential for lateral violence. N02 explained refraining from interacting with a Facebook post by a cousin about an abusive interaction with a partner:

... if I were to come in and try and be like 'you're better than this, get out' it's possible they'd actually turn on me. I've heard of instances among my family and other Aboriginal communities as well.

Family cohesion was seen as important to well-being—being alienated for inappropriately raising an issue that might cause offence could be more harmful than the negative impacts of health risk behaviours:

... that mental health thing of families getting along and spending time together, laughing together, eating together is positive. Even if it's bad food, it's just a good thing for your wellbeing, well for us mob anyway ... it's a hard thing trying to get that family and health thing on the same level. (D03)

As an Aboriginal person, staying strong is really important to be able to support and help my family though, whatever it is they are going through and myself as well, remaining strong and trying not to stress about things that are beyond my control. (D04)

In addition to maintaining relationships, several participants discussed the potential cost to their own well-being that could result from interactions about potentially contentious posts. A03 discussed having strong opinions about alcohol consumption during pregnancy but being constrained from posting about foetal alcohol syndrome to raise awareness or influence the behaviour of those within her network:

I would probably share something like that but [sighs ...] I just find it so draining to put on Facebook these days. ... the back and forth and you just - I mean even if you've got some really good things or - and they're all valid and stuff, just the negativity that you get ... I just can't stand it.

The interplay between online and offline interaction

Underpinning both user typologies and the types of health-related content was the interplay between online and offline interaction. For some, particularly those at the lower end of engagement, offline and online connections and identity were almost completely separate, with meaningful relationships confined to offline interaction. Others described online and offline interactions being

entwined and complementary, particularly those in the influencer category. These participants also tended to have less distinction between their personal and professional identity and networks.

For others, Facebook was an important connection to the outside world, due to circumstances that limited offline socializing. A07, who had made recently made major life changes, described how Facebook had become more important and partially replaced offline interactions:

When you're drinking, your focus is on drinking, you don't have time for Facebook. You have people around you, and you're talking to them instead of on Facebook. Now I've got more time ... when you give up drinking, you lose all your friends ...

D10, whose social interactions were limited due to chronic illness, Facebook was an important way to connect with people. It created meaningful engagement and a sense of being part of larger movements and common experiences:

... it's a way of communicating with people that I wouldn't normally be able to communicate with so easily ... On [social media] we get to see, first hand, other black experiences all over the world ... it's a global phenomenon ... I couldn't do that before Facebook.

Much of the supportive engagement was offline and therefore invisible; for example using Facebook private messaging, or contacting or visiting contacts directly. (Facebook messaging was treated as private communication; content from it was not included in the study). Public posts that raised concerns and generated offline engagement included a range of issues such as excessive alcohol consumption, illicit drug use or domestic violence, as well as general health-related challenges. In line with the prominence of mental health content, interactions were often generated around this issue:

... from what I see on Facebook she gets really down. So I inbox her, 'Hey what's up?' 'Oh I'm just not having a good day, and I don't know if you know but I've got really bad anxiety' and we just chat about that sort of thing. (A03, discussing responding to a friend's post about depression)

Posting information was also seen by some participants as an effective way to raise health issues that might otherwise be too sensitive to discuss directly and individually:

... I'm not directing it towards anyone or being personal, but anyone that might be in a situation where it might benefit them, so I'm not just thinking about one

person, I'm thinking about everyone in general...you don't get time to speak to everyone in person. (D06)

DISCUSSION

This study has examined health-related social media content shared in the networks of Aboriginal and Torres Strait Islander people in the NT, Australia. To the best of our knowledge, it is the first study to examine such content within natural networks, rather than evaluating engagement with purpose-created social media health pages and sites, and which also combines online data with face-to-face interviews to contextualize interactions. This facilitated an understanding of how people experienced the content displayed on their social media feeds, different types of users and the ways in which this impacted their offline health behaviour and knowledge. The need to study online interactions within the context of offline social contexts has been recognized by media and communications scholars (Baym, 2010; Giles *et al.*, 2015) but has not been widely taken up in health research.

The typologies of users we developed provide new insights for health promotion organizations using social media. Within grey literature about social media for business marketing, there are several examples of 'types of social media users', some of which have parallels with our findings (e.g. see <http://www.pamorama.net/wp-content/uploads/2012/06/Aimia-Social-Media-White-Paper-6-types-of-social-media-users.pdf>). Variations of 'Influencers' are typically identified as important to engage in social media marketing, due to their ability to achieve high reach and influence in target audiences/communities. Other research has typologized users based on engagement with specific health information and related it to offline support networks (Fergie *et al.*, 2016). Our study is the first to develop typologies based on interaction around broad health-related content within existing networks. An important finding, and opportunity for health promotion, is the fluidity of user typologies and the willingness of participants to move between different categories for specific health issues, given the right support and information.

Our finding of the prominence of mental health posts, and interactions these generated, aligns with previous studies examining use of social media to promote Indigenous health (Sweet *et al.*, 2015), as well as results from a 2016 study of Australian public health organizations' Facebook pages (Kite *et al.*, 2016). It found that four of the five most liked pages focused on mental health issues. While that study examined the features of posts that generated high online engagement and noted

the very active social media presence of mental health organizations in Australia, this study examined both on-line (visible) and offline (non-visible) interactions. Our findings demonstrate that personal experience, high levels of concern about mental health, and the perceived lack of stigma and blame, were important motivators for engaging with and sharing mental health-related content. This provides important explanatory context which may explain why mental health-related posts gain more traction compared with other health related posts.

The findings related to food and how content was both used for practical purposes to improve diet, humorously acknowledge unhealthy eating, and the importance of diet in culture and identity, provide insights for how health promotion messages may need to be shaped for social media. Integrating messages with cultural identity and aspirations, taking into account Indigenous views of health and medicine should be prioritized. Connecting content to awareness of health issues which have high prevalence among Aboriginal and Torres Strait Islander people is also likely to assist with achieving both reach and influence. For other health issues, concern about shame and stigma are significant barriers to achieving reach, as suggested by the low number of posts about smoking. These results suggest that confronting negative messages, which have a strong evidence base for use in mass media campaigns in areas such as tobacco control (Durkin *et al.*, 2012), may need to be adapted for social media. Further research is needed to understand how messages focused on these topics should be framed to achieve wide reach and influence through social media.

An important finding in this study was how Facebook is used by Aboriginal and Torres Strait Islander people as a supportive online environment, which increased real-world social capital. As in recent research examining help-seeking and giving behaviour on social media relating to suicide and self-harm (Carlson *et al.*, 2015), when calls for help were posted on Facebook, it often generated both online and offline support. We also found a high level of concern and sensitivity in terms of preserving relationships and avoiding the potential for lateral violence. This support contrasts with research which has found examples of lateral violence on social media, particularly around policing of Aboriginal identity by other Aboriginal people (Carlson, 2013). The real-world experiences of research participants relating to the ongoing impacts of colonization, structural discrimination, marginalization and their fight to keep culture alive, was found to be in contrast to the positive experiences on Facebook. The primacy of relationships online provided important collective support

and reinforcement of Indigenous identity in this context. The importance of building on positive narratives and Indigenous identity supports findings from previous research which highlights the need to ensure a safe, inclusive space, centred on Indigenous notions of health and identity (McPhail-Bell *et al.*, 2017).

A limitation of the study is the reliance on data collected and selected by the participants, which means that data has necessarily been filtered by their perceptions, ideas and world view. Tools that collect data automatically may provide a more objective picture of content that has been shared. For example, organizational Facebook pages have a range of analytic tools, which can track engagement even where people do not visibly interact with posts by liking, commenting on or sharing. Recent research using such tools (Beasley *et al.*, 2017) has provided valuable information about the types of posts that generate engagement, beyond previous research based on visible engagement (Kite *et al.*, 2016). However, a disadvantage of such tools is that the data are stripped from its contexts and how it is understood by the people exposed to it. A strength of our approach is that it facilitated an understanding of how health-related content was perceived and experienced in context.

CONCLUSION

Health promotion content designed for social media needs to take into account Aboriginal and Torres Strait Islander views of health and well-being, the importance of culture and identity and a recognition of the wider marginalization and discrimination, which threatens cultural identity. Approaches that build on the social capital generated by supportive online environments may be more likely to generate greater traction than confronting and emotion-inducing approaches used in mass media campaigns for some health topics such as smoking.

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