Research Article

Integrating ICTs in Communication Campaigns for Noncommunicable Diseases in the Pacific

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Abstract

Noncommunicable diseases (NCDs) impose a huge burden on the Pacific Islands region. Given that many NCDs are related to health behaviors, health promotion activities can play a key role in preventing and controlling the rise of NCDs in the Pacific. The expansion of information and communication technologies (ICTs) in the Pacific provides key tools that disseminate information to involve people in increasing NCD awareness. However, challenges emerge in the coordination and monitoring of such campaigns. This article examines the integration of ICTs in NCD awareness campaigns. The authors draw on data collected in the PACMAS State of Media and Communication Report 2013, undertaken across 14 Pacific Island nations. In this article we examine the challenges Pacific Island countries face in coordinating their response and discuss a variety of ICT initiatives currently underway in countries across the Pacific to inform and assist further the planning and design of health promotion strategies.

Introduction

The Pacific Islands face a health crisis fuelled by the increased prevalence of noncommunicable diseases (NCDs) such as diabetes, obesity, and cardiovascular disease. Today, over 70% of deaths in the Pacific are estimated to be due to NCDs. Many occur prematurely (before age 60) and many are preventable. Given their chronic nature, these conditions are often responsible for imposing a heavy economic burden on households and government budgets alike. This situation is exacerbated by the growing prevalence of NCD risk factors such as sedentary lifestyles and the consumption of unhealthy products (e.g., tobacco and alcohol) and unhealthy diets (due to the decline in access to locally grown fresh foods and the increased consumption of processed and imported foods high in salt, sugar, and fat).

To help curb and, eventually, reverse these trends, communities require adequate health education and awareness around these health issues, which present various challenges in the Pacific Islands (Tacchi, Horst, Papoutsaki, Thomas, & Eggins, 2013). Much of the growing NCD burden is preventable, and health promotion activities can help ensure that communities and individuals take an active role in reducing the burden of NCDs. Given that NCDs often impact long-term illnesses and that prevention calls for a long-term commitment to shift lifestyle habits, there is a need for individuals to take an active role in their health.

The increase of information and communication technologies (ICTs), in particular mobile technologies,

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presents an opportunity to provide people with health information and assist them in monitoring and managing their own health. However, the recent literature on ICTs for NCDs highlights the need to recognize these tools as supplementary to existing health systems and not as a panacea for NCD prevention (Lewis, Hodge, Gamage, & Whittaker, 2012; Umali, McCool, & Whittaker, 2016).

This article explores perceptions around NCDs in the Pacific and examines the use of media and communication, in the context of specific cultural and social environments, to draw conclusions about the integration of ICTs in NCD prevention in the Pacific Islands through the application of Servaes and Malikhao's (2010) model for health communication for health behavior. While ICTs show great potential for helping curb the NCD crisis, their integration within health systems, continued monitoring and evaluation of health services, and understanding individuals' access and levels of digital literacy are crucial considerations when applying ICTs to NCD interventions.

NCDs in the Pacific and Health Communication

A 2011 United Nations high-level meeting brought to the world's attention the serious global challenge posed by NCDs. Although the understanding of the epidemiology of NCDs in the Pacific Island region is limited by the lack of complete data, available evidence and estimates reveal an alarming rate of chronic conditions such as diabetes, obesity, cardiovascular disease, and some cancers. In particular, there has been a marked increase in diabetes over recent years, and according to recent estimates by the Global Burden of Disease is consistently ranked the first- or second-largest cause of life-years lost in most Pacific Island countries (Murray et al., 2015).

Tobacco, physical inactivity, alcohol, and unhealthy diets comprise the leading NCD risk factors. For this reason conditions such as diabetes, obesity, cancer, and cardiovascular disease are often referred to as "lifestyle diseases." However, the NCD problem is not simply the result of peoples' individual choices.[1] Many factors impact one's ability to make healthy choices, and many barriers exist that can limit one's access to a healthy life. For example, access to fresh foods for many urban populations in the Pacific is limited. The only alternative for many is imported and highly processed store-bought foods, which contain high levels of trans fats, salt, and sugar. These harmful products are made desirable by large-scale marketing campaigns and social and cultural preferences. This situation is further compounded by the relatively low prices of these products made possible by local trade agreements.[2] Even where legal frameworks exist to limit exposure to harmful products, there is little capability to ensure that policies are implemented. NCDs pose a complex challenge for countries and require a multisectoral approach that engages all levels of the Pacific population.[3]

In addition, when considering health communication in this region, one cannot ignore the importance of geography, population, technology, and sociocultural factors as they affect information infrastructure and flow, access, participation, affordability of local content production, and other important elements in health awareness and prevention. With populations ranging from over 7 million in Papua New Guinea (PNG) to fewer than 1,500 in Niue and geographies stretching from Kiribati's 33 low-lying coral atoll islands across 3.5 million square kilometres of ocean to Nauru's one island of 21 square kilometres, it is clear that each country has its own, unique challenges and opportunities relevant to health communication (Tacchi et al., 2013). However, sharing experiences of ICT use across the region is valuable for building a better understanding of how to develop effective NCD health communication strategies in the Pacific.

ICTs and mobile communications in the region have increased, and many hope it will improve the progress of health communication. ICTs can be employed to provide information across geographical boundaries and increase health literacy among people. While there is limited data available on health literacy in the Pacific (ECOSOC, 2010), there is an increasing number of evaluations that review the use of ICTs in health promotion activities (Loring et al., 2013; Umali et al., 2016) and digital health literacy (Sauni & Neal, 2012). However, many projects in the Pacific, especially in mHealth, have been small-scale and predominantly pilots (Umali

1. http://www.worldbank.org/content/dam/Worldbank/document/the-economic-costs-of-noncommunicable-diseases-in-the-pacific-islands.pdf.
2. http://apps.who.int/medicinedocs/documents/s19108en/s19108en.pdf.
3. http://apps.who.int/medicinedocs/documents/s19108en/s19108en.pdf.

et al., 2016), and the quality of ICT-based health promotion activities varies. It is therefore useful to review the use of ICTs within existing health communication frameworks to assess their potential and contributions to the field.

Servaes and Malikhao (2010) have proposed a model of five levels of health communication for health behavior: (1) behavior change communication, (2) mass communication, (3) advocacy communication, (4) participatory communication, and (5) communication for structural and sustainable social change. While levels 1, 2, and 3 rely on interpersonal and mass media communication, levels 4 and 5 are orientated toward participatory communication approaches and community media. It is increasingly recognized in the health communication field that communication strategies for social change are needed that address not only individual behavioral change issues but also structural and systemic inequalities (Dutta, 2011). Given that NCDs and their risk factors are tightly entwined with the social and cultural practices and the ways in which communities perceive unhealthy lifestyles, communication strategies must be able to address these issues while also exploiting modern ICTs to reach vulnerable individuals and communities (Martin-Moreno, Apfel, Sanchez, Galea, & Jakab, 2011).

Methodology

This article draws on research carried out through the PACMAS[4] State of Media and Communication Report 2013, which documented the state of the field of media and communication across 14 Pacific Island nations. One of the focus areas included a review of media and communication content associated with NCDs. The primary research methods for the study included desk-based research, 212 stakeholder interviews, and a verification of survey findings with Pacific media and communication experts who provided a panel of expertise. The key participating research groups targeted in this project were public health ministers, practitioners, researchers, and media representatives for the purpose of generating information about the key issues concerning NCDs, how they are communicated, and what the issues of awareness and advocacy are. The questions and findings were grouped thematically by NCD issues, communication of issues, advocacy and awareness, and communication training. The research was guided by the concept of communicative ecologies that deliberately encompasses all forms and modes of communication, including community radio, ICT initiatives, and processes such as community dialogue, along with more traditional mass media (Tacchi, Slater, & Hearn, 2003). Given the rapid technological development, further desk-based research was undertaken, with a specific focus on the use of ICTs for NCDs.

Issues Affecting NCD Communication in the Pacific

Findings from this research provide several insights into local contexts, issues, and challenges, but also local initiatives that present best practice examples. To better understand how ICT uses can be employed in the Pacific Islands context, ICTs must be seen within the wider communication context and challenges. In this section, based on some of the key findings from the PACMAS baseline research, we explore people's perceptions of NCDs and their experience of health issues and risk factors of NCDs. We also examine the current communication strategies employed by Pacific governments to identify areas of challenge regarding policy implementation and communication with key stakeholders and citizens as well as media practices that can play a key role in understanding NCDs.

NCD Perceptions and Awareness

Servaes and Malikhao (2010) point out that an understanding of the health issue itself and how it is affected by individual behaviors, policies, and environmental factors is a necessary first step when designing health communication initiatives. We explore here respondents' key understandings of NCDs and highlight some of the challenges.

There is an apparent and growing recognition among Pacific Island populations that NCDs are a serious

4. It covers 14 Pacific Island Forum member countries: Fiji, PNG, Solomon Islands, Vanuatu, Cook Islands, Niue, Samoa, Tonga, Tuvalu, FSM, Kiribati, Marshall Islands, Nauru, Palau.

public health problem. "Diabetes is affecting younger groups now. . . . [It] usually affects those in their 40s and 50s, but recently 48% of the population aged 30+ are affected by diabetes type 2" (Interview, Kiribati10). One research participant described a "decline in the productive population" (Interview, Solomon08) and discussed cases where people's employment was terminated because of an NCD illness.

While, on one hand, respondents made it clear that the burden caused by diabetes was felt in Pacific Island populations, it was also noted that the causal link to risk factors was not clearly understood. Indeed, diabetes was seen as inevitable and perhaps part of aging:

> Everybody thinks [diabetes] is a natural death instead of something that is preventable. I think that's where we have problem [in] health services addressing it. . . . It's only us that . . . are thinking that it's a crisis, but the community's accepting it. (Interview, Marshalls07)

One of the primary reasons diabetes is such a problem in Pacific communities are the recent and drastic changes in dietary patterns, from a diet of predominantly fresh vegetables and seafood to one dominated by sugars, oils, and fats. A number of research participants expressed a belief that communities need to re-learn how to cultivate healthy produce, while others asked for intensive training to target lifestyle choices and changes and to teach people how to self-manage their health.

Regular communication and reminders can address the challenge of some habitual activities among individuals; however, legal regulations and trade agreements control what is available and can be consumed in each country. As a result, Pacific countries struggle to implement changes in these areas. Although all 27 countries of the Western Pacific have signed the WHO (World Health Organization) Framework Convention on Tobacco Control, tobacco laws have not been successfully implemented or regulated. As described by one participant:

> If you walk into any shops and just ask for a single cigarette, they are not supposed to sell it. It's called *pid* in the Nauru language and [if] you say, "Give me a pid," . . . without hesitation they will give you a single cigarette. That's against the Tobacco Act. (Interview, Nauru09)[5]

Cultural customs regarding products such as betel nuts and tobacco add another level of complexity that should be addressed in developing interventions and communication strategies. For example, in Kiribati there is a relatively new custom of buying cigarettes as a gift when visiting friends and other villages. "When you visit a community, you have to bring tobacco products as a kind of token of appreciation for accepting you to come" (Interview, Kiribati10).

In addition, health communication and behavioral change campaigns are only part of the solution. "It is one thing to know, and it's another thing to take action and be diligent in health" (Interview, Palau07). Before media and communication campaigns can be implemented it is important that communities understand the risk factors and how they can be controlled.

> There is a real need to connect like economic security with health security because if you ask a woman, "You got two dollars. What are going to buy, some fresh vegetables?" [she replies,] "No, I'm gonna buy noodles or bread cause I can feed more people." . . . The lack of women's access to land means she can't just go and start planting. There's awareness that's out there, [it] just needs to be connecting more with people. (Interview, Fiji5)

Managing local perceptions and changing daily consumption patterns while structural inequalities exist present two of the greatest challenges. Perspectives presented here demonstrate that the issues of NCDs are not simply a matter of individual choices. Cultural norms and limited access to healthy diets play central roles at both the interpersonal and community levels.

Understanding Challenges to Existing Media Awareness Campaigns

Key to establishing media and communication strategies with regard to national health issues are government departments guided by national health strategies. Apart from Pacific regional initiatives implemented by WHO

5. Small local shops have adapted to low-income shoppers.

and the Secretariat of the Pacific Community, many Pacific countries recognize the urgency of addressing NCDs through their respective national health departments. Pacific Island countries have made significant progress in putting strategies in place to address NCDs; however, coordination of these approaches has presented challenges in some countries.

For various reasons, strategies specific to NCD information and communication are currently lacking in the Pacific. As one respondent from Vanuatu commented:

> I would love to see our communication aspect of NCDs to be addressed. To get our messages across and to get people being informed early. . . . Our main thinking around NCD policies, what we have now is around the prevention of NCDs as well as early detections and the surveillance aspect of the program. (Interview, Vanuatu09)

While training workshops for journalists have been held in Vanuatu, cost issues restrict public dissemination of NCD information. News stories are free, but advertisements and promotional activities are costly. One participant commented on the media's ineffectiveness and lack of prioritizing funds for NCD awareness:

> I believe that a lot of them are aware of NCDs. I think what the challenge is, especially for . . . the media organizations that have a national reach is that they're not well run. Mainly it's the government owned. . . . It's very heavily politicized. . . . The resources are not allocated to priority needs of the country, which means that even though they have an awareness of these issues they are not . . . using media effectively to get the information out to people. (Interview, Vanuatu05)

Implementing information and media strategies does not only require an understanding of the NCDs issues, but also the media and communication landscape and how audiences can be reached and participate in the NCD conversation. Geography and lack of infrastructure present major challenges in the region. Further, the relationship between government departments and media can present challenges, according to research participants. In FSM, for example, relationships between government agencies and media are dispersed, which limits the effectiveness of NCD communication:

> We really don't have a program that [is] solely doing media and/or awareness program. The setup here is each program has their own way . . . of dealing with the media when it comes to awareness. . . . When they have a campaign they have to organize themselves and come up with a plan and then implement it. (Interview, FSM07)

Most government health departments in the Pacific use mass media to disseminate NCD information. In the Marshall Islands the Youth-to-Youth program, which engages youth as peer educators, has a weekly 30-minute radio show on V7AB, which is a good example of reaching a targeted audience with relevant messages. In Niue, a small island of just over 1,500 inhabitants, grassroots health activities are said to rely on notice boards, village meetings, and word of mouth (in person and by phone). Advertisements about NCD prevention (antismoking, promoting physical activity) are often played during big TV sporting events such as All Blacks rugby games. Some advertisements are locally produced, but the associated costs are an inhibiting factor for local content production. A number of NCD initiatives exist, including the *Atuhau Moui olaola* (Healthy Village Initiative) youth health campaign, Let's Beat the BULK (about community weight loss), and Toxic Free Foods (promoting local, organic fruits and vegetables). Interviewees frequently noted that community-led initiatives were effective in addressing the challenges and constraints experienced and, as a result, are more likely to develop relevant local solutions.

The Cook Islands Ministry of Health runs campaigns and regularly provides information on health issues and NCDs in a variety of media outlets using a combination of paid and unpaid reporting, "They are very expensive and we have a small budget for promotional work. But they have been very helpful" (Interview, Cooks02). The media outlets also describe ongoing engagement with NCD issues, with regular coverage. The Pitt Media Group/Elijah Communications reported the regular production of programs on NCDs, including documentaries:

> As far as community awareness of NCD is concerned, we do most of that. Not just one person. You know, it's the whole team. One goes to the radio, one goes with the group to see another group and talk about it. (Interview, Cooks07)

In addition, Matariki FM radio sets aside an hour a week to delve into health issues such as NCDs.

The Tuvalu Media Department has developed some interesting communication initiatives relating to NCDs. Most notable among these is a radio drama series that incorporates NCD themes. In addition, both the Department of Health and Tuvalu Family Health host regular radio programs. Several interviewees identify the radio station as playing an important role in NCD awareness. Nonetheless, although most respondents agreed there is a general awareness of NCDs among the population and media practitioners, campaigns were not leading to change: "Sometimes we do a lot of awareness program[ming], but people seem not to take notice of what we are doing" (Interview, Tuvalu07). Currently health departments face a number of challenges when working with the media, including the high costs of disseminating information and reaching audiences. Overall, health departments often do not consider it a priority to develop media at a community level, preferring to focus on mass media approaches to information dissemination.

Opportunities for ICTs to Contribute to Health Communication Strategies

ICTs have entered the region's communication landscape, although in many places their effectiveness is hindered by issues such as power supply, unsuitable climate, and a lack of maintenance and repair capacity (Duffield, Watson, & Hayes, 2008). ICTs are used in health communication as monitoring systems and in disease prevention and management among end users/patients. In addition, specific to NCDs, it has been pointed out that communication efforts are crucial in raising awareness around and complementing legal interventions and design messages for various stakeholders, including decision makers, industry, and the public.[6] In this section we identify some ways in which ICTs have been adopted in health communications to reflect the needs of Pacific Islanders and focus on issues of participation. Although ICTs are used in health administrative systems and for treatment, here we focus on their contribution in raising NCD awareness.

Recent studies have indicated that although ICTs are increasingly relevant to people's day-to-day lives, they are still underutilized for development, despite presenting significant potential. In the Pacific overall, according to International Telecommunication Union (ITU) statistics, around 60% of the population in 2012 had access to a mobile phone, compared to only 10% in 2006 (ITU, 2012). In places such as PNG, where radio has been a dominant and effective platform, recent studies suggest that more households now have access to mobile phones than to radio (Cave, 2012). In fact, research shows an increasing trend in the use of mobile devices to access radio programs (ABC, 2012; Cave, 2012). Mobile phones can be used for voice calls, text messages, and data transfers through tailor-made applications. As a result, mobile phones are considered the most promising platform for promoting health (Vital Wave Consulting, 2009), with mHealth applications providing access to health services and information (Umali et al., 2016).

Access to mobile communication varies in the Pacific, but in countries that have a high level of individual mobile phone ownership, governments and organizations have used mobiles to deliver health-related messages. For example, in Palau mobile phones have been used strategically to communicate with people who are difficult to reach, either because they live on outer islands or they are busy. According to one respondent, a key campaign focused on sending positive and encouraging health messages to people. Texting was used initially to connect with people, and small incentives were offered. Once connected, messages were sent for both information and feedback.

> We'll engage with them with some small incentive, ask them a couple of simple questions, then ask them to send us a text later if they found any of the information useful that we were providing to them. (Interview, Palau09)

According to the interviewee, mobile phones provide a cost-effective way to disseminate and create a feedback loop for ongoing monitoring and evaluation. Interacting with end users can take the form of testing their

6. http://www.oneillinstituteblog.org/tackling-ncds-a-public-health-lawyers-essential-partners/.

medical knowledge, providing screenings for NCDs such as cardiovascular disease, conducting contests and polls, distributing games based on healthcare campaigns, and providing remote counselling (Déglise, 2012; WHO & ITU, 2012). The campaign was considered a success in Palau because it reached many people outside the main center and it was possible to undertake this initiative as "practically everybody in Palau has a cell phone" (Interview, Palau09).

Similarly, Tonga has a high level of mobile phone ownership and mobile coverage. A partnership with the Department of Health and the mobile phone company Digicel was developed to use Digicel's marketing channels. According to a Digicel representative, there is "a base of people that use their phones, so . . . we have an immediate opportunity to communicate" (Interview, Tonga06). The idea was to reach people via text message to increase conversations about and awareness of NCDs, in particular, obesity:

> Whenever we do a text blast it goes out to about 40,000 people daily. Now, we have at our resource the opportunity to send that three times a day. Also, every time someone checks their balance, which is up to 6–7 times a day [. . .], we have an opportunity of a 110 characters to promote our health message. (Interview, Tonga06)

Messages were written in the Tongan language, focusing on aspirational and educational messages, with a call for action, and were made available to people at no cost. An outcome of the campaign was that Tonga Health and Digicel were able to access data about the participants, their geographical location, and gender. There was also an opportunity to directly follow up with participants for further monitoring and evaluation and to learn what was required for people to continue their participation:

> Allow initiatives around NCDs and other health initiatives to (a) promote a messages, (b) understand why people are availing of a message, and (c) how you can sustain it because you've got phone numbers there, you've got stats that you will be able to get, and you can ask the consumer, "Do you want us to contact you again?" And you can do outbound call campaigning to get more information so that you can get a real set of data that allows you to go back to get more funding from stakeholders and say, "This is what we did; this is what we deployed; this is the feedback; and this is what we need to sustain this; and here are the stats to support that. (Interview, Tonga06)

A key benefit of the Tonga and Palau campaigns was the opportunity to communicate directly with individuals, unhindered by geographical boundaries, which is particularly important in the Pacific. The high literacy rates in Tonga and Palau (around 99%)[7] make mobile text campaigns relevant and useful. Literacy is a barrier in other countries, such as PNG, Vanuatu, and Solomon Islands, therefore limiting the potential of mobile text campaigns to reach the population effectively. However, sending health messages has proved an effective method way to create awareness by some Pacific Island countries.

While feedback on campaigns is undertaken, evaluations to understand the benefit to the larger community and long-term health benefits are still lacking (Loring et al., 2013), and in some countries mobile health programs remain at pilot stages, relying on investments from the private sector. Rolling out campaigns on a regular basis and nationally can still be costly, depending on the telecommunication agreements between the governments and private sector.

Private–public partnerships are generally considered important for small island states;[8] however, there are challenges to such collaborations. It is clear that in the case of Tonga, the collaboration was of mutual benefit as data provided was useful to both Tonga Health and Digicel Marketing. However, the rapid emergence of mobile network providers and their role as key service providers in some countries has led to higher expectations of what these companies can or should deliver rather than their governments. Private telecommunication companies therefore play a powerful role in providing a link to the population. However, while incorporating health messaging as part of their corporate social responsibility strategy, commercial companies are guided by commercial benefits and also partner with other commercial companies that might sell or promote products and services that are inconsistent with the health recommendations sent out, thus risking confusion for the

7. http://data.worldbank.org/indicator/SE.ADT.LITR.ZS/countries/S2-4e-VU-PW-PG-TO?display=graph.
8. http://unohrlls.org/custom-content/uploads/2014/08/Commitment_en_Summer14_rev.pdf.

general public and undermining the social contribution of the messages. With increased use of social media, youths are particularly vulnerable targets of product marketing campaigns.

> The awareness is going on, but the effectiveness of it is what I don't know because if you see secondary school students today they chew betel nut, they smoke cigarette, they drink alcohol, and I mean even they were told about HIV, you know. But it just doesn't seem to have any effect. I mean they just seem to have this I-don't-care attitude, you know, and just carry on with their lives, you know. . . . Today most people, I don't think most teenagers listen to the radio, they only listen to maybe FM stations where it's just music or with now Internet and Facebook and all these things, you know, they're just into [those]. (Interview, Solomons2)

This represents an inevitable paradox as the rise of social media brings about marketing strategies and increases customers' vulnerability. McCool et al. (2014) explore this with regard to Samoan youth and tobacco use. Youth are considered an easy target for tobacco advertising, and this is increasingly done via social media in the Pacific. As a result, private partnerships are guided by the public sector and not the other way around (Umali et al., 2016). At the same time, media literacy training is the key to working alongside health promotion campaigns so that apart from the content provided, consumers can critically distinguish between the sales and marketing activities of commercial companies.

The data collected as part of this study demonstrate that the use of ICTs in health promotion activities in the Pacific has focused on mobile technologies and individual users who use basic text and call functions. The following discussion highlights key points in the context of these tools for NCD health promotion activities.

ICTs in NCD Awareness Campaigns

Our findings demonstrate the complexities involved in addressing the NCD crisis in the Pacific. Due to the need to increase awareness of NCDs and given the strong communal and family ties in the Pacific, community-based initiatives, rather than individual approaches, are more likely to be effective (see Siefken, Schofield, & Schulenkorf, 2015). It follows therefore that communal approaches should be prioritized or used alongside individualized strategies. Once people are aware of the challenges of NCDs, they are more likely to participate in prevention or treatment via individual applications.

Apart from the need for education there is also a need to look more closely at existing structural factors. The social nature of NCDs and social determinants are key in developing health communication strategies (Martin-Moreno et al., 2011). However, most initiatives that integrate the use of ICTs predominantly employ individual interpersonal and mass communication. There have been fewer applications of participatory communication or communication for structural and social change. In reference to Servaes and Malikhao's model of health communication (2010), this suggests that while ICTs might be considered innovative tools, there is a lack of innovation in considering how to use ICTs for effective change rather than primarily for information dissemination. As highlighted by Norman (2012, p. 5), "The most substantial challenge for health promotion is not technological, but social."

Given the potential to create two-way processes with new technology, most campaigns have not seized the opportunity to employ technology to create ownership and participation among citizens. As much as social networks impact health behaviors (Martin-Moreno, 2011), it may be that ICTs as tools could work with social media and interactivity to increase effectiveness. Indeed, it has been argued that the advantage of ICTs lies in the potential to support interactivity and integrate audiovisual components (ECOSOC, 2010). It is through interactivity and linking people that health promotion activities can create stronger social networks for change.

Creating these interactive social networks presents a challenge in the Pacific for two key reasons. First, while technology is expanding, a large portion of the population can access only basic technologies. Continued access to online services remains challenging due to the high cost. Second, the findings indicate health communication practices in general have focused predominantly on the individual behavioral change model, using mass media strategies rather than community-based and participatory initiatives. Responses from people using ICTs are collected predominantly as feedback data. It seems that a greater understanding of participatory processes and of how to facilitate ownership among citizens could provide new solutions for the integration of ICTs in NCD health promotion activities.

In addition, the current challenges with the coordination of communication strategies are unlikely to be alleviated by increased ICT integration. Rather, these challenges are likely to expand as capacity building and digital health literacy are required for those implementing health initiatives (Sauni & Neal, 2012). The expansion of existing initiatives and their potential as long-term national initiatives are yet to be assessed, but it is clear that these must work alongside policy development and implementation. The potential of advocacy communication to strengthen policy implementation through media exposure and awareness in line with the above-mentioned participatory strategies might present a key component in addressing NCDs in the Pacific.

As discussed, respondents stressed structural inequalities and identified the low level of legal reinforcement as major factors of vulnerabilities among Pacific communities. While ICTs are considered a cost-effective way to build awareness, questions must also be asked about how some approaches might widen such structural inequalities (Dutta, 2011; Loring et al., 2013). Further research is required to ensure ICTs are integrated in ways that do not disadvantage some populations. Characteristics such as gender, income levels, literacy, media literacy, language, and access to power and networks should be considered when designing NCD awareness-building strategies.

The legal aspects and cultural specifics within the given context must be better understood. Governments must appreciate the problems that can arise when engaging in private partnerships and work toward defining the objectives and guidelines of the partnership as clearly as possible. As discussed above, ICTs do not only provide an opportunity for health messages, but also for marketing campaigns to sell potentially harmful products such as unhealthy foods, tobacco, and alcohol. The increasing influence that private companies have on Pacific populations poses a significant concern with regard to NCDs.

In this sense ICTs could be used to highlight key responsibilities among the private and public sectors and bring to light the voices of citizens. It has been demonstrated that users have challenged the accountability and transparency of governments and health services, for example in PNG and the Solomon Islands (Cave, 2012). Ultimately, to use ICTs effectively, users must become part of the conversation rather than regarded as simply receivers of information.

Conclusion

This article provides a critical perspective on how ICTs are integrated into NCD awareness-building strategies. It is not a comprehensive review, but rather has identified some issues and perspectives on NCDs as well as existing media initiatives based on data from the PACMAS baseline study. We have focused on understanding the local environment and existing issues of users and implementers to contextualize the integration of ICTs in health communication in the Pacific. The research found that the focus is an individual model of behavior change via interpersonal and mass communication and less about addressing issues related to social and structural determinants. While the integration of ICTs might offer the potential for interactivity and social networking, limitations of access in the Pacific at this stage present challenges to a more comprehensive use of these technologies, and caution must be used with ICTs so as not to widen existing inequalities. ICTs are not a panacea for health communication in the Pacific. Their integration must be informed by an understanding of existing health communication strategies and explore the use of participatory communication approaches to achieve long-term sustained change. Both continued critical research and collaborative approaches and creation of a better understanding among stakeholders, implementers, and users appear to be necessary components to achieving an effective integration of ICTs into NCD communication initiatives in the region. ■

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