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Perceived Quality Indicators of Cancer-Related Podcasts Provided by Non-Profit Cancer Organisations

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Full research paper

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Abstract

Non-profit cancer organisations aim to reduce the illness caused by cancer by providing emotional support and practical information using different online resources. Cancer podcasts are one type of resource provided by those organisations to support cancer-affected people by transmitting information via audio in the form of interviews, conversations, and panel discussions. However, little is known about the quality features of these podcasts from the perspective of users. This is important to provide insights into designing podcasts that can meet the needs of cancer-affected people. Integrating the IQ assessment framework, source credibility theory, and two-factor theory of website design, this study collected data via semi-structured interviews with 14 participants to develop a framework to assess the quality of cancer-related podcasts. Results showed that all features underlying the credibility, content, and design constructs were fundamental, except for the visual appearance of the website which constituted a motivating factor for using podcasts.

Keywords: Cancer-Related Podcasts, Quality, Content, Credibility, Design.

1   Introduction

With the convenience of the Internet, cancer-affected people are able to obtain healthy lifestyle advice, build a greater understanding of health issues, and make informed decisions about treatments (Lleras de Frutos et al., 2020). In a study that explored Internet search patterns by cancer-affected people, McLeod et al. (2017) found that 85% of patients diagnosed with cancer use the Internet to access information about their disease. However, health information on the internet is of varying quality (Hamzehei et al., 2018). In a study that examined the quality of 100 websites relating to pancreatic cancer, De Groot et al. (2017) found that many websites lacked up-to-date information and appropriate readability levels. Similarly, 32% of patients with thyroid cancer found that online thyroid cancer information could be barely understood (Chang et al., 2019). Uncertainty about the trustworthiness and accuracy of online health information presents a barrier to using this information by health information consumers (Gage & Panagakis, 2012).

Previous studies on website usage patterns showed that among the different sources of online cancer information, cancer-affected people tend to access information produced by non-profit cancer organisations (NPCOs) more than commercial (such as pharmaceutical companies) and government sites (Chang et al., 2019). One reason could be that NPCOs publish more accurate health information than commercial websites and take into account patients' health literacy and ability to comprehend health information by posting material written at an appropriate reading level (Storino et al., 2016). For example, in a study assessing the accuracy of colorectal cancer websites, NPCOs scored the highest for accuracy among government, private, and academic affiliations (Garfinkle et al., 2019).

Online resources provided by NPCOs cover a range of cancer topics that include understanding cancer, emotions at early stages of diagnosis, cancer treatments, managing side effects, living well after cancer, complementary therapies, cancer questions and myths, and cancer stories (Mills & Millward, 2019). Many of these services and support are provided using different online support resources. Cancer podcasts are one type of resource provided by NPCOs to support cancer-affected people by transmitting information via audio in the form of interviews, conversations, and panel discussions.

Evaluation frameworks assessing the quality of health-related podcasts focused on examining podcasts' sustainability as supplementary tools for providing clinical and palliative care guidance for healthcare professionals (Nwosu et al., 2017), and supporting education on emergency practices such as paediatric (Zaver et al., 2016), neurologic (Grock et al., 2016), and respiratory medicine (Min et al., 2018). However, there is a dearth of studies researching the use of cancer-related podcasts for educating and supporting cancer-affected people, including patients, survivors, and caregivers. Given that online information influences health-related decisions of cancer-affected people seeking online advice and confirmation of decisions (Huber et al., 2017), understanding the quality of cancer-related podcasts provided by NPCOs is important, especially since cancer-affected people are more likely to seek online support from NPCOs than from other sources (Chang et al., 2019). Moreover, less satisfaction with the information obtained about cancer is linked to reduced levels of quality of life for cancer-affected people (Faller et al., 2017). Therefore, this paper aims to identify features that indicate the quality of cancer-related podcasts provided by NPCOs from the perspective of cancer-affected people who are the ultimate and most impacted users as a result of accessing those resources. Hence, the research question that guides this study is:

RQ: What features indicate the quality of cancer-related podcasts provided by NPCOs from the perceptions of cancer-affected people?

This study contributes to the literature by providing insights into the quality indicators of podcasts provided by NPCOs from cancer-affected people's perspectives. Furthermore, the study provides evidence-based findings to inform the development of cancer-related podcasts by NPCOs that need to allocate the available resources in an efficient and effective manner when designing and selecting the content of those podcasts. This can eventually improve the podcasts' usability and interest among users.

2   Literature Review

Health-related podcasts are commonly used in a variety of health contexts to provide information to support patients and caregivers (Gopal, 2019), educate policymakers, researchers, and the public on palliative care (Nwosu et al., 2017), and provide continuous medical education for health practitioners (Berk et al., 2020). Medical practitioners working in emergency medicine use podcasts for the most up-to-date information and research for caring for patients (Grock et al., 2016; Min et al., 2018; Thoma et al., 2015).

With the increased use of podcasts in emergency medicine, and to help the audience identify quality podcasts, the need for evaluating podcasts' currency and quality emerged (Thoma et al., 2015). Thoma et al. (2015) used experts in emergency medicine to identify quality indicators of emergency medicine podcasts. The taxonomy for quality used in that study was informed by the work of Paterson et al. (2015) which involved an international cohort of health educators refining a list of 151 quality indicators for medical education podcasts to 13 relevant quality indicators subcategorised into three major themes: credibility, content, and design.

However, none of the previous studies examined the quality of cancer-related podcasts used by cancer-affected people for obtaining emotional and informational support. Studies evaluating users' satisfaction with podcast technology focused on the opinions of medical practitioners using podcasts for medical education. For example, in a study that interviewed 16 users of emergency medicine podcasts, usability and convenience were the most reported features satisfying users followed by a sense of connectedness to the broader professional community (Riddell et al., 2020). Other perceived advantages of medical podcasts included increased comprehensibility and the acquisition of more knowledge when compared to traditional learning methods such as textbooks (Back et al., 2017).

Podcasts are convenient online resources for cancer-affected people to obtain information in different locations such as while waiting at clinics for treatment, in the car, on public transportation or anywhere else., and better quality of life (Moon et al., 2017). However, people are more likely to integrate the information sourced from the internet into their health decisions if the quality and value of the health information meet their needs (Leung, 2008). The quality of online information can play an important role in positive outcomes. For example, relevant and sufficient information shared on a breast cancer website helped women with breast cancer make informed decisions relating to cancer treatments (Bruce et al., 2015). Therefore, it is important to understand features cancer-affected people consider essential when evaluating the quality of cancer-related podcasts provided by NPCOs.

3   Conceptual Framework

Previous studies have proposed different frameworks to assess the quality of online health-related resources. For example, Koo et al. (2011) classified the dimensions of quality into three main streams: information quality, information presentation, and website attractiveness. In another study, Dubowicz and Schulz (2015) developed a framework that included the following dimensions: trustworthiness, competence, interference, layout, textual deficits, usability, and suitability. A more comprehensive framework is one developed by Paterson et al. (2015) who conducted a thematic analysis of existing studies on health-related podcasts and blogs to identify quality indicators for podcasts and blogs used by learners in the health profession. The study classified quality indicators into three main themes: the credibility of the resource, quality of the shared content, and the design/layout of the website displaying the online resource.

The three quality themes were further used in studies that investigated different audience groups, such as content producers to identify quality indicators for blogs and podcasts in emergency medicine and critical care (Thoma et al., 2015), and health educators to identify quality indicators for social-media-based medical education podcasts and blogs (Lin et al., 2015). Due to its comprehensiveness and frequent use in the context of health systems, our study adopted Paterson et al. (2015) taxonomy to explore the podcasts' quality dimensions from the perspective of cancer-affected people. Accordingly, our study developed a conceptual framework by using a multi-theory perspective that integrated the Information Quality (IQ) assessment framework (Stvilia et al., 2007), the source credibility model (Hovland & Weiss, 1951), and the two-factor theory for website design (Zhang et al., 2000). Those conceptual frameworks are discussed in the following sections.

3.1   Content

This study used the IQ assessment framework by Wang and Strong (1996) to establish a model for quality indicators of podcast content. The IQ assessment framework consists of four main constructs capturing the following aspects: intrinsic, contextual, representational, and accessibility (Wang & Strong, 1996). Within the health context, Stvilia et al. (2009) extended the IQ assessment framework to establish an evaluation tool for assessing health information quality that included five basic criteria: accuracy, completeness, authority, usefulness, and accessibility. Incorporating dimensions from the IQ assessment framework and following a literature review on health information quality, this study included accuracy, relevancy, usefulness, completeness, richness, timeliness, and interpretability as proposed dimensions of the podcast content quality.

3.2 Credibility

According to the source credibility theory, the receiver's acceptance of the message is determined to a large extent by the communicator's characteristics (Hovland & Weiss, 1951). The two major elements of the source credibility theory are trustworthiness and expertise (Hovland & Weiss, 1951). Experts assessing quality indicators of medical podcasts agreed that a resource is trustworthy if it is accountable, states unbiased medical opinions, mentions biases where applicable, lists any conflict of interest, cites references, refers listeners to additional resources of good quality, and states appropriate disclaimers about the use of the resource (Thoma et al., 2015). The communicators' expertise defined in terms of their competencies, knowledge, and special skills is a key factor in persuasion affecting users' judgement of the communicator's believability. These two dimensions are integrated into our established framework as shown in Figure 1.

3.3 Design

Zhang et al. (2000) developed the two-factor model for website design to identify the design factors that enhance the usability and serviceability of the website and increase users' satisfaction and motivation to revisit the website. The two-factor model for website design identified several categories and core features classified as either hygiene or motivational (Zhang & Von Dran, 2000). The presence of hygiene factors encourages users to stay with the website and the absence of those features may lead to users' dissatisfaction and potential abandonment of the website (Zhang et al., 2000). Motivational factors, on the other hand, make the website look more appealing and increase users' motivation to visit the website, yet the absence of those motivational features would not discourage users to access and revisit the website (Zhang & Von Dran, 2000). All dimensions mentioned above for content, credibility, and design factors are illustrated in Figure 1.
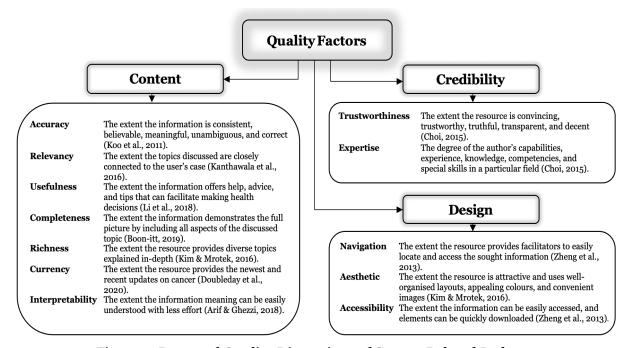

Figure 1: Proposed Quality Dimensions of Cancer-Related Podcasts

4 Methodology

This study adopted the qualitative research design by using the narrative approach to extrapolate raw data from spoken stories of users' experiences as a source of empirical knowledge (Butina, 2015). The narrative approach includes diverse viewpoints from a varied range of participants that may result in different interpretations and new themes when analysing the narrative context (Butina, 2015). Therefore, the qualitative methodology was suitable to allow the researcher to acquire a depth of understanding of cancer-affected people's subjective experiences to meet the primary purpose of this study, that is to explore the most important features of cancer-related podcasts.

Semi-structured interviews were conducted with 14 women affected by breast cancer who are users of the podcast series launched by Breast Cancer Network Australia (BCNA). Participants were recruited via an advertisement that was published on the website of BCNA. The advertisement stated the purpose

of the study, the eligibility criteria, the contact details of the researcher, and other details. Cancer-affected people were eligible to participate if they understand English, were at least 18 years of age, and have used or are still using the podcast series launched by BCNA. With the opportunities that digital innovation is creating, BCNA has launched podcast series named "Upfront about Breast Cancer" including several episodes featuring different cancer topics to help cancer-affected people during treatment and beyond. Listeners can also refer to transcripts of podcasts if they are having trouble understanding a topic or if they want to refer to a piece of information later by scanning the transcript rather than listening to the audio. Each episode is labelled with a title that describes the discussed topic and lists all the related resources that offer the appropriate support.

The interview questions were adapted from existing studies that examined the quality of online health information using similar frameworks. The interviews ranged between 30 and 45 minutes, were conducted via zoom and over the phone, and were digitally recorded with the permission of the interviewee. The demographic data of the study participants are shown in table 1 below.

Table 1: Demographic data of the study participants

Demographic Variable	N	%	Demographic Variable	N	%
Gender			**Age**		
Female	14	100%	35 − 44 years old	3	22%
Cancer Status			45 − 54 years old	2	14%
Cancer Patient	8	57%	55 − 64 years old	9	64%
Post Treatment	5	36%	**Length of usage time**		
Carer	1	7%	< 1 year	8	57%
Diagnosis			1 - 2 years	4	29%
DCIS	4	29%	> 2 years	2	14%
Early Breast Cancer	9	64%			
Metastatic Breast Cancer	1	7%			

Collecting data from 14 participants was sufficient to reach data saturation when variation in the collected data levelled off and no new interpretations and ideas were added. The interview material was transcribed and then loaded into NVivo12 for additional processing and analysis. Thematic analysis was used to analyse the interview data, comprehend all parts of the interview texts, and describe themes and patterns in this study (Pope & Mays, 2019). After analysing the interview transcripts, the researchers were able to reconstruct and reduce the data by filtering out unnecessary conversations and selecting the perceptions that may corroborate key interpretations and findings (Miles et al., 2014). The set of data was then reduced to meanings to generate abstract findings and develop new theoretical concepts (Pope & Mays, 2019). The IQ assessment framework, source credibility model, and two-factor theory for website design were used to frame the thematic analysis.

5 Findings

The study participants' viewpoints on the criticality of the proposed features are discussed in the following sections.

Accuracy: Participants reported that obtaining flawless and reliable information is an important factor in decisions to continue using the podcasts. Participants agreed that accurate data is the key to effective decision-making, and that faulty data places patients at risk of obtaining inadequate care and worsening their health. Users tended to compare what they knew about the medical condition and what their doctors informed them with information offered through those podcasts to confirm the correctness of the shared information. Users who believed that the shared data was inaccurate intended to stop listening to the podcasts. For example, a cancer survivor mentioned that:

There are a lot of grey areas. I felt that it wasn't validated from my experience... I think it was biased data and not a true picture, as the speaker put the experience in a box with no room for other people's experiences. I would not refer any of my friends to listen to this series of podcasts.

Relevancy: Users felt well-informed and more confident discussing knowledge obtained through podcasts with their doctors particularly when the information was relevant and directly related to their situations. Participants preferred listening to podcasts that gave them a sense of their own treatments and diagnosis. Those users are more willing to listen to podcasts that share information tailored to their symptoms and particular conditions. Participants believed that off-topic and irrelevant podcast

messages were less useful in making health decisions and would discourage them from listening to those podcasts. To illustrate this point, a cancer patient said:

That's very important to me because I'm triple negative so a lot of information about breast cancer is about hormone receptors and postmenopausal women, and circumstances that don't match with my diagnosis. So, when I find stuff that is relevant, I absolutely love it and delve into it.

Usefulness: Participants stated that they are more inclined to use podcasts that can help them expand their knowledge and make better health-related decisions. Users thought that using the podcast to validate information obtained from medical specialists made its usefulness more apparent. Users are more likely to use podcasts offering valuable advice, stress-relieving remedies, and dietary guidance. Participants responded that if the shared knowledge via the podcasts becomes less useful and does not provide appropriate practical tips, they will forsake the podcasts. For example, a cancer patient noted that:

...certainly, the last series of podcasts with Charlotte Tottman was useful, perhaps because she was a psychologist, I found that particularly helpful... and even for some of the strategies she mentioned, I would use going forward.... If the info was not helpful, I just wouldn't bother to listen.

Completeness: Participants believe a podcast is incomplete if it does not provide sufficient explanation to cover all aspects of the discussed topic. Participants stated that even if the podcast shared factual data, it might not be complete since it didn't show the entire picture by excluding key information. One listener regarded the podcast's material as "incomplete" since it concentrates on the speaker's unpleasant experiences while ignoring the positive aspects. This participant believed that the shared material is harmful to women with breast cancer since it does not depict the entire picture which should include both positive and negative experiences. Another cancer patient said:

... that's why I kept listening to it and that's because it gave me so much. It just helped me to know the many aspects of my cancer, you know everything from treatment and dealing with treatment and the side effects of treatment... and everything. More than anything, it made me feel empowered that I knew so many little things, now I have all these tools that I can use to make myself feel better.

Richness: Some participants reported that detailed explanations of the podcast topics were beneficial and valuable, especially since discussions with doctors focused on a narrow range of cancer-related topics as opposed to a broad range. Another participant, on the other hand, complained that the podcast series lacked diversity because they all shared similar themes. As a result, they were less interested in podcasts covering narrow subjects. To illustrate this point, a cancer patient stated:

When I was first diagnosed, I was greedy for information. I prefer a wide range of cancer topics... every time I've been worried about something like my nails started falling off, I'd be able to go to the one that talks about side effects from radiation or chemo and be able to get that bit to reassure me. If there was a link under the podcast that provides additional data on this, that'll be fantastic.

Currency: The study participants felt that getting the most recent information is crucial for cancer-affected people because cancer therapies are improving, research on cancer screening and prevention is advancing, and information is being shared at a rapid rate. They held the opinion that having access to current information can facilitate making timely health-related decisions that are consistent with the most recent developments in cancer care and treatment. For example, one cancer survivor said:

I just don't think it's worthwhile listening to outdated information if the studies they're citing are really old because research is moving so quickly and there are so many new things... when my mom had breast cancer 30 years ago she was told to go home and rest after treatment, whereas now they'd say try and keep moving as much as you can and so if you're told to go home and rest when the current research is to keep moving, it's kind of worthless.

Interpretability: Participants expressed a preference for podcasts that succinctly deliver the subject issues and share information that can be comprehended with less effort. Participants thought that individuals without a background in medicine would benefit from having a glossary of terms. According to one participant, it is challenging to have authoritative information without complicated medical terms and jargon because they form an essential component of it, but the information must be clearly communicated using simple terms. Participants claimed that they would quit listening to podcasts that are difficult to understand. To illustrate this viewpoint, a cancer survivor said:

I just would not listen to it if it's totally incomprehensible to me. I don't mind people using medical terms, because if you are in a medical situation, you probably should know them, but they need to be explained.... when it's an early diagnosis thing, where you haven't heard these terms or you have heard

them, but you can't remember what they mean, a glossary of terms would be very useful. Because there's so much to take in at the beginning and you're tired of usually you got stuck on the fact that you got cancer and can't remember all the other stuff...

Trustworthiness: Participants stated that they would generally have faith in the information supplied via podcasts if those resources were run by reputable institutions including charities and the government. Participants said they trusted podcasts that offered objective medical advice, directed listeners to other credible sources, included information on the data originator, and disclosed any conflicts of interest. For example, one cancer patient said:

I think I trust it because it is coming from BCNA which is a reputable source of information. It's probably the premier website that breast cancer patients in Australia would use. So in fact, there's probably quite a lot of faith and expectation there that their information is accurate and trustworthy and that you're not going to be led astray.

Expertise: Participants noted that the calibre of the podcast host has an impact on how much users trust the information presented, especially when it comes from licenced medical professionals like doctors. According to users, it is crucial to introduce the podcast guests and outline their credentials at the beginning to demonstrate their suitability to discuss the subject at hand. When the communicator is subjective, listeners have expressed intentions to stop using the podcast. For instance, one cancer survivor said that because podcasts were constrained by the values of the physician or the person delivering the message, they are unlikely to be listened to in the future. Another cancer patient said:

Well, I mean when I'm listening to someone, I want them to either have experience of breast cancer themselves or have medical knowledge about cancer. Because that's the type of information that I would trust. I think that's why the Charlotte Tottman one really appealed to me because she had that level of experience herself, but she also had an original angle.

Navigation: Participants believed that the podcast webpage is well-designed if it has a navigation system that works consistently across the entire website and offers tools for finding the content quickly. For instance, one participant mentioned that the authority and reliability of the podcast can be determined by how well-designed the navigation system is. Participants advised that a title that clearly describes the podcast's subject is very helpful. Users acknowledged losing interest if the links and hyperlinks of the podcasts were not adequately maintained and expressed frustration with less powerful search engines. To illustrate this point, a cancer survivor said:

If it was too hard to navigate the website to find them, I would just give up, especially if it took longer than a minute, then I wouldn't be actually keen. Everyone wants things to be easy, particularly when you are first diagnosed and you're looking for information. You know there's a lot of stuff going on as well, you just want it to be easy enough.

Accessibility:

Podcasts that load and respond quickly were favoured by participants. They expressed dissatisfaction with podcasts that undergo lengthy outages and are not constantly available. They claimed that listening to podcasts using various devices is convenient, especially since they can do so from any place. Participants favoured podcasts that worked with a variety of operating systems and browsers and were well-maintained to support the functionality of multimedia elements and hyperlinks. To illustrate this point, a cancer patient noted that:

Basically, accessing them from various devices is very important so you can listen to them anywhere on your mobile phone or tablet... if you are very eager and keen to listen to a certain podcast and then it just went down, yeah, I'd be pretty annoyed.

Aesthetic:

Users thought that a visually appealing website is one that contains convenient pictures, fonts and colours that complement the concept of the website and link better to the theme. Although the inclusion of those features would boost users' satisfaction with the website, users said that the aesthetic appeal of the website has no bearing on their choices to continue using the podcasts. The participants found the podcast transcripts to be helpful and preferred the audio speech to be at a reasonable pace and speed. One participant, for instance, described how they gave up and stopped listening to podcasts issued by another charity because the audio was delivered by a very rapid speaker who was attempting to convey a complicated topic using complex medical terms. Additionally, some participants mentioned how crucial it is that the voice can be clearly heard without exerting too much effort to continue listening. To illustrate this point, a cancer patient stated:

The pace and speed of speech are very important. I think if you feel rushed through it that doesn't really work. I tend to talk quickly when I'm nervous and I think a lot of people do and it's irritating as a listener, to listen to somebody who's talking quickly because you keep missing stuff. Whereas people that are experienced podcasters sort of measured and slower than normal talking and it just seems to work a lot better. Also, a clear voice recording is critical to my understanding of it, to be able to make sure that you are following along with the information that comes through.

6   Discussion and Conclusion

This study showed that the quality indicators from the perspective of cancer-affected people, the users, are different to other users such as medical practitioners and other health care providers. This study investigated cancer-affected people's attitudes towards podcasts that lacked any of the examined quality features to identify quality indicators of cancer-related podcasts. The study discovered that the podcast information's accuracy is a key factor within the realm of the *Content factor*. The results demonstrated that cancer-affected people are less likely to listen to podcasts that share misleading information and include erroneous and contradictory beliefs. They tend to verify experiential information with their doctors more frequently than the medical information shared by medical practitioners via podcasts. Therefore, the *accuracy* aspect that constitutes one parameter of the intrinsic IQ of the IQ assessment framework (Wang & Strong, 1996) is an essential quality element of cancer-related podcasts.

Users felt more knowledgeable and confident in sharing information acquired through podcasts with their doctors, particularly when the content was relevant and directly linked to their situations. According to the users, applying the information shared via the podcasts when making health decisions depends critically on the relevance of the podcast content. Cancer-affected people are more likely to listen to podcasts that provide insightful advice and practical guidance, indicating that the podcast's usefulness is another important aspect emphasised by those who have experienced it. The podcast listeners also sought comprehensive podcasts incorporating all the current information on the cancer topic under discussion. The diversity, volume, and depth of the shared information were attributes cancer-affected people perceived as essential for listening to the podcasts. Those attributes align with Zheng et al. (2013) classification of the richness dimension. According to our study, having access to current information can help podcast listeners make prompt medical decisions in line with the most recent developments in cancer treatment and care. This is important because finding the latest information about cancer can be challenging due to the fact that cancer information disseminated over the internet may not be regularly updated (Doubleday et al., 2020). As a result, *relevancy, usefulness, completeness, richness*, and *timeliness,* all of which constitute metrics of the contextual IQ of the IQ assessment framework, are important quality components of cancer-related podcasts.

Users who believed that sophisticated medical terminology affected the podcasts' interpretability were more likely to seek podcasts that provide content at an adequate understanding level and utilise simple language. The findings indicated that podcasts that included transcripts, examples and scenarios, and a glossary of terms made it easier for listeners to comprehend the shared content. Therefore, *interpretability* within the parameters of the representational IQ of the IQ assessment framework is an essential quality component of cancer-related podcasts.

The study found that credibility is the most critical feature of cancer-related podcasts. According to the users, podcasts are more credible if they were managed by an NPCO and were clear on who was involved in the creation of the podcast content. Users are more likely to listen to podcasts that are hosted by well-qualified authors and state authors' affiliations. Therefore, *trustworthiness* and *expertise* underpinning the *Credibility factor* were crucial dimensions of podcasts, indicating that the source credibility model fits well within the podcast quality context.

An important theme that emerged from this study related to users' concern about the level of the speaker's objectivity. Users reported that some podcasts concentrated on the speaker's perspective and made little effort to integrate the experiences of other cancer-affected people. Though users were interested to listen to personalised experiences, the process of inviting comments from others who may wish to endorse or refute the shared content can help address this issue and increase the objectivity of the shared content (Thoma et al., 2015). Citing sources, referring users to additional good quality resources, and listing any conflicts of interest, all tend to increase the credibility of health-related podcasts (Thoma et al., 2015). Therefore, the objectivity of the speaker was an emerging theme cancer-affected people viewed as important for using podcasts. This is consistent with Wang and Strong's (1996) study that identified objectivity as one of the metrics of the intrinsic IQ of the IQ assessment framework and defined it as the extent to which the content was impartial, unprejudiced, and unbiased.

A navigation system featuring clear descriptions of links, logical subject labels, and a powerful search engine is crucial for users when navigating podcast websites. Users are less likely to spend time and effort searching the website to find a particular podcast, and therefore, *navigation* is one of the hygiene factors within the *Design factor's* domain. The process of accessing podcasts using different devices and operating systems was another hygiene factor such that the absence of this functionality would discourage users from listening to cancer-related podcasts. Furthermore, within the *accessibility* feature, users were less inclined to access slow-loading and unresponsive podcasts. Except for one feature identified as a motivating factor within the *aesthetic* dimension that related to the colours, visuals, and themes used for the podcast series website, all other features were hygiene factors. Those features included the pace and speed of the podcast speech and the clarity of the voice recording. In conclusion, using the two-factor theory of website design (Zhang & Von Dran, 2000) to establish quality indicators of podcast design helped researchers better understand how podcast listeners feel about using cancer-related podcasts for support and evaluating the design of those podcasts.

Nonetheless, this study is not without limitations. First, this study was based in Australia and used data from only one NPCO that provides cancer-related podcasts. Further studies could recruit respondents experiencing cancer-related podcasts offered by other organisations in different countries to verify the quality factors found in this study. Second, this study assumes that the demands of everyone affected by cancer are similar; thus, it does not differentiate between the views of each patient, survivor, and caregiver when evaluating the quality elements. Therefore, future studies need to investigate differences in perspectives when examining quality indicators of podcasts. Lastly, even though understanding quality indicators of podcasts can help NPCOs effectively design and manage cancer-related podcasts, the psychosocial outcomes and the impact of using cancer-related podcasts on users' well-being are still under-researched. Therefore, further research into the impact of cancer-related podcasts on the well-being of cancer-affected people is also needed.

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