

THE ROLE OF FACEBOOK ON PSYCHOLOGICAL WELLBEING: A STUDY OF PEOPLE AFFECTED BY CANCER

ABSTRACT

People affected by cancer are increasingly using Social Networking Sites such as Facebook. However it is unclear how the use of Social Networking Sites impacts on psychological wellbeing. This research used qualitative semi-structured interviews to explore and examine how and in what ways Social Networking Sites use is related to the psychological wellbeing of people affected by cancer. The Ovarian Cancer Australia Facebook was used as the exemplar in this exploratory study. A multi-theory perspective was employed to interpret the data. Results show that users used the Ovarian Cancer Australia Facebook daily, either passively or actively. Some users were passive and only observed posts. Other users actively posted content and communicated with other members. Ovarian Cancer Australia Facebook use was related to enhancing perceived social support, social connectedness, social capital, social learning and social presence of the interviewees, leading to enhanced psychological wellbeing. This study has theoretical and practical significance because it contributes to formal knowledge of the implications of Social Network Sites use for users' psychological wellbeing.

Keywords: social networking sites, Facebook, cancer affected people, psychological wellbeing, social support, social connectedness, social capital, social learning

1. INTRODUCTION

Social networking sites (SNS) have become well-established in individuals' lives. SNSs have the capabilities of coordination, immediate access, knowledge sharing and are increasingly used by people for professional and/or social purposes (Nusair et al. 2013). Millions of people use SNSs every day for interactive communication, information search and community (Ellison et al. 2007). SNSs have become the most visited online communities with 1.2 billion users, which represents approximately 17% of the world's population (Reinecke et al., 2014). This rapid increase in SNSs users has been fuelled by the growth of Facebook, launched in February 2004, that has become the most popular SNSs with 900 million users in 2015 (<http://www.ebizmba.com>). In light of the outstanding growth of Facebook, that has received scholarly attention over the last few years however little is known about implication of Facebook for health related purposes (Bender et al, 2011). Research on Facebook use among minority populations (Guo et al, 2012), such as cancer affected people is limited (Hong et al 2012).

People affected by cancer use Facebook as an online resource for increasing their awareness and pursuing support related to cancer (Benerr et al., 2011). Facebook is also used to share cancer related experiences with likeminded peers (Farmer al. 2009; Erfani et al, 2013). Yet despite the growing use of Facebook by cancer affected people it is unclear how using Facebook as an online health resource impacts on the psychological wellbeing of cancer affected people (Hong et al, 2012; Erfani and Abedin, 2014). In this paper, the term cancer affected people is used to refer to people who have been diagnosed with cancer, including those who are either in treatment or have completed their treatment. The aim of this study to examine the role of Facebook use on the psychological wellbeing of cancer affected people.

The paper is organised as follows: Section two provides the research background followed by research significance and then the research question. Section three outlines the theoretical background of the study. Section four explains the research method. Section five discusses the findings followed by the discussion in section six. Section seven provides the conclusion and suggestions for future research.

2. RESEARCH BACKGROUND AND RESEARCH SIGNIFICANCE

With the unique advantages of convenience, availability and anonymity, the Internet offers valuable sources for information search, interaction and community (Erfani et al., 2013).

Static websites (Web 1.0) support one way communication and information dissemination; while dynamic websites (Web 2.0) such as SNSs enables individuals to develop interaction (Farmer et al., 2009).

SNSs are Web 2.0 applications that provide internet users with a platform to create an online profile and develop connections and interact with other members of the network (Apaolaza et al. 2013). SNSs differ based on the purpose of the connection that they focus on (Valkenburg et al., 2006). There are professional SNSs, such as LinkedIn whose primary purpose is to provide opportunities for professional networking. There are Academic SNSs, such as Academia.edu that enables researchers to share their papers and collaborate with other researchers. There are social SNSs, such as Facebook whose primary purpose is enabling members to keep in touch with friends and to share images and videos, post content and send messages (Apaolaza et al. 2013). SNSs use has become a part of an individual's daily activity (Ellison et al., 2007; Bicen and Cavus, 2011).

With the growth of SNSs use it is important to investigate the implications of SNSs use on psychological wellbeing (Reinecke and Trepte, 2014). In addition, exploring the impact of Internet use on wellbeing including the psychological wellbeing of users has been a topic which has become important to researchers since 1996 (Kraut et al., 1998; oh et al., 2014). Psychological wellbeing refers to a combination of a positive state such as happiness with life and a satisfactory condition of existence, and deals with emotion and feeling (Winefield et al. 2012). It is a combination of feeling good and functioning effectively (Huppert, 2009). Soon after the Internet was introduced to the general public, researchers focused on users' psychological wellbeing associated with Internet use (McKenna and Bargh, 2000). Thus, it is not surprising that understanding the impact of SNSs use on psychological wellbeing of users is of great interest to researchers (Sánchez-Franco et al., 2011; Oh et al., 2014). Recent studies on SNSs use on users' psychological wellbeing have used students as the sample. As Burke et al, (2011) suggest this has led to difficulties in generalising the findings to other cohorts of SNS users.

Cancer affected people increasingly use Facebook for community and information achievement purposes (Erfani et al., 2013). One study found that Facebook is an appropriate platform for sharing health related experiences (Farmer, et al, 2009). Another study demonstrated the positive role of Facebook for improving cancer related awareness (Bender, et al, 2011). What has not been explored is how Facebook use is related to the psychological

wellbeing of people who have been affected by cancer (Hong, 2012; Bender, et al, 2011). While the implication of other web based communities use such as blogs and chat rooms on psychological wellbeing of cancer affected people have previously been examined (Eysenbach, 2003, Kreps and Neuhauser, 2010), existing studies have not kept up with the rapid development of Facebook among cancer affected people (Erfani et al.,2014;Hong et al.,2012). This paper addresses the research question: In what ways is Facebook use related to the psychological wellbeing of people affected by cancer?

3. THEORETICAL UNDERPINNINGS

This study used a multi-theory perspective, drawing on theories from the fields of information systems, communication, psychology and learning. These theories were used to direct and guide the inquiry process and to frame the interpretation of the findings. This section outlines the components of the theories used in this study to develop a conceptual framework.

3.1 Social Capital Theory

Social capital theory asserts that individuals' social capital including strong ties and weak ties that form through their social connections (Coleman, 1998). This theory explains that an individual's social capital can provide informational and emotional support, which consequently could lead to positive health outcomes including better psychological wellbeing. Strong ties or bonding social capital are resources that provide emotional support, while weak ties or bridging social capital are resources that provide informational support (Putnam, 2001). A previous study showed the perception of the presence of ties that can provide support played an important role to the psychological wellbeing of students (Burke et al. 2010). Recent studies have applied social capital theory to explain how presence of social capital is associated with a decline in the level of stress and depression (Kawachi and Berkman, 2000) and in turn improvement in patient's psychological wellbeing (Lee et al. 2010).

3.2 Belongingness Theory

The second theoretical perspective that informed this study was Belongingness Theory, which explains the need to connectedness is an essential human need that can be formed within social environments (Baumister and leary, 1995). This theory argues that individuals

develop meaningful relationships in order to experience connectedness and a sense of belonging and consequently experience greater psychological wellbeing. Van Bel and other (2009) define social connectedness as the sense of being in touch, up to date, and the sense of involvement. Baumister and Leary(1995) explain that frequent interactions and forming interpersonal bonds within these interaction are important features for forming a sense of connectedness. Studies conducted in psychology and communication sciences underline the importance of communication technologies in fostering an individual' sense of belonging and connectedness (Pettigrew, 2009).

3.3 Sociocultural theory (SCT)

Sociocultural theory (SCT) focuses on learning as a social process that can be develop in the individuals' social environment (Lantolf, 1994). This theory explains that learning can occur as a result of (i) self-regulation: learning via observing the social interactions in a social environment (ii) and other regulation: learning via other regulation or scaffolding that happens by achieving assistance including hinting, questioning, encouraging and getting feedback from peers or mentors in social environment (Lantolf, 2000). Researchers have applied this theory to explain the positive consequence of learning on individuals' wellbeing including psychological wellbeing in social environments. For example, Watkins (2000) applied SCT to explain the positive relationship between learning through self-regulation and greater life satisfaction among diabetic adults (Watkins et al. 2000).

3.4 Social Support Theory

Social Support Theory (SST) emphasizes the influence of social network structure on individuals to handle negative life events (Caplan, 1974). Social support refers to resources exchanged between people through their personal ties (Caplan, 1974). SST distinguishes between different perspectives of social support in social networks. Perceived social support emphasizes on an individual's views about whether or not members of one's social network offer support and consequences of these beliefs (Cohen et al, 2000). Enacted social support (Barrera, 1986) focuses on individual actual behaviours, giving assistance to a certain individual in their networks, and their consequences (Thoits, 1995).

In summary, social support theory focuses on the ways individuals are embedded in a social network and the ways that their social connections are applied to provide support. Social Support theory differentiates different viewpoints of social support in social networks and

consequently encompasses the phenomenon of obtaining informational and emotional support by cancer affected people in cancer related SNSs. Thus, SST and especially perceived social support was used in this study to explain perceived psychological wellbeing as a result of Facebook use. SST emphasizes that perceived social support from members of social networks is beneficial for network members confronted with negative life events (Thoits, 1995). Previous studies have suggested SNSs use by students is associated with higher perceptions of emotional support (Nabi et al , 2013).

3.5 Social presence theory

Social presence theory was founded by Short, Williams and Christie (1976) to explain communication is effective if the communication medium has the appropriate social presence essential for the level of interpersonal involvement required for a task. Social presence is an elastic term with a variety of definitions; it has been defined as the sense of understanding communications in community (Heeter, 1992), and a sense of individual's abilities to perceive others through their online interactions and the degrees of affective connection (Shen and Khalifa, 2008). Social presence has been described as multidimensional construct including:

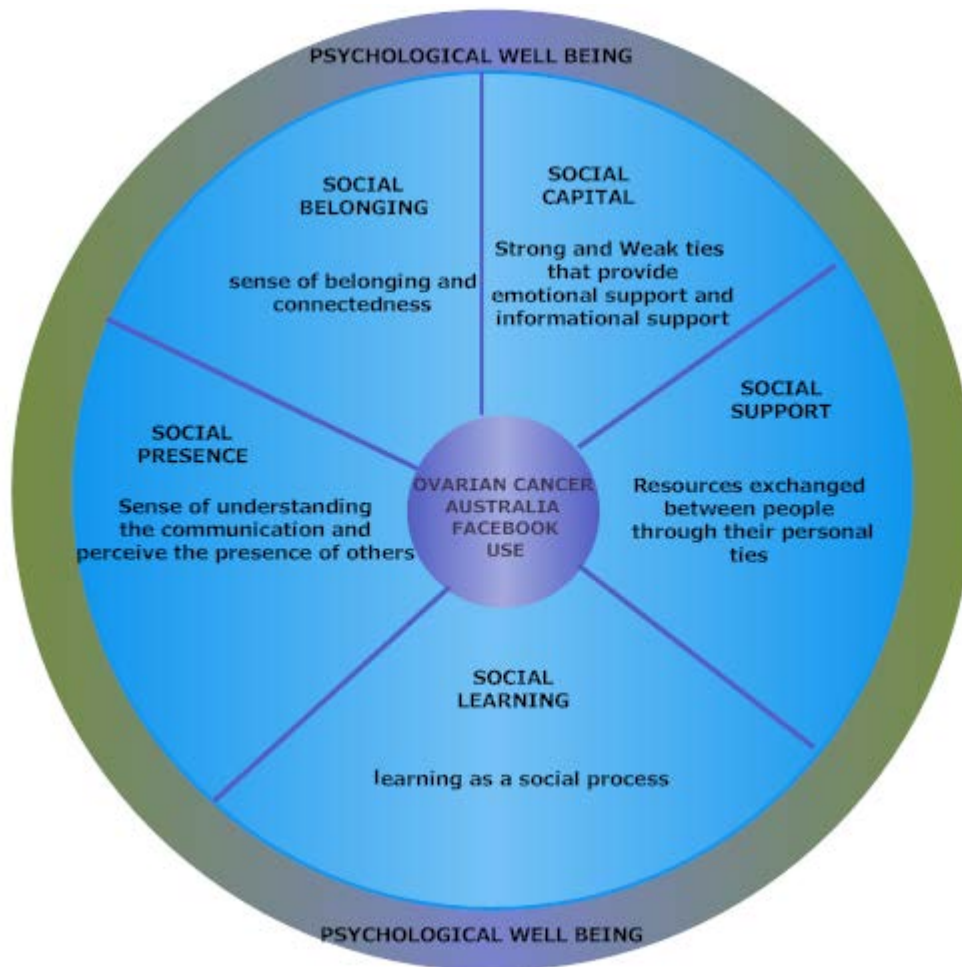
1. Awareness: the feeling of presence of others which can be achieved by the others' responses.
2. Cognitive social presences: the extent that user understands the meaning of the delivered message within the community.
3. Affective social presence: the extent that users feel they are interacting in a real world.

According to social presence theory, the degree of social presence varies in different media depending on the capability of media in providing rapid feedback, conveying non-verbal cues, and reducing communication ambiguity (short et al, 1976). Previous studies have shown there is reciprocal relationship between individual's social presence in a community and positive outcome. Study conducted by Richardson and Swan(2003) that examined students' learning showed students with high perceptions of social presence experienced more satisfaction in online learning environment (Richardson and Swan, 2003).

Figure 1 summarizes the perspectives of theories that under print this research. While some of these theoretical perspectives have been used previously to explain the beneficial use of

internet based communities for students (Ellison, 2007; Burke et al. 2010), this study used social capital theory, social support theory, belongingness theory and sociocultural theory (SCT) to guide the study to explore the context of Facebook use and its impact on the psychological wellbeing of people affected by cancer, and also to interpret the data.

Figure 1. Theoretical framework on the implication of SNSs use on the psychological wellbeing



The justification for using the theories for investigating the implications of Facebook use on psychological wellbeing is outlined in the following section.

Social Presence: This study used the perspective of social presence theory to show how Facebook use has the potential to develop cancer affected people’ social presence, sense of understanding the communication and perceiving others through online interaction. A strong feeling of social presence will enhance feelings of satisfaction and happiness. Facebook has

the potential and features that its use can enhance understanding of communication which itself enhances psychological wellbeing.

Social Support: Social support refers to resources exchanged between people through their personal ties. This study applied the concept of Social Support Theory to show how Facebook provides its users with services that can facilitate exchanging resources, information and emotion between users. which former and latter are both predictors of psychological wellbeing.

Social capital: Social capital are strong and weak ties, the formers provide emotional and latter provides informational support. This study uses the perspective of social capital theory to explain how Facebook has the potential to enable its users to develop extensive strong and weak ties and experience better psychological wellbeing.

Social connectedness: Social connectedness refers to a sense of belonging and connectedness that can be achieved through frequent interactions. This study applies the perspective of Belongingness theory to explain how Facebook has the potential to support social interaction by enhancing social connectedness which is a predictor of psychological wellbeing.

Social learning: Learning as a social process through achieving support from others or observing others interact. This study uses social learning to explain that the use of Facebook provides opportunities for users to interact and observe others' interactions to learn. This leads to enhanced psychological wellbeing.

4. RESEARCH METHOD

Due to the exploratory nature of this research, a qualitative method was used to explore the relationship between Facebook use and psychological wellbeing. This study used an interpretive research approach because the objective was to understand the experience of people involved in the study throughout the period of the research (Walsham, 1993). Thus, a qualitative method was used to: (a) to develop a synthesized conceptual model that could be tested and evaluated through a survey method in a subsequent phase of the research, and (b) to fill the existing gap in the literature by gaining a better understanding about the ways Facebook impacts psychological wellbeing of people affected by cancer.

4.1 Case study and sample

A case study research method was used for developing deep knowledge in the particular area of Facebook use and psychological wellbeing (Yin, 2013). This study aimed to gain in-depth and detailed data on the relationship between SNSs use and the psychological wellbeing of cancer affected people. Therefore a single case study was selected to address the research question (Stake, 2000).

The Ovarian Cancer Australia (OCA) Facebook was chosen as the exemplar in this study because it is used by many cancer affected people (Erfani, et al, 2013). OCA Facebook is administered by Ovarian Cancer Australia (OVCA) and is as an online health related resource that enables people affected by ovarian cancer to connect with people going through the same experience. OCA Facebook aims to enhance cancer affected peoples' awareness of the support available. The Ovarian Cancer Australia (OVCA) was also used for informational and emotional support purposes (www.ovariancancer.net.au). **Procedure**

After ethical approval from the university ethics committee was obtained, the OCA Facebook administrator was contacted for permission to post an expression of interest for users of the OCA Facebook to participate in an interview. The expression of interest was posted on the OCA website as well as the OCA Facebook page to invite people affected by cancer, who were the users of OCA Facebook, to participate in the study. Interviewees had to meet the criteria of both being over the age of 18 and using the OCA Facebook for more than two months because we were interested in those users who had a good level of experience and familiarity with the OCA Facebook page.

4.2 Participants

Twenty five women who were affected by ovarian cancer (mean age=39 years, median=41 years, SD=5.6) and were users of the OCA Facebook participated in this study. Eleven interviewees were in stage 2 of cancer (when the cancer has not started to spread into surrounding tissue), three were in stage 4 of cancer (when the cancer has spread from where it started to another body organ that also called secondary or metastatic cancer), and the remainder were in other stages or had recovered. The sample size for this study was not fixed or predetermined, but rather decided by the saturation point of the data. Recruitment ceased when the information collected from a sufficiently variable sample became repetitive across individuals, and new themes no longer emerged (Lincoln and Guba, 1985). This occurred after 25 interviewees were conducted. The interviews were carried out from February 2014 to March 2014. Table 1 shows the demographic characteristics of the qualitative sample.

Table 1. Demographic characteristics– Participants’ Characteristics

Participants’ Characteristics	Number (%)
Age	
18-25	2(8%)
26-35	5(20%)
36-45	7(28%)
46-55	5(20%)
56-65	6(24%)
Months using OCA Facebook	
2-5	2(8%)
6-11	4(26%)
12-17	9(36%)
18-23	7(28%)
>24	3(12%)

4.3 Data collection

Semi-structured interviews were chosen to give the interviewer freedom to modify the format and order of questions as appropriate (Creswell, 2009). The interviews were conducted via telephone or Skype, depending on participants’ preference. Questions were phrased to allow interviewees to tell their story in their own way, while an interview guide was used to ensure information needed was gathered. Interviewees were asked a series of 12 open-ended questions (Appendix 1) to gather feedback on participants’ experiences and insights with using the OCA Facebook as well as their experience relating to the perceived benefits and level of satisfaction from OCA Facebook Use, their experience relating to the usefulness and helpfulness of OCA, and insights relating to how they felt from using the OCA Facebook.

Interviewees also shared their experiences on the amount of time spent on the OCA Facebook page (e.g. frequency, duration, continuity of use), their history of OCA Facebook use by reporting how long they had been using OCA Facebook, and the specific activities while using OCA Facebook. Interviews generally took 45 minutes and were audio taped with permission from the interviewees and transcribed.

4.4 Data Analysis

Thematic analysis, the process of collection of candidate themes and creating the relationship between themes, was used to identify, analyse and report themes (Boyatzis, 1998). A theme captures something important about the data in relation to the research question and represents some level of patterned response or meaning within the data set (Braun and Clarke, 2006).

The interviews were transcribed, in text format, by a professional transcription service. The transcribed interview data were analysed using thematic analysis conducted in NVivo 8, software that was used to facilitate the coding and sorting process. The text from the transcribed participant interviews was coded (by key terms and phrases) and sorted by theme (parent and sub-theme). Responses were coded to a set of open-ended questions using the procedure outlined by Braun and Clarke (2006), where six phases were used.

These six phases are: (i) familiarization with data, (ii) generating initial codes, (iii) searching for themes, (iv) reviewing themes, (v) defining and naming themes, and (vi) producing the final reports.

Firstly, in the familiarization with data phase, each transcript was uploaded to Nvivo software and read by the authors before coding began. Coders reviewed each transcript to become familiar with the data and to identify responses to each interview question. Then followed a synthesis phase in which researcher independently identified the categories linked to the research objectives, particular attention was paid to the ways that respondents used the OCA Facebook and how using OCA Facebook related to their psychological wellbeing. The interviews were read through several times to obtain a sense of the whole.

Secondly, in regards to generating initial codes phase, concepts (explanatory ideas) were identified from the data and were given a label or code that described them. The text was divided into meaning units that were then condensed. The condensed meaning units were abstracted and labelled with a code. The various codes were compared based on differences and similarities and sorted into containers, Nodes, in NVivo. Examples of meaning units, condensed meaning units and codes are shown in table 2.

Table 2. Examples of meaning units, condensed meaning units and codes

Meaning unit	Condensed meaning unit	Code
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I write and comment on posted contents on OCA Facebook	Writing and commenting	Public Posting
I have audio and video chatting with my other members and also OCA Facebook is more of a casual sort of method of maybe text chatting with someone	Visual and audial chatting	Chatting
Information comes directly to my newsfeed and I read them and follow the links	Reading the information from newsfeed	Checking news feed
I read the hope sentences, quotes and information that are posted in OCA Facebook	Reading the hope sentences, quotes and information	Reading public posts
I use OCA Facebook everyday	Daily using of OCA	Daily use
There is a good feeling from using OCA Facebook, happiness in some way	Feeling of happiness	happiness
When I use OCA Facebook I feel I belong to the community that is specific for people like me and cares about us	Feeling belonging	Belongingness
OCA Facebook Use kept me update and informed as far as they put new scientific papers related to ovarian cancer because there's so much information	Feeling updated and informed	Feeling informed
When I use OCA Facebook I believe I can have access to information it's a good source of information	Perception of access to information	Information access
From using OCA Facebook I could learn new things such as I could have the potential to carry the breast cancer gene which is very related to this ovarian cancer	Learning new things related to cancer	learning

Thirdly, concepts which were closely linked in meaning were formed into categories. Categories with similar meanings were brought together into a sub-theme and then an overall theme. Using the interviewees' own words, themes were labelled, described, and applied to all the data across all interview questions. Next, in the reviewing themes phase, the themes were again reviewed to compare and reconcile discrepancies. Themes with a similar meaning

were combined in the matching nodes. Throughout this process, the theme descriptions were continuously augmented and clarified to ensure that all participants' experiences were represented. In addition memos were created in NVivo to make note of contradictions.

The final themes identified were: (i) Facebook use, (ii) Facebook use and psychological wellbeing mediators, and (iii) psychological wellbeing.

5. FINDINGS

This section provides information about interpretation of interview themes.

5.1 OCA Facebook Use.

The first theme included two sub-themes: Intensity of use and Type of use.

Type of use refers to active and passive use of OCA Facebook. Four (4) interviewees oriented toward active participation, while the majority of interviewees (n=16) were both actively and passively engaged in OCA Facebook discussions.

Active use included activities such as chatting, liking and creating content and sending messages. The following shows how interviewees actively used the OCA Facebook:

“I comment on posted content on OCA Facebook and I like the shared information” (Interviewee #3).

“I chat with people on OCA Facebook and also send them private messages” (Interviewee #19).

Passive use of OCA Facebook included observing the content and monitoring posts. The following shows passive use of OCA Facebook:

“There are people who have written about their mothers that are doing well I read their stories” (Interviewee #4).

“I see anything OCA Facebook shares since they come up on my news feed” (Interviewee 12)

Intensity of use refers to duration and frequency of use. Intensity of use is the amount of time that cancer affected people spend on OCA Facebook per visit. The duration and frequency of use refers to the number of times that cancer affected people login to OCA Facebook per

week. Duration per visit was on average 11 minutes. Means were calculated with outliers removed to decrease the large degree of variability. An outlier was defined as any value falling more than two standard deviations above or below the mean for that visit. There were a total of two outliers for duration of OCA Facebook use, all occurring at the high end of the distribution. With outliers removed, the mean amount of duration of passive OCA Facebook Use was 11.8 min per visit (SD= 6.73; Median = 15.00) and active OCA Facebook was 11 min per day (SD= 5.53 Median = 10.00).

Most of interviewees (n=19 or 76%) used OCA Facebook daily. Five (5) used OCA Facebook four times a week and just one interviewee used OCA Facebook three days per week. On average interviewees used OCA Facebook for fourteen months (M=14 months, SD=5.3).

5.2 psychological wellbeing mediators.

The third theme showed that cancer-affected people experienced social connectedness, perceived social support, social learning, and social capital from using OCA Facebook, which in turn led to a higher level of happiness and lower feelings of loneliness and stress.

The Social Connectedness subtheme showed that the majority (80%) of interviewees felt that using the OCA Facebook page enabled them to have a sense of belonging and connection and therefore led to feelings of happiness. For example interviewees noted that:

“I use OCA Facebook every day and I feel I belong to the community that is specific for people like me and cares about us and feel I am connected to the world and life is worthwhile and I feel happy” (Interviewee #12).

“I receive feedback on the content that I posted on OCA Facebook and I feel I am understood by members in the community and I am not distant from the other people and I am not lonely” (Interviewee #5).

“When I read the hope sentences that are posted in OCA Facebook I feel I belong to the community that I am loved by the members and providers of this community and I belong to this community and I feel positive and happy” (Interviewee #20).

The next subtheme, Social Support, showed that seventy eight percent (78%) of interviewees perceived that both passive and active use of OCA Facebook contributed to positive feelings and happiness. Cancer affected people experienced more social support including informational and emotional social support. Active use of OCA Facebook use such as chatting with other members and creating content encouraged receiving and giving informational and emotional support. Passive use of OCA Facebook such as reading and observing the content, videos, and photos resulted in a higher level of perceived information and emotional support. This led to interviewees experiencing more levels of happiness and feeling less downhearted. For example, interviewees noted that:

“OCA Facebook Use kept me updated because there’s so much information, you know, it keeps you updated with everything which makes you feel better” (Interviewee #9).

“when the doctors have told you that you might not make it to Christmas it doesn't give you much hope, but when you use OCA Facebook and read their hopeful posted quotes and emotional sentences you say doctors are not God and they don't know what is going to happen so, yes, look, there is emotional support there and it does make you positive and happy” (Interviewee #6).

The Social Learning subtheme emerged as sixty five percent (65%) of interviewees perceived that OCA Facebook Use enabled them to learn new things, which in turn led them to feel more positive and feel happier. OCA Facebook use had an important influence on interviewees’ thoughts, attitudes and learning. Learning new things from other members about what works and what doesn’t work, and also the knowledge of similar situations in the past and present, helped them to feel better and more positive. The following are examples of quotes about social learning:

“I could learn healthy diets from other people on OCA Facebook and I could feel good” (Interviewee #1).

“I could learn from the interaction with people on OCA Facebook that some tests like pap smear test is important, I learnt a number of things stood out, learning helped me to feel positive” (Interviewee #3).

The Social Capital subtheme, emerged as seventy six percent (76%) of interviewees perceived that OCA Facebook Use enabled them to have easier access to social capital. The OCA Facebook page enabled cancer-affected people to gain access to more strong and weak ties, which could provide them with more informational and emotional support and made them feel happier and less isolated. The following shows examples of what interviews said about their experience of higher perceived social capital:

“When I use OCA Facebook I receive fast feedback about my questions, I feel there are people there who answer my questions on OCA Facebook and it makes me feel good” (Interviewee #13).

“I feel happy when I use OCA Facebook because if I needed an urgent recommendation, I know someone at OCA Facebook that I can turn to” (Interviewee #11).

The subtheme of Social Presence represents seventy two percent (72%) of interviewees, who found that the use of OCA Facebook enhanced their communication capabilities in the community as well as their sense of being with others in the online environment. Participants believed that the use of OCA Facebook enabled them to feel the presence of others through obtaining private or public messages such as liking comments, tagging photos, sharing content and poking. They also noted that the technical features of Facebook enabled them to have audial and visual interaction with others; which led them to experience effective communication and feel like communicating in the real world. As a result, interviewees claimed feeling the presence of others and also understandable communication made them feel more positive, happier and more satisfied. The following shows two examples of interviewees’ experience of social presence in the OCA Facebook environment:

“communication on OCA Facebook is completely understandable since you can use different approaches for delivering your message, such as posting photos and video, conducting audio and video communication, all of them that would decrease ambiguity which allows you to experience more pleasing feelings” (Interviewee #14).

“I was in a conference support call, once they talked about some research about cancer in the call, it was very confusing for me, because it was something new, and they talked quickly, and the guest speaker they had, had a lot of information.

But then when they post it on the Facebook, I was able to read it at my own leisure and a little bit more time, even I could send private messages and receive more feedback which made me pleased ” (Interviewee #17).

Table three shows the themes, sub-themes and underlying factors.

Table 3. Explored Themes- sub-themes and underlying factors

Theme	Sub-theme	Type of use			Intensity of use	
OCA Facebook use	<i>Categories</i>	Active use	Passive use		Frequency of OCA Facebook use	Duration of OCA Facebook use
	<i>Codes</i>	Public Posting Chatting chatting Reading public posts Liking content Sending private messages	Checking news feed Observing posted contents		Four times a week Three times a week Daily use	Twenty minutes per use 30 minutes per use
Psychological wellbeing	<i>Sub-theme</i>	Happiness	Satisfaction		Less stress	Less loneliness
	<i>Categories</i>	Feeling good and Happy	Feeling satisfied		Feeling Less pressure	less distant
	<i>Codes</i>	delight gladness Cheerfulness optimism	Satisfied Content Pleased Comfortable Relaxed		Less tension Less nervous Less worried Less anxious	less isolation less detached Less separation
Mediating Factors	<i>Sub-theme</i>	Social connectedness	Social learning	Social support	Social capital	Social presence
	<i>Categories</i>	Feeling connectedness with social connections	Learning from social connections	Feeling perceived information and emotion	Feeling access to information and emotional resources	understandable communications
	<i>Codes</i>	In touch Involvement Belonging	Obtaining knowledge Learning Obtaining skills	Emotion support Passion support	Informational assets Emotional assets find companionship	Clear communications Real world interaction

6. DISCUSSION

Results from this study show that the use of OCA Facebook was part of cancer-affected people’s daily activity and had a positive impact on their psychological wellbeing, regardless

of whether they used it actively or passively. This is consistent with previous studies that found that SNS use was integrated into students' lives and positively impacted their wellbeing (Valkeburg et al, 2006) including psychological wellbeing (Guo et al, 2014).

This study show that the use of OCA Facebook enhances the psychological wellbeing of cancer affected people. Overall 88% of the interviewees believed that the use of OCA Facebook led them to feel happier and more satisfied with life, 72% of participants felt less stress and 60% of them claimed OCA Facebook Use helped them to experience less loneliness. These findings show that Facebook use for cancer-affected people leads to enhanced psychological wellbeing because. Interviewees reported higher levels of happiness and satisfaction and lower levels of loneliness and stress which are indicators of higher level of psychological wellbeing (Huppert, 2009). Psychological wellbeing was improved for cancer affected people using the OCA Facebook because users perceived enhanced social capital, social support, social learning, social connectedness and social presence.

This study showed that cancer affected people using OCA Facebook had a sense of belonging to the OCA's online community. The use of the OCA Facebook helped cancer affected people to fulfil their social needs and increased their feeling of happiness. This is consistent with Belongingness Theory and previous studies that found experiencing social connectedness in social environments is positively associated with a higher level of happiness (Lee and Robins, 2000).

, Less stress was experienced by the users of OCA Facebook which is likely to be associated with experiencing more social support including informational and emotional social support, as these kinds of support are formed in social environments, which play an important role in decreasing stress and increasing psychological wellbeing (Nabi et al., 2013).

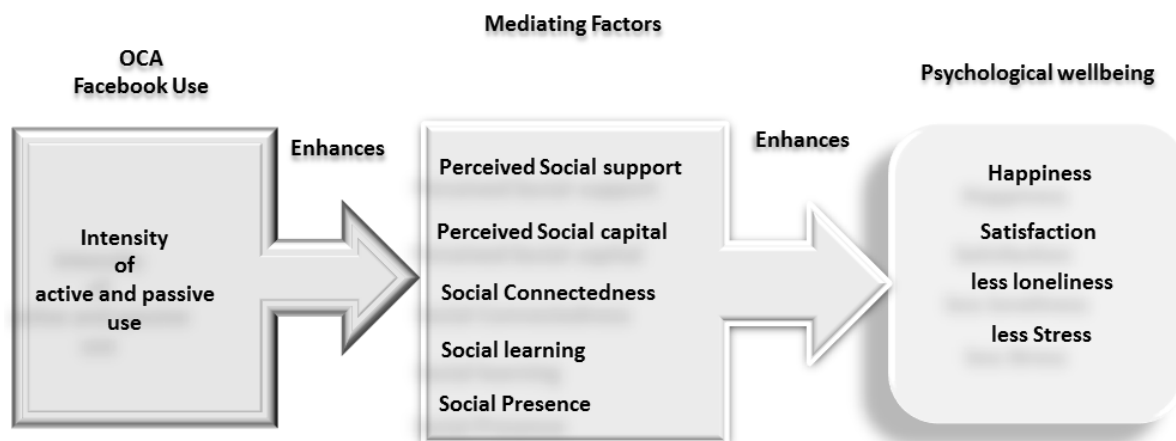
OCA Facebook use enhanced the social presence of cancer affected people. Facebook enabled cancer-affected people to use various online services that could support the use of natural language, carry nonverbal and verbal cues, and provide rapid feedback that was associated with effective and understandable communication and consequently feeling more positive and happy. This is in line with the perspective of social presence theory which explains communication is effective if the communication medium can support social presence required for a task (Short et al. 1976), and also with previous studies have shown there is reciprocal relationship between individual's social presence and satisfaction with life (Swan,2003).

OCA Facebook Use improved the social capital of cancer-affected people, which led to a lower perception of loneliness and a higher level of perceived happiness. As also suggested by social capital theory, individuals' social capital, embedded in their social connections, plays an important role in increasing psychological wellbeing. This study found that access to strong and weak ties, derived from OCA Facebook use, increases perceived social capital.

The use of OCA Facebook helped cancer affected people to learn new things through both passive and direct use. Interviewees felt happier. Findings are consistent with the insight of Sociocultural theory (SCT) that explains learning occurs through observing others' interaction (self-regulation), and also through achieving hints and feedback (other regulation or scaffolding) from others in a social environment (Lantolf, 1978). In addition these findings are similar to the previous research that showed individuals' learning resulting from their social ties was associated with experiencing a higher level of self-esteem and better psychological wellbeing (Watkins et al. 2008).

The building blocks for a preliminary conceptual framework of OCA Facebook and the psychological wellbeing of cancer affected people is shown in Figure 2. OCA Facebook use is represented by Intensity of use that refers to frequency and duration of both active and passive use of OCA Facebook. Five mediating factors: perceived social support, perceived social capital, social belongingness, social learning and social presence. Through these five mediating factors, OCA Facebook Use impacts on psychological wellbeing of cancer-affected people in terms of feeling happier, more satisfied and experiencing less loneliness and less stress.

Figure 2. Preliminary Conceptual model of the OCA Facebook use and psychological wellbeing of cancer affected people.



In summary, this conceptual framework shows that, through the mediating factors, Facebook use is positively related to the psychological wellbeing. Furthermore, this framework stresses that **Facebook use enhances perceived social support, social capital, social learning, social presence and social connectedness**. Cancer –affected users of OCA Facebook community experienced a higher level of social capital and social support, and thus felt happier. Results also showed that the use of OCA Facebook caused cancer-affected people to experience a sense of belonging to the community, which helped them to experience lower feelings of loneliness. OCA Facebook use enabled users to feel the presence of likeminded people and to more clearly communicate with them, which in return helped them to feel more satisfied.

7. CONCLUSION AND FUTURE RESEARCH

This research assessed the relationship between the use of OCA Facebook and psychological wellbeing of ovarian cancer- affected people. The findings extend our understanding of how Facebook is used in a specific context. The results of this study contribute to the literature on online social networking sites research by developing our understanding of the implication of SNSs in a specific health context. The findings show people affected by cancer use the Ovarian Cancer Australia Facebook daily, either passively or actively. This research addresses the limitations of earlier studies by examining Facebook use by a specific

population. The research explored the factors that mediate the positive effect of Facebook use on the psychological wellbeing of users. The findings show a positive relationship between Facebook use and psychological wellbeing that is mediated through obtaining perceived social support, social capital, social connectedness, social presence and social learning.

This study showed that Facebook has the potential to enable its users to use different online services for developing network, communication and interaction with other members of Network which could lead to positive outcome. Findings from this study may assist health organizations to generate guidelines and policies for utilizing Facebook for improving the psychological wellbeing of their users.

One limitation was that amongst other types of SNSs, only Facebook was considered in this study. Facebook is currently the most popular SNSs for the public to exchange cancer related information, and the findings of this paper maybe generalizable for similar types of moderated public online communities and Social Networking Sites. However, findings of this paper may not be fully applicable to other types of SNSs, where the content is not moderated and the structure of the online community is different to Facebook.

While this paper found a positive relationship between Facebook use and psychological wellbeing of its users, the strength of this relationship needs to be investigated in future research. Empirical studies should be conducted in future to examine the relationship between the Facebook use and the mediating factors to find out statistical impacts on psychological wellbeing of users. Organizations should consider introducing policies for using Facebook as online support recourse to enhance individuals' psychological wellbeing.

Appendix A. Interview questions

The purpose of this interview is to learn about your personal thoughts, opinions and experiences regarding the use of social Network Sites (Ovarian Cancer Australia Facebook), as a source of support for anyone who has been affected by ovarian cancer and to explore in what ways SNSs use is related to the psychological wellbeing of people who have been affected by ovarian cancer.

1. Why did you decide to use OCA Facebook? (Probe: needs, obtaining information, achieving emotional support, learning healthy behaviours, others).
2. How often do you use OCA Facebook?
3. How long in each session do you use OCA Facebook?
4. For how long do you use OCA Facebook?
5. How do you use OCA Facebook (check news feed, chat, post on the wall)?
6. How are you thinking or feeling when you use OCA Facebook? How would you describe the person you are then? (Probe: happy person, less frustration).
7. What is the main reason of having the mentioned feeling? (Probe: learning new healthy behaviour, achieving more emotion or information)
8. Are you attached to using the mentioned cancer related Facebook? If yes why?
9. Could using OCA Facebook facilitate learning healthy behaviours? If yes, how? Probe: reading related content of the Ovarian Cancer Facebook page, by interacting with members?
10. Do you think OCA Facebook could be a source that increases your happiness? Why or why not?
11. Could you provide a good experience of using cancer related Facebook?
12. Is there anything else that you would like to add that could help me to understand the role of cancer related Facebook for people who have been impacted by cancer?

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