The relationship between social media, depression prevention and support for women postnatally

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ABSTRACT: *With the internet expansion there is an increase use of the internet by health services and for health information. It has been suggested that online social activity can provide the opportunity to develop and maintain social associations that can be psychologically beneficial. Few studies have explored the relationship between social support and online social interactions in the online environment in the postnatal period. The aim of this study was to extend knowledge of the role of individual difference predictors (such as emotional, and psychosocial variables) in how mothers engage with each other online, and the mechanisms by which they obtain social support in the online environment; specifically, Facebook. The study used a cross sectional design using survey. In this study the nursing and midwifery team at the participating hospital established a Facebook page for mothers in 2011 to facilitate exchange of information and access to the maternal healthcare staff of the hospital. Recruitment occurred between June and December 2013 through a posting on the Facebook page inviting participants to undertake the online survey. There was a statistically significant positive correlation between time spent on Facebook and having Facebook as part of the daily schedule. Importantly, feeling part of the Facebook community was negatively correlated to scores indicating depression potential using the Edinburgh Post Natal Depression Scale and positively correlated to social connectedness scores. These findings show promise for the engagement of mothers in this type of forum for healthcare purposes.*

Keywords: *depression, Facebook, motherhood, online interactions, nursing and midwifery, postnatal, post-partum, social media, social support, social connection*

Introduction

The perinatal period is an expected life milestone that occurs within a social perspective; including the supports available to mothers in birth and the postnatal period (Buultiens et al., 2012). However, in the context of globalisation conceptual shifts in relation to structural supports available from family and friends mean that the supports are diverse and at times increasingly distant for women. Individuals are increasingly using the online environment (such as social networking sites) to engage and associate with others (Boyd and Ellison, 2007). A number of encouraging and positive outcomes are related with the use of the online environment. These include improving mental health, social support derived from online environments (Longman et al., 2009) and the use of Facebook to share personal clinical information, request disease-specific guidance and feedback, and to receive emotional support in an impersonal forum (Greene et al., 2011). Moreover Online social activity can

provide the opportunity to develop and maintain social associations that can be psychologically beneficial (Steinfield et al., 2008). However, inconsistent conclusions regarding the relationship between social support and online social interactions in the online environment may be an area of investigation that may warrant further exploration (Kim et al., 2009; Campbell et al., 2006).

There is an increased use of the internet by health services and increasing amount of health information available with the internet expansion (Buultiens et al., 2012). The culture of online support can create meaningful links to others when geography is a barrier to such support (Capitulo, 2004; Cowie et al., 2011) particularly for new mothers (Evans et al., 2012; Drentea and Moren-Cross, 2005). Electronic communication can be particularly important for mothers living in rural and remote areas (Hall and Irvine, 2009; O'Connor and Madge, 2004). Of the little research examining new parents who use Facebook, results suggest Facebook interaction assists in personal transition into parenting (Bartholomew et al., 2012). Further evidence put forward the online environment provides women who experience postpartum depression a safe place to connect with others, to receive information, encouragement and even hope (Drentea and Moren-Cross, 2005; Porter and Ispa, 2013). Additionally, mothers can gain a sense of support through increased connectedness with others (Hudson et al., 2009; McDaniel et al., 2012; Thoren et al., 2013; Zaslow, 2012). Due to limited information in an expanding social networking environment, research into the underlying motivations, expectations and use or non-use of social media is advocated especially for health purposes (Antheunis et al., 2013). The aim of this study was to extend the knowledge related to the role of Facebook (i.e. Online interactions) and the individual difference predictors (i.e. Emotional and psychosocial variables) and how they relate to new mother's perceptions of social connectedness, support and mental well-being.

Methods

Participants

The sample comprised mothers who were users of the hospital led Facebook page aged over 18 years of age.

Participating site

The participating site was a large private hospital located in Melbourne. The hospital has a large obstetric service with approximately 3000 deliveries per year. In 2011 nursing and midwifery staff established and led a Facebook page aimed at mothers to facilitate the exchange of information and increase access to maternal healthcare staff. Doctors, nurses, midwives and allied health professionals worked collaboratively on the social media strategy enabling the hospital to share health information with the general public. In 2013 the Facebook page had 3500 followers.

Procedure

The research used a cross-sectional correlational design, which was statistically tested. Participants were recruited directly through a posting on the Facebook page which invited the users to participate in an anonymous online survey regarding their Facebook use practices and social interactions. Recruitment occurred between June and December 2013.

Ethics Statement

Ethics approval was received from two human research ethics committees (the hospital [protocol number LRR 058/13] and the associated university).

Measures Used

The measures used in the survey included collection of demographic data, Facebook usage using 16 items from Ross, et al. (2009), regarding the quantity, quality, and bi-directionality of interactions on Facebook and Facebook connectedness using a modified 20 item social connectedness scale (Lee et al., 2001), depression was measured using the Edinburgh Post Natal Depression Scale (EPDS) which is a 10-item scale (Cox et al., 1987), social anxiety measured using the three item Mini-SPIN (Connor et al., 2001); social support measured using the Maternity Social Support Scale (MSSS) which is a 6-item, 5-point Likert-type rating scale that measures social factors associated with postnatal depression (i.e. low friendship network, lack of family support, lack of help from spouse/partner, conflict with spouse/partner, and feeling unloved by spouse/partner) (Webster et al., 2000) and subjective wellbeing measured using the five item Satisfaction with Life Scale (Diener et al., 1985). These are all standard psychological measures, and the reliability and validity of these scales have been used extensively in published research.

Data Analysis

Data was downloaded from Survey Monkey into SPSS for analysis. The variables examined were Facebook usage (quality, quantity, and reciprocity analysed using a modified version of the social connectedness scale), Facebook connectedness, depression, social support, and subjective wellbeing. Data was first summarised descriptively and an independent samples *t* tests were used to compare the average scale scores in relation to depression scores. Spearman's correlation coefficient was used to determine relationships between each scale and Facebook usage on this maternal health hospital page. Between groups analyses of variance (ANOVA) were used to investigate the effects of Facebook usage and the scales used in the survey. A p value of < 0.05 was used to ascertain statistical significance for all analyses undertaken.

Results

Demographics

A sample of n= 186 (a response rate of 5% possible followers of the Facebook page). Of the n=186 female participants 88.1% were aged between 25 – 44 years. The majority of respondents (80.1%) had achieved a qualification beyond their high school certificate with many having an undergraduate degree qualification. A large proportion of respondents were either married (80.6%) or in a defacto relationship (7.5%) (Table 1).

Table 1: Participants' Socio-demographic Characteristics

Demographic	Frequency	Percentage
Age (years)		
18 – 24	6	3.2
25 – 34	83	44.6
35 – 44	81	43.5
45 – 54	6	3.2
55 – 64	3	1.6
Total	179	96.2
Missing	7	3.8
Highest Level of Education		
Primary School	1	0.5
High School	27	14.5
TAFE	40	21.5
Degree	64	34.4

PG Degree	28	15.1
Masters	14	7.5
Phd	3	1.6
Total	177	95.2
Missing	9	4.8
Employment Status		
Employed	62	33.3
Self-Employed	19	10.2
On Maternity Leave	48	25.8
Out of Work > 1 year	2	1.1
Out of Work < 1 year	2	1.1
Homemaker	35	18.8
Student	4	2.2
Retired	2	1.1
Unable to Work	2	1.1
Total	176	94.6
Missing	10	5.4
Marital Status		
Single	6	3.2
Married	150	80.6
Defacto	14	7.5
Divorced	4	2.2
Widowed	1	0.5
Separated	4	2.2
Total	179	96.2
Missing	7	3.8
Religious Preference		
Agnostic	23	12.4
Atheist	33	17.7
Buddhist	2	1.1
Christian	94	50.5
Hindu	1	0.5
Jewish	2	1.1
Muslim	1	0.5
Other Religion	18	9.7
Total	174	93.5
Missing	12	6.5

Note: TAFE- Training and Further Education

Facebook usage (quality, quantity and reciprocity)

Interestingly, 3 respondents did not have a current Facebook account. Those who did have a Facebook account were on Facebook on average 1-2 hours per day and most (90%) either agreed or strongly agreed that Facebook was part of their everyday activity.

Respondents agreed or strongly agreed (67%) that they felt out of touch when they hadn't logged onto Facebook for a while and indicated they felt a part of the Facebook community. There were 3 participants in the 55-64 year old age groups which was surprising. This may be attributed to older mothers (some new mothers located at the participating hospital who hosted the Facebook page have been 55 and 56 years old).

Most respondents preferred the Facebook wall (68%) rather than Facebook messages. Most respondents liked Facebook for communicating with friends (71%) and 58% liked Facebook due to it providing information (e.g. Groups).

Anxiety, depression and social connection via Facebook

Independent samples *t* tests were used to compare the average scale scores of the social connectedness scale (SCS), maternal social support scale (MSSS), social anxiety scale (SPIN), and satisfaction with life scale (SWLS) by participants in the post natal depression (EPDS) "high score group [i.e.: a score 10 or greater] to the average scale scores reported by those in EPDS "low score group [i.e.: a score 9 or less]. As shown in Table 2 the *t* tests were statistically significant ($p < .01$) and according to Cohen (1988), the effect sizes (*d*) are considered to be in the range of medium to large.

Table 2: Scale Differences Between EPDS "High" and "Low" Participants

Scale	EPDS High Group			EPDS Low Group						Cohen's
	M	SD	N	M	SD	N	df	t	p	d
SCS	71.57	11.84	42	80.64	11.57	100	140	4.23	<.001	.78
MSSS	23.95	3.77	43	26.36	3.69	105	146	3.58	<.001	.66
SPIN	4.89	3.38	44	3.08	2.63	106	65.51*	3.16	.002	.63
SWLS	21.93	5.88	45	27.75	4.75	104	69.94*	5.86	<.001	1.14

*Equal variances not assumed; significance at $p < .05$

Table 2 results revealed those who recorded a higher depression score in order of effect (higher effect to lower) were less satisfied with life, less socially connected, experienced less support and reported social anxiety. A subsequent Spearman's correlation

analysis (Table 3) revealed that all five scale measures are significantly related to each other at $p < .01$ (correlations ranged from .29 to .62) and the direction of the relationships were consistent with previous research. The effect sizes, according to Cohen(1988), were 'moderate'.

Table 3: Spearman Correlations for Three Facebook (FB) Usage Questions and Five Scales

Measure	1	2	3	4	5	6	7	8
1. SWLS	-----	.40**	.44**	-.38**	-.52**	-.12	.05	.06
2. SCS		-----	.37**	-.62**	-.44**	-.09	-.06	.18*
3. MSSS			-----	-.29**	-.46**	-.06	-.02	.03
4. SPIN				-----	.34**	.07	-.03	-.02
5. EPDS					-----	.01	-.06	-.17*
6. Time on FB						-----	.32**	.28**
7. FB Daily Schedule							-----	.48**
8. Part of FB Community								-----

* p < .05. ** p < .01.

As depicted in Table 3 the Spearman correlation analyses revealed the following including effect size according to Cohen (1988). There was a statistically significant positive relationship, $p < .01$, between time spent on Facebook and Facebook in their daily schedule (r_s [164] = .32, $p < .01$). The effect size of this relationship was 'moderate'. A statistically significant positive relationship, $p < .05$, existed between being part of the Facebook community and the SCS (r_s [150] = .17, $p < .05$). The effect size of this relationship was 'weak'. Additionally a statistically significant negative relationship, $p > .05$, between being part of the Facebook community and the EPDS (r_s [142] = .18, $p < .05$). The effect size of this relationship was 'weak'. A statistically significant positive relationship, $p > .01$, between being part of the Facebook community and Facebook in their daily schedule (r_s [164] = .28, $p < .01$). The effect size of this relationship was 'weak'. And finally a, statistically significant positive relationship, $p > .01$, between being part of the Facebook community and time spent on Facebook (r_s [164] = .48, $p < .01$). The effect size of this relationship was 'moderate'.

These correlation results demonstrate the question related to dedicating a part of the daily schedule to Facebook was positively related to time spent on Facebook ($p < .01$). Additionally, the question related to feeling a part of the Facebook community was positively correlated to social connectedness scores (SCS) ($p < .05$) and time spent on Facebook ($p < .01$) and having Facebook as part of the daily schedule ($p < .01$). The question related to feeling part of the Facebook community was negatively correlated to scores indicating depression potential using the EPDS ($p < .05$).

Being a part of the Facebook community

One-way between groups analyses of variance (ANOVA) were used to investigate the effects of the question related to 'Feeling part of the Facebook community' groups mean scores (Disagree, Neutral, and Agree) on five scales (SCS, EPDS, MSSS, SPIN, and SWL). The ANOVAs were statistically significant ($p < .05$) on three of the five scales (SCS, EPDS, MSSS; refer to Table 4 for details). Medium effect sizes (η^2) ranged from .04 (EPDS, MSSS) to .09 (SCS). Post hoc analyses with Hochberg's (1988) GT2 (using α of .05) revealed significant group differences on the SCS and MSSS scales (refer to Table 4). All other scale group mean differences were not statistically significant ($p > .05$).

Table 4: Means, Standard Deviations, and One-Way Analyses of Variance for the Effects of the question related to 'Feeling part of the Facebook community' Groups (Disagree, Neutral, and Agree) on Five Scales (SCS, EPDS, MSSS, SPIN, and SWLS)

Scale	Feeling Part of the Facebook Community									
	Disagree		Neutral		Agree					
	M	SD	M	SD	M	SD	F	df	p	η^2
SCS	83.17$_{a}$	12.06	71.20$_{ab}$	11.96	79.20$_{b}$	11.92	6.48	2,139	.002	.09
EPDS	8.79	5.25	9.26	3.53	7.89	3.95	3.26	2,147	.041	.04
MSSS	27.36$_{c}$	3.05	24.34$_{c}$	4.30	25.86	3.74	3.27	2,143	.041	.04
SPIN	2.57	1.60	4.33	3.07	3.52	3.08	1.79	2,145	.170	.02
SWLS	26.07	7.10	24.20	6.17	26.60	5.38	2.05	2,144	.132	.03

Note. Means in a row sharing subscripts are significantly different ($p < 0.05$) from each other. Hochberg's GT2 post hoc test was utilised.

Discussion

These results are encouraging for understanding social support and social connection for mothers using the internet as a means of bringing mothers together. Family and friend support networks for mothers, in some cases, can be geographically or emotionally unavailable, meaning that close support and assistance for caring for their infant is not an option. In addition, some mothers have often been working and may not have had the opportunity to develop social networks, potentially isolating them. These results demonstrate that for these women feeling a part of the Facebook group community was related to potentially improving their feelings of social connectedness and support. Importantly the results also revealed a relationship between increased feeling of being part of the Facebook community and decrease in depression scores.

For many mothers having a baby is exciting and a time that is usually shared with loved ones and friends however for some the post-partum period can be daunting and for others isolating (Buultiens et al., 2012). Some mothers experience anxiety and others develop depression. Depression in the post natal period is well recognised and negatively impacts the woman, her partner and the family unit. Social media (such as Facebook) is highly accessible and offers a means by which mothers can engage with others in a group who have experienced a similar life event (Boyd and Ellison, 2007) and may positively impact such areas of life as social connection and anxiety and overall satisfaction with life, as shown by the findings of this study. This finding supports the findings of a few other studies such as Longman and Obst (2009) who investigated the effects of online environments on mental health and wellbeing and Greene et al (2011) who found people used Facebook for many purposes including to participate in online groups. Online group activity can give the opportunity to expand and preserve social contacts (Steinfield et al., 2008) proving to be an excellent resource that could be psychologically helpful for individuals. This point is particularly important when considering depression development. More specifically, the interpersonal theory of depression relates to interpersonal relations that are altered in the depressive state such that depressed people have limited social support networks, elicit rejection from others, and are low in social skills across a wide variety of situations (Haeffel et al., 2007). The theory suggests the presence of a relationship or being cared for can facilitate re-connection towards well-being. Phillips (2007) argues that care is the glue that binds individual relationships and extends on this by saying that it “involves giving the

understanding and practical help required to maintain the status quo in people's circumstances" (p20). This implies that (re)acquiring skills can be a catalyst for change, and fundamental to resisting depressive symptomatology (Edward, 2005).

For those living in rural (or remote) areas with limited access to support groups and potentially limited access to health information the use of online media is often their experience. In these cases electronic communication can create a virtual support group experience (Hall and Irvine, 2009; O'Connor and Madge, 2004). Additionally, maximising the use of online engagement can offer links to similar others when geography proves to be a barrier to such connections (Capitulo, 2004; Cowie et al., 2011) such as for new mothers (Evans et al., 2012; Drentea and Moren-Cross, 2005).

The results of this study also revealed the more connected people felt using Facebook the more satisfaction with life they experienced. While most people used Facebook to connect with existing and past friends, this study revealed that a large proportion of people used Facebook for information and to enable them to be a part of a group. Interestingly, there were some individuals (only 3 respondents) who did not have a current Facebook account; however this did not preclude them from engaging in the Facebook page dedicated to mothers and motherhood. While people may choose not to take part in Facebook (i.e. having their own profile), they may still engage in social media in many other ways. The information about the survey was hosted on the hospitals blog, it was Tweeted and retweeted in Twitter and there are also people who like to subscribe to the blog via email, suggesting that while people may not specifically choose Facebook as a social media tool, they may have other platforms which they regularly use, and most often, Twitter or Instagram. Further examination of these social media forum has the potential to inform healthcare organisations of other means to provide a virtual support forum or an interactive chat forum for women who may not otherwise be able to access such support post partum.

Limitations

The correlational analysis indicated that all scales were significantly related to aspects of Facebook usage (quality, quantity, and reciprocity) and while correlational analyses can suggest that there is a relationship between two variables, they do not prove that one variable causes a change in another variable. The design of the study creates major limitations related to generating inferences about the findings, for example the sample was not randomised, the

response rate was small of the population of interest (mothers who followed this Facebook page) and variables were not controlled for. However, correlational designs allow for simple observations and are valuable when it may be difficult to manipulate a variable. Additionally, the design allows for an analysis of the relationships of a number of variables rather than casual relationships.

Conclusions

This nurse and midwife led initiative has potential to support new mothers beyond the confines of the hospital admission. Adoption of the online environment as a 'virtual support group' for these women appears to have merit and should be considered by organisations that provide services for mothers (i.e. Obstetrics, community groups, breast feeding care). The fast expansion of social media is altering the way people connect particularly for healthcare purposes and given the current paucity of evidence on the topic of the underlying motivations, expectations and use of social media for mothers the findings of this study makes a good contribution to that growing evidence base. Further research related to use and benefits for mothers examining types of media other than Facebook is warranted.

Healthcare information and support is necessary in the post partum period. For some accessing the required community supports may be difficult, even elusive. More specifically, some mothers may be isolated geographically, time pressed with other competing issues, returning to work shortly after the birth of their baby, or hesitant to ask personal questions in a face-to-face forum related to post natal experiences. In this study the quality, quantity and reciprocity of Facebook usage was related to social connectedness and lower depression scores, showing promise for the engagement of mothers in this type of forum for health purposes.

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