

Towards Understanding the Effects of Social Networking on Postpartum Depression in Women: An Analysis in the Context of Bangladesh

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1. INTRODUCTION

Postpartum Depression (PPD) refers to moderate or severe depression in a woman after childbirth. It is strikingly common in new mothers with a prevalence of around 10-15% (20% or more in low- and medium income countries) [1]. In a longitudinal study conducted in Bangladesh, around 18% women during pregnancy and 31% women 6-8 months postpartum displayed depressive symptoms [2]. PPD may lead to suicide, infanticide, delayed development of infant's behavioral and cognitive abilities, paternal depression, and various negative impacts on a woman, her infant, and close ones. Unfortunately, about half of the cases involving PPD go undetected and untreated, even in developed countries [3]. Lack of familial support, social stigma towards mental illness, and the notion of mood changes being a natural part of the overwhelming post-childbirth period are considered to be the main factors behind underreporting of PPD cases [4]. Lack of trained professionals, long waiting times associated with in-person psychotherapy, financial limitations, concerns about privacy, and lack of knowledge regarding depression further discourage women from seeking help [4]. Women in developing and under-developed countries in particular face more difficult situations in this regard.

One way that new mothers may receive support to deal with their physical and mental stress during postpartum stage is through Social Networking Sites (SNS) such as Facebook [5]. A study across 8 countries suggested that new parents use Facebook 1.3 times more often than non-parents, while new American moms post 2.5 times more status updates, 3.5 times more photos and 4.2 times more videos than nonparents [6]. Facebook has rolled out several features to cater to this new and growing demographic, such as the ability to add 'expecting a baby' as a life event and to add babies and even fetuses to a 'Friends & Family' profile field [7]. Through ethnographic studies, Gibson and Hanson [8] found that new mothers considered Facebook to be a valuable platform to maintain social connection during the postpartum period, to create a new identity, and to search for information and reassurance needed to justify their choices and actions in raising a newborn child.

Not to be limited to developed countries only, usage of Facebook and its influence on people's lives are likely to see continued growth in developing countries also. Based on Bangladesh Telecommunication Regulatory Commission's

statistics as of June 2017, there are approximately 74 million Internet users and 21 million Facebook users in Bangladesh [9]. In this paper, we focus on Bangladeshi mothers to figure out how social support navigated through SNS can help them to deal with postpartum depression.

2. RELATED WORK

A number of studies have been conducted on how mothers use different social aspects of internet, such as blogging, motherhood and parenting forums, and Facebook. The use of social media by mothers is best illustrated by the trend nicknamed 'Mommy Blogging', where mothers post public blogs and photos reflecting their children's daily lives, give advice to fellow mothers and advertise products related to babies and parenthood. Based on a study conducted by Scarborough Research, 14% mothers in United States consider themselves 'Mommy Bloggers' [10]. According to the findings of McDaniel et al. [11], blogging frequency of new mothers is correlated to the feelings of maternal well-being, support, and social connection. Another popular form of online service used by mothers to get and share parenting advice is motherhood forum, including forums hosted on parenting sites like 'babycenter.com' [12] or anonymous forums such as YouBeMom [13]. De Choudhury et al. [14-15] studied Facebook and Twitter use of new mothers to predict sudden and extreme postpartum behavior changes. In [16], Morris studied patterns of social networking practices of new mothers, such as frequency and types of child-related contents shared by the mothers on social media.

3. APPROACH & UNIQUENESS

Most of the prior studies have been conducted in developed countries where majority of the population have greater access to healthcare. In developing countries, resources are scarcer for mental health services and the need for such care far outweighs what local providers can offer to those who are suffering or at risk for PPD. In this paper, we target Bangladeshi people as representatives from developing countries to analyze the impacts of using SNS on postpartum depression in women. Additionally, we attempt to figure out the knowledge level of general people (irrespective of gender) regarding postpartum depression and their perception towards its effects. We conducted an anonymous online survey and quantitatively analyzed the responses. The survey was publicized through two posts in two separate closed Facebook groups throughout August 2017.

4. RESULTS

We received voluntary responses from 93 participants (83 female and 10 male). We included male participants to collect their opinion about PPD. The mothers were asked whether they felt depressed within up to one year after childbirth. Among 70 mothers, 62 answered positively and 3 answered negatively to this question, whether another 5 were not sure. Additionally, they were asked questions according to EPDS [17] for screening of PPD. Combining the results of self-report and EPDS score, 53 mothers are considered to have moderate-to-severe PPD and 17 are without PPD.

4.1 SNS Usage

Privacy is a big concern in case of sharing personal information related health conditions in SNS. The participants were also asked what types of SNS community/platform they prefer in case of sharing any general concern. Among 90 respondents, 61 (67.7%) prefer personal homepage, while closed/ secret group and public group/pages are preferred by 24 (26.6%) and 5 (5.6%) persons respectively. As opposed to general concerns, when participants were asked which community/ platform they prefer to share physical/ mental health related concerns, 55 out of 84 respondents (65.5%) chose closed/secret group and 21 (25%) chose personal message. Only 4 (4.8%) persons selected public page/group while another 4 (4.8%) chose personal homepage. Considering the participants who responded to both set of questions regarding general and health related concerns, we found that these community preference of people (closed group/message vs. public group vs. homepage) for general and health related concerns are significantly different: $\chi^2(2, 84) = 71.24, p < 0.00001$.

4.2 Effects of SNS Usage on PPD

Figure 2 contains the symptoms and the percentage of mothers showing that particular symptom.

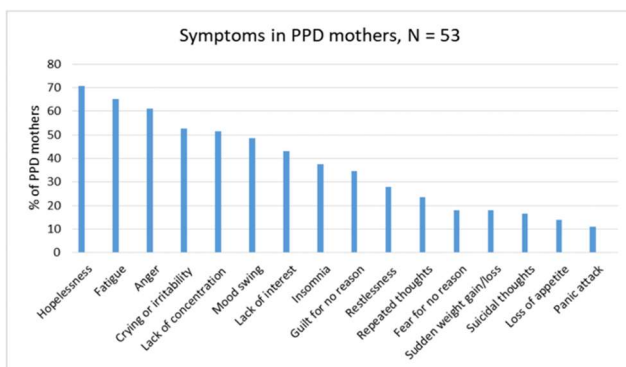


Figure 2: Symptoms of PPD in Bangladeshi Women

After childbirth, 42 (62.7%) among 67 respondent mothers used SNS multiples times a day, 19 (28.4%) used at least once a day, 3 (4.5%) used at least once a week and another 3 (4.5%) used at least once a month. On the contrary, in general, among these 67 mothers, 58 (89.6%) use SNS multiple times a day and 9 (13.4%) use at least once a day. This decline in SNS usage after childbirth is significant (χ^2

(1, 67) = 10.0894, $p = 0.0015$). However, SNS usage rates do not vary significantly among mothers with or without PPD. Test result is ($\chi^2(2, 67) = 0.6486, p = 0.723$).

As a follow up question to this, we asked what types of activities mothers mostly did within SNS after childbirth. Among 53 respondents, 32 (60.4%) shared photos of child, 11 (20.8%) added life events with the child, and 18 (34%) asked questions regarding child's health and developmental growth. As opposed to these child-related queries and updates, only 7 (13.2%) mothers asked questions about their physical conditions, and 5 (9.4%) shared concerns about their mental health and depression. Besides actively posting concerns, 29 (54.7%) mothers searched through others' posts and comments to find answers to their queries. Among 68 respondents, 23 (33.8%) mothers felt that their depression decreased using SNS and 34 (50%) did not feel any effect, while 11 (16.2%) felt that their depression increased. Among 34 mothers who actively posted their depression related concerns and/or searched through others' posts for solution, 21 (61.8%) felt that their depression decreased, 4 (11.8%) felt that their depression increased, while 9 (26.4%) did not feel any change. As opposed to these, among 20 mothers who only posted child-related updates but did not share any health concerns, 5 (25%) felt that their depression decreased, 5 (25%) felt that their depression increased and the rest 10 (10%) mothers did not feel any effect of using SNS on their depression. Thus, finding solutions to health concerns and sharing experiences within SNS by actively posting and/or searching through others' post reduces depression in mothers significantly compared to sharing child-related updates only ($\chi^2(2, 54) = 6.84, p = 0.0327 < 0.05$).

To better understand the effects of using SNS on PPD, we asked the mothers about the probable reasons behind any increase or decrease in depression due to using SNS. We received 49 responses to the question related to the causes of increased depression. The causes include seeing others' happy stories (63.2% votes), physical stress due to excessive usage of SNS, e.g., headache, sore eye etc. (28.6% votes), news of violence or stressful events (26.5% votes), guilt for wasting too much time over SNS (26.5% votes), and obsession with SNS (20.4% vote).

39 mothers voted for the causes of their depression decreasing due to using SNS. These causes include the realization that others can also face similar conditions (51.3% votes), sharing experience (41% votes), getting suggestions from fellow mothers (43.6% votes) and medical practitioners/ therapists (12.8% votes), and receiving appreciations and complements from others (41% votes).

4.3 Opinions on SNS-based Interventions

This section of our questionnaire was available to all the participants irrespective of gender or marital status. The participants were asked about their general thoughts on women's depression after childbirth. Among 68 responses to this question, 60 (88.2%) acknowledged that PPD is a

common problem that needs proper measures. Only 8 (11.8%) respondents opined that PPD is just a ‘phase’ which goes away naturally without any outside help. 6 of these 8 persons were either male or female without PPD.

Out of 90 respondents, 82 (91.1%) were familiar with the term PPD or its synonyms, e.g., baby blue, perinatal depression etc. 85 persons responded to the follow up question; from which source they had first learnt about PPD. Among different sources, SNS platforms like Facebook received the most votes (43.5%) followed by Internet search engines e.g., Google, (24.7%), health related books (12.9%), doctors/therapists (10.6%), and family/friends (8.2%).

Among 83 respondents, 55 (66.3%) and 19 (22.9%) respectively thought that SNS-based interventions can be or might be helpful in reducing PPD. In response to the question about what type of SNS-based interventions can possibly help in reducing PPD, 47 (58.7%) out of 80 respondents voted for events, activities or trends to increase awareness about PPD. Other popular measures include closed support group (55%), online communication with therapists and medical practitioners (50%), and SNS-based apps for stress-relief techniques (27.5%).

5. CONTRIBUTIONS & DESIGN IMPLICATIONS

These insights into Bangladeshi mothers’ SNS usage patterns suggest design and usability changes that such platforms might consider to optimally serve this demographic. For example, Facebook can intelligently tailor homepages of high risk PPD mothers so that less stressful or unsettling events are visible to them.

Large number of participants expressed that they feel relieved and relaxed by sharing their experiences with other mothers who also face similar conditions. However, most of the users do not want to ask explicitly about sensitive questions. To maintain anonymity, people mostly search through others’ posts and often use fake ID, take help from close friends or family, and sometimes even act pretentious while posting questions related to sensitive health concerns. SNS like Facebook can handle these fake IDs and pretentious attempts by providing designated anonymous accounts used by the members of closed/secret groups.

Self-help techniques such as yoga, meditation, exercise, music therapy and art therapy are often used by PPD mothers for relaxation and stress relief. However, maintaining continued practice of these techniques individually is difficult without outside motivation. While several stand-alone websites have been developed for these techniques, an SNS-based intervention delivered through Facebook may offer increased exposure. Presenting these practices in the form of a group activity or challenge within one’s peer network can develop engagement and interest among the mothers. SNS can also be a useful tool in increasing social awareness among general people as well as one’s family and friends. Timely support and empathy from husband and other family members are inevitable for a PPD mother to

recover quickly. Events and trends can be effective in making family members aware of their responsibilities towards mothers who are at risk of PPD.

6. LIMITATIONS & FUTURE WORK

While our study offers systematic insights into effects of social networking on PPD in the context of Bangladesh, limitations of our study suggest valuable avenues for future work. To find more rigorous idea about general people’s opinion regarding PPD, responses from more male participants should be collected. Ethnographic observations, focus group discussions and interviews need to be conducted to validate our findings from the survey and also to gather more subjective views. Moreover, all the participants of our survey have completed at least high school education. Incorporating feedbacks from illiterate or marginally literate population can significantly change findings from our survey. Also, understanding differences in the way SNS usage can affect fathers may be a valuable area of inquiry.

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