Social Networking Services as a Tool for Support of Mothers: A Literature Review

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Abstract
Background: Difficulties experienced by mothers in raising their children can be resolved using social networking services (SNSs). Being aware of issues associated with SNSs in such situations may be useful for supporting mothers. We herein review the issues associated with using SNSs to support mothers.

Methods: This review was conducted using an electronic search engine to search for articles that described issues associated with using SNSs to support mothers, and which were published up to August 2022.

Results: After screening, a total of 19 articles were included. We thematically categorized the contents into three major issues associated with using SNSs for support of mothers: (1) issues on the management side, (2) issues on the user side, and (3) social and environmental issues. The mainly discussed issues were the safety of using SNSs and/or securing and training human resources on the management side, busyness of mothers on the user side, as well as sociocultural and communication environment-related limitations as social and environmental issues.

Conclusions: The issues we detected would aid in developing the use of SNSs as a tool to support mothers. Further research on these issues is needed.

Keywords: information technology; internet; mothers; social media; social support

Introduction
Life events, such as pregnancy, childbirth, and childcare, occasionally place negative stress on mothers’ mental health; for instance, mothers tend to become depressed¹ and to be isolated from diverse social networks.² Social isolation lowers a mother’s self-esteem, which in turn worsens her own health and thereby the health of her children.³ Postpartum depression (the incidence of which is estimated to be 12%–14%⁴,⁵) is a mental disorder that can lead to maternal suicide. Support for the health and well-being of all mothers and children is thus recognized to be a matter of global importance.

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importance. However, with the exception of Northern Europe, the rate of men taking parental leave remains low worldwide; thus, the physical and mental burden of childcare on mothers remains high.

For this reason, medical institutions offer some support services (e.g., childcare and postpartum breastfeeding guide) for mothers. This helps mothers gain knowledge and skill in childcare. When considering support for mothers during child-rearing, they may also need comprehensive nonmedical support from their families and other mothers. In addition, due to COVID-19 pandemic, mothers may be encouraged to avoid face-to-face connections and support. As a result, mothers are not able to help each other or receive appropriate information. Thus, online remote support has garnered attention over face-to-face support.

Currently, various social networking services (SNSs) have been developed, and research on supporting mothers with SNSs and the communities has been conducted in many countries. In general, such social networking and online networks have a positive impact on mothers. In particular, for socially vulnerable adolescent mothers, social networking sites are proper tools for receiving social support, including information on child-rearing. In relation to mental health, communication among mothers on social networking sites can reduce maternal stress and increase maternal self-esteem. Social networking sites are also reported to reduce mothers’ sense of loneliness during child-rearing.

Knowing the general issues related to SNSs may be useful for supporting mothers. However, such issues have not been summarized. This study therefore examined the issues associated with using SNSs as tools to support mothers in the medical field.

Methods

This review was conducted using an electronic search engine to identify published articles based on the following search keywords: mother, online social network, social networking service, SNS, social media. A search was then conducted using PubMed and CENTRAL for articles published through to August 3, 2022. Boolean operators were included in search terms, using truncation to further broaden results and include plurals or similar terminology: “Mothers”[Mesh] OR “Mother”[tiab] OR “mothers”[tiab]) AND (“Online Social Networking”[Mesh] OR “Online Social Network”[tiab] OR “Online Social Networking”[tiab]) OR “Social Network”[tiab] OR “Social Networking”[tiab] OR “Social Networking”[tiab] OR “Social Networking”[Mesh] OR “Online Social Networking”[tiab] OR “Social Networking”[tiab] OR “Online Social Networking”[tiab] OR “Social Networking”[Mesh].

The inclusion criteria were articles that evaluated the effects of SNS on maternal health in mothers. Articles that reported on the term “SNS” (the abbreviation) with a different meaning from social networking services (e.g., sympathetic nervous system), articles in which the study subjects were not mothers (e.g., midwives), which focused on the development of a system (e.g., the process of creation of messages), and which provided an overview of SNSs (e.g., the actual states of use of SNSs in pregnancy) were excluded.

Figure 1 shows the flowchart of the process. First, titles and abstracts were screened according to the inclusion/exclusion criteria. Second, full-text screening was conducted. Finally, selected articles were carefully read to identify factors that were issues associated with using SNSs in support. Quantitative studies using all methodologies were included in this review.

Issues associated with using SNSs to support mothers were identified and then categorized with reference to the methods using Nvivo. First, selected articles were imported into Nvivo (ver. 20.5.0). Next, sentences from the text of the selected articles that were determined to be issues associated with using SNSs to support mothers were extracted and given appropriate node names to indicate their content. This process was repeated, and multiple nodes were created. After node extraction was completed, nodes with similar contents were grouped together. In this process, another author cross-checked for consistency in the coding approach and interpretation. Finally, the issues were summarized into the major categories of issues. This review method with its thematic categorization was similarly used in a previous study.

Results

Screening results

After screening the titles and abstracts, 441 of 482 articles were excluded. After full-text screening, we excluded articles in which an SNS was not used (n=8), which focused on the development of system (n=7), which described the actual states of SNSs (n=2), and in which the study subjects were not mothers (n=1). Finally, 19 articles were included in this study (Fig. 1).

Characteristics of the selected studies

The characteristics of the included studies are shown in Table 1. The country with the highest number of
reported cases was the United States \( (n = 6) \). The common attribute of mothers was pregnancy \( (n = 5) \). The SNS most frequently used for intervention was Facebook \( (n = 13) \). The most common support target was breastfeeding \( (n = 6) \). Most study designs were based on intervention \( (n = 15) \). Most studies indicated the positive effect of SNS use on the support target \( (n = 15) \).

After extracting issues associated with using SNSs to support mothers from the 19 articles, three major issues were detected (Table 2): (1) issues on the management side, (2) issues on the user side, and (3) social and environmental issues. As listed in Table 2, first, the management side issues included the following nodes: information security \( (n = 10) \), securing and training.

### Table 1. Characteristics of the Included Studies in This Review

| Authors                      | Year | Country | Attributes of mothers                     | Number | SNS type | Support target                 | Effect | Study design |
|------------------------------|------|---------|------------------------------------------|--------|----------|--------------------------------|--------|--------------|
| Wallis et al.                | 2021 | AUS     | None in particular                       | 120    | Facebook | Body image                     | E      | I            |
| Morse and Brown              | 2021 | UK      | Local group                              | 2228   | Facebook | Breastfeeding                  | E      | CS           |
| Hui et al.                   | 2021 | CAN     | Indigenous women                         | 125    | Facebook | Prenatal education             | E      | I            |
| Liu et al.                   | 2021 | CHN     | None in particular                       | 125    | WeChat   | Mental health                  | E      | I            |
| Chatwin et al.               | 2021 | UK      | Pregnant women                           | 156    | Facebook | Antenatal support              | E      | CS           |
| Dumas et al.                 | 2020 | CAN     | None in particular                       | 84     | Facebook | Feeding behavior               | NE     | I            |
| Dauphin et al.               | 2020 | USA     | Pregnant women                           | 288    | Facebook | Breastfeeding                  | E      | I            |
| McCarthy et al.              | 2020 | UK      | Pregnant women                           | 31     | Facebook | Information provision          | E      | I            |
| Dumas et al.                 | 2020 | CAN     | None in particular                       | 84     | Blog     | Feeding behavior               | NE     | I            |
| Dumas et al.                 | 2020 | CAN     | None in particular                       | 84     | Blog     | Feeding behavior               | NE     | I            |
| Williams et al.              | 2019 | USA     | Pregnant, Hispanic women                 | 23     | Facebook | Body weight                    | E      | I            |
| Cavalcanti et al.            | 2019 | BRA     | Women after childbirth                   | 251    | Facebook | Breastfeeding                  | E      | I            |
| Wright et al.                | 2019 | USA     | None in particular                       | 798    | Blog     | Information provision          | E      | I            |
| Boyd et al.                  | 2019 | USA     | Depression, postpartum, ethnic minority   | 24     | Facebook | Parenting intervention         | E      | I            |
| Daley et al.                 | 2018 | USA     | Pregnant women                           | 1093   | Original website | Vaccine hesitancy | E      | I            |
| Bridges et al.               | 2018 | AUS     | None in particular                       | 1846   | Facebook | Breastfeeding                  | E      | CS           |
| Niela-Vilén et al.           | 2016 | FIN     | None in particular                       | 124    | Facebook | Breastfeeding                  | NE     | I            |
| Bahkali et al.               | 2015 | SAU     | None in particular                       | 484    | Twitter  | Breastfeeding                  | E      | CS           |
| Herring et al.               | 2014 | USA     | Urban, low-income                        | 18     | Facebook | Body weight                    | E      | I            |

CS, cross-sectional study; E, effective; I, intervention study; NE, not effective; SNS, social networking service.
human resources ($n = 9$), validity of the system ($n = 5$), provision of authoritative information ($n = 3$), quick response ($n = 2$), and scope of the control of the system ($n = 1$). These issues were largely related to the safe use of SNSs and the need for professional teams to support mothers.

Second, the user side issues included the following nodes: busyness of mothers ($n = 5$), existence of other support routes ($n = 3$), and psychological factors of mothers ($n = 3$). These issues were related to the situation of mothers with pregnancy, childbirth, and childcare. Third, the social and environmental issues included the following nodes: social and cultural limitations ($n = 2$) and communication environment-related limitations ($n = 1$). The issues concretely expressed that geographically, there are areas with no or slow Wi-Fi service and that families in low-income countries encounter some problems in joining SNSs or obtaining communication devices.

### Discussion

This study demonstrated three major issues associated with using SNSs as a tool to support mothers during a childbirth and childcare period; that is, the management side issues, user side issues, as well as social and environmental issues. This is the first review to summarize the issues associated with using SNSs for the support of mothers in the medical field. These issues can help SNSs become a more powerful tool for supporting mothers.

In this review, information security and/or securing and training human resources were the most frequently described topics. Information about pregnancy, childbirth, and childcare is extremely personal and private. The information requires sensitive treatment. When such mothers use SNSs, it would be crucial to protect their information. This seems to partly explain the fact that the information security was one of the most frequently described topics. We observed that Facebook was the most frequently used SNS in this review; even though Facebook can be used to create a closed group, information security remains the greatest concern. The information literacy of mothers who join and/or access SNSs is also debatable, although no articles about information literacy were found in this review.

In relation to such literacy, as another topic that was frequently described, securing and training human resources are mandatory when mothers use SNSs. Although mothers require correct medical information on pregnancy, childbirth, and childcare, incorrect information can be spread; thus, the involvement of human resources with professional knowledge in social networking sites that provide support for mothers is expected. In fact, we could observe that the individuals providing support included licensed midwives, trained peer breast-training counselors, and female obstetricians/gynecologists with more than 25 years of practice. However, securing and training such professional human resources are not commonly present worldwide.

Among the user side issues, busyness of mothers was the most frequently described topic. It is thought to be reasonable because of the consensus that mothers are busy from the time of pregnancy to the childbirth and childcare periods. The noteworthy point is that mothers stopped or declined to participate in SNSs because of their busy schedules. In this review, most studies found positive effects of SNS use on mothers’ health conditions (Table 1); thus, we think that mothers stopping the use of SNSs or declining to use SNSs represent a serious problem. To address

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**Table 2. Details of Issues**

| Issues                  | Topics described in the articles                                                                 | Total number of articles |
|-------------------------|-------------------------------------------------------------------------------------------------|--------------------------|
| Management side         | Information security, Securing and training human resources, Validity of the system, Provision of authoritative information, Quick response, Scope of control of system | 15                       |
| User side               | Busyness of mothers, The existence of other support routes, The psychological factors of mothers | 7                        |
| Social and environment  | Social and cultural limitations, Communication environment-related limitations                 | 3                        |

Reference numbers are shown on the top right for each topic.
this, it is of the utmost importance to design SNSs in an easy way to suit the mothers’ schedules. In addition, support is required to make the use of SNSs convenient for mothers.

Social and environmental issues included economic difficulties in obtaining access to SNSs and vulnerable communication environments (e.g., Wi-Fi service). These social and environmental issues are faced by many mothers all over the world. To overcome this, social support is needed to bridge the digital divide. This cannot be realized by efforts in the medical field alone; thus, collaboration with the government is necessary.

The present study was associated with some limitations. First, the areas where SNSs support has been used or is being considered in the articles are mostly developed countries (mainly in Europe and the United States) and such use has not been considered in Asia or developing countries. Therefore, research targeting Asia and developing countries is needed. Second, most of the research subjects were pregnant and breastfeeding women, with few studies on mothers with specific diseases or chronic illnesses. If a mother’s problems are disease-specific, her SNS use could be different from that of non-diseased subjects. Third, there were no specific studies to compare the various methods of SNS use that provide effective support for mothers. This will be future work.

Conclusions
This study revealed three major issues with several topics associated with using SNSs as a tool to support mothers. These issues can provide focused hints for the future use of SNSs to support mothers, even while SNSs are simply adopted to supplement various support methods. Further research on this topic is needed.

Acknowledgment
This work was supported in part by Scientific Research from the Foundation for Development of Community.

Authors’ Contributions
T.O.: Conceptualization, methodology, formal analysis, investigation, data curation, visualization, and writing—original draft preparation. J.W.: Conceptualization, methodology, formal analysis, investigation, writing—original draft preparation, and visualization. K.K.: Conceptualization, writing—review and editing, supervision, and project administration. Y.I.: Writing—review and editing, and supervision.

Author Disclosure Statement
No competing financial interests exist.

Funding Information
No funding was received for this article.

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Cite this article as: Oto T, Watanabe J, Ito Y, Kotani K (2022) Social networking services as a tool for support of mothers: a literature review, Women’s Health Reports 3:1, 931–936, DOI: 10.1089/whr.2022.0026.

Abbreviations Used

- CS = cross-sectional study
- E = effective
- I = intervention study
- NE = not effective
- SNS = social networking service

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