Online Peer Support and Well-being of Mothers and Children: Systematic Scoping Review

Ai Yamashita¹, Aya Isumi², and Takeo Fujiwara²

¹Master of Public Health in Global Health (MPH) Course, Tokyo Medical and Dental University, Tokyo, Japan
²Department of Global Health Promotion, Tokyo Medical and Dental University, Tokyo, Japan

Received March 9, 2020; accepted September 28, 2020; released online October 31, 2020

ABSTRACT

Background: Online peer support groups are common and can be an effective tool for mothers with young children. The purpose of this review is to examine the types of support that online-based peer groups establish, as well as its health effects on mothers and their children.

Methods: Systematic scoping review. Systematic review of existing literature was conducted using PubMed, CINAHL, Medline, Cochrane and Ichushi (Japanese language) database in December 2019.

Results: Based on the inclusion and exclusion criteria, a total of 1,475 articles were extracted by initial search. After the review of titles, abstracts and full texts, a total of 21 articles met the inclusion criteria. The types of support mothers received were mainly informational and emotional support. Mothers also felt a sense of connection and community. Some health effects of online-based peer support group were seen in the area of mothers’ mental well-being. Minimal effects were seen in behavioral modification for child nutrition and breastfeeding.

Conclusion: Due to the limited evidence in interventional studies, the effects of online-based peer support groups were inconclusive. Further studies with rigorous research designs would be helpful in future research.

Key words: peer support; online; social networking sites; mother

BACKGROUND

Isolation of mothers, especially those with young children, in communities/societies has been a frequently discussed topic.¹,² Shifts in family/community structure and change in workstyle for women contribute to social isolation among new mothers.³,⁴ The geographic loss of a community network means fewer formal and informal safety nets for mothers.²,³,⁵ Birthing and parenting can be physically and mentally demanding for mothers. Although the duration of postpartum hospitalization and the quality of postpartum care varies from country to country, the mothers with newborns are discharged soon after the delivery and are expected to know how to look after their infants. There used to be female family members and relatives who could share the wealth of wisdom for childbearing and childrearing at home or in the neighborhood; however, due to change in social structure, such as increases in the number of nuclear families, single-parent households, and pregnancies at advanced maternal age, it is more and more difficult for modern mothers to obtain readily available information and advice from their strong ties.⁵–⁸

With this trend, internet appears to be filling the gap of mothers’ needs for information and advice. Internet technology has spread dramatically over the past two decades and many parents utilize the Internet to seek information and support regarding health and parenting.⁹–¹⁰ Numerous web-based mothers’ communities have been established, formally and informally, and mothers use those sites for various reasons, including anonymity and immediate affirmation and support.⁹,¹¹ These online communities take various forms, such as bulletin boards, email threads, blogs and Social Networking Site (SNS) communities. SNS communities have grown significantly and many participate in one or more types of SNS.¹² In addition to the Internet, SNS has also become a critical source of information and support for parents.⁹,¹¹ Thus researchers have recently revealed how mothers of young children use the Internet and SNS, yet the effectiveness of online peer support groups on their well-being has not been well-examined.

Furthermore, it is important for health professionals including public health nurses to understand the effectiveness of online peer support groups because professional-led interventions were conducted online, sometimes in conjunction with online peer support groups.¹³,¹⁴ Also, online peer support effects of general mothers are even less clear since many studies in this field were based on underline conditions and diseases.⁴,¹⁵,¹⁶ By performing a review of currently available publications, the following questions are explored:

1. What kind of peer support are mothers providing and receiving from online parenting communities?
2. Are there any health effects to mothers and their children in relation to the use of online parenting communities?

MATERIALS AND METHODS

Inclusion and exclusion criteria
With this scoping review, articles were searched for online peer support for infant and young children. Peer-reviewed journals in English and Japanese were included in the review. The inclusion criteria were as follows:
1. The study focused on online peer support group.
2. Online-based peer support was a part of interventions and/or focus of the study.
3. The target population included mothers with preschool children or younger.
4. The article assessed/examined the effect of online-based peer support group for mothers.

Exclusion criteria were as follows:
1. The target online-based peer support groups were based on clinical conditions, diseases or prevention of specific clinical/health conditions.
2. The target online-based peer support groups have a major healthcare professional component (eg professional-led interventions).

Search strategy
The literature search was conducted in December 2019. Pubmed, Medline, CINAHL, Cochrane and Ichushi (Japanese language) database were screened. Search terms used for the literature search is listed in Table 1. No limitation on years were applied. Some common clinical conditions related to online peer support, such as developmental disabilities, rare diseases, substance abuse, and neonatal intensive care (NICU) were applied as exclusion criteria. Elderly population was also applied as an exclusion term, since the target population was mothers of young children. With the database screening, a total of 1,475 articles were extracted for the review.

Among the selected articles, 238 articles were excluded due to duplication. Titles were screened for appropriateness for the review based on inclusion/exclusion criteria. Articles were excluded if the title included specific diseases names (ie, diabetes, autism), target population other than mothers with young children (ie, fathers, adolescents), terms that indicate specific treatment/intervention aims (ie, abuse, grief), or terms that indicate types of research or intervention other than online peer support for parents (ie, systematic review, intervention for children). Then abstracts were examined based on inclusion/exclusion criteria (n = 96). The remaining 27 articles plus nine articles added from reference lists and other related systematic reviews were examined in full text based on the same criteria. After completion of the review with two researchers, a total of 21 articles were selected for this review (Figure 1).

RESULTS

With the selected articles, most often seen were qualitative studies with web posts analysis and interviews. Eight articles were quantitative studies and one utilized mixed methods. One-third of the selected articles were from Australia. There were four publications each from Canada and the United States, three from the United Kingdom, two from Japan, and one from China. The years of the publications ranged from 1998 to 2019. Four interventional online-based peer group platforms were
outcomes are listed in Table 2. The study found that frequency of SNS use had a positive association with bonding social capital and emotional support.17,35 For non-interventional quantitative studies, research on online groups suggested that mothers felt connectedness.20 Yet, some studies also acknowledged negative support such as criticism, disagreement, polarized debate, and judgement, were seen in online communities.2,18,23,26

### Study interests

There were several studies focused on first-time mothers,4,20,23,24,28,32,33 Some targeted vulnerable populations such as adolescent and/or single mothers,17,20,35 Among the intervention-based studies, outcome measures extended to various areas such as nutrition of children,29 initiation and duration of breastfeeding,22 and parental stress level22,23,33 as well as social support.17,35 For non-interventional quantitative studies, research data was mainly retrieved from cross-sectional questionnaires, surveys, 3,30-33 For qualitative studies, interviews, questionnaires and focus group meetings were the main data sources. Three studies retrieved data from online contents.2,17,18 The majority of studies had outcomes measures with mental health related topics including empowerment, 21,30 depression, 31 self-esteem, 31 self-confidence, 20,25 parental stress level, 20,32,33,35 social support, 2,18,21,30-33 and loneliness. 8

### Outcomes and emerging themes

#### Mothers’ mental well-being: parental stress level and maternal depression

There were three studies that examined relationships between online peer support and parental stress.23,33,35 Nolan25 conducted a qualitative research targeting adolescent mothers and found parental stress reduction with utilization of web discussion. Those mothers felt the effect of stress reduction by sharing problems and receiving positive feedback and empathetic responses. With the study conducted by Dunham,36 Parenting Stress Index (PSI) was measured before and after the participation of web moderated social network platform for 6 months. The result showed that active participants were more likely to have decreased stress level post-intervention. Another study assessed parenting stress in first-time mothers.32 There was no direct significant association between parenting stress and blogging/social networking. However, the author pointed out that blogging frequency predicted feelings of connectedness and connectedness predicted the social support when the variables were fitted to structural equation model (SEM). Parental stress had an intervening effect between social support and maternal depression.

Miyata31 explored depression and found that “non-posting” mothers in online peer groups initially had higher depression score, but the score lowered after three months. Meantime, depression score for “posting” group remained relatively same. When fitted into SEM, it was suggested that internet support may have indirectly reduced depression among online group users. A study done with Chinese mothers; however, did not support a hypothesis of negative relationship between mothers’ online activities and perceived stress level.33

#### Mothers’ mental well-being: feeling of support from online groups

The majority of articles discussed direct or indirect effects of social support (informational, emotional and instrumental).2,17,21,30-33,35 Social capital was examined by Jans34 by conducting path analysis among mothers of pre-school children in the United States. This study found that frequency of SNS use had a positive association with bonding social capital and bridging social capital. Drentea et al2 analyzed contents of mothers’ online bulletin boards threads and concluded that online communities increased social capital by exchanging information and emotional support as well as community protection. Others suggested that mothers felt connectedness.20 Yet, some studies also acknowledged negative support such as criticism, disagreement, polarized debate, and judgement, were seen in online communities.2,17,27,35

---

Table 1. Search terms used in literature database

| Database             | Search terms                                                                 |
|----------------------|------------------------------------------------------------------------------|
| PubMed               | (((“internet” OR “web” OR “online” OR “world wide web” OR “blog” OR “world wide web applications” OR “online system” OR “social media” OR “facebook” OR “chat” OR “social network site” OR “sns”)) AND (psychosocial support OR “peer counseling” OR “peer support” OR “peer support group” OR “peer group” OR “social support”)) AND (parents OR “mother/infant” OR “mother/child” OR “mother”) NOT (“developmental disabilities” OR “rare disease” OR “substance abuse” OR “substance use” OR “drug abuse” OR “drug use” OR “drug addiction” OR “aged” OR “elderly” OR “senior” OR “old adult” OR “ncui”)) AND (MH internet OR AB internet OR AB web OR OR MH world wide web OR MH (blog) OR MH “world wide web applications” OR MH (online system) OR AB social media OR AB facebook OR AB chat OR AB (sns or social networking site)) AND (MH support, psychosocial OR MH peer counseling OR MH peer support OR MH peer support groups OR MH peer group OR MH social support) AND (MH (parents or parental or parenting)) OR MH (mother and child) OR MH family) NOT ((MH (developmental disabilities) OR MH (rare diseases) OR MH (substance abuse or substance use or drug abuse or drug addiction or drug use)) OR MH (aged or elderly or senior or older people)) OR MH (ncui or neonatal intensive care unit)) |
| Cochrane database    | (((“internet” OR “web” OR “online” OR “world wide web” OR “blog” OR MH world wide web applications OR MH social media OR MH facebook OR MH chat OR MH social network site OR sns)) AND (psychosocial support OR peer counseling OR peer support OR peer support group OR peer group OR peer social support) AND (parent OR family OR mother OR infant OR mother/child OR mother) NOT (“developmental disabilities” OR “rare disease” OR “substance abuse” OR “substance use” OR “drug abuse” OR “drug use” OR “drug addiction” OR “aged” OR “elderly” OR “senior” OR “old adult” OR “ncui”)) in Title Abstract |
| Japanese database    | (((インターネット OR “info/internet”) OR インターネット/ “internet” OR インターネット/ “internet” OR “world wide web” OR “web” OR インターネット/ “internet” OR インターネット/ “internet” OR “world wide web applications” OR “online system” OR “social media” OR “facebook” OR “chat” OR “social network site”) OR サイバースペース/ “cyberspace”) AND (psychosocial support OR “peer counseling” OR “peer support” OR “peer support group” OR “peer group” OR “social support”) AND (parents OR キッズ/ “child”) AND (MH (parents or parental or parenting)) OR MH (mother and child) OR MH family) NOT (MH (developmental disabilities) OR MH (rare diseases) OR MH (substance abuse or substance use or drug abuse or drug addiction or drug use)) OR MH (aged or elderly or senior or older people)) OR MH (ncui or neonatal intensive care unit)) |
| Ichushi database      | (((インターネット/ “internet” OR インターネット/ “internet”) OR インターネット/ “internet” OR “world wide web” OR “web” OR インターネット/ “internet” OR インターネット/ “internet” OR “world wide web applications” OR “online system” OR “social media” OR “facebook” OR “chat” OR “social network site”) OR サイバースペース/ “cyberspace”) AND (psychosocial support OR “peer counseling” OR “peer support” OR “peer support group” OR “peer group” OR “social support”) AND (parents OR キッズ/ “child”) AND (MH (parents or parental or parenting)) OR MH (mother and child) OR MH family) NOT (MH (developmental disabilities) OR MH (rare diseases) OR MH (substance abuse or substance use or drug abuse or drug addiction or drug use)) OR MH (aged or elderly or senior or older people)) OR MH (ncui or neonatal intensive care unit))
| Author          | Year   | Research design                  | Intervention or support group                                                                 | Methodological approach                                         | Sample size | Outcomes                                                                 | Significant (+) or non-significant (−) results | Reference Number |
|-----------------|--------|----------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------|-------------|--------------------------------------------------------------------------|-----------------------------------------------|------------------|
| Downing, KL     | 2017   | Retrospective cohort study       | Facebook peer support group                                                                  | Participants: first-time mothers (with children between 18 to 36 months) |             | BMI (kg/m²)                                                             | −                                                             | 28               |
|                 |        |                                  |                                                                                                |                                                                  |             | Waist circumference                                                      | −                                                             |                  |
|                 |        |                                  |                                                                                                |                                                                  |             | Fruit intake (difference $P = 0.047$ 122.6 g/day in control vs 152.7 g/day in intervention group) | +                                                             |                  |
|                 |        |                                  |                                                                                                |                                                                  |             | Vegetable intake                                                        | −                                                             |                  |
|                 |        |                                  |                                                                                                |                                                                  |             | Water intake                                                            | −                                                             |                  |
|                 |        |                                  |                                                                                                |                                                                  |             | Non-core drink intake                                                   | −                                                             |                  |
|                 |        |                                  |                                                                                                |                                                                  |             | Non-core sweet snack intake                                             | −                                                             |                  |
|                 |        |                                  |                                                                                                |                                                                  |             | Non-core savory snack intake                                            | −                                                             |                  |
|                 |        |                                  |                                                                                                |                                                                  |             | Energy intake                                                           | −                                                             |                  |
|                 |        |                                  |                                                                                                |                                                                  |             | Television viewing                                                      | −                                                             |                  |
|                 |        |                                  |                                                                                                |                                                                  |             | LMVPA (light-, moderate-, and vigorous-intensity physical activity.)     | −                                                             |                  |
| Giglia, R       | 2015   | Nested randomized study within longitudinal cohort study | Australia                                                                                     | Participants: Mothers of newborns ($n = 514$)                     |             | Exclusive breastfeeding at:                                            | −                                                             | 29               |
|                 |        |                                  |                                                                                                |                                                                  |             | 4 weeks after delivery                                                   | −                                                             |                  |
|                 |        |                                  |                                                                                                |                                                                  |             | 10 weeks after delivery                                                  | −                                                             |                  |
|                 |        |                                  |                                                                                                |                                                                  |             | 16 weeks after delivery                                                  | −                                                             |                  |
|                 |        |                                  |                                                                                                |                                                                  |             | 26 weeks after delivery (difference $P = 0.01$: 5.6% of intervention group vs 0.6% of control group) | +                                                             |                  |
| Hudson, DB      | 2009   | Qualitative phenomenological study | Australia                                                                                     | Participants: adolescent single, low-income mothers with 1-week old infants ($n = 20$) |             | Support of family and friends (physical support and advice)             | +                                                             | 17               |
|                 |        |                                  |                                                                                                |                                                                  |             | Criticism                                                               | −                                                             |                  |
|                 |        |                                  |                                                                                                |                                                                  |             | Peer support (emotional and instrumental support)                        | +                                                             |                  |
|                 |        |                                  |                                                                                                |                                                                  |             | System support (receive answers to technical questions)                 | +                                                             |                  |
| Dunham, PJ      | 1998   | Mixed study (pre- and post-test and qualitative ethnographical study). | Canada                                                                                       | Participants: single, adolescent mothers with newborns ($n = 42$) |             | Parental stress                                                         | +                                                             | 35               |
|                 |        |                                  |                                                                                                |                                                                  |             | Significant relationship was seen between active online participation and decreased PSI ($\chi^2 = 6.05$, $P < 0.04$) | +                                                             |                  |
|                 |        |                                  |                                                                                                |                                                                  |             | Qualitative:                                                            | +                                                             |                  |
|                 |        |                                  |                                                                                                |                                                                  |             | Majority of postings were positive and supportive (97.9%) and positive messages were Emotional support (56%), Informational support (37%), and Instrumental support (3%) | +                                                             |                  |
| Drentea, P      | 2005   | Qualitative phenomenological study | USA                                                                                         | Participants: web group mothers of infants up to 6 months ($n = 180$) |             | Increases social capital during the time when women are isolated as new mothers. | +                                                             | 2                |
|                 |        | (some descriptive statistics data) |                                                                                        |                                                                  |             | Social capital operates through emotional support, information-giving, and community protection to aid mothers of infants. | +                                                             |                  |
| Holtz, B        | 2018   | Cross sectional study with online questionnaires | USA                                                                                         | Participants: pregnant women or mothers with children under five years old ($n = 647$) |             | Online engagement was correlated with:                                  | +                                                             | 30               |
|                 |        |                                  |                                                                                                |                                                                  |             | Feeling of social support ($P < 0.001$)                                 | +                                                             |                  |
|                 |        |                                  |                                                                                                |                                                                  |             | Empowerment ($P = 0.001$)                                               | +                                                             |                  |
|                 |        |                                  |                                                                                                |                                                                  |             | RMSEA = 0.035, CFI = 0.980, TLI = 0.978                                 | +                                                             |                  |

Continued on next page.
| Author year country | Research design, Intervention or support group | Methodological approach sample size | Outcomes | Significant (+) or non-significant (−) results | Reference Number |
|---------------------|-----------------------------------------------|-----------------------------------|----------|-----------------------------------------------|-----------------|
| 7 Miyata, K (2002) Japan | Cross sectional study | Participants: Mothers of preschool children | Structural equation model (SEM) showed correlation between internet support and: | + | 31 |
|                     | Online forums (Nifty) | exchanging childcare information online (n = 331) | Depression (factor loading: −0.17) | + | |
|                     | | Two questionnaires in three-month interval for comparison | Self-esteem (factor loading: 0.21) | + | |
|                     | | | mothers who receive more internet support demonstrate more well-being than those who receive less internet support. | + | |
| 8 McDaniel, BT (2012) USA | Cross sectional study with online survey with purposive sampling | Participants: first-time mothers with children under 18-month old (n = 157) | Blogging indirectly (through connection with family/friends and social support) influence: Mental health (factor loading: 0.26) | + | 32 |
|                     | Mothers using SNS and blog | Structural equation Model for analysis | marital satisfaction (factor loading: 0.19) | + | |
|                     | | | marital conflict (factor loading: −0.33) | + | |
|                     | | | parental stress (factor loading: −0.19) | + | |
|                     | | | maternal depression through parental stress (factor loading: −0.19) | + | |
| 9 Hall, W (2008) Canada | Ethnographic study | Pregnant women and mothers of newborns (up to 11-month-old) (n = 40) | Themes emerged: | + | 18 |
|                     | breastfeeding online support group | Content analysis of online posts | Community connectedness | + | |
|                     | | | Social connectedness | + | |
|                     | | | Decreased parenting confidence | + | |
|                     | | | Reduced parental stress | + | |
|                     | | | Enhanced self-disclosure (anonymity) | + | |
|                     | | | Access to information | + | |
| 10 Bridges, N (2016) Australia | Grounded theory study | Mothers breastfeeding and participating target online support group (n = 23) | Overreaching theme: “community” | + | 19 |
|                     | breastfeeding online support group | Thematic analysis of interview and focus group data | | | |
| 11 Nolan, S (2015) Australia | Grounded theory study with narrative inquiry | Samples are adolescent mothers (16–19 years old) with one child (3–17-month-old) (n =7) | Themes emerged: | + | 20 |
|                     | SNS users | Interview (Narrative inquiries) | Social connectedness | + | |
|                     | | | Constant comparison analysis method | + | |
|                     | | | Increased parenting confidence | + | |
|                     | | | Reduced parental stress | + | |
|                     | | | Enhanced self-disclosure (anonymity) | + | |
|                     | | | Access to information | + | |
| 12 O’Connor, H (2004) UK | Phenomenological study | Online group interviews with new mothers (n = 16) | • Shared experience | + | 21 |
|                     | Online community | Children’s ages are unknown | • Virtual social support | + | |
|                     | | Inductive analysis of interview contents | • Empowerment | + | |
|                     | | | | + | |
| 13 Valtchanov, BL (2014) Canada | Grounded theory study | Samples are mothers of infants (n = 22), Data from individual interview | Technologically mediated motherhood and creating communities online: | + | 22 |
|                     | Online community | Charmaz’s (2008) constructivist grounded theory approach | “Virtual neighborhood”: Changing communities | + | |
|                     | | | “Stuck at home”: Accessible online community | + | |
|                     | | | “Mothers support network”: Supportive online community | + | |
| 14 An, Z (2016) China | Cross sectional study | Purposive sampling of first-time mother born in 1980s (n = 366) | SEM (χ²(95) = 159.20, P < 0.001, RMSEA = 0.04, 90% CI[0.03, 0.05], CFI = 0.97, GFI = 0.95, IFI = 0.97 with Δχ²(15) = 21.81): | + | 33 |
|                     | No specific targeting online group | Children are younger than three years old | Online support predicts reduced perceived stress (β = 0.09, ns) | + | |
|                     | | Quantitative structural equation modeling (SEM). | | | |
| Reference Number | Author            | Year | Country | Research design, Intervention or support group | Methodological approach | Sample size | Outcomes | Significant (+ or non-significant (−) results |
|------------------|-------------------|------|---------|-----------------------------------------------|--------------------------|-------------|----------|---------------------------------------------|
| 15               | Mandai, M         | 2018 | Japan   | Cohort cross sectional study                  | Mothers with children under 3 years old (n = 523) | Questionnaire analysis | Loneliness relates to: | Smaller SNS network (ρ = −0.33, P < 0.001) | +                   |
| 16               | Jang, Y           | 2014 | USA     | Cross-sectional study (online survey)         | Subsample of national LISTSERV | Mothers who use SNS and their oldest children is 18 years old or younger (n = 665). Among them, mothers of preschool children are 283. | Path analysis | Path analysis model for mothers of preschool children (χ² (24) = 32.39, P = 0.12, CFI = 0.95, RMSEA = 0.04): | | + |
| 17               | Price, SL         | 2018 | Canada  | Qualitative phenomenological study            | Convenient sampling of first-time mothers (n = 18) with infants under 1 year old. | Data collected with focus group and e-interview. | Maternal knowing (normalization and intuition) | | + |
| 18               | Johnson, SA       | 2015 | Australia | Qualitative phenomenological study            | Samples consists of first-time mothers (n = 12) | Data was obtained from prenatal (32–38 weeks) and postnatal interviews (when infants are 3 to 7 months). | Value experiential knowledge and practical advice. | | + |
| 19               | Gibson L          | 2013 | UK      | Qualitative ethnographic study                | Mothers who delivered within 12 months (n = 6). | Samples were collected from face-to-face parenting group. | Improving confidence as a mother: seeking advice. | | + |
| 20               | Regan, S          | 2019 | UK      | Qualitative study with semi-structured interviews. | ≥18 years old mothers who currently breastfeeding or breastfeeding in the past (n = 14). | Children up to 3 years old | Reassurance and normalizing | | + |
| 21               | Lupton            | 2016 | Australia | Qualitative Study                             | 27 mothers with young children under 3 and 9 women with first pregnancy. | Inductive thematic analysis of interview contents | Intimate information exchange | + |

CFI, Comparative Fit Index; RMSEA, Root Mean Square Error of Approximation; SNS, Social Networking Site.
group participation was correlated with feelings of empowerment among mothers. O’Connor et al also pointed out that virtual community provided an additional source of advice and increased mothers’ sense of empowerment. In this study, association between online group engagement and feeling of empowerment was positive.

As for self-esteem, Miyata suggested an indirect effect on self-esteem with internet community participation and this was also true with the participants who did not actively participate. Some qualitative studies indicated that online community helped to increase mother’s confidence as a parent.

Mothers’ mental well-being: loneliness
Mandai et al conducted cohort cross-sectional study of Japanese mothers and found that higher loneliness was significantly related to smaller SNS (social network sites) network as well as real social network.

Behavioral change facilitation with online-based peer group
Some studies assessed behavioral outcomes with online-based peer group interventions. Those included child nutritional intake and breastfeeding. Family/social network related outcomes were also measured and those included marital satisfaction/conflict and family support.

Behavioral change facilitation: nutritional intake of children
Downing et al examined Facebook peer group support effects after a series of nutrition classes (face-to-face). In this study, primary outcomes were children’s physical measurements, physical activities and various food intakes. The amount of fruit intake was the only significant difference noted between mothers with online peer support and non-peer group support. Fruit intake was increased among children with mothers who joined online peer support group.

Behavioral change facilitation: breastfeeding
A nested interventional study was conducted to assess exclusive breastfeeding. Intervention group had access to other members, and they had significantly higher exclusive breastfeeding rate at 26 weeks after delivery though no significance was noted in any other weeks.

DISCUSSION
Online peer support in form of informational, emotional supports were consistently present in the reviewed studies. Online peer support communities seem to influence mothers’ mental well-being directly and indirectly. Yet, interventions related to behavioral change focusing on feeding did not seem to have significant effects. Price et al concluded that online peer support would complement face-to-face interaction, but not as a substitution. Yet, others valued the nature of online anonymity and this particular environment provided safe spaces for mothers and facilitated disclosure of their true feelings and concerns.

One of the benefits of online support is its accessibility. Mothers can have a better sense of control and peace of mind by obtaining information, advice and reassurance in timely manner. There are “lurkers” who do not actively participate in the online communities but follow and obtain information as needed by browsing online sites. Miyata and Johnson suggested that those passive participants could also receive some benefits from online communities.

Accuracy of online information often becomes a focus of discussion, but the trend of online information usage among mothers may be slightly different from the information provided by healthcare professionals. Mothers use online information for validation or as an additional information source. Johnson suggested that mothers did not take all the information they received online. They rather filtered the information according to their needs. Price et al also suggested mothers gather information they need and follow their intuition for their decision making. Mothers may be asking questions online not because they want to get the right answers, but to gather heterogeneous opinions. It can also play a role of safety nets for mothers who have common questions which can be answered by other mothers who went through the same situation. However, online information can be misleading, unhelpful, or even wrong in some cases, and mothers’ information literacy skills may play a critical role for online information to be effective. Also, it is reported that mothers’ problematic use of the Internet or SNS (ie, addiction) has a detrimental impact on their interpersonal relationships and emotional stability, which could possibly lead to child maltreatment. In addition to understanding these negative aspects online peer support may have, it is especially important for healthcare professionals to consider when promoting maternal health through peer-support channels.

Limitations
There were limited numbers of interventional studies evaluating effectiveness of online peer support. Because of this, the review took the scoping review to explore what was already known in this field of research, and comparison by country or year the research was conducted was not made. Given that culture and social systems can be different depending on countries and the environment of parents, especially their usage of the Internet and SNS, can change over time, future studies should consider them in examining effectiveness of online peer support groups. Due to the nature of the review, no critical appraisal or bias assessment was conducted.

Conclusion
Effects of online-based peer support groups for mothers were explored. The review suggested some positive effects on maternal mental well-being, but the evidence was very limited to properly evaluate effectiveness of online peer group among the mothers of young children. When healthcare professionals consider health promotion of mothers through an online-based peer support group approach, the unique needs of mothers-to-mother support should be considered to maximize the support efforts.

Internet continues to be one of the major information sources for parenting mothers. Online peer support can be an easy and convenient way to increase maternal mental well-being. It gives mothers a unique opportunity to connect with others and exchange opinions. It can be particularly helpful in the circumstance where in-person social networks are limited, including the situation of COVID-19 pandemic. More structured interventional study designs to evaluate the effectiveness of online peer support are needed.

ACKNOWLEDGEMENT
Conflicts of interest: None declared.
REFERENCES

1. Paris R, Dubus N. Staying connected while nurturing an infant: a challenge of new motherhood. Fam Relat. 2005;54:72–83.

2. Drentea P, Moren-Cross JL. Social capital and social support on the web: the case of an internet mother site. Social Health Illus. 2005; 27(7):920–943.

3. Mulcahy CM, Parry DC, Glover TD. From mothering without a net to mothering on the net: The impact of an online social networking site on experiences of postpartum depression. J Motherhood Initiative. 2015;6(1):92–106.

4. Evans M, Donelle L, Hume-Loveland L. Social support and online postpartum depression discussion groups: a content analysis. Patient Educ Couns. 2012;87(3):405–410.

5. Seymour-Smith M, Cruwys T, Haslam SA, Brodribb W. Loss of group memberships predicts depression in postpartum mothers. Soc Psychiatry Psychiatr Epidemiol. 2017;52(2):201–210.

6. Cairney J, Boyle M, Oﬀord DR, Racine Y. Stress, social support and depression in single and married mothers. Soc Psychiatry Psychiatr Epidemiol. 2003;38(8):442–449.

7. Meyer DF. Psychosocial needs of ﬁrst-time mothers over 40. J Women Aging. 2020;32(6):636–657.

8. Mandai M, Kaso M, Takahashi Y, Nakayama T. Loneliness among mothers raising children under the age of 3 years and predictors with special reference to the use of SNS: a community-based cross-sectional study. BMC Womens Health. 2018;18(1):131.

9. Moon RY, Mathews A, Oden R, Carlin R. Mothers’ perceptions of the internet and social media as sources of parenting and health information: qualitative study. J Med Internet Res. 2019;21(7):e14289.

10. Plantin L, Daneback K. Parenthood, information and support on the internet. A literature review of research on parents and professionals online. BMC Fam Pract. 2009;10:34.

11. Baker B, Yang I. Social media as social support in pregnancy and the postpartum. Sex Reprod Healthc. 2018;17:31–34.

12. Ministry of Internal Affairs and Communications. Information and Communications in Japan White Paper 2018. https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/h30/pdf/30honpen.pdf. Published 2018. Accessed December 10, 2019.

13. Herman J, Mock K, Blackwell D, Hulsey T. Use of a pregnancy support web site by low-income African American women. J Obstet Gynecol Neonatal Nurs. 2005;34(6):713–720.

14. Salonen AH, Kaunonen M, Astedt-Kurki P, Jarvenpaa AL, Tarkka M. Development of an internet-based intervention for parents of infants. J Adv Nurs. 2008;64(1):60–72.

15. Moore D, Ayers S. Virtual voices: social support and stigma in postnatal maternal illness Internet forums. Psychol Health Med. 2017; 22(5):546–551.

16. Appleton J, Fowler C, Brown N. Friend or foe? An exploratory study of Australian parents’ use of asynchronous discussion boards in childhood obesity. Collegian. 2014;21(2):151–158.

17. Hudson DB, Campbell-Grossman C, Keating-Leﬀer R, Carraher S, Gehle J, Heusinkveld S. Online support for single, low-income, African American mothers. MCN Am J Matern Child Nurs. 2009; 34(6):350–355.

18. Hall W, Irvine V. E-communication among mothers of infants and toddlers in a community-based cohort: a content analysis. J Adv Nurs. 2009;65(1):175–183.

19. Bridges N. The faces of breastfeeding support: experiences of mothers seeking breastfeeding support online. Breastfeed Rev. 2016; 24(1):11–20.

20. Nolan S, Hendricks J, Towell A. Social networking sites (SNS): exploring their uses and associated value for adolescent mothers in Western Australia in terms of social support provision and building social capital. Midwifery. 2015;31(9):912–919.

21. O’Connor H, Madge C. “My mum’s thirty years out of date”. The role of the Internet in the transition to motherhood. Community Work Fam. 2004;7(3):351–369.

22. Valtchanov BL, Parry DC, Glover TD, Mulcahy CM. Neighborhood at your ﬁngertips: transforming community online through a Canadian social networking site for mothers. Gend Technol Dev. 2014;18(2):187–217.

23. Price SL, Aston M, Monaghan J, et al. Maternal knowing and social networks: understanding ﬁrst-time mothers’ search for information and support through online and oﬄine social networks. Qual Health Res. 2018;28(10):1552–1563.

24. Johnson SA. ’Intimate mothering publics’: comparing face-to-face support groups and Internet use for women seeking information and advice in the transition to ﬁrst-time motherhood. Cult Health Sex. 2015;17(2):237–251.

25. Gibson L, Hanson VL. Digital motherhood: how does technology support new mothers. Paper presented at: CHI ’13: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems2013; New York.

26. Regan S, Brown A. Experiences of online breastfeeding support: support and reassurance versus judgement and misinformation. Matern Child Nutr. 2019;15(4):e12874.

27. Lupton D. The use and value of digital media for information about pregnancy and early motherhood: a focus group study. BMC Pregnancy Childbirth. 2016;16(1):171.

28. Downing KL, Campbell KJ, van der Pligt P, Hesketh KD. Facilitator and participant use of Facebook in a community-based intervention for parents: the InFANT Extend Program. Child Obes. 2017;13(6): 443–454.

29. Giglia R, Cox K, Zhao Y, Binns CW. Exclusive breastfeeding increased by an internet intervention. Breastfeed Med. 2015;10(1):20–25.

30. Holtz B, Smock A, Reyes-Gastelum D. Connected motherhood: social support for moms and moms-to-be on Facebook. Telemed E Health. 2015;21(5):415–421.

31. Miyata K. Social Support for Japanese Mothers Online and Oﬄine. In: Wellman B, Haythornthwaite C, eds. The Internet in Everyday Life. Oxford: Wiley-Blackwell; 2002:520–548.

32. McDaniel BT, Coyne SM, Holmes EK. Digital motherhood: how does technology support rst-time mothers over 40. J Motherhood. 2009;65(6):183.

33. Dunham PJ, Hurshman A, Litwin E, Gusella J, Ellsworth C, Dodd PW. Computer-mediated social support: single young mothers as a model system. Am J Community Psychol. 1998;26(2):281–306.

34. Sakakihara A, Haga C, Kinjo A, Osaki Y. Association between mothers’ problematic Internet use and maternal recognition of child abuse. Child Abuse Negl. 2019;96:104086.