Understanding Women's Needs in Menopause for Development of mHealth

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The aim of these investigation was to understand human factors of using mobile application to manage woman’s health in menopause.
1) Identify design considerations for supporting their wellness with mobile devices.

2) Suggest possible mobile application for women’s wellness in menopause.
According to Stages of Reproductive Aging Workshop conducted by The American Society for Reproductive Medicine, menopausal transition period starts around the age of 47 and lasts about 4 years.

Symptoms vary through women but most of them experience more than one of the following; hot depression, flushing, sweating, insomnia, and colpoxerosis[23].
Recognition factors, actions, and attitude towards menopause

- Attitude affects the experience of menopause; positive attitude is followed by positive experience [24].
- Severity of psychological and physical symptoms and knowledge level on menopause are shown to be affecting attitude. [11]

Impotance of Social Influences

- Often times, social support plays a crucial role in individuals overcoming personal crisis, experiencing turning points in life, or accepting change of social roles [19, 20, 21].
- Average middle-aged women experience multiple significant changes of their lives and therefore, social support is especially important in this phase [19].
- It is important for middle age women in menopausal phase to manage their stress well with enough social support.
- Meanwhile, Advance of ICT technology has led to the change of format of social support. ex) SNS
BACKGROUND WORK

2.4 mobile intervention for wellness of woman in menopause
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RESEARCH METHOD

Recruiting

Recruited participants via snowball sampling

Target

Middle aged women aged between 45 and 60 who are experiencing menopause symptoms, or have experienced it within the last 5 years.

Total

11 participants (6 are employed, 5 are housewives)
Coded data from the interview and focus group interviews to look for functional requirements. The focus groups and interviews were recorded and transcribed. Transcripts were coded using an iterative coding process.

Potential codes created, around five core research themes: barriers, needs, expectation, information source, social support.

I assumed 9 functions I believed the target domain need to use their mobile application for their wellness:

1) UI interface to input their menstrual cycles easily
2) Calendar-based interface
3) Alarmed notification to induce precise cycle term recording
4) Information based on the measured menstrual cycle from health professionals
5) Graph visualized data
6) Exercise, food suggestion messages
7) Social Networking Service
8) SNS to Support sharing information and their feeling with friends
9) Support message from family members

Additionally, we also included in the interview some issues regarding privacy.
propensity to not record menstrual cycle.

Menstrual cycles on their calendars nor record dates anywhere else. They depended mostly on their memory to keep track of their menstrual cycles.

“My period was quite consistent at 25 days in between. And then it started skipping one month and the amount of bleeding started becoming irregular. ... ...when the period stops happening like that, I naturally sense that it might be the time for menopause.”

The reason for their reluctance to record their period dates, they responded, was that unlike their past when they had to worry about pregnancy and contraception, they simply did not feel the necessity to do so.

“I am not at the age to concern about pregnancy so I did not really keep track of my cycles. When I was younger, ovulation day was important because of pregnancy and contraception, so I did check them, although not always. But I don’t really need to now. I feel that I am going through menopause rather from the symptoms on my body than the irregular cycles.”
Some interviewees responded positively that notifications from personal smart mobile devices would be very useful in recording their period dates.

“I never recorded my cycles. But these days, I put all sorts of information on my cell phone anyway so I think it would be pretty easy to record my cycles on the phone.”

“When you are in menopause, periods happen irregularly and if you are not reminded, you forget about it and lose track of them. I think notifications might be helpful.”
Calendar-based interface

We hypothesized that Calendar-based interface would be the most suitable because it is in the most familiar form. However, some of the participants responded that calendar-based interface would not be the most efficient format.

“I don’t know if calendars will be useful. It happens once or twice a year, so is calendar really needed?”
Lack of understanding on menopausal transition stage

Most of the participants had lack of understanding on menopausal transition stage. They were not aware that different symptoms appear in each stage. However, they responded that if the symptoms and management method are different for each stage, they would want to know all of them.

“I did not know such things existed. When symptoms appeared I just thought that was one of the things you go through when you are in menopause. It would be useful to have information like that. When symptoms are severe, they seem to be more important.”

Some of them responded that, in their case, period stopped all of a sudden and never came back, that it would be hard to examine their menopausal transition stage.

“Others around me told me it happened slowly, but my periods happened every 30 days regularly and then it disappeared all of a sudden. I don’t know if there really are such thing as transition stages.”
Participants responded that visualized data would help them manage their health.

“It would be useful to see my health status in graphs. I would be able to understand my stage and corresponding symptoms.”
Exercise reminder and health management message

Most participants answered that to manage the symptoms of menopause, they relied more on exercise and food intake change, rather than on medical treatments.

“I tried to start hiking more or walk a lot to make my feeling better”

For this reason, most were positive about exercise reminder.

“Once when symptoms were too severe, people suggested me to try hormonal therapy, but I wanted to try exercising because I didn’t like the idea of chemical

However, there were negative opinions regarding this function.

“I don’t know... for some people, it may be helpful, but I do not really pay much
Social Networking with others

Majority of the participants answered that the most helpful thing in overcoming menopause was the conversation they had with their close friends.

“Whenver my symptoms occur, I talk to one of my friend who is 4 years older than me. She went through a menopause earlier than me so she gives me good advises. Also, I have seen her suffering severer symptoms in the past, so I feel better when I saw myself suffering similar but weaker symptoms. Having a conversation helped me a lot even when I was having a hard time emotionally.”
Family support

Participants generally responded negatively to the idea of family support.

“You get easily annoyed when you are going through a menopause, and conflicts start happening. But I don’t think having a direct conversation with them would really help the situation. They know I am in menopause, but I don’t think there are much they can do to better the situation. I would prefer talking to my friend who has a similar..."

On the other hands, Most family members want to provide help, but did not know how.

“I live with a husband and two sons. Would they ever able to understand something that..."

Some answered that they tried to do something active with them.

“I think a regular exercise would be helpful for her mental health. So I took her out with me whenever I went out for an exercise. We talked a lot during walks and am trying to..."
Privacy related

Participants were not particularly worried about privacy issues when it comes to sharing their menopause information with their family members. Unlike our previous conjecture, most did not find it difficult to inform their adult male family members about their menopause. They understood menopause as a stage that occurs naturally in every woman’s life and did not feel much discomfort to talk about it. However, they would not bother talking about menopause to them because they do not think their family members are able to understand.

“I did not voluntarily come out with my menopause. It is not something to be ashamed of and they know it, too. But I just don’t feel the need to talk to them anyway, also, because I really don’t think telling them will make them understand. Do I need to?”
Information source and its reliability

Most women answered that they gain information from people they know. They also said they trust information coming from a closer friend more.

“I got to know many ways to manage my health while talking to my friends, from eating good food to exercising. When I was seriously considering a hormonal therapy, they told me it increases the risks of breast cancer so I turned to more natural ways to manage myself. They have experienced the same thing before and they are close to me so I trust them.”

However, they only gained limited information from their peers and symptoms differ from person to person, and there were demands for professional and reliable source.

“I did not really enjoy talking about this subject. I was emotionally very weak. They would talk about their own stories and remedies but that did not help resolve my problems. I think a professional help from a psychologist would help a lot better, although I did not try that for myself.”
Based on the validation of our hypotheses of functions and requirements from interview and focus group interviews, we developed design consideration for a development of an effective mHealth for menopausal women’ wellness.
1) Build a solid UX mobile platform where users can easily record their menstrual cycle. The result shows that most women do not record their periods. It is important that they are encouraged to precisely record their period dates. Button at the first page that leads to recording menstruation date is a possible UI. Additionally, a pop-up message that asks, ‘Did your period start today?’ would appear.

2) Let women with menopause in progress know what stage they are in. Current stage is assessed based on user’s records. Majority of women were not aware of menopausal transition stages. It is essential that the application provide information based on a personalized data of their menstrual cycles.

3) Provide a personally tailored information that suits user’s menopausal stage. Personalized health information for each stage is shown.

4) Provide social support through SNS format. Most of the respondents answered that a conversation with their close friends were not only the most helpful in maintaining their mental health, it was also a biggest source of information. SNS function would be crucial in a developing a health management mobile application for the target group. A space where they can talk about their experiences should be prepared.
5) Health, exercise recommendation by SMS messages. Since most participants wanted to self-manage this term other than receiving medical treatments, this application is required to send messages that would encourage exercising and better health management.

6) Visualize the data. Most of them tend to rely on their memory to keep track of their situation. Therefore, a visualized data should be available to them so that they can proactively understand what they are going through.

7) Ensure the quality of information and service by cooperating with health professionals

8) Let the family member send the message to support their health management. Support from family members were less important than we first speculated, but the family members want to help the women in menopause. Additionally, Knowledge level of family members were helpful in health management but were not a significant source of emotional consolation. Also, family members should be educated on how to help their family member in menopause.
With this guideline in mind we suggest possible prototype.
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1) Most participants answered that they use smartphones. This is because smartphones are well distributed in South Korea. However, they did not seem particularly apt in maneuvering their smartphones. That is why additional studies on the user interface are required to have information ready with easier access.

2) What to include in the health management text messages. Some opinionated that what is contained in the text messages would be play a significant role in encouraging people to actively manage their health. Further study should be conducted to find what to include in those messages that would keep people interested and responsive.

3) We also need to distribute this possible prototype and check if users utilize this product well in real life. Finally, WHO recommends that mobile technology intervention designers for maternal-child health should be attuned to the socio-demographic, socio-cultural and socio-economic factors that influence female health behavior[12]. We should consider this issue for our future works.
[11] Mi-jeong Han, Ji-Hyun Lee, Factor Influencing Self-Identity and menopausal symptoms on Level of Depression in Middle Visualization of menstruation record including user information, average menstrual cycle length, estimated date of next menstruation. Personalized health information for each stage is shown. Interactive media are displayed. Aged Women, Korean J Women Health Nurs Vol. 19, 275-284, December, 2013.
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