Role of CMC in Emotional Support for Depressed Foreign Students in Japan

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Abstract
Moving to another country for a prolonged period of time predisposes foreign students to acculturative stress, which can contribute to the onset of depressive disorders. We explored how modern communication technology mediates emotional support for depressed and non-depressed foreign students during their sojourn. We conducted in-depth interviews with twelve foreign students in Japanese universities, six of whom were diagnosed as clinically depressed. We discuss how the type and source of emotional support changes during foreign students' sojourn, and compare support-seeking and coping behaviors enabled by computer-mediated communication (CMC) technology between depressed and non-depressed foreign students.

Author Keywords
Foreign student; emotional support; depression; computer-mediated communication.

ACM Classification Keywords
J.3. Life and Medical Sciences, Health, Medical Information Systems; H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous

Introduction
Every year, millions of students around the world sojourn to another country to further their education

and personal growth. However, moving abroad for an extended period of time is a major life event not only for the foreign students, but also for their family, friends and loved ones back home. Due to the increased distance from support network and stress from dealing with unfamiliar new environment [4], foreign students may experience feelings of loneliness [15], and negative impacts on academic performance and social wellbeing [17]. One of the most prominent of these negative impacts is depression [15].

Clinical depression is more prevalent among foreign students compared to their host national peers [15]. An estimated 41% of foreign students in Japanese universities are depressed [9], as opposed to 18% of their Japanese peers [12]. Acculturative stress during the foreign students' adjustment period [2] and reduced social support [13] are contributing factors to the onset of depressive disorders.

The buffering hypothesis postulates that emotional support acts as a 'buffer' during stressful life events [8], such as foreign students receiving emotional support or encouragement from a family member or a friend to cope with the negative psychological effects of acculturative stress [1,8]. However, maintaining relationships with people back home is constrained by factors such as time difference and availability of technology [19]. Email exchanges with distant friends may help maintain the relationship, but rarely afford emotional support, as opposed to hearing a friend's voice over the phone [17]. While Facebook may help foreign students stay in touch, Facebook use is not associated with greater emotional support from real-life friends [16], or positive mental health outcomes [14]. Rather, higher frequency of checking social media is associated with lower mood [18], whereas decrease in social media activity may predict onset of depression [6,7].

The focus of this study is in exploring the interplay of CMC technology, emotional support and mental health through personal accounts from depressed and non-depressed foreign students studying in Japan.

Current Study

In the present study, we explore how CMC technologies mediate emotional support from family and friends to depressed and non-depressed foreign students studying in Japan. We compare the support-seeking and coping behaviors of depressed and non-depressed foreign students to explore the relationship between mental health, emotional support and CMC use during foreign students' sojourn. We focus on the following research question:

RQ: Do depressed and non-depressed foreign students display different support-seeking and coping behaviors enabled by CMC mediums during their sojourn?

Answering these questions will expand our understanding on how current CMC media shape the lives and wellbeing of foreign students, and inform technology design to support foreign student adjustment and mental health.

This study was reviewed and approved by the ethical committee of the first and second author's organization (ethics review ID: H25-019).

Method

Participants

We hired twelve foreign students as our interview participants. All interviewees were engaged in a degree program in a major Japanese university full time, or as

Figure 1. Example of a 'clock game' used as a probe during the interviews.

> Once Skype was my life. […] I knew that I was going down so to boost myself, I talked mostly with my parents and my wife. And they said that it's probably no problem. (Quote 1: ID11, male, non-depressed)
>
> [My communication patterns] change if I'm having stress or something. […] Especially talking to friends in [home country] is very difficult because of the timing and everybody's busy like so I prefer to talk to the friends nearby. So we just go for a coffee and talk about this thing happened that happened. (Quote 2: ID9, male, non-depressed)

long-term research students. Six of the interviewees were diagnosed as clinically depressed (3 female), and were receiving mental health counseling at the time of the interview. They were interviewed by their primary psychiatrist before given the clearance and referral to participate in this study. The six non-depressed interviewees (2 female) were recruited through an open call for participation for an "interview study on communication media use" through three major Japanese universities. During the interview, we asked each foreign student participating through the open call whether he or she had received mental health counseling. None of the participants recruited through the open call reported as having received any type of mental health counseling.

Interview Process

Each interview session was scheduled for one hour, and was conducted face-to-face with an English-speaking interviewer. The interviewer introduced themselves, the objective of the study, the outline of the interview, and asked the interviewee to sign a letter of agreement. The interviewees were then asked to briefly introduce themselves, their background, motivations for coming to Japan and so forth.

The interviews were semi-structured with a script including a set of specific topics and questions, which were iteratively developed during preliminary interviews by the investigators. Using a specific script of questions reduced any possible interviewer bias, as they were aware which interviewees had received mental health counseling for depression.

We used two games as probes during the interview, which also served as topical anchors. Figure 1 illustrates an example of a 'clock game' where the interviewees described their average day and explained with whom, when, why and how they communicated with other people before and after coming to Japan. In the second game, the interviewees filled out a blank graph representing relative frequency of communication with important social contacts. The interviewer then expanded on these narratives to probe what had changed in the interviewees' communication patterns, emotional support, and so forth, during their sojourn.

After each session, the interviewer wrote reflection notes shared with the other investigators, which were also used to ensure the consistency of interview sessions.

Data Analysis

The interviews were audio recorded and transcribed for analysis in their entirety. We used an iterative grounded theory approach for data analysis [10] to identify and organize recurring themes in the participants' narratives. During the analysis process, we first organized the data into meaningful categories regarding interviewees' communication patterns, CMC technology use, access and availability of emotional support, language and cultural challenges, and so forth. From these categories, two themes emerged regarding emotional support and CMC use: "adaptation vs. dependence" and "perceived support vs. compensating and coping".

Findings

Adaptation vs. Dependence

Particularly at the beginning of the sojourn, foreign students may not have close individuals to ask for emotional support in the host country (e.g., spouse, close friend). Hence, voice and video calls to parents, friends and loved ones back home are the only way to

Maybe, when I'm having a bad day I go to Facebook more often just to see who is online. (laughs). If somebody I feel like I can talk to is online, then maybe I just send them a message like, "oh, do you have time to Skype now?". (Quote 3: ID6, male, depressed)

But, that's pretty rare, so it'll usually have to wait until weekends because of the time difference. […] Usually I say like "oh, do you have time to talk today?" or something like that. And if they don't have time they'll just say "no, but I probably have time on this day and like this time". (Quote 4: ID6, male, depressed)

After coming to Japan, I call [my parents] maybe once or twice per week and it's mostly over Skype. [I prefer] video, I like to see the home that way […] so I want to see my house and what are the changes for example even if they put a wall clock. So this kind of small, small things that matters. (Quote 5: ID11, male, non-depressed)

receive immediate emotional support during stressful events.

Once the non-depressed foreign students established friendships in Japan, they began to actively turn to local friends, mostly fellow foreign students [5], for emotional support, and preferred to meet with them face-to-face instead of relying on any CMC mediums (Quote 1, Quote 2).

When the depressed foreign students were feeling stressed or blue, they tended to actively seek emotional support from friends and family back home (Quote 3). However, whereas the depressed foreign students might be longing for someone to talk to and alleviate their low mood, the distant social contacts were often not able, or not willing to reciprocate (Quote 4).

The narratives of the depressed foreign students echo how they have negative experiences and expectations from social interactions over CMC [11], and quietly accept their failures when reaching out to others. Unlike the non-depressed foreign students, they may have few close friendships in the host country to reach out to, or they may not value them as sources of emotional support in the time of need, and thus, unsuccessfully keep reaching out to close ties back home for emotional support.

Perceived Support vs. Compensating and Coping

Over time, the non-depressed foreign students had established a routine of contacting their family in their home country. Just seeing the family members or the environment they are in helped the foreign students to feel socially connected (Quote 5). While the non-depressed foreign students perceived that their family and friends were there for them, they also avoided talking about emotionally stressing topics with the distant loved ones (Quote 6, Quote 7).

However, the depressed foreign students struggled with unmet expectations of emotional support from their family and friends back home who were difficult to reach (Quote 8). For the depressed foreign students, social networking sites, particularly Facebook, provided a platform to compensate for the lack of perceived emotional support. On days that they felt sad, lonely or frustrated, the photos of loved ones or the message history stored on the site offered a way to cope with the lack of perceived emotional support (Quote 9, Quote 10).

Family and friends in the home country are an important source of emotional support for foreign students' throughout their sojourn. However, over time the type of support shifts from 'buffering' negative experiences to that of providing sense of connectedness, or perceived support [20]. The non-depressed foreign students further actively avoided abusing these sources of support [3], and delegated the immediate emotional support to host country locals.

However, the depressed foreign students' narratives illuminate on their negative experiences as they keep depending on people in their home country for emotional support through CMC. CMC technology, however, also affords them to engage in coping behaviors, particularly on Facebook, to compensate for the lack of perceived emotional support.

Discussion

Comparing Support-Seeking and Coping Behaviors of Depressed and Non-Depressed Foreign Students

In times of stress or low moods, both depressed and non-depressed foreign students reach out to family and

Don't talk about the stress thing [with family], just talk normally. You feel like you're with them or they are with you so you don't feel lonely. So it's like they are with you all the time so it's okay. (Quote 6: ID9, male, non-depressed)

If I talk to [my mother and say] I am sick or something, she will say just come back [to home country]. I don't want to make her worried so I say I am fine. (Quote 7: ID7, female, non-depressed)

So the thing is that when they send a message, I would usually reply the same day, but when I send them a message, it would maybe take some days or even weeks before they reply. (Quote 8: ID3, male, depressed)

friends back home, who are only one Skype call away. However, after the initial adjustment period the non-depressed foreign students tend to turn to individuals in the host country for emotional support during stressful events, and avoid talking about emotionally stressing topics with the distant loved ones [3]. That is, their coping behaviors are characterized by talking face-to-face with valued social ties in the host country, mostly fellow foreign students [5].

The depressed foreign students tend to depend on friends and family in their home country for emotional support when their mood is low. However, this support-seeking is not always reciprocated by the friends and family back home. Moreover, the depressed foreign students may not have valued social ties in the host country to provide emotional support during stressful events [4], leaving the home country ties as only available source of support. To compensate for the lack of perceived support in the host country and from family and friends, they may retreat to Facebook reminiscing on past times, and going through pictures of loved ones they feel disconnected from.

Behaviors symptomatic to depression include withdrawal from social activities [11], which in turn may further reduce the chances of building social ties in the host country, in addition to language and cultural barriers [4]. That is, availability of CMC may contribute to depressed foreign students' overdependence on family and friends, stress from unmet expectations of emotional support, as well as withdrawal from social interactions online and offline, all of which can have long-term detrimental effects on cultural adaptation and mental health.

Theoretical and Practical Implications

The findings in this study expand previous research on mental health and Facebook use. Similarly to [16], our findings suggest that Facebook use may not offer greater emotional support from distant friends. Rather, depressed foreign students may experience negative outcomes from reaching out to friends back home for emotional support, as they may often be unable to provide the type of 'buffering' support the depressed foreign student desires.

Secondly, higher frequency of checking Facebook was associated with stress relief among college students in a previous study [18]. Our findings expand on this work in that depressed foreign students may use Facebook more frequently when their mood is low. That is, the more frequent Facebook use may be related to distinct coping behaviors of depressed foreign students to compensate for their lack of emotional support.

Previous works on automated prediction of depression via social media have used metrics such as linguistic cues and users' activity levels as measures (e.g., [6,7]). Here, we highlight the coping behaviors of depressed foreign students as another potential indicator of depressive behavior, which have, to best of our knowledge, not been fitted in previous models for automated prediction. Depressed foreign students engage in coping behaviors on Facebook, where they spend time browsing and revising old messages, looking through photos and reminiscing on past times. However, these coping behaviors may be erroneously categorized as 'healthy activities' based only on login times, or the number of clicks or actions. While more difficult to capture than explicit linguistic or activity cues, we recommend future models for automated prediction of depression to take into account the

When I'm not in a good mood, I try to revise my old stories. […] I want to go back in my memories with my friends. If some old friend contact me, it really make me feel nice. So that is the reason. I try to look for any messages. If there is something new it will be good for me. Timeline messages. Messages for me. So they make me a little bit, yeah, more comfortable. (Quote 9: ID1, male, depressed)

I might go to Facebook more often [when I'm having a bad day] to, I don't know, just see what is going on in other people's lives and look at the pictures and reminiscent about the times kind of thing. (Quote 10: ID6, male, depressed)

'reminiscing coping behaviors' that social media, such as Facebook, enable.

Besides automated prediction of depression, our findings also carry implications for supporting foreign student adjustment. Considering how depressed foreign students tend to lack sources of emotional support in the host country, as well as their tendency to withdraw from social interactions [11], we recommend supporting foreign students' relationship building in the host country before the beginning of their sojourn. One approach would be to organize orientation and group discussions on social media, and connect the future foreign students with others already at the same university before they embark on their journey.

Conclusion

Emotional support acts as a buffer against acculturative stress, and it can have a positive impact on foreign students' mental health. In this study, we reported on the different support-seeking and coping behaviors of depressed and non-depressed foreign students enabled by modern CMC technology.

CMC mediums afford important emotional support for foreign students from family and friends back home during their adjustment period in the host country. Over time, non-depressed foreign students delegated the 'buffering' emotional support to host country locals, such as fellow foreign students, while the friends and family continued to provide a sense of social connectedness through scheduled contacts, such as weekly video calls.

CMC technology affords depressed foreign students to remain dependent on friends and family for emotional support beyond the adjustment period, but the social ties back home are often unable to reciprocate. Furthermore, depressed foreign students may lack sources of emotional support in the host country, and compensate for the lack of perceived support by coping behaviors enabled by CMC technology, particularly Facebook. They may retreat from social interaction to reminiscing on old messages or photos of friends and family, which in turn may have negative impacts on their cultural adaptation and mental health. Based on our findings, we reported on theoretical and practical implications for technology design to alleviate foreign student acculturation stress and support their mental health.

Limitations and Future Directions

Our interviewees were recruited only from Japanese universities. Future studies examining the relationship between CMC, social support and mental health of foreign students should include other locales, particularly The U.S. and Europe, as well. Furthermore, we are interested in expanding our study to examine foreign students' communication patterns in more detail through semi-automated logging of communication events. One avenue of interest is the relationships between mood, medium, content, satisfaction, direction and frequency of communication for foreign students and their social support network.

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