Identifying Important Components for Life Style Changes Using an Online Complex E-health Intervention in General Practice

a qualitative interview study

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Abstract-**In a prospective pilot study, we recently found a 7.0 kg mean weight loss within a 20 months' intervention period using an online complex e-health approach. In order to tailor a randomized controlled trial testing an online platform with app technology, accelerometers etc., we conducted a qualitative interview study to identify important determinants for weight loss management using digital solutions. Results showed that the main themes for incitements identified were life events in close family, the establishment of support, a honest and trustworthy relationship with health professionals, and/or supportive peers and ways to monitor the behavioral change with nudging from a reference person. The primary barriers were self-inflicted obstacles, an experience of lack of self-efficacy and ways to keep up appearances when discussing personal health issues with peers. The primary roles of the referents were the experience of honest and trustworthy forums to discuss personal challenges. We can conclude that the important factors are the availability of behavioral change monitoring and empathic relevant feedback. The opinions of referents matter, and long-term success depends on the ability to establish a strong positive support online and/or offline. E-health solutions can support healthy living, but further investigations are needed to establish updated relevant solutions that can be used in daily practice.**

Keywords: obesity; internet community; e-health; self-efficacy; patient empowerment

I. INTRODUCTION

Obesity is an increasing problem, and more than 30% of the European population is obese, with a body mass index (BMI) > 30 kg/m2. It is well documented that obesity increases the risk of type 2 diabetes, cardiovascular diseases, and joint and musculoskeletal diseases, and that it decreases fertility and increases the risk of spontaneous abortion.

In a prospective pilot study, we investigated the effect of online dietician advice combined with access to an Internet community using the existing commercial online Internet weight loss management program not using app technology [1]. We have previously described the usability of this platform and found a mean weight loss from baseline of 7.0 kg. (95 % CI: 4.6 - 9.3 kg) after a mean maintenance period of 20 months among 21 patients with an initial BMI of 36.4 kg/m2 [2].

We now plan to perform a Randomized Controlled Trial (RCT) based on an updated online platform using app technology, accelerometers etc. [3]. Prior to this RCT study, we here report a qualitative interview study designed to identify issues of importance for weight loss management using digital solutions today. We interviewed patients who have previously successfully participated in an online complex e-health intervention by exploring: 1.What is the experience using supportive e-health solutions offered in relation to a healthier life style? 2. What are the incitements and barriers for personal life style changes in general and when using e-health solutions? 3. What is the role of peers and health professionals when changing life style in general and when using e-health tools seen from a patient perspective?

II. METHOD

A. Design

Qualitative, semi-structured, individual interviews.

B. Setting

General practice in the Southern Region of Denmark.

C. Participants

Ten overweight patients who had previously used an online complex Internet e-health intervention successfully. The intervention tool was used as a supplement to a dietician

working in the general practice while making sure that the relationship was established in person before beginning the online communication. The same dietician met the patient in the clinic and handled the online communication with the patient. Apart from the dietician, the patients could meet and share health data/information with other patients in online forums. This developed to become a strong community, where it was possible to discuss many personal issues as well [2].

D. Analysis

Interviews were transcribed as soon as possible after each interview and uploaded to a common database. Anonymous transcripts were analyzed by the researchers (CJB, JC, JBN and JS) using thematic analysis. The identified themes were compared between the different researchers. Overlap and consistency were reached. The findings were then related to the Social Action Theory (SAT)[4], the Theory of Triatic Influence (TTI) [5] and the Social Cognitive Theory (SCT) [6].

III.   RESULTS

All but one of the participants used smartphones; the last one used a tablet. They all used apps and the Internet, but had no longer access to the Internet support system [1]. Five years after the initial intervention, they all still used Internet or apps to benefit their health. Everyone looked up recipes, some had joined weight loss Facebook groups, and some used an app service monitoring their physical activity. They were not aware of all the functionality that could support them for free using their smartphones, but the majority acknowledged that the provided e-health solution had helped them. Following the two years intervention study five years ago, they have all gained weight, but not to the level before the intervention.

A.   The main themes for incitements identified were:

1) The establishment of an honest and trustworthy relationship with a health professional with whom it was possible to talk about everything and to be heard:

a) Offline: ”I think it was really nice to see CA (the dietician), also because she could see it was my head that controlled me a lot”

b) Online: “I don't know if I would always use it (report my diet intake) because sometimes I would just not report anything… to help me not being confronted with the fact that I had eaten more than I should”

c) Miscellaneas: Some of the patients revealed that they did not trust the dietician who had been assigned to them, and they stated the lack of trust as the main reason for them to discontinue the intervention. One of the participants then established a contact to another health coach that helped him along with significant weight loss without a single face to face meeting.

2) Find ways to monitor the behavioral change with nudging from a referent person:

a) Offline: ”One who had to see that I kept my weight. If not, I would have said I had done it without having done it….. to satisfy others”.

b) Online: “and I can't cheat it (An objective activity monitoring fitness app: “Endomondo”). It is not possible for me to pretend I have gone for a walk when I haven't”.

3) Goal setting:

a) Online: “Today, when I have to go to work at noon, then I go for a walk during the morning. Sometimes I walk four times a week, but it should be at least 15 km per week.”

4) Support from partner:

a) Offline: “I do have support from home – from my husband. Many times he has encouraged me to stop smoking”.. “This thing with saying: “hey we have to remember vegetables””…”He may also say: “Do you really have to eat that?”.. He is very observant to what I eat. A little judgmental if I eat something that is not healthy”

5) Life events in close family have a strong impact for a majority of the participants:

a) Offline: ”My husband got type 2diabetes, and then I also lost 10-12 kg in the spring….”

B.   For barriers the main themes were:

1) Self-inflicted obstacles:

a) Offline: ”I had this knot under my left foot removed in surgery two years ago. Three months ago, I had the same operation in the other foot. So I'm not able to do it (exercise), and I still can't use regular foot wear. I still use sandals”.

2) Experience of lack of self-efficacy:

a) Offline: ”It is probably because I can eat a little candy again or buy a chocolate bar when I'm out shopping…. And I have problems saying no thanks”.

3) Keeping up appearances when discussing personal health issues and about lying to referent others to avoid judgmental behavior:

a) Offline: ”Yes, if someone says: “Well, wouldn't you like to lose weight?”, then I say: ”Yes, but it is very hard because bla, bla, bla, and then the same story goes. So it is an excuse for not losing weight”

b) Online: “If it is someone I would never meet, then I could be honest, but as soon I know that it is someone I am going to meet, then I add to the story”.

C.   The main themes for the role of peers were:

1) The experience of honest and trustworthy forums to discuss personal challenges, in relation to peers:

a) Offline: ” Then I have my friend, who I met when I joined weight watchers. She has all these ideas as to how to combine different food ingredients….. and that has my other friend as well, but she has now joined this low fat high something……”.

b) Online: “…I'm more in need for a closed group of people who have the same problems as me or at least are in

the same position as me" and "I could do it (be honest), if it was online, but not if I had to look them in the eyes."

2) The need for acknowledgement from referent others:

a) Offline: "The worst thing was that nobody called me up" and said: "Why is it you have not scheduled a new appointment?"

b) Online: "It is the same with Endomondo. I have friends there. And then I have to show I walk. Not to have them believe I'm not active"

IV. DISCUSSION

To our knowledge, this is the first qualitative interview study among the users of a successful weight loss Internet platform showing what elements are important for success in an updated e-health solution. Establishing an honest and trustworthy space is important. This matches the social ecological point of view that establishing a good relationship to the patient is of paramount importance for coaching patients to make difficult decisions [6]. To establish an honest space with your health professional can be difficult in a 100% online solution. The provided solution delivered a combination that seemed to strengthen the relationship even though not all patients seemed to have that need. Goal setting and monitoring the behavioral change are important for many patients. Goal-directed action is the basis of the social action theory [4] and, by using e-health solutions, this can be done in real time both objectively (Endomondo/accelerometers) and subjectively through reporting. The spouse plays an important role for all our participants. The participants all experienced support from their spouse during their weight loss, which is in accordance with the social cognitive theory underlying the importance of the opinion of others [6]. This was also the reason why life events in close family could move the patients to decide that weight loss or other life style changes were important enough to do something about. Barriers centered around self-inflicted obstacles, lack of self-efficacy and keeping up appearances, which very much related to the intrapersonal stream described in the Theory of Triatic Influence (TTI) [5]. To close the gap patients could describe how the supportive role they experienced both offline and online from referent others made a difference. This interpersonal aspect is the second stream in TTI and confirms that meeting others in the same situation is important. The third stream in TTI is the sociocultural environment that changes to some extent when a person meets up online with new people who also want to loose weight or stop smoking. Basically, you can change your referent others online, something that might be of paramount importance, especially for people with little support from home [7]. Offline, many of the same psychological elements are found in anonymous forums like Alcoholics Anonymous. The

findings can be included in the complex e-health solutions used in the future RCT study [3]. The study will be conducted in a general practice setting using local dieticians out of respect for the importance of a good relation to the patients found in this article. Patients will monitor activity, diet and sleep through simple monitoring features in combination with an online community [3].

V. CONCLUSION

The major findings were that many of the important issues addressed by the participants can be supported online. Patients need to have a personal and trustworthy relationship to at least one health professional who can boost their self-efficacy when needed. Another important factor is the availability of behavioral change monitoring and empathic relevant feedback. The opinions of referents others matter, and long-term success depends on the ability to establish a strong positive support. E-health solutions can support healthy living, but further investigations are needed to establish updated, relevant, and complementing solutions that can be used in daily practice.

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