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Download address: https://github.com/RickardHultgren/emadrs/blob/master/research/projectarticleRH.pdf

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Project title:
Staff attitudes towards follow-up and screening via the patient's smartphone, exemplified by a questionnaire for self-rating of depression symptoms.

Abstract

The health care system is in need of new cost-effective tools. How would the health care be affected if the primary care units would receive questionnaire results from the patient's smartphone? Interviews on this topic were performed with focus groups containing primary health care staff at Hagfors Primary Care Centre in Sweden. The recordings were examined using qualitative content analysis. The project shows that digital questionnaires has potentials in screening and follow up.

Background

In Sweden, the lifetime prevalence of depression is estimated to be 13.2% among men and 25.1% among women[1]. There is a well-established relationship between suicide and mood disorders[3]. It has been estimated that 50–80% of completed suicides are associated with mood disorders[3]. Suicide is the leading cause of death among men between the ages of 15 and 44 in Sweden[5]. Nevertheless, it is estimated that just over 2/3 of all suicide cases had recently been in touch with the healthcare. Only 1/3 of all suicide cases had contact with a psychiatric clinic[4]. In many cases, the suicide could have been prevented if adequate efforts had been made[2]. Guidelines for the treatment and follow-up of depression exist, but the increase in mental problems among young people poses a major challenge[15, 16].

Thus solving the difficult situation require new ways of dealing with depression. Some smartphone apps have been developed for the purpose of benefiting the health care of depressed patients. The apps could be categorized into two groups depending on what end-user they are meant for. If the end-user is a patient, then the app helps the patient to track and understand the symptoms through a mood diary[8]. If the app is meant to be used by healthcare staff, then the app is constructed around different questionnaires[9]. Both approaches may result in somewhat better results for the patient, but by focusing on either the patient or the staff a key aspect is neglected. In order for the healthcare staff to help the patient as good and effective as possible, it is necessary to focus on the communication between both parties.

Purpose

In order for the healthcare staff to give the depressed patient adequate help, the staff needs adequate information about the patient. In investigations of somatic pathologies, adequate laboratory tests are usually done before an appointment. What if the patient's mood could be measured in a similar way before an appointment? With the purpose of enhancing the communication between the patient and healthcare staff an app prototype (eMADRS) for android smartphones has been developed by the first author[12, 13]. The app consists of a MADRS-S form. The result is sent to a phone number, preferred by the patient as an SMS text message. MADRS-S is a verified tool commonly used for screening and follow-up of depression[10, 11]. It consists of nine questions. The patient answers each question with a rating from zero to six. The total score from all questions is categorized as follows:

score	severity of depression
0–6	no depression
7–19	mild depression
20–34	moderate depression
35–54	severe depression

The research-topics are three areas, closely bound up with each other:

- α What advantages and disadvantages are identified from a professional clinical perspective, using a digital mood evaluation instrument for depression in screening and follow-up?
- β The aim is also to collect proposals for further development of eMADRS.
- γ What staff categories would be most affected by digital questionnaires?

Materials and Methods

Two focus groups were formed, consisting of seven respectively six primary care unit employees from different staff categories that are directly or indirectly involved in the treatment of depression at Hagfors Primary Care Centre in Sweden. The following table is a compilation of the group members:

Group	Work title	Interview 1	Interview 2
A	Administrators	1	1
	Nurses	3	3
	Foot therapists	1	0
	Physicians	0	1
	Psychotherapists	1	1
B	Administrators	1	1
	Auxiliary nurses	1	2
	Nurses	0	1
	Foot therapists	0	0
	Physician assistants	1	1
	Psychotherapists	1	1

Two 30-minutes long interviews were performed with each group. In order to get a holistic picture of how a primary care unit would be affected by eMADRS, many staff categories were interviewed[14]. During the interviews the following questions were discussed:

Interview 1

1.1. What is specific, measurable and achievable in your work?

Interview 2

2.1. Describe your feelings when a patient's major issue is not related to depression, but the patient seems to be in a very sad mood?

2.2. Scenarious are discussed:

- What if eMADRS only could be used by follow-up patients?
- What if eMADRS could be used by everyone to send you mood evaluations?
- What if the result of eMADRS automatically could regulate what lab-tests should be performed?

The interviews were then analysed using qualitative content analysis[18]. From the recordings, causation codes were derived and categorized. The work was done with the help of the programming language library RQDA[19].

Results

Research topic α and β: Around the example EMADRS the following potentials, strengths and weaknesses were identified:

- EMADRS could be very useful for following up patients that are at risk of relapse of depression.
  Code name in appendix: ***emadrs_in_dev_only_follow_up***
- There is a need for digital tools with validated questionnaires for a broader spectrum of pathologies.
  Code name in appendix: ***emadrs_in_dev_screening_follow_up***
- These questionnaires should be connected with each other in a controlled way.
  Code name in appendix: ***emadrs_in_dev_controll***
- EMADRS could reduce the work load of the administrators
  Code name in appendix: ***emadrs_already_(+)_less_paper_work***
- Important that someone should be responsible and accountable for the incoming questionnaire results.
  Code name in appendix: ***emadrs_already_(+)_possebility_to_check***
- EMADRS should not be used in the process of diagnosing depression.
  Code name in appendix: ***emadrs_not_in_dev_everybody_diagnostic***
- EMADRS should not be possible to use by everyone in order to send the results to the healthcare provider.
  Code name in appendix: ***emadrs_not_in_dev_everybody_too_many***

Research topic γ: In effective organisations the management is distinguished from the leadership[17]. Below is a table describing what different staff categories are managing or leading in their work according to the interviews:

Tasks of contacting the patient, that imply leadership Coding in appindix: leadership_contact_patient	• assistant physician • auxiliary nurse • foot therapist • nurse • nurse COPD • nurse DM2 • nurse geriatric • physician • psychotherapist
Tasks of contacting the patient, that imply management Coding in appindix: management_contact_patient	• administrator • nurse • psychotherapist
Tasks of feeling empathy, that imply leadership Coding in appindix: leadership_empathy	• administrator
Tasks of contacting staff, that imply management Coding in appindix: management_contact_staff	• foot_therapist
Managing finances Coding in appindix: management_financial	• administrator
Tasks of maintaing patient's health, that imply managing the patient Coding in appindix: management_medical_practice_patient_part	• foot therapist • nurse COPD • nurse DM2
Tasks of maintaining patient's health, that imply managing other professionals Coding in appindix: management_medical_practice_staff_part	• assistant physician • auxiliary nurse • nurse COPD • nurse DM2 • nurse geriatric • physician • psychotherapist
Tasks of managing medical records Coding in appindix: management_medical_record	• administrator

Digital questionnaires are a way to *manage the communication with the patient*. According to the table above, the staff categories that are working with that task are: nurses, administrators and psychotherapists. Thus those staff categories would probably be most affected by the digital questionaires.

Discussion

For at least the last 7 years, the county council's expenses have increased by approximately 5% per year. Adjusted for inflation, it will be approximately 3% per annum[6, 7]. The strategies in healthcare must change. Hopefully, this project can be a step in the right direction. The results show new ways to improve the communication between the healthcare system and the patient. In order to foresee shifts in work load that the new digital tools could lead to, further scientific work has to be done.

Ethics

The project's character is developmental work within the clinic. Therefore it is being examined in terms of confidentiality and safety by the Head of Operations. The project does not fall under the Ethics Testing Act's research definition.

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