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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 symptoms of depression.

**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[?]. There is a well-established relationship between suicide and mood disorders[?]. It has been estimated that 50–80% of completed suicides are associated with mood disorders[?]. Suicide is the leading cause of death among men between the ages of 15 and 44 in Sweden[?]. 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[?]. In many cases, the suicide could have been prevented if adequate efforts had been made[?]. Guidelines for the treatment and follow-up of depression exist, but the increase in mental problems among young people poses a major challenge[??].

Thus solving the difficult situation require new ways of dealing with depression. Perhaps smartphones can be used to fight 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 track and understand the symptoms through a mood diary[?]. If the app is meant to be used by healthcare staff, then the app is constructed around different questionnaires[?]. 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[??]. The app consists of a MADRS-S form where 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[??]. It consists of nine questions where the patient answers with a rating from zero to six. The score is categorized as follows:

| score | severity of depression |
|---:|---|
| *0–6* | no depression |
| *7–19* | mild depression |
| *20–34* | moderate depression |
| *35–60* | severe depression |

The research question is: What advantages and disadvantages are identified from a professional clinical perspective, using a digital mood evaluation instrument for depression in screening and follow-up? The aim is also to collect proposals for further development of eMADRS.

## 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 A**

| Work title | Interview 1 | Interview 2 |
|---|---|---|
| Administrators | 1 | 1 |
| Nurses | 3 | 3 |
| Foot therapists | 1 | 0 |
| Physicians | 0 | 1 |
| Psychotherapists | 1 | 1 |

**Group B**

| Work title | Interview 1 | Interview 2 |
|---|---|---|
| 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, as many staff categories as possible were interviewed[7]. During the interviews the following topics were discussed:

Interview 1

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

Interview 2

**B.** 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?

**C.** 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 direct what lab-tests should be performed before the initial meeting with a health-care professional?

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

## Results

From the recordings, the following codes were derived: <<<>>>=
library("RQDA")
openProject("/home/rickard/work/emadrs.rqda") print(summaryCodings(by.file=FALSE))
@

The codes on page 4 stands for the followin statements:

**emadrs in dev only follow up**
EMADRS could be very useful for following up patients that are at risk of relapse of depression.

**emadrs in dev screening follow up**
There is a need for digital tools with validated questionnaires for a broader spectrum of pathologies.

**emadrs in dev controll**
These questionnaires (in previous code) should be connected with each other in a controlled way.

**emadrs already (+) less paper work**
EMADRS could reduce the work load of the administrators

**emadrs already (+) possebility to check**
Important that someone should be responsible and accountable for the incoming questionnaire results.

**emadrs not in dev everybody diagnostic**
EMADRS should not be used in the process of diagnosing depression.

**emadrs not in dev everybody too many**
EMADRS should not be possible to use by everyone in order to send the results to the healthcare provider.

Digital questionnaires would effect the *managing of communication with the patient*. According to the codes on page 5 the staff categories that are working with that task are: nurses, administrators and psychotherapists. In order to foresee shifts in work load that the new digital tools could lead to, further scientific work has to be done. This is important since economic

benefits could only be gained if the work tasks would change, since the finances are a mirroring of what work is acuallty done.

## 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[??]. 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. Further research has to be done in order to figure out what staff categories are best suited for helping with the leadership of patients.

## 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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