
First author: **Rickard Hultgren** *rihu0003@student.umu.se*

Supervisor: **Mikael Sandlund** *mikael.sandlund@umu.se*
Inst f klinisk vetenskap/psykiatri; Umeå universitet; 901 85 å

Assistant supervisor: **Heljä Pihkala** *helja.pihkala@umu.se*
Inst f klinisk vetenskap/psykiatri; Umeå universitet; 901 85 å

Project title:
Staff attitudes towards follow-up and screening via the patient's mobile phone, exemplified by depression.

Abstract

The health care system is in need of new good and cost-effective tools in order to cope with common diseases as depression. How would the health care be effected if the primary care units would resieve questionaur results from the patient smart phone? Interviews about this topic were performed with focus groups containing of primary health care staff at Hagfors Primary Care Centre in Sweden. The recordings were analyzed with qualitative content analysis. The project shows that digital questionnaires can benefite quality and quantity of follow-up and screening. This would effect all staff categories in the primary health care.

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 $\frac{2}{3}$ of all suicide cases had recently been in touch with the healthcare. Only $\frac{1}{3}$ 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. Perhaps cell phones can be used to fight depression? Some cell phone 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⁽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 cell phones has been developed by the first author^(12, 13). 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^(10, 11). 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 30-minutes long interviews were performed with two focus groups, 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. In order to get a holistic picture of how a primary care unit would be effected by eMADRS, as many staff categories as possible were interviewed⁽¹⁴⁾. The following tables are a compilation of the groups and 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

The interviews were then analyzed using qualitative content analysis⁽²¹⁾. From the recordings, causation codes were derived and categorized. The analysis was done with the help of the programming language R and its library RQDA⁽²²⁾.

Results

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 major issue is not related to depression, but the patient seem to be in a very sad mood?

C. Scenarios are discussed:

- What if eMADRS only could be used by follow-up patients?
- What if eMADRS could be used by everyone?
- What if eMADRS could

From the recordings, the following codes and were derived and categorized:

```
<<>>= library("RQDA") openProject("/home/rickard/work/emadrs.rqda")  
getCodingTable() summaryCodings() @
```

Benefits emadrs restricted to follow up patients and chronicle ill conditions. The benefits are less administrative work and better quantity.

Criteria for screening and time booking: - Programmable flow/flow control of questions - General validated questionnaires Quantitative benefits The qualitative benefits depend on if someone can be responsible and accountable.

Topic for further scientific work: Who will receive the results? Who will be responsible? Who will be accountable? Possible solutions: - skip nurse-info directly to physicians? - only nurse? Threats - information overload

The project shows XYZ qualitative and quantitative benefits from eMADRS as a compliment in the follow-up and screening for depressed patients.

The depressed patient is often locked in a state of not being able to manage the worsening of the depression. The faster the staff knows about a deepening of depression, the faster the staff can intervene. The faster the intervention starts, the better is the prognosis. From the patient's perspective, the new ways of communication through a mobile app could be very beneficial. The key question is how the new possibilities should be handled by the healthcare professionals. Currently, the outward patient doesn't have a frequent contact with health care professionals, and the interventions have to be powerful in order to stop the progression of the depression. In those interventions, the beneficence model is often applied and the patient's integrity and feeling of autonomy are often hurt ⁽²⁰⁾. If, on the other hand, the patient's condition was to be analyzed more frequently, then perhaps it would be possible to handle the depression in a cost effective and better way. The new ways of managing the patient's health could respect the autonomy of the patient. The patient's health could be managed together with the patient⁽¹⁹⁾.

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). We soon cannot afford good health. The strategies in healthcare must change. Hopefully, this project can be a step in the right direction. The results may show new ways to make the depression treatment better and more cost-effective.

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.

References

- [1] Kendler KS, Gatz M, Gardner CO, Pedersen NLA *Swedish national twin study of lifetime major depression*; Am J Psychiatry. 2006 Jan; 163(1):109-14.
<https://www.ncbi.nlm.nih.gov/pubmed/16390897/>
- [2] *Utvärdering 2013 – vård och insatser vid depression, Ångest och schizofreni. Indikatorer och underlag för bedömningar*; Socialstyrelsen
<http://www.socialstyrelsen.se/publikationer2013/2013-6-7>
- [3] Kasper S1, Schindler S, Neumeister A.; *Risk of suicide in depression and its implication for psychopharmacological treatment*; Int Clin Psychopharmacol. 1996 Jun;11(2):71-9.
<https://www.ncbi.nlm.nih.gov/pubmed/8803644>
- [4] *Självmord i anslutning till vård* Socialstyrelsen;
<http://www.socialstyrelsen.se/patientsakerhet/riskomraden/suicid>
- [5] *Statistics on causes of death 2015 - Socialstyrelsen*; Socialstyrelsen;
<https://www.socialstyrelsen.se/Lists/Artikelkatalog/Attachments/20291/2016-8-4.pdf>

- [6] *Resultatr kning f r landsting  r 2010–2014*; SCB;
[http://www.scb.se/hitta-statistik/statistik-efter-amne/
offentlig-ekonomi/finanser-for-den-kommunala-sektorn/
rakenskapssammandrag-for-kommuner-och-landsting/pong/
tabell-och-diagram/kommun--och-landstingssektorn-2014/
resultatr kning-for-landsting-ar-20102014/](http://www.scb.se/hitta-statistik/statistik-efter-amne/offentlig-ekonomi/finanser-for-den-kommunala-sektorn/rakenskapssammandrag-for-kommuner-och-landsting/pong/tabell-och-diagram/kommun--och-landstingssektorn-2014/resultatr kning-for-landsting-ar-20102014/)
- [7] *Resultatr kning f r landsting  r 2012–2016*; SCB;
[http://www.scb.se/hitta-statistik/statistik-efter-amne/
offentlig-ekonomi/finanser-for-den-kommunala-sektorn/
rakenskapssammandrag-for-kommuner-och-landsting/pong/
tabell-och-diagram/kommun--och-landstingssektorn-2016/
resultatr kning-for-landsting-ar-2012-2016/](http://www.scb.se/hitta-statistik/statistik-efter-amne/offentlig-ekonomi/finanser-for-den-kommunala-sektorn/rakenskapssammandrag-for-kommuner-och-landsting/pong/tabell-och-diagram/kommun--och-landstingssektorn-2016/resultatr kning-for-landsting-ar-2012-2016/)
- [8] *Appen Uppskatta*; Google Play
<https://play.google.com/store/apps/details?id=com.akerlund.uppskattadindag>
[https://play.google.com/store/apps/details?id=com.akerlund.
uppskattadindag](https://play.google.com/store/apps/details?id=com.akerlund.uppskattadindag)
- [9] *Appen PsykTools*; Google Play
<https://play.google.com/store/apps/details?id=no.sonat.honos>
<https://play.google.com/store/apps/details?id=no.sonat.honos>
- [10] Svanborg, P;  sberg, M; *A comparison between the Beck Depression Inventory (BDI) and the self-rating version of the Montgomery  sberg Depression Rating Scale (MADRS)*; J. Affective Disorders. 64 (2–3): 203–216. doi:10.1016/S0165-0327(00)00242-1.
<https://www.ncbi.nlm.nih.gov/pubmed/11313087>
- [11] *Tolkning av MADRS-S*; Region J nk pings l n
[http://plus.rjl.se/info_files/infosida39803/madrs_s_
tolkning.pdf](http://plus.rjl.se/info_files/infosida39803/madrs_s_tolkning.pdf)
- [12] Rickard Hultgren; *eMADRS source code*; github.com;
<https://github.com/RickardHultgren/emadrs>
- [13] Rickard Hultgren; *eMADRS compiled*; play.google.com;
[https://play.google.com/store/apps/details?id=
rickardverner.hultgren.emadrs](https://play.google.com/store/apps/details?id=rickardverner.hultgren.emadrs)
- [14] Tracy R.G. Gladstone, William R. Beardslee, Erin E. O'Connor; *The Prevention of Adolescent Depression*; Psychiatr Clin North Am. 2011 Mar; 34(1): 35–52.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3072710/>

- [15] Riitta Sorsa; *Nationella riktlinjer – Målinvåer – Vård vid depression och Ångestsyndrom – Målinvåer för indikatorer*; socialstyrelsen.se december 2017
<http://www.socialstyrelsen.se/publikationer2017/2017-12-1>
- [16] Majvor Enström; *Granskning av Psykiatrin 2014 Region Jämtland-Härjedalen*
<https://www.regionjh.se/download/18.61342ea415bcfb51720c5fd7>
- [17] *Style Guide for Authors*
https://academic.oup.com/cdj/pages/Style_Guide
- [18] Barbara J. Hoogenboom, Robert C. Manske; *How to write a scientific article*. Int J Sports Phys Ther. 2012 Oct; 7(5): 512–517.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3474301/>
- [19] Kotter JP *What leaders really do*. Harvard Business Review 1990
- [20] Will JF *A brief historical and theoretical perspective on patient autonomy and medical decision making: Part I: The beneficence model*. Chest. 2011 Mar;139(3):669-673. doi: 10.1378/chest.10-2532.
<https://www.ncbi.nlm.nih.gov/pubmed/21362653>
- [21] Granheim, Lundman *Qualitative content analysis in nursing research concepts, procedures and measures to achieve trustworthiness*. Nurse Educ Today. 2004 Feb;24(2):105-12
<https://www.ncbi.nlm.nih.gov/pubmed/14769454>
- [22] Ronggui Huang;
<http://rqda.r-forge.r-project.org/>