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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 questionairs 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 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. 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 effected by eMADRS, as many staff categories as possible were interviewed⁽¹⁴⁾. 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:

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

The interviews were then analyzed using qualitative content analysis⁽²¹⁾. 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 ⁽²²⁾.

Results

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

```
library("RQDA")

## Loading required package: RSQLite
## Loading required package: gWidgetsRGtk2
## Loading required package: RGtk2
## Loading required package: gWidgets
## Loading required package: cairoDevice
## Loading required package: DBI

openProject("/home/rickard/work/emadrs.rqda")
getCodingTable()

##      rowid cid fid                                codename
## 1      59   8   1                                management_financial
## 2      60   9   1                management_patient_contact
## 3      61  10   1                management_medical_record
## 4      62   8   1                                management_financial
## 5      64   8   1                                management_financial
## 6      65  11   1                        leadership_empathy
## 7      67   9   8                management_patient_contact
## 8      68  10   8                management_medical_record
## 9      70   9   8                management_patient_contact
## 10     71  10   8                management_medical_record
```

## 11	72	8	8	management_financial
## 12	73	8	8	management_financial
## 13	76	15	7	management_medical_practice_staff_part
## 14	77	15	7	management_medical_practice_staff_part
## 15	78	15	7	management_medical_practice_staff_part
## 16	79	16	7	leadership_contact_patient
## 17	80	15	7	management_medical_practice_staff_part
## 18	81	16	7	leadership_contact_patient
## 19	82	12	7	emadrs_in_dev_screening_follow_up
## 20	83	15	6	management_medical_practice_staff_part
## 21	84	13	6	emadrs_already_(+)_possebility_to_check
## 22	85	15	5	management_medical_practice_staff_part
## 23	86	15	5	management_medical_practice_staff_part
## 24	87	15	5	management_medical_practice_staff_part
## 25	88	16	5	leadership_contact_patient
## 26	89	15	5	management_medical_practice_staff_part
## 27	90	14	5	emadrs_not_in_dev_everybody_too_many
## 28	91	16	12	leadership_contact_patient
## 29	92	18	12	management_medical_practice_patient_part
## 30	94	19	12	management_contact_staff
## 31	95	16	4	leadership_contact_patient
## 32	96	20	4	management_contact_patient
## 33	97	20	4	management_contact_patient
## 34	98	16	4	leadership_contact_patient
## 35	99	15	3	management_medical_practice_staff_part
## 36	100	16	3	leadership_contact_patient
## 37	101	15	3	management_medical_practice_staff_part
## 38	102	15	3	management_medical_practice_staff_part
## 39	103	18	3	management_medical_practice_patient_part
## 40	104	16	3	leadership_contact_patient
## 41	105	12	3	emadrs_in_dev_screening_follow_up
## 42	106	15	2	management_medical_practice_staff_part
## 43	107	15	2	management_medical_practice_staff_part
## 44	108	18	2	management_medical_practice_patient_part
## 45	109	15	2	management_medical_practice_staff_part
## 46	110	16	2	leadership_contact_patient
## 47	112	16	11	leadership_contact_patient
## 48	113	15	11	management_medical_practice_staff_part
## 49	114	15	11	management_medical_practice_staff_part
## 50	115	16	11	leadership_contact_patient

## 51	116	12	11	emadrs_in_dev_screening_follow_up
## 52	117	15	9	management_medical_practice_staff_part
## 53	118	16	9	leadership_contact_patient
## 54	119	14	9	emadrs_not_in_dev_everybody_too_many
## 55	125	15	10	management_medical_practice_staff_part
## 56	126	15	10	management_medical_practice_staff_part
## 57	127	15	10	management_medical_practice_staff_part
## 58	128	15	10	management_medical_practice_staff_part
## 59	133	15	13	management_medical_practice_staff_part
## 60	134	15	13	management_medical_practice_staff_part
## 61	135	16	13	leadership_contact_patient
## 62	136	15	13	management_medical_practice_staff_part
## 63	137	20	13	management_contact_patient
## 64	138	15	13	management_medical_practice_staff_part
## 65	140	12	13	emadrs_in_dev_screening_follow_up
## 66	142	21	8	emadrs_already_(+)_less_paper_work
## 67	145	12	13	emadrs_in_dev_screening_follow_up
## 68	146	22	9	emadrs_not_in_dev_everybody_diagnostic
## 69	147	22	9	emadrs_not_in_dev_everybody_diagnostic
## 70	148	22	10	emadrs_not_in_dev_everybody_diagnostic
## 71	149	22	13	emadrs_not_in_dev_everybody_diagnostic
## 72	150	22	8	emadrs_not_in_dev_everybody_diagnostic
## 73	151	23	1	emadrs_in_dev_lymph
## 74	152	23	2	emadrs_in_dev_lymph
## 75	153	23	2	emadrs_in_dev_lymph
## 76	154	24	2	emadrs_in_dev_only_follow_up
## 77	155	23	9	emadrs_in_dev_lymph
## 78	156	23	9	emadrs_in_dev_lymph
## 79	157	23	9	emadrs_in_dev_lymph
## 80	158	23	10	emadrs_in_dev_lymph
## 81	159	23	10	emadrs_in_dev_lymph
##				filename index1 index2 CodingLength
## 1	administrator1	528	555	27
## 2	administrator1	165	183	18
## 3	administrator1	187	201	14
## 4	administrator1	242	375	133
## 5	administrator1	389	511	122
## 6	administrator1	643	649	6
## 7	administrator2	229	305	76
## 8	administrator2	306	350	44

## 9	administrator2	46	91	45
## 10	administrator2	106	149	43
## 11	administrator2	151	216	65
## 12	administrator2	438	502	64
## 13	assistant_physician	11	36	25
## 14	assistant_physician	51	86	35
## 15	assistant_physician	99	165	66
## 16	assistant_physician	165	202	37
## 17	assistant_physician	291	356	65
## 18	assistant_physician	362	445	83
## 19	assistant_physician	535	604	69
## 20	auxiliary_nurse_1	82	122	40
## 21	auxiliary_nurse_1	161	275	114
## 22	auxiliary_nurse_2	28	36	8
## 23	auxiliary_nurse_2	54	154	100
## 24	auxiliary_nurse_2	241	372	131
## 25	auxiliary_nurse_2	168	240	72
## 26	auxiliary_nurse_2	462	492	30
## 27	auxiliary_nurse_2	669	724	55
## 28	foot_therapist	11	739	728
## 29	foot_therapist	752	832	80
## 30	foot_therapist	844	881	37
## 31	nurse_1	11	38	27
## 32	nurse_1	56	107	51
## 33	nurse_1	122	181	59
## 34	nurse_1	183	263	80
## 35	nurse_COPD	11	237	226
## 36	nurse_COPD	238	479	241
## 37	nurse_COPD	480	815	335
## 38	nurse_COPD	829	877	48
## 39	nurse_COPD	890	1005	115
## 40	nurse_COPD	1096	1144	48
## 41	nurse_COPD	1159	1191	32
## 42	nurse_DM	11	680	669
## 43	nurse_DM	693	751	58
## 44	nurse_DM	804	922	118
## 45	nurse_DM	773	803	30
## 46	nurse_DM	1010	1034	24
## 47	nurse_geriatric	11	290	279
## 48	nurse_geriatric	302	359	57

## 49	nurse_geriatric	371	464	93
## 50	nurse_geriatric	554	580	26
## 51	nurse_geriatric	598	623	25
## 52	physician	82	201	119
## 53	physician	202	344	142
## 54	physician	361	521	160
## 55	psychotherapist1	11	655	644
## 56	psychotherapist1	667	1025	358
## 57	psychotherapist1	1036	1125	89
## 58	psychotherapist1	1217	1443	226
## 59	psychotherapist2	11	52	41
## 60	psychotherapist2	66	424	358
## 61	psychotherapist2	425	470	45
## 62	psychotherapist2	484	868	384
## 63	psychotherapist2	882	1013	131
## 64	psychotherapist2	1102	1199	97
## 65	psychotherapist2	1343	1810	467
## 66	administrator2	517	590	73
## 67	psychotherapist2	1216	1342	126
## 68	physician	652	720	68
## 69	physician	1055	1135	80
## 70	psychotherapist1	1573	1643	70
## 71	psychotherapist2	1957	2125	168
## 72	administrator2	592	687	95
## 73	administrator1	665	1013	348
## 74	nurse_DM	1053	1119	66
## 75	nurse_DM	1208	1248	40
## 76	nurse_DM	1120	1207	87
## 77	physician	719	938	219
## 78	physician	522	651	129
## 79	physician	972	1054	82
## 80	psychotherapist1	1644	1748	104
## 81	psychotherapist1	1463	1572	109

Categories named XYZd are answers to the topics B and C. From those topics the following statements could be derived:

Statement A EMADRS could be very useful for following up patients that are in risk of relapse of depression.

Statement B there is a need for digital tools with validated questionnaires for broader spectrum of pathologies.

Statement C There should be some kind of flow control for those questionnaires.

Interviews pointed out that there's certainly quantitative benefits from digital tools. During the interviews the question arised of who should be responsible and who should be accountable for the incoming questionnaire results. 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). 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 health care and the patient. Further research has to be done in order to foresee shifts in work load that the new tools will lead to. This is important since no economic benefits could be gained without restructuring the work.

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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