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Transcranial magnetic stimulation in mental health care

SHORT REPORT

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Background

Transcranial magnetic stimulation (TMS), which is a neuromodulation therapy for psychiatric disorders, is not widely used in Norway. We aimed to investigate whether doctors in mental health care are familiar with and interested in the method, as well as the reasons for its limited use and the key factors required for its implementation.

Material and method

An anonymous electronic survey questionnaire was distributed to all active members of the Norwegian Psychiatric Association in the autumn of 2022 (n = 1979), consisting of 484 specialty registrars and 1495 specialists. Respondents were asked to provide demographic data in the questionnaire and indicate their level of agreement with specific statements regarding TMS.

Results

Of the 1979 potential respondents, 481 (24.3 %) completed the survey, 295 (61.3 %) of whom were women, 70 (14.6 %) were specialty registrars and 411 (85.4 %) were specialists. All health trusts were represented. A total of 236 out of 481 respondents (49.1 %) reported not being familiar with the modality, while 307 out of 376 (81.6 %) expressed a desire to learn more about it. The

limited use of the method was attributed to it being relatively unknown (334/385, 86.8 %), insufficient training of doctors (321/383, 83.8 %) and uncertainty about patient selection for treatment (215/380, 56.6 %). For future implementation, 294/368 respondents (79.9 %) highlighted the need for national clinical guidelines and 299/371 (80.6 %) emphasised the importance of training for doctors.

Interpretation

The results suggest that doctors are interested in the modality but lack knowledge about it. To promote its implementation, the modality should be incorporated into psychiatric training.

Main findings

The doctors reported limited knowledge of transcranial magnetic stimulation but expressed interest in training.

Many participants agreed that national clinical guidelines are important for increasing use of the modality.

Transcranial magnetic stimulation (TMS) is a relatively new, non-invasive neuromodulation method that research shows can be safely used to treat psychiatric disorders in adults (1–3). A neuroplastic, therapeutic effect is achieved through repeated stimulation sessions, where an electromagnetic coil is placed on the scalp, generating magnetic pulses that stimulate nerve cells (1). Scientific evidence supports the use of TMS for moderate to severe depression (1, 2), but preliminary findings suggest that the modality may also be relevant for a broader patient group (1, 2). The US Food and Drug Administration approved the first treatment protocol for TMS for depression in 2008 and for obsessive-compulsive disorder in 2018 (1), while the UK's National Institute for Health and Care Excellence (NICE) approved a protocol for depression in 2015 (4).

Therapeutic use of TMS is increasing in Europe (1, 5), including Denmark and Sweden (6, 7). There is no comprehensive overview of treatment options in Norway, but our experience indicates that they are limited. Neither are there any national clinical guidelines for the modality, and it is not covered in the national clinical guidelines for the treatment of depression.

Psychiatrists' knowledge of and interest in TMS are crucial for both its implementation and broader adoption (4, 5, 8). The aim of our study was to assess doctors' familiarity with and interest in the modality, identify the reasons for its limited use and explore possible measures to promote increased use. The limited treatment options in Norway do not necessarily indicate a lack of awareness among doctors; scepticism towards neuromodulatory treatments and a desire to restrict their use may also be contributing factors.

Material and method

An anonymous electronic survey questionnaire was emailed to all active members of the Norwegian Psychiatric Association in the autumn of 2022. The survey was distributed to 1979 potential respondents, consisting of 484 specialty registrars and 1495 specialists. Responses were registered without IP tracking in Qualtrics software. The Research Ethics Committee at the Department of Psychology, UiT The Arctic University of Norway, approved the study on 11 August 2022. The survey was conducted in accordance with the GDPR's data protection provisions and in consultation with the Norwegian Medical Association's data protection officer. All data were anonymised.

The Norwegian Psychiatric Association covered the costs of distributing the questionnaire.

The questionnaire was developed by the authors. In the questionnaire, respondents were asked to provide demographic data and answer questions about TMS. They were asked to select response options in relation to statements aimed at assessing i) their familiarity with the modality, ii) their interest in the modality, iii) the reasons for the limited use of TMS in Norway, and iv) what is needed to increase use. The response options were 'Agree', 'Strongly agree', 'Disagree', 'Strongly disagree', 'Neither agree nor disagree' and 'Don't know'. A list of questions and statements from the questionnaire is appended to this article (see Appendix 1). To simplify presentation, the response categories were merged into 'Agree/strongly agree' and 'Disagree/strongly disagree'. The results are presented as numbers and percentages and were calculated using SPSS statistics software version 29. Missing data points were not replaced in the analyses.

Results

A total of 481 out of 1979 (24.3 %) doctors responded to at least one statement about TMS and were included in the analyses. The response rate for other questions decreased as the survey progressed (Table 1). The sample consisted of 295/481 (61.3 %) women and 184/481 (38.3 %) men, while two respondents did not specify their sex. A total of 70/481 (14.6 %) specialty registrars and 411/481 (85.4 %) specialists responded to the survey.

Table 1

The table shows selected responses from a total of 481 out of 1979 active members of the Norwegian Psychiatric Association who responded to a digital, anonymous survey on TMS in the autumn of 2022. The questionnaire and complete results are provided in Appendix 1.

Statements from the questionnaire	Agree/strongly agree *n* (%)	Disagree/strongly disagree *n* (%)	Neither agree nor disagree *n* (%)	No. of respondents *n* (%)
Familiarity with TMS				
I am not familiar with TMS	236 (49.1)	203 (42.2)	42 (8.7)	481 (100)
My health trust offers TMS (response options: yes, no, and don't know)	104 (22.0)	134 (28.4)	234 (49.6)	472 (98.1)
I have studied the theory behind TMS	90 (19.0)	362 (76.5)	21 (4.4)	473 (98.3)
Interest in TMS				
I want to learn more about TMS	307 (81.6)	10 (2.7)	59 (15.7)	376 (78.2)
I would refer patients for TMS if it was available in my health trust	196 (53.3)	30 (8.2)	142 (38.6)	368 (76.5)
I want to be trained in administering TMS	181 (48.8)	62 (16.7)	128 (34.5)	371 (77.1)
I think the reasons for limited use of TMS in mental health care are as follows:				
Lack of awareness of the modality	334 (86.8)	13 (3.4)	38 (9.9)	385 (80.0)
Insufficient training of doctors	321 (83.8)	11 (2.9)	51 (13.3)	383 (79.6)
Not enough is known about which patients benefit from TMS	215 (56.6)	26 (6.8)	139 (36.6)	380 (79.0)
What is needed to increase use of TMS?				
Training of more doctors in TMS	299 (80.6)	6 (1.6)	66 (17.8)	371 (77.1)

Statements from the questionnaire	Agree/strongly agree *n* (%)	Disagree/strongly disagree *n* (%)	Neither agree nor disagree *n* (%)	No. of respondents *n* (%)
Updated national clinical guidelines	294 (78.9)	18 (4.9)	56 (15.2)	368 (76.5)
Evidence that TMS is better than standard treatment	208 (56.2)	26 (7.0)	136 (36.8)	370 (76.9)
Requests from patients/patient association for use of TMS	187 (51.1)	51 (13.9)	128 (35.0)	366 (76.1)

Of the 481 respondents, 92 (19.1 %) were aged 30–40, 151 (31.4 %) were 40–50 years, 107 (22.2 %) were 50–60 years and 130 (27.0 %) were aged 60–75. One respondent did not report their age. Of the 467 respondents who indicated their health trust affiliation, 291 (62.3 %) were from South-Eastern Norway Regional Health Authority, 59 (12.6 %) were from Central Norway Regional Health Authority, 37 (7.9 %) were from Northern Norway Regional Health Authority and 80 (17.1 %) were from Western Norway Health Authority.

Table 1 shows how participants responded to a selection of questions about TMS (the full version is in Appendix 1). A total of 236 (49.1 %) respondents agreed or strongly agreed with the statement that they were not familiar with the modality, while 104 (22 %) reported that TMS is available in their health trust, and 234 (49.6 %) were unsure. A total of 299 respondents (80.6 %) agreed or strongly agreed with the statement that training more doctors in TMS is needed to increase use. Meanwhile, 208 (56.2 %) agreed or strongly agreed with the statement that use of TMS could be increased if there was evidence that the modality is better than standard treatment.

Discussion

The doctors reported having limited knowledge of TMS but expressed interest in learning more about it. Many believed its limited use was due to a lack of awareness, insufficiently trained doctors and a lack of evidence-based knowledge about optimal patient selection. Several respondents also considered national clinical guidelines and formal training in the use of TMS to be necessary for future implementation.

The results indicate that doctors need to learn more about TMS, which is a relatively new treatment method for depression. Unfamiliarity with the method should not solely be attributed to the limited treatment options in Norway; the two factors may actually be interdependent, with doctors' knowledge being crucial for the development of such a treatment provision. Despite the generally limited use of neuromodulation methods in Norwegian mental health care and

the scepticism towards electroconvulsive therapy, our findings do not necessarily suggest the same degree of scepticism towards TMS. The majority of doctors in this study expressed interest in learning about the method.

The doctors' interest in learning more about TMS may reflect the need for additional treatment approaches in mental health care. This is especially important for patients with depression, where available methods do not often achieve the desired effect. TMS could be a valuable alternative for patients who do not respond to or cannot use psychotropic medications (2), as well as for those who prefer non-pharmacological interventions (9).

The results can be interpreted to mean there is scepticism towards implementing TMS before national clinical guidelines are in place and more is known about which patients would benefit most from the treatment. Given the widespread interest in learning more about this, it seems reasonable to consider including the method in specialist psychiatric training (5, 8).

The study has several limitations. The questionnaire was developed by the authors and has not been validated. Only a quarter of the potential respondents answered. Selection bias cannot be ruled out, e.g. the overrepresentation of doctors who are particularly interested in the modality. However, in terms of health trust, age and the proportion of specialists, the sample was representative of the distribution of members in the Norwegian Psychiatric Association (analyses not provided).

In conclusion

The study showed that doctors were not particularly familiar with TMS but were open to learning more about it. They emphasised the need for national clinical guidelines and formal training if the method is to be used in clinical practice.

The article has been peer-reviewed.

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