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ATTITUDES OF TURKISH PSYCHIATRISTS REGARDING TRANSCRANIAL MAGNETIC STIMULATION

TÜRKİYELİ PSİKİYATRLARIN TRANSKRANİYAL MANYETİK UYARIM TEDAVİSİNE YÖNELİK TUTUMLARI

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Abstract

Transcranial Magnetic Stimulation (TMS) is not widely used in the world. Besides financial constraints like limited allocation of funds for psychiatric clinics, psychiatrists' knowledge and attitudes regarding TMS may limit its widespread use. Therefore, this survey study aimed to examine the knowledge and attitudes of Turkish psychiatrists towards TMS. An online survey that was developed by the researchers containing 26 questions about physicians' demographic data and their knowledge and attitudes towards TMS was sent to a closed e-mail group of psychiatrists and assistant psychiatrists. The study sample comprised 46 women and 61 men. Having knowledge about TMS statistically significantly affected participants' approaches to accept TMS as a promising treatment, approve the spread of TMS as a treatment modality, desire to have more information about the mechanism of action of TMS (p=0.006; p=0.019 and p=0.013, respectively), whereas it didn't statistically significantly affect their approaches to accept TMS as an effective treatment method, consider TMS as a misleading treatment for patients, use TMS only in the treatment of treatment-resistant depression patients (p=0.060, p=0.065, and p=0.136, respectively). Most of the psychiatrists who completed the survey in Turkey had a positive view of TMS and wanted to increase their knowledge. It may be appropriate to increase the number of presentations on TMS therapy at psychiatry meetings and encourage residents to make observations in clinics where TMS is administered, during psychiatric residency.

Keywords: transcranial magnetic stimulation, knowledge, attitude, psychiatrist

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Öz

Transkraniyal Manyetik Uyarım (TMU) dünyada yaygın kullanılan tedavi yöntemlerinden biri değildir. Psikiyatrik tedaviler için ayrılan bütçenin kısıtlılığı yanısıra psikiyatristlerin TMU'ya dair bilgileri ve tutumları da TMU'nun yaygın kullanımını olumsuz etkileyebilir. Bu anket çalışmasında Türkiye'de çalışan psikiyatri asistanları ve uzmanlarının TMU'ya yönelik tutum ve bilgilerinin ölçülmesi amaçlanmıştır. Araştırmacıların geliştirdiği ve hekimlerin sosyodemografik bilgileri, TMU'ya yönelik bilgileri ve tutumlarını ölçen 26 soruluk anket psikiyatri asistan ve uzmanlarının üye olduğu kapalı bir e-posta grubuna yönlendirilmiştir. Örneklem 46 kadın ve 61 erkekten oluşuyordu. TMU'ya dair bilgi sahibi olmak, katılımcıların TMU'yu umut vaat eden bir tedavi yöntemi olarak görmesini, TMU'nun bir tedavi olarak yaygınlaşmasını onaylamayı ve TMU'nun etki mekanizması hakkında daha fazla bilgi sahibi olma isteğini istatistiksel anlamlı olarak etkiliyordu (p=0.006; p=0.019 and p=0.013);ancak, TMU'yu etkili bir tedavi yöntemi olarak kabul etmeyi, TMU'yu hastaları yanıltmaya yönelik bir tedavi olarak görmeyi ve TMU'yu sadece tedaviye dirençli olgularda kullanmayı anlamlı olarak (p=0.060, p=0.065, and p=0.136). Türkiye'den katılımcı hekimlerin çoğunun TMU'ya dair olumlu fikirleri olduğu ve TMU'ya dair daha fazla bilgi sahibi olmak istedikleri gözlemlendi. Bilimsel toplantılarda TMU'ya dair sunumların sayısını arttırmak ve asistanlık eğitimleri sırasında TMU uygulanan kliniklerde rotasyon imkanı sağlamak faydalı olabilir.

Anahtar Kelimeler: *transkraniyal manyetik uyarım tedavisi, bilgi, tutum*

1. Introduction

Transcranial Magnetic Stimulation (TMS) is a brain stimulation method that has been used and proven efficacious in the treatment of various psychiatric syndromes, especially Major Depressive Disorder (MDD) (George et al., 2013). TMS would be expected to be a more preferable and applicable method than electroconvulsive therapy (ECT) because it has a low side effect profile and requires no hospitalization or anesthesia. However, TMS is not widely used in the world.

The presence of evidence on the efficacy and adverse effects of treatment modalities is influential on physicians' tendency to apply that treatment on patients (Smith et al., 2008). Evidence regarding the efficacy and side effect profile of TMS is far fewer than what is already known about psychopharmacological methods. There is much evidence in the literature on the efficacy and side effects of psychotropic drugs, psychotherapy, and ECT in the treatment of psychiatric disorders (UK ECT Review Group, 2003). When the treatment algorithms are constructed, physicians use these evidence and select the methods best known for their efficacy and least side effects to treat the first applicant patient.

There are various studies measuring the attitudes of physicians toward electroconvulsive therapy (ECT) (Golenkov et al., 2010; Alpak et al., 2017). However, the number of studies that measure the attitudes and knowledge of physicians about TMS therapy, a new treatment method, is limited in the literature (Stern et al., 2016; AlHadi et al., 2017). The treatment decisions of physicians in treatment-resistant cases or cases with partial recovery may be influenced by their knowledge and attitudes towards alternative methods. The clinician's knowledge about the efficacy and side effects of a treatment method makes the treatment modality preferable. If a specific method is frequently preferred by the majority of physicians, the steps of treatment algorithms can be rearranged due to the increase in evidence-based information of the method.

TMS therapy is applied in a limited number of clinics in Turkey and has not been widespread yet. It is understandable that TMS therapy is not yet widespread when the restrictions on the allocation of funds for psychiatric clinics are taken into consideration. Not only financial constraints but also psychiatrists' knowledge and attitudes regarding TMS may limit its widespread use. Physicians may not prefer various treatment options because they are influenced by the policies of the professional association they are affiliated with or the organization where they work (Cohen et al., 2013). Therefore, this research aimed to examine the knowledge and attitudes of psychiatrists towards TMS in Turkey.

2. Material and Methods

The study was approved by the ethics committee of the relevant university and is in line with the Declaration of Helsinki. The ethics committee approval has been obtained from Üsküdar *University with Ethics committee report number of B.08.6.YÖK.2.ÜS.0.05.0.06/2015/185 (23 Oct 2015).*

An online survey was sent to a closed e-mail group of psychiatrists and psychiatry residents, the majority of whom were working in Turkey. Survey Monkey application was used to prepare the survey. The survey included questions about physicians' demographic data and TMS. Inclusion criteria were being a psychiatrist/psychiatry resident working in Turkey.

Knowledge and Attitudes Towards TMS Survey Form: There was no valid survey for knowledge and attitudes towards TMS in the literature when the study was conducted. Therefore, the researchers developed a survey comprising 26 questions, using the surveys in previous studies that measured attitudes and knowledge towards TMS and ECT. The survey was first sent to randomly selected 20 psychiatrists as a pilot study, and the survey language and question options were reviewed according to their responses, then its final form was presented to the research participants.

The survey comprised 7 questions related to participants' demographic and professional information such as age, gender, occupational title, institution, place of residence, and participation in scientific meetings. The resting questions were aimed to evaluate the participants' knowledge TMS, source of information about TMS, individual perspective towards TMS, attitudes towards using TMS clinical practice, and information about participants' attitudes towards using ECT clinical practice, with 5-point

Likert-type answers including options from "Absolutely yes" to "Absolutely no". Participants

The online survey was sent to a closed e-mail group of psychiatrists and psychiatry residents, most whom were working in Turkey. The survey was open to all listed members without being selected. An e-mail including a web link to the survey and reminding that the survey was going on, was sent to the e-mail group in every three weeks for six months. An online consent was obtained from the participants for participation and sharing their information. The study was approved by the ethics committee of the relevant university and is in line with the Declaration of Helsinki.

Data Analysis

The research data were analyzed using SPSS 22. The descriptive statistics were presented as mean values, standard deviation, and percentages. The t-test was used to compare subgroups. Statistical significance was determined as $p < 0.05$.

3. Results

The number of members in the group according to the information received from the e-group moderator as of the date on which the survey was terminated was 3,363 people. The participation rate was 3.5%. This response rate is low compared to previous web-based survey studies (Cunnigham et al., 2015). According to the information received from the moderator, most of the members do not actively take part in the e-mail group, and there are also members with multiple accounts. The data in four of the 111 answered questionnaires were incomplete, so the data of the 107 surveys were considered valid. The study sample comprised 46 women (41.4%) and 61 men (55%). The distribution of responses regarding attitudes towards TMS and ECT is shown in Table 1. 77.5% of the participants (n = 86) reported having knowledge about TMS. There was no statistically significant difference between participants' knowledge about TMS regarding their gender and institutions ($p=0.721$, $p=0.130$), while a statistically significant difference was found between the levels of their knowledge about TMS regarding occupational titles ($p=0.026$). Having knowledge about TMS statistically significantly affects participants' approaches to accept TMS as a promising treatment, approve the spread of TMS as a treatment modality, know the mechanism of action of TMS, desire to have more information about the mechanism of action of TMS ($p=0.006$; $p=0.019$; $p<0.001$; and $p=0.013$, respectively), whereas it does not statistically significantly affect their approaches to accept TMS as an effective treatment method, consider TMS as a misleading treatment for patients, use TMS only in the treatment of treatment-resistant depression patients ($p=0.060$, $p=0.065$, and $p=0.136$, respectively).

TMS and ECT applications in clinical practice are also evaluated; 104 participants (93.7%) reported ECT as an effective treatment modality for the treatment of psychiatric disorders. Ninety-nine participants (89.7%) considered ECT as a method with a scientific basis. Participants' gender ($p=0.395$, $p=0.216$), occupational title ($p=0.263$, $p=0.874$) and institutions ($p=0.081$; $p=0.563$) had no statistically significant effect on their attitudes towards accepting ECT as an effective treatment modality to treat psychiatric diseases and also considering ECT as a method with a scientific basis. Participants' knowledge about the mechanism of action of ECT had a statistically significant effect on their attitudes towards accepting ECT as an effective treatment modality to treat psychiatric diseases ($p=0.013$) but did not have a statistically significant impact on their attitudes towards considering ECT as a method with a scientific basis ($p=0.677$).

Only six participants did not want to be informed about TMS. 10.8% of the participants reported that they did not know the mechanism of action of TMS therapy, and 53.2% stated that they knew a little about it. TMS was being applied only in the clinics of 29 participants (26.1%). Fifteen participants (13.3%) reported having applied TMS by themselves. Forty-four participants (39.6%) did not follow any treatment process in which TMS was applied. Twenty-eight participants (25.2%) indirectly followed a patient to whom TMS was applied in another institution.

The rate of participation in scientific meetings also evaluated. 88.1% of the group reported that they had attended a national or international scientific meeting as an audience or speaker in the last year. 18.9% reported that they had been a panelist on a national scientific meeting in the last year. 27% of the group reported that they had attended an international scientific meeting as an audience in the last year. A total of 6.3% reported that they had been a panelist on an international scientific meeting in the last year. Participants' attendance at a scientific meeting as a speaker had a statistically significant effect on their attitudes towards accepting TMS as an effective treatment modality for the treatment of psychiatric diseases ($p<0.01$).

4. Discussion

The majority of participants thought that they had knowledge about TMS and wanted to have more information about TMS therapy. Negative opinions about TMS among the participants were less than expected. Only 9.9% of the participants clearly opposed the spread of TMS as a treatment modality in psychiatry clinics. Only 22 participants (19.8%) reported that TMS was administered in their institutions. Accordingly, we can think that even though TMS is applied in a few psychiatry clinics in Turkey, psychiatrists in Turkey are more open to somatic treatment methods other than psychopharmacological and psychotherapeutic interventions. The rate of participation in scientific activities in the last one year supports this result.

Parallel to participants' clear positive views on ECT, they also did not have negative thoughts about TMS, a newer brain stimulation method. It is understood that participants frequently preferred ECT in their clinical practices. ECT has been used for many years in Turkey, and both resident and senior physicians have a lot of clinical observation and experience about the effects and complications of ECT. Besides, since many clinics do not have a TMS device, it is comprehensible that physicians do not prefer TMS in their treatment algorithms frequently. Only 10% of the participants indicated that TMS was not a promising method, while 10.5% thought TMS might be a misleading method. The misconception of patients means the waste of their hopes and the provision of an

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ineffective treatment method as an effective one. While physicians are hopeful about TMS, it can be controversial for them to think that patients' hopes may be wasted. However, 30% of the participants reported that the TMS might be misleading under the condition that patients are not informed correctly.

Stern et al. (2016) conducted a study with 258 psychiatrists working in three different institutions and examined their attitudes towards TMS. In this study, 122 surveys (47% response rate) were answered, 57% of the respondents (70 people) reported to work in a clinic with a TMS device. 67% of the respondents stated that they did not know how to refer their patients to TMS therapy, but 70% reported that they would like to refer the patients to TMS therapy in the future. The study found that psychiatrists working in a clinic with a TMS device tended to refer patients more easily to TMS therapy than those working in a clinic without a TMS device. According to experts, graduate medical students were less aware of under which conditions they would refer patients to TMS therapy. Participants working in a clinic where ECT was applied tended to refer patients more easily to TMS therapy than those working in a clinic where ECT was not applied. Most of the participants stated that they did not know the indications of TMS. The participants stated that they might want to refer their patients to TMS therapy in the future, this result suggested that clinicians were curious about TMS and did not resist it.

Al Hadi et al. (2017) conducted a survey study with psychiatrists in Saudi Arabia and found that 79% of the 96 respondents did not have sufficient information about TMS, and experts had more information about TMS than assistants. Physicians who followed the literature instead of textbooks were determined to have more information about TMS. 43% of the participants stated that they could refer their patients to TMS therapy, whereas 7.3% reported that they would not refer their patients to TMS therapy. Only 7.3% of respondents thought that psychiatrists overused TMS. 64.6% of the participants stated that all psychiatrists should receive TMS training. Only 18.7% of the respondents objected that having knowledge about TMS was necessary for psychiatric education. Only 16.7% of the respondents thought that TMS might be the last resort.

Turkish psychiatrists' positive views about TMS therapy, willingness to have more information about it, and tendencies to refer patients to TMS therapy in proportion to their knowledge of TMS are compatible with the results in studies conducted by Stern et al. (2016) and Al Hadi et al. (2017). This may suggest that even though physicians may come from different cultures, their treatment approaches may be similar. In other words, physicians may be a group of professionals who are most interested in scientific development but do not adapt quickly to innovations as long as they do not have enough knowledge and experience. Undoubtedly, the principle of "first, do

Table 1. Distribution of participants' attitudes towards TMS and ECT

Question	Absolutely yes		Yes		Not sure		No		Absolutely no	
	N	%	N	%	N	%	N	%	N	%
Would you like to have more information about how TMS therapy works and affects body?	46	41.4	53	47.7	2	1.8	5	4.5	1	0.9
Do you think TMS is an effective treatment method?	11	9.9	38	34.2	48	43.2	8	7.2	3	2.7
Do you think TMS can be a promising method in the treatment of psychiatric disorders?	14	12.6	45	40.5	39	35.1	8	7.2	2	1.8
Do you think TMS should become widespread as a treatment method in psychiatric disorders?	17	15.3	40	36	39	35.1	9	8.1	2	1.8
Do you think TMS treatment is a misleading treatment for patients?	11	9.9	13	11.7	38	34.2	40	36	5	4.5
Would you like to know more about the effect mechanism of TMS treatment?	41	36.9	58	52.3	3	2.7	6	5.4	-	-
Do you think that TMS should only be applied to patients with treatment-resistant depression?	3	2.7	15	13.5	34	30.6	44	39.6	12	10.8
Do you think ECT is an effective treatment method in the treatment of psychiatric disorders?	74	66.7	30	27	4	3.6	1	0.9	-	-
Would you like to have more information about how TMS therapy works and affects body?	52	46.8	47	42.3	9	8.1	1	0.9	-	-
	Often		Frequently		Sometimes		Rarely		Never	
Do you have patients that you think they will benefit from TMS treatment in your clinical practice?	10	9	12	10.8	39	35.1	19	35.1	27	24.3
Do you have patients that you think they will benefit from ECT treatment in your clinical practice?	25	22.5	14	12.6	54	48.6	11	9.9	5	4.5

not hurt" influences physicians all over the world. Therefore, in order for patients to benefit from new treatment modalities, the number of clinical evidence should be increased by allocating a higher amount of funds to clinical trials, and clinicians should be encouraged to be informed of all these developments.

5. Conclusion

Most of the psychiatrists who completed the survey in Turkey did not have a negative view on TMS therapy and wanted to increase their knowledge of it. It may be appropriate to increase the number of presentations on TMS therapy at national psychiatry meetings and to encourage residents to make observations with a rotational procedure, if necessary, in clinics where TMS is administered, during psychiatric assistant education.

Patient informed consent: Informed consent form has been signed.

Ethics committee approval: The study was approved by the ethics committee of the relevant university and is in line with the Declaration of Helsinki. The ethics committee approval has been obtained from Üsküdar University with Ethics committee report number of B.08.6.YÖK.2. ÜS.0.05.0.06/2015/185 (23 Oct 2015).

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Alper Evrensel: Collecting the data of the study, writing the article. 20%

Gökben Hızlı Sayar: Designing the study, writing the article. 20%

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