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ATTITUDES OF THE MENTAL HEALTH PROFESSIONALS TOWARDS UNMODIFIED AND MODIFIED TYPES OF ELECTROCONVULSIVE THERAPY: A TURKEY SAMPLE

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ABSTRACT

Objective: *Electroconvulsive therapy (ECT) has been used frequently in the treatment of psychiatric disorders. By the year 2005, unmodified (without anesthesia) ECT started to be replaced by modified (under anesthesia) ECT. In this study, we aimed to evaluate the attitudes towards modified versus unmodified applications of ECT among the mental health professionals who experienced this transition period.*

Material and Method: *Three subgroups of mental health professionals including psychiatric nurses, psychiatric trainees and psychiatrists who had at least 30 experiences of each ECT method, were asked to fulfill the semi-structured questionnaire. The questionnaire contained items related to participants' attitudes towards each ECT method in terms of their efficacy, side effects, safety, satisfaction during application and their opinions about this transition to modified method.*

Results: *In total, 54 (27.0%) psychiatrists, 82 (41.0%) trainees and 64(32.0%) psychiatric nurses were participated. In terms of efficiency, 53.7% of psychiatrists and 47.6% of trainees stated that the two ECT methods were equal. However according to 56.3% of psychiatric nurses unmodified ECT method was more effective than the modified one (χ2:10.615, p=0.031). Mental health professionals showed a common attitude towards the safety and satisfaction (for safety χ2:0.296, p=1.000 and for satisfaction χ2:1.987 p=0.778). For both safety and satisfaction all health professionals replied in favor to modified ECT applications. In all subgroups of professionals, according to majority of participants modified ECT method had less side effects (χ2:14.364, p=0.006) and reported positive opinion about the transition to the modified ECT applications (χ2:10.058, p=0.014).*

Conclusion: *Mental health professionals had a positive attitude to the transition from unmodified to modified ECT and they found the modified ECT safer than unmodified one. Psychiatrists and psychiatric nurses were different in terms of their attitudes for the efficacy of ECT methods.*

Keywords: *Electroconvulsive therapy, mental health professionals, unmodified attitude, modified attitude.*

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TÜRKİYE ÖRNEKLEMİNDE RUH SAĞLIĞI ÇALIŞANLARININ GELENEKSEL VE MODİFİYE ELEKTROKONVULSİF TEDAVİ YÖNTEMLERİNE YÖNELİK TUTUMLARI

ÖZET

Amaç: Elektrokonvülsif tedavi (EKT), psikiyatrik hastalıkların tedavisinde sıklıkla kullanılmaktadır. 2005 yılından itibaren geleneksel (anestezisiz uygulanma) EKT'den modifiye (anestezili uygulama) EKT'ye dönüşüm başlamıştır. Çalışmanın amacı geçiş sürecini yaşamış ruh sağlığı çalışanlarının geleneksel ve modifiye EKT yöntemlerine tutumlarını karşılaştırmaktır.

Materyal ve Metot: Çalışmamıza anestezili ve anestezisiz EKT yöntemlerinin her birini en az 30'ar kez uygulamış psikiyatrist, psikiyatri asistanı ve psikiyatri hemşiresi olmak üzere toplam 3 alt gruptan oluşan ruh sağlığı çalışanları dahil edildi. Katılımcılar iki EKT yöntemini etkinlik, yan etki profili, güvenlik, uygulama kolaylığı/zorluğu, memnuniyet açısından karşılaştıran anket formu ile değerlendirilmiştir.

Bulgular: Elli dört psikiyatrist, 82 psikiyatri asistanı ve 64 psikiyatri hemşiresi çalışmaya dahil edildi. Psikiyatristlerin %53,7'si ve psikiyatri asistanlarının %47,6'sı iki EKT yönteminin etkinliğini eşit olduğunu belirtmiştir. Ancak psikiyatri hemşirelerinin %56,3'ü geleneksel EKT yöntemini modifiye EKT yönteminden daha etkili olduğu yönünde tutum göstermiştir. Her 3 ruh sağlığı çalışanı grubu; modifiye EK'nin güvenirlik ve memnuniyetine dair pozitif tutum gösterdi (güveninirlik χ2:0,296, p=1,000 ve memnuniyet χ2:1,987 p=0,778) ve bu yeni yöntemin daha az yan etkiye sahip olduğunu belirtmiştir (χ2:14,364, p=0,006). Genel anlamda tüm ruh sağlığı çalışanları modifiye EKT'ye geçiş hakkında pozitif tutuma sahipti (χ2:10,058, p=0,014).

Sonuç: Ruh sağlığı çalışanları geleneksel EKT'den modifiye EKT'ye geçişe pozitif tutum göstermişlerdir ve modifiye EKT'nin geleneksel EKT'den daha güvenli olduğunu belirtmişlerdir. Ancak psikiyatristler ve psikiyatri hemşireleri EKT yöntemlerinin etkinlikleri konusunda farklı tutumlar sergilemiştir.

Anahtar kelimeler: Elektrokonvülsif tedavi, ruh sağlığı çalışanları, geleneksel tutum, modifiye tutum.

INTRODUCTION

Electroconvulsive therapy (ECT) is an effective and safe approach for treatment of various psychiatric disorders including major depression, bipolar affective disorder and schizophrenia. It has been applied in psychiatric clinics worldwide since 1938.[1-6] In Turkey first ECT practice was done in 1946.[7] ECT can be applied in two different methods; which are unmodified and modified. The usage of anesthetics and muscle relaxants in the modified one determines the difference between two methods.[8-10]

In 1940s patients' rights movements and anti-psychiatric approaches led to questioning whether the application of unmodified ECT was a treatment or a punishment method. This criticism took an important place in media and press. Eventually, in the 1950s unmodified ECT was abandoned in many developed countries, and it was replaced with modified one which increased the safety and decreased the side effects of ECT treatment.[11-15] This change in the ECT applications was seen after several decades in Turkey. At the end of 1990s many psychiatry clinics in Turkey started to use modified ECT as standard treatment.[7,15,16]

Bakırköy Training and Research Hospital for Psychiatry, Neurology and Neurosurgery (BTRH) is the largest, oldest and also the most developed health institute for mental disorders and neurology in Turkey. It serves as the major psychiatry branch hospital of Turkey. The catchment area has a population of approximately 16 million. The number of psychiatric outpatients is nearly 300,000 per year, and approximately 8000 patients are hospitalized every year. In BTRH; ECT has been applied in unmodified type until 2005. Due to unmodified ECT use; Mental Disability Rights International (MDRI) and the European Convention for the Prevention of Torture and Inhuman or Degrading Treatment or Punishment (CPT) published critical reports about the ECT applications in this hospital.[17] In 2005 these criticisms triggered the transition to modified ECT in BTRH. This transition took a time of approximately one year and became a model for other psychiatry branch hospitals in the country.[9,16]

Research findings show that attitudes about the ECT applications may differ among the mental health professionals. For example, psychiatric nurses generally have more negative attitudes towards ECT applications compared to psychiatrists.[12,18-20] In training hospitals, attitudes of the health professionals towards a specific treatment approach have a great influence on the development of the trainees' own treatment approaches. BTRH is one of the primary referral hospital for not only all psychiatric patients and but also for resistant cases. The majority of ECT applications of the country is done in this hospital. These reasons lead substantial importance of attitudes of mental health professionals in this training hospital toward any treatment approach. This study aimed to evaluate the attitudes of the mental health professionals towards two ECT methods in a psychiatry branch hospital. It was conducted in the transition period of ECT approaches from unmodified

to modified one in BRTH. We hypothesized that mental health professionals would find modified ECT method to be safer than the unmodified one.

MATERIAL AND METHOD

This study was conducted in Bakırköy Training and Research Hospital for Psychiatry, Neurology and Neurosurgery (BTRH). The study has approval from the BTRH ethics committee. Participants were informed about the study and their written and verbal consents were taken. The study was conducted with a total of 200 mental health professionals. There are 3 subgroups; psychiatric nurses, psychiatric residents and psychiatrists. Each participant had at least 30 experiences of each modified and unmodified ECT methods in the inpatient clinics of BTRH where ECT was being used. Mental health professionals who were not nurses or doctors or had an active psychopathology that would prevent them from completing the questionnaire were not included in the study. ECT applications were done in accordance with the regulations of the Turkish Ministry of Health.[21]

Participants were asked to fulfill the semi-structured questionnaire prepared by the investigators, to compare two methods. Questionnaire included 5 questions in terms of efficacy, side effect profile, safety, associated feeling of satisfaction during the applications and evaluate the transition to modified ECT method from unmodified one. The questionnaire related to attitudes of the mental health professionals towards the ECT methods are shown in Table 1.

Statistical Methods

Data were coded and analyzed using the IBM SPSS version 24. For statistical analysis Number Cruncher Statistical System (NCSS) 2007 (Kaysville, Utah, USA) was used. Descriptive statistical methods (mean, standard deviation, median, frequency, and percentage, minimum, maximum) were used to evaluate the study data. Pearson chi-square test and Fisher-Freeman-Halton exact test were used to compare the qualitative data. Statistical significance was accepted as $p<0.05$.

RESULTS

For the study; 54 (27.0%) psychiatrists, 82 (41.0%) trainees and 64(32.0%) psychiatric nurses were participated. Among the participants 123 (61.5%) were female and remaining 77 (38.5%) were male. The average age of participants was 35.42±7.66 years. Their average duration of work was 9.35±7.50 years. The complete responses of attendees' according to categories were presented in Table 2.

In terms of efficiency; 53.7% of psychiatrists and 47.6% of trainees stated that the two ECT methods were equal. However according to 56.3% of psychiatric nurses unmodified ECT method was more effective than the modified one (χ2:10.615, p=0.031) (Figure).

Table 1. The content of questionnaire related to Electroconvulsive therapy (ECT) methods

1. Efficacy	**What is your opinion about the therapeutic efficacy of each ECT method?** a- Unmodified ECT is more effective b- Two methods are equal in terms of their efficacy c- Modified ECT is more effective
2. Side Effect	**What is your opinion about the side effects of each ECT method?** a- Unmodified ECT has less side effects b- Two methods are equal in terms of their side effects c- Modified ECT has less side effects
3. Safety	**What is your opinion about safety of each ECT method?** a) Unmodified ECT is safer b) Two methods are equal in terms of their safety c) Modified ECT is safer
4. Satisfaction	**During which ECT application you feel more satisfaction?** a) I satisfied more during unmodified ECT b) There is no difference in between c) I satisfied more during modified ECT
5. Opinion About The Transition To Modified ECT	**What is your opinion about the transition to modified ECT in our hospital?** a- It is bad b- There is no difference c- It is good

Mental health professionals showed a common attitude towards the safety and satisfaction (for safety χ2:0.296, p=1.000 and for satisfaction χ2:1.987 p=0.778). For both safety and satisfaction all health professionals replied in favor to modified ECT applications.

In all subgroups of professionals, according to majority of participants modified ECT method had less side effects. However, nurses significantly stated that both methods did not differ in terms of side effects when compared with trainees. Trainees significantly stated that modified ECT has less side effect when compared with nurses (χ2:14.364, p=0.006)

In all subgroups of mental health professionals, majority of participants reported positive opinion about the transition to the modified ECT applications. However 10.9 % of psychiatric nurses significantly stated that the transition to the modified method did not make any difference (χ2:10.058, p=0.014).

DISCUSSION

In this study, we compared the attitudes of health workers who were experienced in applications of each ECT methods. The most important finding of this study was that all subgroups of mental health professionals had positive attitude about the transition to modified ECT approach. In terms of associated side effect, safety and satisfaction feeling during the applications according to each subgroups of mental health professionals modified ECT was better than unmodified one. However in

Table 2. Comparisons of mental health professionals in terms of their opinions about the efficacy, side effects, safety and associated satisfaction of each Electroconvulsive therapy (ECT) methods

		Psychiatrists n (%)	Trainees n (%)	Psychiatric Nurses n (%)	*P*
1. Efficacy	The unmodified ECT is more effective	18 (33.3)	31 (37.8)	36 (56.3)	χ2:10.615
	The methods are equal	29 (53.7)	39 (47.6)	17 (26.6)	[b]0.031*
	The modified ECT is more effective	7 (13.0)	12 (14.6)	11 (17.2)	
2. Side Effect	The unmodified ECT has fewer side effect	7 (13.0)	12 (14.6)	6 (9.4)	χ2:14.364
	The methods are equal	5 (9.3)	6 (7.3)	18 (28.1)	[b]0.006**
	The modified ECT has fewer side effect	42 (77.8)	64 (78.0)	40 (62.5)	
3. Safety	The unmodified ECT is more safer	7 (13.0)	12 (14.6)	9 (14.1)	χ2:0.296
	The methods are equal	3 (5.6)	4 (4.9)	3 (4.7)	[c]1.000
	The modified ECT is more safer	44 (81.5)	66 (80.5)	52 (81.3)	
4. Satisfaction	I satisfied more during the unmodified ECT	1 (1.9)	3 (3.7)	2 (3.1)	χ2:1.987
	There is no difference	3 (5.6)	2 (2.)	4 (6.3)	[c]0.778
	I satisfied more during the modified ECT	50 (92.6)	77 (93.9)	58 (90.6)	
5. Opinion About The Transition To Modified ECT	It is bad	1 (1.9)	2 (2.4)	2 (3.1)	χ2:10.058
	No difference	0 (0)	1 (1.2)	7 (10.9)	[c]0.014*
	It is good	53 (98.1)	79 (96.3)	55 (85.9)	

[b]Pearson Chi-Square Testm [c]Fisher Freeman Halton Test *p<0.05 **p<0.01

terms of efficacy of the methods attitudes of mental health professionals differed in subgroups. According to majority of psychiatrists and trainees the two ECT methods had equal efficacy, however the majority of psychiatric nurses stated unmodified ECT was more effective than modified one.

Psychiatrists often accept ECT as an important treatment modality, but state that its indications should be clear.[22,23] In developing countries unmodified ECT is a suggested method in psychiatric treatment rather than absence of any treatment.[3,24-26]

Professionals report that use of anesthetics in ECT leads increase in safety and decrease in side effects of this treatment approach. However according to findings of studies on attitudes about ECT, modified and unmodified ECT methods are similar in terms of their safety.[11,26] Moreover, experts point out the probability of increased risk of side effects due to the anesthesia itself used in modified ECT.[5,26] Despite all these discussions, unmodified ECT method continues to be used in the developing countries which makes the majority of world population.[24-28]

In developed countries unmodified ECT has been abandoned and replaced by modified one. However due to financial inadequacy, unmodified ECT is still being applied in underdeveloped countries which include more than half of the world's population. In countries where ECT is applied by unmodified approach, the debate continues whether the patient should remain untreated or whether ECT should be applied. ECT is known to be effective in many psychiatric illnesses, whether unmodified or modified. However, the use of ECT in the treatment of a specific patient is influenced by the attitudes of healthcare workers. Studies in different countries have showed that modified ECT is preferred more than unmodified one. In a study from China 56% of psychiatrists preferred the modified ECT to unmodified ECT.[28] This ratio is 97.5% for psychiatrists in Hong Kong. In Nigeria, 73.7% of psychiatrists request modified ECT in all other psychiatric clinics.[20] Similar to these studies we found that psychiatrists, trainees, and psychiatric nurses had positive view for the transition to modified ECT from unmodified one.

The positive view for modified ECT among the health professionals may be related to side effect profile. Compared to modified ECT unmodified ECT is found to be associated with significantly higher delirium and agitation incidence after its application.[14] It is reported that the frequency of vertebral fracture is 10-40% with unmodified ECT and the risk of fracture decreases after the use of muscle relaxant drugs. Back pain is seen in 52% of cases after unmodified ECT applications.[29] Comparison of unmodified ECT with the benzodiazapine-modified ECT in terms of their safety and efficacy demonstrates that benzodiazepine-modified ECT is associated with a decrease risk in orthopedic morbidity and is safer than unmodified ECT.[27] In our study although 28.1% of the psychiatric nurses stated that two ECT methods were equal in terms of their side effect rates, according to majority of mental health professionals the modified ECT method was associated with less side effects than the unmodified ECT method.

In a study conducted by Zeren *et al*. (2003) modified and unmodified ECT methods are compared in terms of the frequency of side effects. It is shown that unmodified ECT is associated with significantly more side effects (52.5%, 40.5%, respectively) (15). In addition, it is reported that fear and anxiety prior to application of unmodified ECT has a negative effect on patients.[30] In a study from Turkey, it has shown that anxiety and cognitive side effects are lower in patients who receive low dose propofol before ECT than in patients who do not receive any pre-treatment.[14] However, it is reported that anesthesia itself may cause side effects in the modified ECT method.[1,11]

With the development of anesthesia techniques, the reliability of ECT has increased and its side effects have decreased.[10,22] In our study, mental health professionals agreed with the literature knowledge and stated that the modified ECT method was safer and associated with more comfort during application. Similarly, with our study, Nigeria showed that the majority of psychiatrists and trainees found modified ECT safer than unmodified one.[20] In another study from China, done in two different regions of Beijing and Hong Kong with different economic, socio-cultural, developmental level, medical education and patient populations; it was shown that 53% of the psychiatrists in Beijing and 95% of the psychiatrists in Hong Kong found the modified ECT safer than unmodified one.[28]

One of the most important factors in choosing a treatment method is its effectiveness. Zeren *et al* (2003) found that response rates of modified (86%) and unmodified ECT (80%) are similar.[15] It has been shown that majority of psychiatrists believe ECT is an effective treatment for many psychiatric disorders.[22] However according to previous studies nurses have more negative attitudes than doctors for ECT approaches.[12,19,22] Similarly, we found that according to majority of psychiatrists and trainees the two ECT methods were similar in terms of their efficacy, however according to majority of psychiatric nurses unmodified ECT method was more effective than the modified one. This finding pointed out the negative attitude of psychiatric nurses in terms of the efficacy of modified ECT. This may be due to limited or inaccurate knowledge of the nurses about this ECT application method. Because it is reported that as the knowledge about ECT decreases, the negative attitude to ECT increases.[31-35] Among nurses better knowledge about ECT and contact with patients are reported to be associated with more positive attitudes for ECT applications.[36,37] Further, it has been observed that registered mental health nurses have more knowledge and positive attitude toward ECT than student nurses.[34] Some of the previous studies suggest that psychiatric nurses and nursing students have significantly poorer knowledge and more negative attitude toward ECT compared to medical students.[36,37]

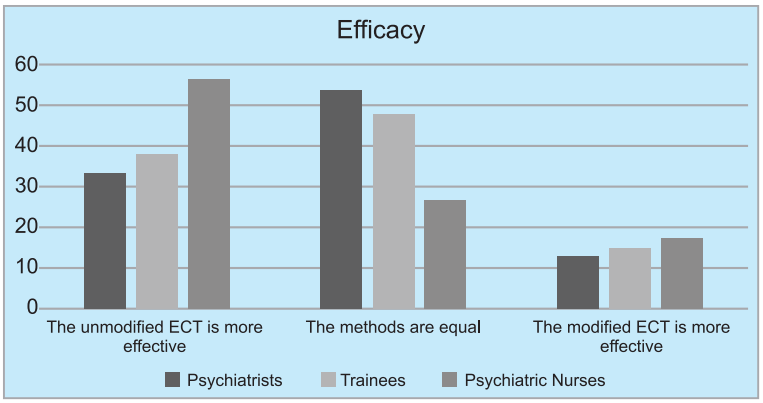

Figure. Responses of psychiatrists, trainees and psychiatric nurses to semi-structured questionnaire in terms of efficacy.
ECT: Electroconvulsive therapy

Limitations

We believe that the most important limitations of our study was related to the sample. Our sample had a small size and it included participants from only one hospital. In addition, participants were different from each other in terms of theirs experiences on each ECT application. Another potential bias might be associated with the more frequent application of modified ECT in clinical practice.

CONCLUSION

Electroconvulsive therapy, either modified or unmodified form, is widely used in all over the world for the treatment of many psychiatric disorders. Compared to unmodified one, modified- ECT has advantages in terms of its effectivity and side effect profile. However believes, experiences and also attitudes of psychiatric health professionals about a specific treatment method have important effects on its usage in practice. In this study we showed that although each subgroups of mental health professionals have positive attitudes for transition from unmodified to modified ECT, doctors and nurses had different attitudes for the efficacy of ECT methods. Future researches on ECT will present useful findings to the discussions related to attitudes of mental health professionals.

Author Contributions

Fatma Akyüz Karacan (FA) make the conceptualization and design of the study. Each researcher participated in the collection of data of the participants and statistical analyses of these data. FA conducted additional analyses and drafted the initial manuscript. All authors made substantial contributions to the interpretation of the findings, critically reviewed the manuscript, and approved the final manuscript as submitted.

*The authors declare that there are no conflicts of interest.

REFERENCES

1. Karayağmurlu A, Coşkun M, Elboğa G, et al. Efficacy and safety of electroconvulsive therapy in adolescents: a retrospective chart review study from Turkey. J ECT 2020; 36: 54-59.
2. Elboğa, G, Karayağmurlu, E, Kocamer Şahin, Ş, Altindağ, A. Analysis of elderly patients treated with electroconvulsive therapy and complication rates: a single center experience. Anatol J Psychiatry 2019; 20.
3. Andrade C. Unmodified ECT: ethical issues. Indian J Medical Ethics 2003; XI; 1: 9-10.
4. Fink M. Convulsive therapy: A review a of first 55 years. J Affective Disorder, 2001: 63: 1-15.
5. Gallegos J, Vaidya P, D'Agati D, et al. Decreasing adverse outcomes of unmodified electroconvulsive therapy: suggestions and possibilities. J ECT 2012; 28: 77-81.
6. Gazdag G, Kocsis N, Lipcsey A. Rates of electroconvulsive therapy use in Hungary in 2002. J ECT 2004; 20: 42-44.
7. Dönmez ÇF, Yılmaz M. Electroconvulsive therapy and nursing care. J Psychiatric Nursing 2011; 2: 80-89.
8. Balıkcı A, Bolu A, Akarsu S, et al. Practice of electroconvulsive therapy between the years of 2006-2011 at a university hospital in Turkey. Anatol J Psychiatry 2013; 14: 340-346.
9. Canbek O, Menges OO, Atagun MI, et al. Report on 3 years' experience in electroconvulsive therapy in Bakirkoy Research and Training Hospital for Psychiatric and Neurological Diseases: 2008–2010. J ECT 2013; 29: 51–57.
10. Gaines GY, Rees DI. Anesthetic considerations for electroconvulsive therapy. Southern Medical Journal 1992; 85: 469-482.
11. Andrade C, Shah N, Tharyan P. The dilemma of unmodified electroconvulsive therapy. J Clin Psychiatry 2003; 64: 1147-1152.
12. Caldwell TM, Jorm AS. Mental health nurses' beliefs about interventions for schizophrenia and depression: a comparison with psychiatrists and the public. Aust N Z J Psychiatry 2000; 34: 602-611.
13. Hughes J, Barraclough BM, Reeve W. Are patients shocked by ECT? J R Soc Med 1981; 74: 283-285.
14. Tripathi A, Winek NC, Goel K, et al. Electroconvulsive therapy pre-treatment with low dose propofol: Comparison with unmodified treatment. J Psychiatric Research 2014; 53: 173-179
15. Zeren T, Tamam L, Evlice YE. Electorconvulsive therapy: assessment of practice of 12 years' period. Yeni Symposium 2003; 41: 54-63.
16. Tomruk N, Oral T. Clinical use of electroconvulsive therapy: a review. Anatol J Psychiatry 2007; 8: 302-309.
17. (CPT). ECftPoT. Report to the Turkish government on the visit to Turkey carried outby the European Committee for the Prevention of Torture and Inhumane or Degrading Treatment or Punishment (CPT) [Strasbourg]; 2006.
18. Byrne P, Cassidy B, Higgins P. Knowledge and attitudes toward electroconvulsive therapy among health care professionals and students. J ECT 2006; 22: 133-138.
19. James BO, Lawani AO, Omoaregba JO, et al. Electroconvulsive therapy: a comparison of knowledge and attitudes of student nurses and staff mental health nurses at a psychiatric hospital in Nigeria. J Psychiatr Ment Health Nurs 2010; 17: 141-146.
20. James BO, Inogbo C. Implementing Modified Electroconvulsive Therapy in Nigeria Current Status and Psychiatrists' Attitudes. J ECT 2013; 29; 25-26.
21. https://www.saglik.gov.tr/TR,11235/elektro-konvulsif-tedavi-uygulama-yonergesi.html.
22. Brender R, Dar N, Dannon P.Electroconvulsive Therapy: Relating Attitude Towards Treatment and Knowledge Among Mental Health Professionals in a Mental Health Center. Isr J Psychiatry 2018; 55. 41-45.
23. Schweder LJ, Lydersen S, Wahlund B, et al. Electroconvulsive therapy in Norway: rates of use, clinical characteristics, diagnoses, and attitude. J ECT 2011; 27: 292-295.
24. Chanpattana W, Kramer BA, Kunigiri G, et al. A survey of the practice of electroconvulsive therapy in Asia. J ECT 2010; 26: 5-10.
25. Takebayashi M, The Development of Electroconvulsive Therapy in Japan. J ECT 2010; 26: 14-15.
26. Waikar A, Davar B, Karhadkar C, et al. ECT without anaesthesia is unethical. Issues Med Ethics 2003; 11: 41-43.
27. Challiner V, Griffiths L. Electroconvulsive therapy: a review of the literature. J Psychiatr Ment Health Nurs 2000; 7: 191-198.
28. Leung CM, Xiang YT, He JL, et al. Modified and unmodified electroconvulsive therapy: a comparison of attitudes between psychiatrists in Beijing and Hong Kong. J ECT 2009; 25: 80-84.
29. Andrade C, Rele K, Sutharshan R, et al. Musculoskeletal morbidity with unmodified ECT may be less than earlier believed. Indian J Psychiatry 2000; 42: 156Y162.
30. Shah N, Mahadeshwar S, Bhakta S, et al. The safety and efficacy of benzodiazepine-modified treatments as a special form of unmodified ECT. J ECT 2010; 26: 242.
31. Brender R, Dar N, Dannon P. Electroconvulsive therapy: relating attitude towards treatment and knowledge among mental health professionals in a mental health center. Isr J Psychiatry 2018; 55: 41-45.
32. Janicak PG, Mask J, Trimakas KA, et al. ECT: an assessment of mental health professionals' knowledge and attitudes. J Clin Psychiatry 1985; 46: 262-666.
33. Lutchman RD, Stevens T, Bashir A, et al. Mental health professionals' attitudes toward and knowledge of electroconvulsive therapy. J Ment Heal 2001; 10: 141-150.
34. Bilginer Ç, Karadeniz S. Knowledge, attitudes, and experience of child and adolescent psychiatrists in Turkey concerning pediatric electroconvulsive therapy. Asian J Psychiatr 2019; 46: 74-78.
35. Aki, OE, Ak, S, Sonmez, YE, Demir, B. Knowledge of and attitudes toward electroconvulsive therapy among medical students, psychology students, and the general public. J ECT 2013: 29: 45-50.
36. Sharma N, Ghai S, Grover S. Knowledge and attitude of nursing students toward electroconvulsive therapy. J Neurosci Rural Pract 2017; 8: 7-12.
37. Netshilema TC, Nadira Khamker N, Sokudela F. Mental health professionals' attitudes toward and knowledge about electroconvulsive therapy at Weskoppies Hospital, South Africa. Perspect Psychiatr Care 2019; 55: 201-209.