

Knowledge, Attitude, and Perception about Modified Electroconvulsive Therapy among Healthcare Professionals in a Tertiary Care Centre – A Cross-Sectional Study

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Abstract

Background: Despite the rapid progress in somatic modalities and growing evidence for safety, there is still stigma surrounding Modified Electroconvulsive Therapy (mECT), indicating a need to assess knowledge, attitude, and perception among healthcare professionals. The objective is to assess the knowledge, attitude, and perception regarding mECT among healthcare professionals in a tertiary care centre. **Material and Methods:** After obtaining permission, a questionnaire (QueKAPE) adapted from QuAKE and the Agarwal questionnaire, with Cronbach's alpha $\alpha = 0.82, 0.78$, and 0.85 on the Knowledge, Attitude, and Perception subscales respectively; sensitivity 88% and specificity 85%, was used to assess knowledge, attitude, and perception about mECT. Data were analysed using IBM SPSS Statistics v22.0. Descriptive statistics were used to summarize categorical data, and Chi-square test and ANOVA were used to test association. **Results:** Mean scores of Knowledge, Attitude, and Perception ($13.60 \pm 1.26, 12.60 \pm 1.90$, and 7.00 ± 2.11) were better among psychiatrists compared to non-psychiatrists, especially nursing staff ($4.00 \pm 2.53, 10.33 \pm 2.42$, and 12.83 ± 2.14) with a statistically significant p-value < 0.01 . Psychiatrists had better knowledge (ANOVA $F = 28.76$) and attitude ($F = 4.32$) compared to other departments. Nursing staff had misperceptions about the procedure (ANOVA $F = 19.84$). **Conclusion:** Our study concludes that there is a need to fill the knowledge gap to reduce stigma and prevent delays in treatment. Further, there is a need to address the KAP towards mECT to increase awareness among healthcare professionals.

Keywords: Attitude, knowledge, perception, electroconvulsive therapy, health personnel.

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INTRODUCTION

Electroconvulsive Therapy (ECT) is a safe and effective somatic modality used to treat severe mental disorders like schizophrenia, bipolar affective disorder, treatment-resistant depression, catatonia, etc. ECT is a non-invasive procedure that delivers an electric current to the brain to achieve neuroplasticity. It can also be used to treat severe suicidal ideations, clozapine-resistant schizophrenia, or bipolar disorder.^[1]

The evolution of ECT began with the concept of “using one disease to treat another”, which was first popularized by the revolutionary malarial therapy for the treatment of neurosyphilis. A trial by Ladislav J. Meduna, dated back to the 1930s, showed that a patient diagnosed with catatonic stupor, when injected with intramuscular camphor (an epileptogenic agent) had improvement of symptoms of schizophrenia during follow-up. Following this, she theorized that seizure induction can improve psychotic symptoms.^[2]

In 1938, Ugo Cerletti and Lucio Bini conducted the first human trial on a 39-year-old with disorganized schizophrenia by passing electric current to the brain without anaesthesia.^[3]

Later, many modifications occurred to the procedure, beginning with bilateral stimulation with sine wave to unilateral stimulation with ultra-brief or brief pulse voltages. Modified ECT (mECT) was developed in 1952 by Holmberg and Thesleff, which improved patient acceptability, tolerability, and safety of the procedure. However, stigma and misconceptions regarding the procedure have started to evolve over time.^[4]

Despite the recent evidence in the progress of ECT in terms of efficacy and safety in the management of severe mental disorders, the use of ECT today is minimal and the stigma surrounding it has reached an all-time high. Recent studies have shown that avoiding or neglecting somatic modalities like ECT

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can increase morbidity and reduce the efficacy of other modes of management.^[5]

Globally, studies on knowledge, attitude, and perception towards ECT have been expanding to assess both patient and clinician awareness towards the procedure. Recent KAP studies on ECT across the globe have suggested that there are historical misconceptions and cultural variations.^[6] A study conducted by Agarwal et al. among Indian psychiatrists to assess the attitude and knowledge about ECT reported that many psychiatrists (86.3%) favoured the use of ECT concerning safety and efficacy, while some (5.3%) disregarded its use.^[7]

While many researchers have investigated the role of ECT with a focus on its use in psychiatric treatment, and the ethical and legal aspects of the treatment, very few studies have been carried out to evaluate the knowledge, attitude, and perception of healthcare professionals themselves towards the modality. Hence, there is a need to conduct this study to elaborate on the attitudes and possible misconceptions about ECT.

MATERIALS AND METHODS

This study was conducted at Gadag Institute of Medical Sciences in India. This cross-sectional study was conducted from February 2024 to April 2024 after obtaining clearance from the Institutional Ethical Committee. Subjects were recruited after distributing the questionnaire through online Google Forms. The sample included 128 subjects after exclusion. The validated questionnaire QueKAPE (Questionnaire on Knowledge, Attitude and Perception about Modified ECT) used in the study was adapted and developed from QuAKE (Questionnaire on Attitudes and Knowledge of ECT) and the Agarwal questionnaire after obtaining permission from the authors. Participants were recruited using purposive sampling technique through online Google Forms with a sample size of 128 and response rate of 76.1% out of 166.

Objectives: To assess the knowledge, attitude, and perception of mECT among healthcare professionals in a tertiary care centre.

Inclusion criteria:

- All subjects who gave consent and attended at least one

session of mECT during their undergraduation/postgraduation/ nursing training.

Exclusion criteria:

- Subjects who did not consent to participate in the study.
- Subjects who had not attended an ECT session even once.

Tools:

1. Sociodemographic profile, including age, gender, department, and designation, was collected through online Google Forms.
2. Questionnaire to assess Knowledge, Attitude, and Perception about ECT (QueKAPE): QueKAPE included 15 items on Knowledge, 10 items on Attitude (agree, disagree, ambivalent), and 15 items on Perception (True/False).

This adapted questionnaire was validated with Cronbach's alpha: Knowledge subscale: $\alpha = 0.82$, Attitude subscale: $\alpha = 0.78$, Perception subscale: $\alpha = 0.85$, Sensitivity: 88%, Specificity: 85%.

Statistical Analysis:

1. IBM SPSS Statistics v22.0 was used for data analysis.
2. Descriptive statistics were analysed using the frequencies and percentages.
3. Chi-square test and ANOVA were used to test association. A p-value < 0.05 was considered significant for all tests.

RESULTS

Our study included 128 subjects, after obtaining consent through an online Google Forms survey. Majority of the participants (89.1%) belonged to the 18–30 years age group followed by 31–40 years (9.4%). Among the 72 (56.3%) males, and 56 (43.8%) female participants recruited were 64 (50%) house surgeons, 41 (32.03%) postgraduate students, 11 (8.6%) senior residents, 6 (4.7%) Nursing Officers, 3 (2.3%) Associate Professors, 2 (1.6%) Assistant Professors, and 2 (1.6%) Professors. Across various departments in the hospital, physicians (17.9%), paediatricians (10.15%), psychiatrists (7.8%), anaesthesiologists (8.6%), Nursing Officers (4.7%), and a psychologist (0.7%) were included in the study [Table 1].

Figure 1: ?

Table 1: Sociodemographic profile

Variable	Frequency (n=128)	Percentage
Age (years)	18-30	114
	31-40	12
	41-50	2
Gender	Male	72
	Female	56
Designation	House Surgeon	64
	Postgraduate	41
	Senior Resident	11
	Nursing Officer	6
	Associate Professor	3
	Assistant Professor	2
	Professor	2
Department	Internal Medicine	23
	Paediatrics	13
	Anaesthesiology	11
	Psychiatry	10

Psychology	1	0.7%
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The mean scores of Knowledge, Attitude, and Perception recorded among psychiatrists, anaesthesiologists, paediatricians, physicians, psychologist, house surgeons, and

Nursing Officers using the QueKAPE are illustrated below in Table 2 and Fig. 1.

Table 2: Knowledge, Attitude, and Perception scores across Healthcare Professionals

Healthcare Professional	Knowledge	Attitude	Perception
Psychiatrist	13.60 ± 1.26	12.60 ± 1.90	7.00 ± 2.11
Anaesthesiologist	7.64 ± 1.36	11.82 ± 2.14	11.18 ± 2.56
Paediatrician	6.46 ± 1.81	11.00 ± 1.53	11.15 ± 2.12
Physician	5.26 ± 1.18	11.00 ± 2.13	11.48 ± 2.25
Psychologist	9.00 ± 1.00	16.00 ± 1.1	10.00 ± 1.1
House Surgeon	4.84 ± 1.65	10.52 ± 2.02	12.44 ± 2.08
Nursing Officer	4.00 ± 2.53	10.33 ± 2.42	12.83 ± 2.14

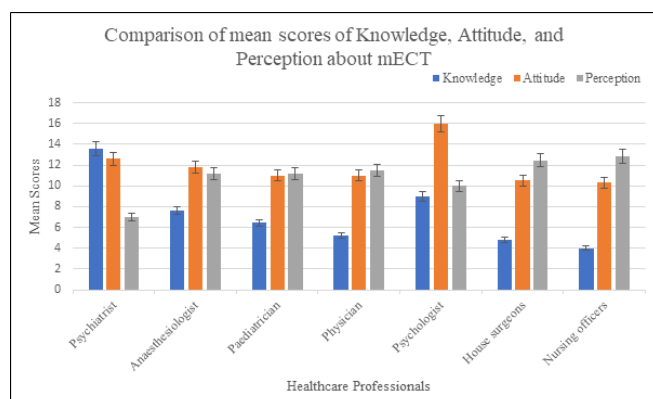


Figure 1: Comparison of mean scores of Knowledge, Attitude, and Perception about mECT

Knowledge about mECT: Our study revealed that the majority of participants (47.65%) acquired knowledge about ECT through research articles, followed by learning about it from friends and colleagues (23.43%). Notably, 94.5% of participants demonstrated a correct understanding of the definition of ECT. However, there was variability in their knowledge regarding specific aspects of ECT administration. For instance, 69.5% of participants believed that bilateral, brief pulse, modified ECT is the standard procedure.

Moreover, 91.4% of participants reported that ECT should be administered 1-3 sessions per week for acute psychiatric disorders. The importance of informed consent for the procedure was emphasized by 96.9% of participants.

However, gaps in knowledge were observed, as 31.25% of participants incorrectly identified contraindications for ECT, and 44.5% believed that a seizure duration less than 25 seconds constitutes a successful treatment. Additionally, 69.5% of participants recognized the need for short general anaesthesia during the procedure, and 82.7% believed that ECT is equally or more effective than other treatments. Encouragingly, 93.8% of participants reported being aware of the Mental Healthcare Act (MHCA) 2017 and recognized that ECT can be conducted under this act. These findings underscore the importance of ongoing education and training to ensure that healthcare professionals possess accurate knowledge about ECT [Table 3].

Our study has also found that psychiatrists have given more correct responses towards the Knowledge subscale (95%); whereas other healthcare professionals like anaesthesiologists reported 60% correct responses, followed by physicians (36%), paediatricians (38%), house surgeons (35%), and Nursing Officers (25%) indicating a knowledge gap between departments.

Table 3: Knowledge subscale

Questionnaire Item	Freq	Percent	χ^2	dF	p
Main source of acquiring knowledge about ECT			445.2	31	0.00
Academic/ textbooks	13	10.15%			
Electronic media	19	14.84%			
Experience from research articles about ECT	61	47.65%			
Experience from colleagues	5	3.9%			
Experience of friend or patient	30	23.43%			
What is ECT?			212.6	2	0.00
A standard psychiatric treatment in which anaesthetic drugs were used to induce seizure	7	5.5			
A standard psychiatric treatment in which electric current is delivered through the scalp to induce seizure	121	94.5			
Types of ECT you know			345	23	0.001
Bilateral, Brief pulse, Modified	89	69.5%			
Bilateral, Sine wave, Modified	23	17.96%			
Unilateral, Brief pulse, Modified	10	7.8%			
Unilateral, Sine wave, Modified	06	4.7%			
Is informed written consent of the patient or patient relatives always necessary?			228	2	0.00
No	4	3.1%			
Yes	124	96.9%			
During ECT, are anaesthetics or other medications used?			223.4	2	0.01
No	5	3.9%			

Yes©	123	96.1%			
How often can ECT be given to a patient in acute phase?			298.6	3	0.00
1–3 per week	117	91.4%			
4–5 per week©	10	7.8%			
> 6 per week	1	0.8%			
Investigations are used in ECT			197.1	2	0.001
No	10	7.8%			
Yes©	118	92.2%			
ECT is used to treat			138.0	15	0.001
Active suicidal ideas	5	3.9%			
Acute mania	7	5.5%			
Treatment-resistant depression	23	17.96%			
Treatment-resistant schizophrenia	28	21.8%			
Borderline personality disorder	5	3.9%			
All of the above©	60	46.87%			
Successful ECT is termed when seizure duration is			111	3	0.00
< 25 seconds	57	44.5%			
30–60 seconds©	67	52.3%			
> 60 seconds	4	3.1%			
Contraindications for ECT			114	8	0.00
Intracranial space-occupying lesions	44	34.37%			
Phaeochromocytoma	4	3.1%			
Unstable medical conditions	22	17.18%			
None of the above©	58	45.31%			
ECT is covered under Mental Healthcare Act 2017			207.2	3	0.01
No	8	6.3%			
Yes©	120	93.8%			
Modified ECT is given under			209.1	4	0.001
General Anaesthesia	27	21.1%			
Local Anaesthesia	8	6.3%			
Short General Anaesthesia©	89	69.5%			
Spinal Anaesthesia	4	3.1%			
ECT is contraindicated in			73.4	2	0.002
Children	2	1.6%			
Elderly population	6	4.7%			
Pregnant females	60	46.87%			
All of the above	20	15.6%			
None of the above©	40	31.25%			
Compared to medications, how useful is ECT?			143.5	2	0.00
Less than medications	22	17.2%			
More than or equal to medications©	106	82.8%			
Electromyogram is required in ECT			207.5	8	0.06
No	48	37.5%			
Yes©	80	62.5%			

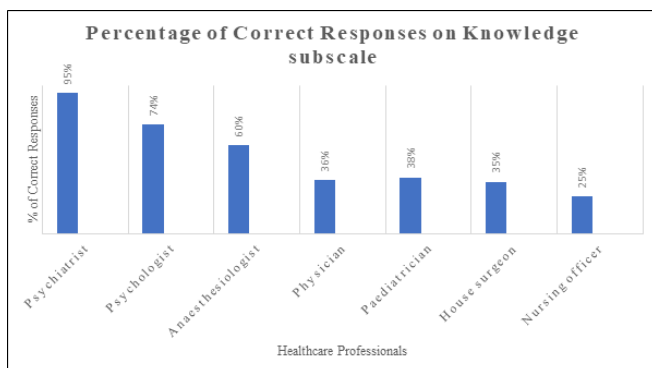


Figure 2: Percentage of correct responses on Knowledge subscale

Attitude towards mECT: Our study found that 60.2% of participants agreed that ECT is a safe, cheap, and effective intervention, and 66.4% participants considered ECT as a last resort for management. We also found that 80.5% disagreed that ECT is a cruel punishment for psychiatric illness, and 59.4% participants agreed that ECT is still the best option other than pharmacotherapy. 77.3% participants disagreed with ECT discontinuation, and 84.4% recommended comprehensive psychiatric facilities for management. However, 43.8% of participants believed that ECT produces subtle brain damage, and 56.3% of participants believed ECT should not be given to children under 16 years of age, whereas 76.6% participants recommended the formulation of explicit guidelines to conduct ECT [Table 4].

Table 4: Attitude subscale

Questionnaire Item	Freq	Percent	χ^2	dF	p
For many, ECT is still the safest, cheapest, and most effective treatment			96.5	3	0.00
Agree©	77	60.2%			
Ambivalent	30	23.4%			
Disagree	21	16.4%			
ECT should be used when other treatment options fail			124.5	3	0.001
Agree©	85	66.4%			

Ambivalent	25	19.5%			
Disagree	18	14.1%			
ECT is given as a punishment to violent/angry patients			212.3	3	0.00
Agree	19	14.8%			
Ambivalent	6	4.7%			
Disagree	103	80.5%			
Drugs have made ECT obsolete			93.6	3	0.01
Agree	31	24.2%			
Ambivalent	21	16.4%			
Disagree	76	59.4%			
Use of ECT should be completely discontinued			188	3	0.05
Agree	15	11.7%			
Ambivalent	14	10.9%			
Disagree	99	77.3%			
Use of ECT should at least be curtailed			50.07	3	0.001
Agree	57	44.5%			
Ambivalent	34	26.6%			
Disagree	37	28.9%			
Comprehensive psychiatric facilities should include ECT services			240.5	3	0.00
Agree	108	84.4%			
Ambivalent	15	11.7%			
Disagree	5	3.9%			
ECT may produce subtle brain damage			48.9	3	0.02
Agree	56	43.8%			
Ambivalent	34	26.6%			
Disagree	38	29.7%			
More explicit guidelines are required for use of ECT			183.7	3	0.001
Agree	98	76.6%			
Ambivalent	19	14.8%			
Disagree	11	8.6%			
ECT should not be used for children less than 16 years			80.64	3	0.01
Agree	72	56.3%			
Ambivalent	30	23.4%			
Disagree	26	20.3%			

Perception about mECT: In our study, 85.9% of participants believe that ECT causes permanent brain damage, and 83.6% participants believe ECT as illegal or unethical. 73.4% participants believe that ECT worsens psychiatric symptoms, and 30.5% participants believe ECT is the last resort for management. We also found that 85.2% of participants believed ECT causes permanent loss of

memory, and 12.5% participants believed ECT is not scientifically favourable. 76.6% participants believed that ECT produces permanent damage to other body parts, and 82.8% participants believed that there is a high risk of mortality. 66.4% of participants believed that patients who underwent ECT would develop epilepsy in the future [Table 5].

Table 5: Perception subscale

Questionnaire Item	Freq	Percent	χ^2	dF	p
ECT causes permanent brain damage			159.9	2	0.01
True	110	85.9%			
False	18	14.1%			
ECT can be given wishes of patient or his/her relatives			68.2	2	0.00
True	76	59.4%			
False	52	40.6%			
Modified ECT is considered unethical or illegal			147.5	2	0.05
True	107	83.6%			
False	21	21%			
ECT is considered as last resort for management of severe mental disorders			90.6	2	0.001
True	39	30.5%			
False	89	69.5%			
Does ECT often worsen psychiatric symptoms?			103.4	2	0.01
True	94	73.4%			
False	34	26.6%			
ECT helps in the improvement of symptoms by altering neurotransmission			207.4	2	0.02
True	8	6.3%			
False	120	93.7%			
ECT effect lasts for a short while			92.98	2	0.00
True	38	29.7%			
False	90	70.3%			
Does ECT result in permanent cure?			106.2	2	0.00
True	95	74.2%			
False	33	25.8%			
Scientific evidence favors the use of ECT			168.7	2	0.001

True© False	16 112	12.5% 87.5%			
Use of ECT leads to temporary impairment of memory True© False	40 88	31.3% 68.8%	88.3	2	0.01
Use of ECT leads to permanent loss of memory True False©	109 19	85.2% 14.8%	155.7	2	0.02
ECT can damage other body parts permanently True False©	98 30	76.6% 23.4%	115.3	2	0.001
During the ECT, chances of death are very high True False©	106 22	82.8% 17.2%	143.6	2	0.002
Headache is a common side effect following ECT True© False	10 118	7.8% 92.2%	197.2	2	0.00
Most of the receiving ECT develop epilepsy later True False©	85 43	66.4% 33.6%	82.04	2	0.01

In our study, we found that psychiatrists have better knowledge regarding mECT compared to other departments ($F = 28.76$, $p < 0.001$). We also found that psychiatrists have a positive attitude towards mECT compared to other departments, whereas anaesthesiologists have a better

attitude compared to nursing staff and house surgeons ($F = 4.32$, $p = 0.001$). Nursing staff were found to have misperceptions towards the mECT compared to other medical departments ($F = 19.84$, $p < 0.001$).

Table 6: Comparison of mean scores of Knowledge, Attitude, and Perception subscales across various departments using ANOVA

Subscale	Departments	Mean ($\pm$ SD) Score	F-value	p-value
Knowledge	Psychiatrist	13.60 $\pm$ 1.26	28.76	< 0.001
	Anaesthesiologist	7.64 $\pm$ 1.36		
	Physician	5.26 $\pm$ 1.18		
	Paediatrician	6.46 $\pm$ 1.81		
	House Surgeon	4.84 $\pm$ 1.65		
	Nursing Officer	4.00 $\pm$ 2.53		
Attitude	Psychiatrist	12.60 $\pm$ 1.90	4.32	0.001
	Anaesthesiologist	11.82 $\pm$ 2.14		
	Physician	11.00 $\pm$ 2.13		
	Paediatrician	11.00 $\pm$ 1.53		
	House Surgeon	10.52 $\pm$ 2.02		
	Nursing Officer	10.33 $\pm$ 2.42		
Perception	Psychiatrist	7.00 $\pm$ 2.11	19.84	< 0.001
	Anaesthesiologist	11.18 $\pm$ 2.56		
	Physician	11.48 $\pm$ 2.25		
	Paediatrician	11.15 $\pm$ 2.12		
	House Surgeon	12.44 $\pm$ 2.08		
	Nursing Officer	12.83 $\pm$ 2.14		

DISCUSSION

This is a cross-sectional online Google Forms-based clinical study that recruited 128 participants. In our study, we found that mean scores of Knowledge, Attitude, and Perception about mECT among psychiatrists were 13.60 $\pm$ 1.26, 12.60 $\pm$ 1.90, and 7.00 $\pm$ 2.11, respectively, compared to non-psychiatrists, especially nursing staff (4.00 $\pm$ 2.53, 10.33 $\pm$ 2.42, and 12.83 $\pm$ 2.14), which corresponds with a study by Antosik W. A. et al.^[8]

Our study found that 51.8% of healthcare professionals gave average correct responses regarding knowledge about mECT, which is lower compared with the study conducted by Netshilema T. C. et al, with average correct responses of 67.6%,^[9] indicating a knowledge gap across healthcare professionals which can be explained possibly due to differences in methodology, level of education and exposure to the procedure. Further, in our study, we also found that

psychiatrists provided the highest percentage of correct responses (95%), followed by psychologists (74%), anaesthesiologists (60%), paediatricians (38%), physicians (36%), house surgeons (35%), and Nursing Officers (25%) which corresponds with the findings of Thabet J. B. et al suggesting that psychiatrists have good knowledge about mECT compared to non-psychiatrists.^[10] In this study, we also found that medical professionals have better knowledge regarding mECT compared to nursing staff. However, we also identified knowledge gaps across other specialties, especially among anaesthesiologists, paediatricians, and physicians, suggesting the need to address these gaps by education and exposure to more procedures.

In our study, we also found that 67.5% of participants suggested using short general anaesthesia, and 92.2% of participants reported the need for pre-ECT investigations, which is corroborated by a study by Ali N. A. et al conducted in Kenya.^[11] Further, these findings can be helpful in better post-ECT care and

management. Limited knowledge about this procedure can lead to negative attitude towards the procedure and increase the stigma among healthcare professionals and general public. In a study conducted by Herch N. et al. majority of their participants have favoured the use of mECT; however, we found that 44.5% of participants reported that ECT should be curtailed, and 11.7% of participants showed a negative attitude towards the procedure, even suggesting discontinuing the procedure.^[12]

Our study has also found that 66.4% of participants would consider ECT as a last resort, 43.8% of participants believed that ECT produces subtle brain damage, which corresponds to the study of James B. O. et al, with 63.2% disagreeing with subtle brain damage. This study also found that the majority of the participants mentioned the need for basic guidelines, which is corroborated by our study (76.6%).^[13] Further, our study findings emphasize the need for adequate education and training to decrease the stigma around the procedure.

In our study, we also found that 85.2% of participants believed that mECT can lead to permanent brain damage and memory loss, 82.8% believed it can result in death, and 66.4% believed it can cause epilepsy. We also found that 87.5% of participants believed there is no scientific evidence for the procedure, 83.6% believed it is an illegal procedure, and 26.6% believed it can worsen the symptoms of the patient, which corresponds to a study by Farrant W.^[14] Further, with our study findings, we can assume that stigma around this procedure is still evident, especially among healthcare professionals, which can result in a delay in the management of psychiatric disorders.

Conducting regular Continued Medical Education (CME) programmes and inter-departmental educational programmes can fill this knowledge gap and reduce stigma towards the procedure. Further, prioritizing the exposure to the somatic modalities during the early years of medical education can prevent negative attitudes and misconceptions towards the procedure.

Limitations:

1. Cross-sectional study design limits the generalizability.
2. Data collection through online google forms can produce sample bias.

CONCLUSION

From our study findings, we conclude that there is a significant knowledge gap among non-psychiatrists that can lead to a negative attitude towards the ECT procedure. Also, there are significant misconceptions and myths regarding it which can limit its use and applicability to patients, and result in aggravating stigma among healthcare professionals and

the general public.

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Conflicts of interest

There are no conflicts of interest.

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