



PROSPECTIVE ANALYSIS OF KNOWLEDGE ATTITUDE AND PERCEPTION REGARDING ELECTROCONVULSIVE THERAPY USING AUDIOVISUAL AIDS IN CAREGIVERS OF SCHIZOPHRENIC PATIENT

Dr. Heena Merchant	Assistant Professor, Department of Psychiatry, KEM Hospital, Mumbai
Dr. Pulkit Kaushal	MTI International Fellow, Child and Adolescent Mental Health Services, Lime Trees, York, Tees Esk and Wear Valley NHS Trust, United Kingdom
Dr. Abha Thakurdesai	Senior Resident doctor, Department of Psychiatry, Sion Hospital, Mumbai
Dr. Ajita S. Nayak	Prof and Head of Unit, Department of Psychiatry, KEM Hospital, Mumbai - CORRESPONDING AUTHOR
Dr. S.R.Parkar	Prof and Head of Department, Department of Psychiatry, KEM Hospital, Mumbai

ABSTRACT **Background:** Electroconvulsive therapy continues to arouse public hostility, despite its proven safety and efficacy in the treatment of severe psychiatric illness. Certain factors such as social stigma, inadequate undergraduate training, doubts about its efficacy and safety and ambivalence among psychiatrists have limited the use of ECT. The aim of the study was To study the knowledge, attitude and perception in the caregivers of schizophrenic patients about ECT and to study changes in above parameters in caregivers after psychoeducating them about ETC.

Methodology: The study was carried out at the department of psychiatry of a tertiary-care multi-speciality hospital in Mumbai. In span of 3 months out of 312 patients 187 met the inclusion and exclusion criteria. Finally 103 caregivers of schizophrenic patients in whom ECT had been planned, were selected. A semi-structured 37 item questionnaire was made. Initial questions comprised of the mode of their earlier knowledge of ECT. Out of these 37 questions, 29 questions assessed the knowledge and perception about ECT and last 8 questions assessed the attitude towards ECT. The data was analyzed and presented.

Results: Media being important source of knowledge of ECT should portray safety and effectiveness of procedure. Most people had seen ECT as shown in movies and at the start of the study the caregivers showed lacunae in their Knowledge, Attitude and Perception towards ECT. The treating psychiatrist play important role in imparting psycho-education in all aspects of ECT and was the main factor that influenced a change in attitude and perception. Audio-visual aids as psycho-education had positive impact on Knowledge, Attitude and Perception about ECT. An improvement in knowledge has positive impact on attitude of caregivers regarding ECT and must be included in routine clinical practice of management of schizophrenia.

Conclusions: It is essential that psychoeducation about ECT be included in routine treatment programmes in the management of patients with schizophrenia.

KEYWORDS : .knowledge, attitudes, perception, relatives, electroconvulsive therapy, schizophrenia

INTRODUCTION

Electroconvulsive therapy continues to arouse public hostility, despite its proven safety and efficacy in the treatment of severe psychiatric illness [1-2]. Despite evidence that Electroconvulsive therapy (ECT) is effective, safe [3-5] and leads to shorter and less costly inpatient treatment [6], it is rarely used as the first line of treatment and is generally reserved for older and resistant cases of schizophrenia, depression and other psychiatric disorders. Certain factors such as social stigma, inadequate undergraduate training, doubts about its efficacy and safety, ambivalence among psychiatrists and doubts about its being a cost-effective alternative to drug treatment, might have limited the use of ECT [7]. The public media have often portrayed ECT as barbaric [8]. It has been said that the continued use of ECT is evidence of the sinister and sadistic nature of the psychiatric profession [9]. Kalucy suggested that ECT had attracted attitudes which are unusual for a medical procedure, suggesting that it is mere a means of punishment [10]. ECT has been compared to electrocution and is often compared by the public with torture [11]. This along with a history of unrestricted application and lack of understanding about its mode of action may have resulted in many of the public's unfounded negative attitudes about ECT [12-13]. Because of these controversies patients and relatives find treatment frightening and/or unpleasant [14].

More than the actual negative propagation of ECT, it is the ignorance of the procedure that leads to an increase fear of the treatment [15]. Study by Malekian [16] showed that both patients and their families had a poor knowledge of ECT. This very fact of scarcity of knowledge in family members was also supported by study done by Tang et al [17] and thus associated widespread negative view of ECT in public and professional circles. This anticipated fear of possible side effects cause

increase anxiety and uneasiness [18]. Relatives of the patients too suffer from the same dilemma may refuse to give consent because of inner fear and apprehensions.

Earlier literature have also noted that patients and their relatives had many misconceptions as well as a negative attitude towards the use of ECT [19] but research on awareness and perceptions of ECT among its recipients and their families from developing countries is scarce [20]. Good knowledge about and favourable attitude towards electric shock therapy are considered desirable attributes in therapeutic intervention and good outcome [21]. Thus this study is attempted to comprehensively examine knowledge, perception and attitude regarding ECT in relatives of schizophrenics and how these attributes change after psycho-educating them about ECT. Few studies have compared an intervention prospectively to study attitudes and perception. By allaying misconceptions this study will help caregivers to make wise decisions regarding treatment for their patients.

AIMS AND OBJECTIVES

1. To study the Knowledge, Attitude and Perception in the caregivers of schizophrenic patients about ETC.
2. To study changes in above parameters in caregivers after psychoeducating them about ETC.

INCLUSION CRITERIA

1. Caregivers of patients diagnosed as schizophrenia according to DSM IV-TR criteria.
2. Healthy adult aged 18 yrs or more
3. Staying with the patient currently and at least for 3 previous years.

EXCLUSION CRITERIA

1. Not willing to give consent
2. Relatives having underlying psychiatric disorder
3. Relatives with inability to communicate.
4. Language incompatibility.

MATERIAL AND METHODS

The study was carried out at the department of psychiatry of a tertiary-care multi-speciality hospital in Mumbai. About 120-130 new schizophrenic patients come to OPD per month. In span of 3 months out of 312 patients 187 met the inclusion and exclusion criteria. Out of them caregivers of 136 consented for study. 20 caregivers later dropped out and 13 questionnaire forms were discarded as they were incompletely filled. Finally 103 caregivers of schizophrenic patients in whom ECT had been planned, were selected.

The study was conducted in two phases

Phase 1: Framing of the questionnaire—The items for questionnaire were drawn from three sources:

1. Published questionnaires and scales that assess attitudes of diverse populations towards ETC. [7,22-23].
2. Clinical experience of three psychiatrists based on detailed interviews with both patients and their relatives who had been offered/advised ECT.
3. Frequently asked questions by caregivers.

After a consensus among the three psychiatrists, an initial pool of 45 items was obtained. The questionnaire covered questions related to ECT consent, preparation, risks, contraindications, side effects, areas of efficacy, frequency of use, indications for use and practical aspects of ECT administration and attitudes towards ECT. The subjects were given response choices of 'definitely yes', 'probably yes', 'not sure', 'absolutely not'.

To get a rough estimate of the face validity, six senior faculty members (other than the three psychiatrists who constructed the questionnaire) independently scored each item as 'right' or 'wrong'. Of the 45 items, there was 100% agreement on 37 items. Therefore, only those 37 items were selected for administration to the test population.

The questionnaire was initially constructed in English, later translated into Hindi and Marathi by 1 psychologist and 1 mental health social worker independently to obtain agreement on the translated version and the questionnaire was back translated into English. This English version was compared with the original English version to ensure content validity.

Phase 2: Administration of the questionnaire to the study population. 103 caregivers of patients diagnosed as schizophrenia according to DSM-IV-TR criteria needing ECTs were selected. A duly signed written informed consent was taken from the caregiver and demographic details were taken on a case record form. A pre validated semi structured questionnaire was administered and knowledge attitude and perception of ECT in the caregivers was studied. Two groups were then made depending upon history of ECT being given to the patients in past i.e. ECT naïve patients' caregiver group (Group1) and ECT experienced patients' caregiver group (Group2), and above parameters were compared between both groups. Caregivers were then psychoeducated using an audio-visual aid in a session lasting for 2 hrs by one of the investigator covering the following areas regarding ECT:

- Consent
- Procedure
- Indications
- Methods
- Risk And Benefits
- Contraindications
- Side Effects And
- Common Misconceptions.

Queries raised by them were also addressed. Questionnaire was then re-administered at the end of the session and changes in responses were compared.

TOOLS

1) Semi-structured questionnaire:

A semi-structured 37 item questionnaire was made. Initial questions comprised of the mode of their earlier knowledge of ECT. Out of these

37 questions, 29 questions assessed the knowledge and perception about ECT and last 8 questions assessed the attitude towards ECT. 29 questions on knowledge and perception were further categorised in such a way that first 4 questions assessed knowledge related to consent, 5 pertaining to preparation, 4 on risks of ECT, 5 regarding contraindications, 4 assessing knowledge about side effects and last 7 on perception of ECT on miscellaneous topics.

STATISTICS

Descriptive statistics consisted of frequency counts, percentages, means and standard deviations. Fisher's exact test was used for intergroup comparison.

RESULTS

Knowledge of ECT: Knowledge was assessed using a 22-item questionnaire. Each item had a correct, incorrect and 'not sure' response. Incorrect and 'not sure' responses were clubbed together, because both signified that the participant was unaware. 82% were having knowledge about ECT whereas 18% did not know anything about the treatment. Additionally, participants were also asked to name the sources from which they derived their information about ECT. Out of those who knew about ECT, most common source of information came out to be Television or movies (30%) with information from treating psychiatrist (29%) being the second most common source. One fifth gained knowledge from other people (21%), from friends & relatives (13%), from newspapers, books & magazines (5%) while very few people gained knowledge from internet (1%).(Fig.1).

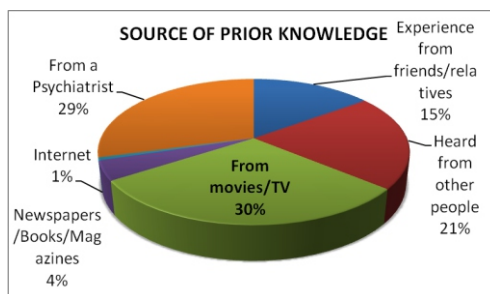


Fig: 1 Source of prior knowledge of ECT

Out of those people who got knowledge from a psychiatrist, 25% were told about consent, and 23% were not given any knowledge about the procedure, risks or side effects.

While assessing for pre-intervention knowledge about ECT, none of the caregivers could answer all the questions correctly and out of 22 questions, only 3 questions were having >50% correct response (Table-1). 39-60% knew about the concept of consent but few (22-49%) knew about the more specific aspects of the preparation for ECT. Along with poor knowledge of risks and contraindications of ECT, it was seen <22% of caregivers had correct knowledge regarding side effects of ECT. 68% thought that it can cause permanent brain damage. Only 3.8% had knowledge that even pregnant women can also receive ECT.

Perception of ECT: This was assessed using a 7-item questionnaire each having a correct, incorrect and 'not sure' response. Incorrect and 'not sure' responses were later clubbed together. Overall perception seemed to be poor with < 50% correct responses (11-44%) were seen (Table-2). In pre-intervention perception assessment only 41% did not perceive ECT as inhumane. 80% perceived it as a painful therapy and 59% perceived it as a mere tool of punishment for violent patient.

Attitude towards ECT: This was assessed using an 8-item questionnaire. Each item had 3 alternatives based on which responses were categorised into positive, negative or ambivalent attitudes. Pre-intervention attitude assessment revealed that though positive attitude was more than negative (22-56% & 19-14% respectively) but the majority of caregivers were ambivalent regarding ECT (41-69%) (Table 3). In items assessing whether it is a life saving procedure, that brings quicker relief than medications, most of the caregivers were ambivalent (61%, 69%). 50% were not sure that it is a dangerous procedure or not. But in question regarding their stand whether they would advice their relative ECT when in need a more positive response was seen (46%). Ambivalence in items such as ECT will be the only treatment option available in future if given once and that it is worst treatment available showed inner fear instilled in the caregivers.

Though positive attitude towards was more as compared to negative one, still clear negative views (11-14%) in few questions is a concern.

Changes in knowledge: Post psycho-education assessment of knowledge showed that there was remarkable improvement in knowledge about ECT (Table 4). As compared to pre intervention analysis knowledge about consent and preparation improved significantly ($p=0.0014$ to 0.0001) (Figure 2)

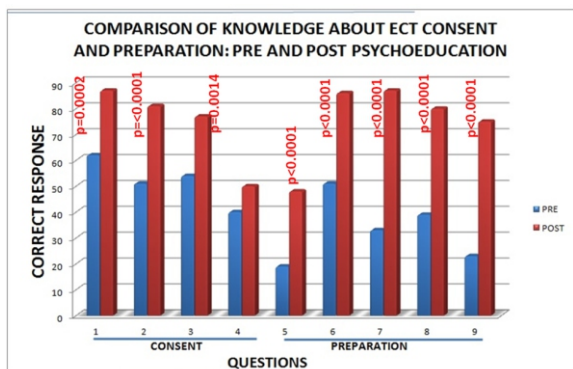


Fig.2: Comparison of Knowledge about ECT Consent and Preparation-Pre and Post psychoeducation.

Knowledge about the risks associated too improved with 62% now had knowledge that ECT could be used in pregnancy (Fig.3). Caregivers post intervention knew better about contraindications as well as the side effects related to ECT with 87% now believing that ECT does not cause permanent brain damage.

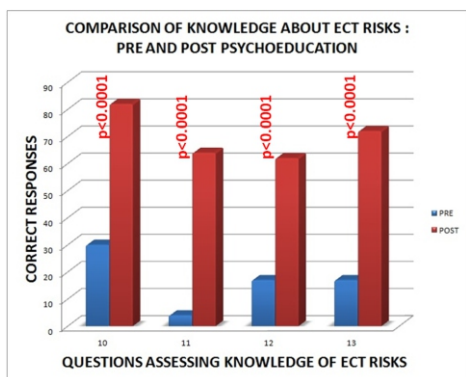


Fig.3 Comparison of Knowledge about ECT risk- Pre and Post psychoeducation.

Knowledge about Side effects too improved showing a statistically significant improvement ($p<0.001$) (Table 3).

Changes in perception: Post intervention Perception about ECT improved dramatically as assessed statistically in 7 perception related questions ($p<0.0001$) (Table-5). There was $>50\%$ correct response in almost all the items (40-90%) (Fig.4). As compared to 41% in pre-intervention, post intervention perception assessment showed now 77% don't perceive ECT as inhumane. 84% now not perceiving it as a painful therapy and 81% didn't think it as a mere tool of punishment for violent patient post intervention.

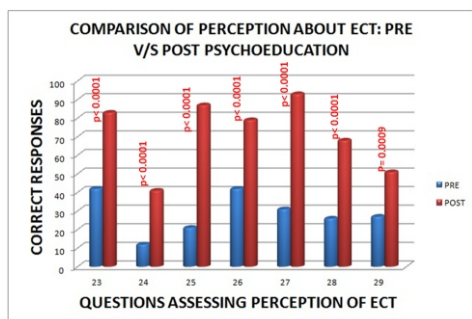


Fig.4 Comparison of perception about ECT pre and post psychoeducation.

Changes in attitude: There was a major attitudinal change with shift of ambivalence attitude (41-69%) to positive one after intervention. (Fig 5) Positive attitude (60-80%) was seen in all the items post intervention assessment. Ambivalent attitude in items decreased (12.6%- 33%) signifying more caregivers willing to give ECT to family member or relative if needed ($p<0.0001$), accepting that it is not the worst treatment in any circumstances ($p<0.0001$) (Table-6).

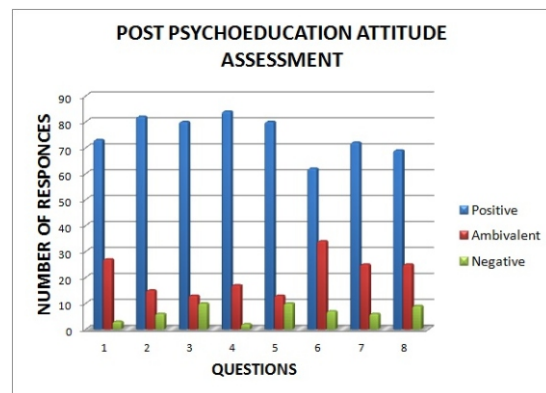
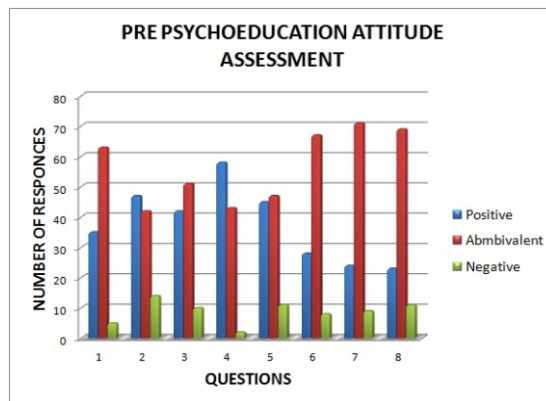


Fig 5: Change in attitude post intervention

DISCUSSION:

Despite 70 years of existence and substantial proof of efficacy, electroconvulsive therapy (ECT) still continues to be one of the most controversial and misunderstood treatments in medicine [24-26]. Because of side effects like memory loss and cognitive impairment [27], psychological after effects like fear flashbacks, loss of confidence, dignity and self esteem, nightmares, ECT is perceived as deeply and lastingly traumatic [28-29]. On other hand studies have also been shown patients having positive attitude towards it [30]. These contrasting findings with factors like social stigma [31], inadequate undergraduate training, doubts about its efficacy and safety [7] creates ambivalence not only among patients and caregivers but also among psychiatrists [21].

Reason for such a negative view point can be explained by lack of proper knowledge about the procedure. Most people who have had ECT are profoundly ignorant about the procedure and they say they were given no or inadequate explanations [16-17, 23, 32-33]. Trans cultural study by Bustin et al. showed lack of knowledge of ECT in patients in three different countries [34]. Same study showed that lack of knowledge is proportional to negative attitude. Thus knowledge not only enables to make right decisions but help in making a healthy attitude towards ECT [34]. Study of knowledge in family members is equally important. Studies have shown that caregivers need more information and emotional support [35]. Families of patients should be involved in the treatment process, wherever possible, since this helps reassure both the patients and their relatives [36].

It has been shown that most common source of awareness is electronic and print media, followed by relatives and doctors [34, 37-38]. Our study too showed the similar findings (30%). It is important to know

this as media plays very important role in building perception and attitude towards ECT. Study found out that media was responsible for engendering fear and misconceptions about ECT [39-40]. O'Shea B et al. [41] showed 66% relatives were put off watching ECT in a movie. Along with media, psychiatrist holds a very important place in awareness of knowledge about ECT. But studies have indicated an unsatisfactory dissemination of information by the psychiatrists [37]. Our study too showed out of those people who got knowledge from a psychiatrist, 25% were told about consent, and 23% were not given any knowledge about the procedure, risks or side effects. This can be attributed to factors like heavy patient load, unawareness of its importance and lack of initiation by the professionals.

In studies done to see the knowledge of ECT among general public or caregivers, Rajagopal R. et al. [23] found out (52-96%) of relatives in the sample of 77 caregivers of patients receiving ECT were well aware about several aspects of ECT but few (6-49%) knew the intricate details. An Australia study [38] showed that 82% of the parents of adolescent recipient of ECT knew about its side effects i.e. headache, Body ache, memory impairment. Only 17.8% believed that it can cause permanent brain damage. This study not in keeping with our study where only <22% knew about the side effects. Moreover 67% of caregivers in our study believed that it can cause permanent brain damage. Though these findings differ but our data coincided with the Indian studies 23. This difference might be because of lack of general awareness about ECT in India and prevalent myths and misconceptions about the procedure.

Study by Walter G [38] also showed no parent of adolescent recipient of ECT believed that ECT was employed as a punishment, whereas in our study it was seen 59% of caregivers perceive it to be a tool for punishment. This contrasting finding points towards a negative perception towards ECT in our country owing to prevalent belief systems and over emphasis of its side effects. Baldwin et al. gave the assumptions that ECT is abhorrent to family members [42]. This was supported in our study where caregivers perceived it to be inhumane (59%), painful (80%), given just as punishment (59%) to the patients.

Our study found out ambivalent attitude towards ECT. Pre-intervention attitude assessment revealed that though positive attitude was more than negative (22-56% & 1.9- 14% respectively) but the majority of caregivers were ambivalent regarding ECT (41-69%). Similar findings were seen in study done by Rajagopal et al. [23] where caregivers were having positive attitudes on some questions but many (14-68%) were unsure about several aspects of the treatment, though very few (0-6%) expressed clearly negative views. Studies have showed a positive attitude towards ECT [17,30, 38]. Research done by O'Shea et al. [41] showed that out of 100 sample 47% said they will advise relative to undergo ECT if needed. Agarwal AK et al. [43] showed 38.8% relatives willing to give ECT to their patient. This was in keeping with our study findings where 38% said they will advice a close relative or family member to receive ECT if recommended. Though the western literature points towards a positive attitude towards ECT in caregivers of patients receiving ECT, Indian studies including ours have inclination to a more ambivalent approach signifies the inner apprehensions and doubts prevailing in minds of masses [44].

One of the strengths of the study was to see the change in mind set of caregivers after giving an intervention. It has been shown that information leaflets and audiovisual aids may be of additional help in disseminating knowledge and perception of ECT [46-48]. It is necessary that such information be provided by professionals, preferably by the patient's own doctor [36]. Study done by Poster et al. [22] included 35 nursing students who were shown a didactic videotape on ECT discussing its rationale, risks, benefits, and demonstrations of how to use it. In pre and post knowledge analysis improvement in mode of action, effectiveness, procedure, and side effects were noted. Similar findings were seen in our study too where post psychoeducation with audio visual aids showed statistically significant improvement in knowledge about procedure of consent, preparation, risk, contraindications and side effects of ETC.

The same study [22] showed change in perception 43% nurses perceived it to be painful before viewing the videotape while only 3% reported this concern after. This too was in keeping with our study where 20% knew that it is not painful before intervention but number increased to 84% post intervention. Our study showed remarkable change in ambivalent attitude to positive attitude post intervention.

71% agreed it can be a life saving procedure with 80% willing to advise it to relative if needed as compared to 34% and 46% pre intervention respectively. This was in keeping with previous studies who demonstrated a change in attitudes towards ECT after instruction with an ECT videotape [48].

ECT is a controversial treatment despite its proven efficacy. Caregivers' lack of knowledge and negative perception leads to unfavourable attitudes towards it. It is essential that relatives of all patients undergoing ECT receive a detailed and comprehensive explanation of the treatment beforehand. Information needs to be disclosed in a graded, stepwise manner and if necessary, repeated till reasonable comprehension is achieved. Sufficient time is also required for patients to absorb the implications and express their fear and worries. Audiovisual aids improve the absorption power of caregivers making them more competent in knowledge about ECT. It is necessary that such information be provided by professionals, preferably by the patient's own doctor. Involving family members helps reassure both the patients and their relatives. More information to caregivers can direct the development of nursing interventions. Adding the psychoeducation about ECT in the comprehensive management of schizophrenia will ensure a healthy outcome, where both doctor and caregivers will work for betterment of the patient in long run.

CONCLUSIONS

1. Media being important source of knowledge of ECT should portray safety and effectiveness of procedure.
2. Caregivers lack in Knowledge, Attitude and Perception towards ETC.
3. Treating psychiatrist play important role in imparting psycho-education in all aspects of ETC.
4. Audio-visual aids as psycho-education has positive impact on Knowledge, Attitude and Perception about ECT
5. Improvement in knowledge has positive impact on attitude of caregivers regarding ECT
6. Should be included in routine clinical practice of management of schizophrenia

LIMITATIONS

1. Use of un-standardized instrument
2. Sample restricted to the Department of Psychiatry
3. Inability to use better statistical measures due to sample characteristics.
4. Only immediate assessment post intervention

Table 1 Pre Intervention Knowledge of Electroconvulsive Therapy in Caregivers of Schizophrenic Patients

S.No	Question	Correct Response	n=103 (number of correct responses)
CONSENT			
1	ECT can be given against the wishes of patients and the family members?	No	62 (60%)
2	Verbal consent is sufficient to give ECT to the patient?	No	51 (49.5%)
3	Written permission of the patients or his/her family members always necessary?	Yes	54 (52%)
4	ECT can be given without the patient's consent?	No	40 (38.8%)
PREPARATION			
5	ECT can't be given to the patients attending the outpatient department and he/her has to be admitted?	No	19 (18.4%)
6	There is need of investigations before ECT?	Yes	51 (49.5%)
7	Patient has to starve overnight before receiving ECT next morning?	Yes	33 (32%)
8	Patient can be given water before ECT?	No	39 (37.8%)
9	During ECT, the body is relaxed with a drug that there is little chance of movement causing injury.	Yes	23 (22%)

RISKS			
10	During the ECT chances of death are very high.	No	30 (29%)
S.No	Question	Correct Response	n=103 (number of correct responses)
11	Pregnant women can also receive ECT	Yes	4 (3.8%)
12	ECT can be given to elderly	Yes	17 (16.5%)
13	There is a risk of developing epilepsy later.	No	17 (16.5%)
CONTRAINDICATIONS			
14	ECT can be given to Seizure disorder patients	No	23 (21.3%)
15	ECT can be given to Hypertension patients	No	29 (28%)
16	ECT can be given to Diabetes Mellitus patients	No	26 (25%)
17	ECT can be given to Myocardial Infarction patients	No	30 (29%)
18	ECT can be given to patients who had Stroke	No	27 (26%)
SIDE EFFECTS			
19	ECT can cause headache	Yes	23 (22%)
20	ECT can cause bodyache	Yes	15 (14.5%)
21	ECT can cause memory loss	Yes	19 (18%)
22	ECT results in permanent damage to the brain.	No	34 (33%)

Table 2 Pre Intervention Perception of Electroconvulsive Therapy in Caregivers of Schizophrenic Patients

S.NO	QUESTION	CORRECT RESPONSE	n=103 number of correct responses
23	ECT is given as a punishment to violent/angry patients	No	42 (41%)
24	ECT is given to only those patients who do not improve	No	12 (11%)
25	ECT is painful	No	21 (20%)
26	ECT is an inhuman treatment	No	42 (41%)
27	ECT causes blood loss	No	31 (30%)
28	If ECT fails in a patient then no other treatment will succeed	No	26 (25.2%)
29	There is no need to give medications to a patient who is receiving ECT treatment.	No	27 (26.2%)

Table-3 Pre Intervention Attitude towards Electroconvulsive Therapy in Caregivers of Schizophrenic Patients

S.no	Question	Positive Attitude	Ambivalent Attitude	Negative Attitude
30	ECT is life saving	35 (34%)	63 (61%)	5 (4.8%)
31	I will advice a close relative or family member to receive ECT if recommended.	47 (46%)	42 (41%)	14 (13.5%)
32	ECT is dangerous and should not be used	42 (41%)	51 (50%)	10 (9.7%)
33	ECT is given to the people who don't need it	58 (56%)	43 (41.7%)	2 (1.9%)
34	ECT is the worst treatment option under any circumstances.	45 (44%)	47 (46%)	11 (10%)
35	Following discovery of new drugs, treatment with ECT is no longer used.	28 (27%)	67 (65%)	8 (7.7%)

36	ECT gets you better quicker than medications.	24 (23%)	71 (69%)	9 (8.7%)
37	If the patient is treated on ECT, then ECT would be the only treatment helpful in future.	23 (22%)	69 (66.9%)	11 (10%)

Table 4 Changes in Parameters of Knowledge about ECT in Caregivers Following Psycho-Education Intervention

S.N O	QUESTIONS	PRE INTERVENTION (correct response)	POST INTERVENTION (correct response)	p Value
CONSENT				
1	ECT can be given against the wishes of patients and the family members?	62	87	0.0002
2	Verbal consent is sufficient to give ECT to the patient?	51	81	<0.0001
3	Written permission of the patients or his/her family members always necessary?	54	77	0.0014
4	ECT can be given without the patient's consent?	40	50	0.206
PREPARATION				
5	ECT can't be given to the patients attending the outpatient department and he/her has to be admitted?	19	48	<0.0001
6	There is need of any investigations before ECT?	51	86	<0.0001
7	Patient has to starve overnight before receiving ECT next morning?	33	87	<0.0001
8	Patient can be given water before ECT?	39	80	<0.0001
9	During ECT, the body is relaxed with a drug that there is little chance of movement causing injury.	23	75	<0.0001
S.N O	QUESTIONS	PRE INTERVENTION (correct response)	POST INTERVENTION (correct response)	p Value
RISKS				
10	During the ECT chances of death are very high.	30	82	<0.0001
11	Pregnant women can also receive ECT	4	64	<0.0001
12	ECT can be given to elderly	17	62	<0.0001
13	There is a risk of developing epilepsy later.	17	72	<0.0001
CONTRAINDICATIONS				
14	ECT can be given to Seizure disorder patients	23	49	0.0002
15	ECT can be given to Hypertension patients	29	64	<0.0001
16	ECT can be given to Diabetes Mellitus patients	26	55	<0.0001
17	ECT can be given to Myocardial Infarction patients	30	51	0.0042
18	ECT can be given to patients who had Stroke	27	64	<0.0001
SIDE EFFECTS				
19	ECT can cause headache	23	47	0.0007
20	ECT can cause bodyache	15	38	0.0004
21	ECT can cause memory loss	19	33	0.0365
22	ECT results in permanent damage to the brain.	34	89	<0.0001

Table 5 Changes in Perception of ECT in Caregivers Following Psycho-Education Intervention.

S.No	QUESTIONS	PRE INTERVENTION (correct response)	POST INTERVENTION (correct response)	p Value
23	ECT is given as a punishment to violent/angry patients	42 (41%)	83 (81%)	<0.0001
24	ECT is given to only those patients who do not improve	12 (12%)	41 (40%)	<0.0001
25	ECT is painful	21 (20%)	87 (84%)	<0.0001
26	ECT is an inhuman treatment	42 (41%)	79 (77%)	<0.0001
27	ECT causes blood loss	31 (30%)	93(90%)	<0.0001
28	If ECT fails in a patient then no other treatment will succeed	26 (25%)	68 (66%)	<0.0001
29	There is no need to give medications to a patient who is receiving ECT treatment.	27 (26%)	51 (50%)	0.0009

Table 6 Changes in Attitude towards ECT in Caregivers Following Psycho-Education Intervention.

S.No	QUESTIONS	PRE INTERVENTION	POST INTERVENTION	P Value
30	ECT is life saving			<0.0001
	Positive attitude	35 (34%)	73 (71%)	
	Ambivalent attitude	63 (61%)	27 (26%)	
	Negative attitude	5 (4.8%)	3 (3%)	
31	I will advice a close relative or family member to receive ECT if recommended.			<0.0001
	Positive attitude	47 (46%)	82 (80%)	
	Ambivalent attitude	42 (41%)	15 (14%)	
	Negative attitude	14 (13.5%)	6 (5.8%)	
32	ECT is dangerous and should not be used			<0.0001
	Positive attitude	42 (41%)	80 (78%)	
	Ambivalent attitude	51 (50%)	13 (12.6%)	
	Negative attitude	10 (9.7%)	10 (9.7%)	
33	ECT is given to the people who don't need it			<0.0001
	Positive attitude	58 (56%)	84 (82%)	
	Ambivalent attitude	43 (42%)	17 (16.5)	
	Negative attitude	2 (1.8%)	2 (1.8%)	
34	ECT is the worst treatment option under any circumstances.			<0.0001
	Positive attitude	45 (44%)	80 (78%)	
	Ambivalent attitude	47 (46%)	13 (12.6%)	
	Negative attitude	11 (10.6%)	10 (9.7%)	
35	Following discovery of new drugs, treatment with ECT is no longer used.			<0.0001
	Positive attitude	28 (27%)	62 (60%)	
	Ambivalent attitude	67 (65%)	34 (33%)	
	Negative attitude	8 (7.7%)	7 (6.7%)	
36	ECT gets you better quicker than medications.			<0.0001
	Positive attitude	24 (23%)	72 (70%)	

	Ambivalent attitude	71 (69%)	25 (24%)	
	Negative attitude	9 (8.7%)	6 (5.8%)	
37	If the patient is treated on ECT, then ECT would be the only treatment helpful in future.			<0.0001
	Positive attitude	23 (22%)	69 (67%)	
	Ambivalent attitude	69 (67%)	25 (24%)	
	Negative attitude	11 (10.6%)	9 (8.7%)	

REFERENCES

- Clare, A.W. Therapeutic and ethical aspects of electroconvulsive therapy. A British perspective. *Int. J. Law Psychiatry.* 1:237-253, 1978
- Freeman, C.P.L. Electroconvulsive therapy and other physical treatments. In: R.E. Kendell and A.K. Zealley (Eds.): *Companion to Psychiatric Studies.* Ch. 23. Churchill Livingstone, Edinburgh, 1983
- Janicak PG, Davis JM, Prekorn SH, et al. Principles and practice of psycho-pharmacotherapy. 2nd ed. Baltimore: Williams & Wilkins; 1997. pp.373-4.
- Weiner RD. Treatment optimization with ECT. *Psycho-pharmacol Bull.* 1994;30:313-20.
- The practice of electro-convulsive therapy: Recommendations for treatment, training and privileging. Washington: APA Press; 1990. American Psychiatric Association.
- Olsson M, Marcus S, Sackeim HA, et al. Use of ECT for the inpatient treatment of recurrent major depression. *Am J Psychiatry.* 1998;155:22-9.[PubMed: 9433334]
- Chavan BS, Kumar S, Arun P, Bala C, Singh T. ECT: Knowledge and attitude among patients and their relatives Indian J Psychiatry, 2006 Jan-Mar; 48(1): 34-38.
- Lebensohn ZM. Electroconvulsive therapy: psychiatry's villain or hero? *Am. J. Soc. Psych.* 1984; 4:39-43.
- Weitz D. Shock bibliography: selected references on electroshock with special emphasis on brain damage. Ontario Coalition to Stop Electroshock, Toronto, 1984.
- Kalucy R. Neither angel nor cuckoo: a rational view of ECT. *The Medical Journal of Australia.* 1991;155, 8
- Kendell, R.E, the present state of electroconvulsive therapy. *Br. J. Psychiatry.* 1981; 139:265-83
- Crowe, R.R. Current concepts electroconvulsive therapy- a current perspective. *N. Engl. J. Med.* 1984;163-67
- Greenblatt, M. Editorial introduction: Electroconvulsive therapy, a problem in social psychiatry. *Am. J. Social Psychiatry* 1984; 4:3-5
- Frank , L.R. *The History of Shock Treatment.* Private Printing, San Francisco, 206 pp, 1978
- Lauber C, Nordt C, Falcató L, Rössler W. Can a seizure help? The public's attitude toward electroconvulsive therapy. *Psychiatry Res.* 2005Apr 15;134(2):205-9.
- Malekian A, Amini Z, Maracy MR, Barekatani M. Knowledge of attitude toward experience and satisfaction with electroconvulsive therapy in a sample of Iranian patients. *J.ECT.* 2009 Jun;25(2):106-12.
- Tang WK, Ungvari GS, Chan GW. Patients' and their relatives' knowledge of, experience with, attitude toward, and satisfaction with electroconvulsive therapy in Hong Kong, China. *J.ECT.* 2002 Dec;18(4):207-12.
- Hersh JK. Electroconvulsive therapy (ECT) from the patient's perspective. *J Med Ethics* 2013;39:171-172.
- Taieb O, Flament MF, Corcos M, et al. Electroconvulsive Therapy in adolescents with mood disorder: Patients' and parents' attitudes. *Psychiatry Res.* 2001;104:183-90.
- Chakrabarti S, Grover S, Rajagopal R. Perceptions and awareness of electroconvulsive therapy among patients and their families: A review of the research from developing countries. *J.ECT.* 2010;26:317-22. [PubMed: 21155155]
- Salzman C. ECT: Research and professional ambivalence. *Am J Psychiatry.* 1998; 115:1-2. [PubMed: 9433330]
- Poster E, Baxter LR, Hammon. Nursing students' perception of electroconvulsive therapy: Impact of instruction with an electroconvulsive therapy videotape. *Convulsion Therapy.* 1985;1(4):277-82.
- R. Rajagopal, S. Chakrabarti, S. Grover, and N. Khehra. Knowledge, experience & attitudes concerning electroconvulsive therapy among patients & their relatives. *Indian J Med Res.* 2012 February; 135(2): 201-210.
- Fink M. 2001. ECT has much to offer our patients: it should not be ignored. *World J Biol Psychiatry* 2:1-8.
- Dowman J, Patel A, Rajput K. 2005. Electroconvulsive therapy: attitudes and misconceptions. *J.ECT* 21:84-87.
- Bauer M, Bschor T, Pfennig A, Whybrow PC, Angst J, Versiani M, et al. 2007. World Federation of Societies of Biological Psychiatry (WFSBP) guidelines for biological treatment of unipolar depressive disorders in primary care. *World J Biol Psychiatry* 8:67-104.
- Frank, Leonard R. Electroshock: Death, brain damage, memory loss, and brainwashing. *Journal of Mind and Behavior.* 1990;Vol 11(3-4):489-512
- UKAN (United Kingdom Advocacy Network) ECT Survey. The advocate. Issue 1, Spring/Summer. 1996; 24-28
- Johnstone L. Adverse psychological effects of ECT. *J Mental Health.* 1999;8:69-85.
- Szuba MP, Baxter LR, Liston EH, et al: Family perspectives of ECT: correlation with outcome. *Convulsive Therapy* 7:175-183, 1991
- Dowman, Joanna, Patel, Abdul. Electroconvulsive Therapy: Attitudes and Misconceptions. *Journal of ECT* 2005 June; 21(2):84-7
- Hughes J, Barraclough B. Are Patients Shocked by ECT? *Journal of royal society of medicine.* 1981 ;74:283-85
- Rose DS, Wykes HT, Bindman JP, Fleischmann PS. Information, consent and perceived coercion: patients' perspectives on electroconvulsive therapy. *Br J Psychiatry.* 2005;186:54-9.[PubMed: 15630124]
- Bustin J, Rapoport M. Are patients' attitudes towards and knowledge of electroconvulsive therapy transcultural? A multi-national pilot study. *Int J Geriatr Psychiatry* 2008; 23: 497-503.
- Sethi S, Williams.RA. The Family Caregiving Experience of Outpatient ECT. *Journal of the American Psychiatric Nurses Association.* 2003;9(6):189-94
- Chakrabarti S, Grover S, Rajagopal R. Electroconvulsive therapy: A review of knowledge, experience and attitudes of patients concerning the treatment. *World J Biol Psychiatry.* 2010;11:525-37.[PubMed: 20128713]
- Arshad M, Arham AZ, Arif M, Bano M, Bashir A, Bokutz M, et al. Awareness and perceptions of electroconvulsive therapy among psychiatric patients: a cross-sectional survey from teaching hospitals in Karachi, Pakistan. *BMC Psychiatry.* 2007;7:27-33. [PMCID: PMC1929082] [PubMed: 17584946]
- Walter G1, Koster K, Rey JM. Views about treatment among parents of adolescents who received electroconvulsive therapy. *Psychiatr Serv.* 1999 May;50(5):701-2.
- Kerr RA, McGrath JJ, O'Keamey RT, et al. 1982. ECT: misconceptions and attitudes. *Austr NZ J Psychiatry* 16(1): 43-49.
- Freeman C.P.L, Cheshire K.E. Attitude studies on electroconvulsive therapy.

- Convulsive Therapy. 1986; 2(1):31-42
41. O'Shea B, McGennis A. ECT: lay attitudes and experiences-a pilot study. *Ir Med J*. 1983 Jan;76(1):40-3.
 42. Baldwin S, Oxlad M: ECT and minors: social sciences solutions will reform the psychiatric abuse of infants, children, and adolescents. *Social Sciences in Health* 2:174-188, 1996
 43. Agarwal AK1, Andrade C, Reddy MV. The practice of ect in India : issues relating to the administration of ect. *Indian J Psychiatry*. 1992 Oct;34(4):285-97.
 44. McFarquhar, Tara F,Thompson, James. Knowledge and Attitudes Regarding Electroconvulsive Therapy Among Medical Students and the General Public. *Journal of ECT*.2008;24(4):244-253
 45. Maria M, Baumeister A, Gouvier W. Public Knowledge About Electroconvulsive Therapy: A Demographically Stratified Investigation. *International Journal of Rehabilitation and Health*.April 1998, Volume 4, Issue 2, pp 111-116
 46. Baxter LR, Jr, Roy-Byrne P, Liston EH, et al. 1986. Informing patients about electroconvulsive therapy: effects of a videotape presentation. *Convuls Ther* 2(1):25-29.
 47. Battersby M, Ben-Tovim D, Eden J. 1993. Electroconvulsive therapy: a study of attitudes and attitude change after seeing an educational video. *Aust N Z J Psychiatry* 27(4): 613-19
 48. Andrews M1, Hasking P. Effect of two educational interventions on knowledge and attitudes towards electroconvulsive therapy. *J ECT*. 2004 Dec;20(4):230-6.