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Knowledge, experience & attitudes concerning electroconvulsive therapy among patients & their relatives

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***Background & objectives*: Electroconvulsive therapy (ECT) is used frequently in developing countries, but investigations of patients' awareness and perception of ECT are rare. The present study thus attempted a comprehensive examination of knowledge, experience and attitudes concerning ECT among patients treated with brief-pulse, bilateral, modified ECT, and their relatives.**

***Methods*: Of the 153 recipients of ECT, 77 patients and relatives were eventually assessed using questionnaires designed to evaluate their awareness and views about ECT.**

***Results*: Patients were middle-aged, poorly-educated, often unemployed, with chronic, severe, and predominantly psychotic illnesses. Relatives were mainly parents, older, better-educated and usually employed. Apart from the very rudimentary aspects, patients were largely unaware of the procedure. Though most did not find the experience of ECT upsetting, sizeable proportions expressed dissatisfaction with aspects such as informed consent, fear of treatment and memory impairment. Although patients were mostly positive about ECT, ambivalent attitudes were also common, but clearly negative views were rare. Relatives were significantly likely to be more aware, more satisfied with the experience and have more favourable attitudes towards ECT, than patients.**

***Interpretation & conclusions*: The results endorse the notion that recipients of ECT are generally well-disposed towards the treatment, but also indicate areas where practice of ECT needs to be improved to enhance satisfaction among patients and relatives.**

Key words Awareness - ECT - patients - perceptions - relatives

Although electroconvulsive therapy (ECT) is an effective, safe and widely practiced treatment, it has also been one of most controversial and misunderstood procedures[1-3]. Unfortunately, in the ongoing debate about the merits and demerits of the treatment, the opinions of patients who have undergone ECT and their relatives have rarely been sought. Clinicians and researchers have traditionally focused on aspects such as efficacy, side effects and mechanism of action. However, the realisation that mere clinical efficacy of ECT did not necessarily predict patients' perceptions or satisfaction with the treatment has eventually led to several investigations of the knowledge, attitudes and experience of the procedure among patients[4,5]. Despite this, research on awareness and perceptions of ECT among its recipients and their families from developing countries is scarce[6]. ECT is used quite frequently in many of these countries, but improper and unregulated use is also very common[7-10]. Whether this adversely affects attitudes towards ECT is still to be properly assessed. Moreover, differences in socio-cultural milieus of developing countries can influence attitudes towards ECT; this is yet to be ascertained[8]. More recently, there has been growing public concern about ECT even in developing countries like India[11]. Issues such as the need for the treatment and for unmodified ECT are being frequently debated. In such a climate, examination of the views of patients and relatives about ECT could help in determining the role of this treatment more precisely.

We therefore, undertook this study which attempted to comprehensively examine knowledge, attitude and experience regarding ECT, of patients who had undergone the treatment and their relatives.

Material & Methods

The study was carried out at the department of psychiatry of a tertiary-care multi-speciality hospital (Postgraduate Institute of Medical Education & Research, Chandigarh) catering to a major part of north-India. The psychiatry department has outpatient facilities and a general psychiatry inpatient unit with 24 beds. About 5500 new patients are seen annually and about 200 patients are admitted to the inpatient unit each year. About 50 patients receive ECT each year.

This was a cross-sectional study of all patients who had received ECT in a three-year period from January 2006 - December 2008. Data collection was carried out between January 2007 and February 2009. The ECT register of the department was screened to identify all patients who had received ECT from 2006 to 2008. Suitable patients, living with their families, were contacted either in person, or by telephone/letters. The study was explained during this contact and patients were invited to participate with their relatives. Demographic and treatment details of 'non-participants,' who could not be contacted despite best efforts, were recorded. Only those patients who were in remission, were included; remission defined as Hamilton Depression Rating Scale scores of less than 7; Young Mania Rating Scale scores of less than 6; and scores of 3 or less on psychotic symptoms of the Brief Psychiatric Rating Scale. Patients with organic brain syndrome were excluded. Relatives were healthy adults selected from those who were actively involved in giving consent for, and looking after the patient during ECT. Though the sample size could not be determined *a priori*, the target for the current study was intended to be in the range of 50 to 100 participants as done in earlier studies.

The study protocol was approved by the Institute Research and Ethics Committees. Participants were inducted only after they had given written informed consent. Other ethical safeguards were also maintained[12].

Assessments: Demographic and clinical details were obtained from the participants and treatment records. Psychopathology was assessed using appropriate scales.

Attitude, knowledge and experience questionnaires: These were designed specifically for the present study. Items included were generated from several previous studies on the subject[8,13-17]. Detailed descriptions of items allowed the questionnaires to be used in a semi-structured interview format. Preliminary versions were prepared for both patients and relatives. These were initially applied to a random group of 20 patients and their relatives, who were not included in the main study. Changes made during this testing were subsequently incorporated in the versions finally used. The final versions of the questionnaires were essentially similar to the original one used by Freeman and Kendell[13] and also to the version modified by Tang *et al*[8], which has been used subsequently in other studies from developing countries[16,17]. Apart from the pilot survey carried out as a part of this study, versions of the same questionnaires were simultaneously validated among a large population of caregivers from the same centre[18].

All assessments were carried out a minimum of two weeks after the last ECT. Assessors were not involved in treatment of the patients included.

Administration of ECT: ECT is administered in the department to both inpatients and outpatients. The consultant-in-charge of the patient makes the final decision about administering ECT after discussion with members of the treatment team. In complicated cases, a second opinion is usually sought from other consultants. The decision to administer ECT is taken individually in each patient, based on a review of his or her clinical status and previous treatment history. Once the treating-team decides ECT is clinically indicated, written informed consent is sought from both patients and their relatives, after detailed explanation of the process, need for treatment and possible effects. ECT is administered only on a voluntary basis; *i.e.*, only when both patients and relatives provide fully informed consent. Consenting patients undergo physical assessment and investigations as required and are also assessed by the anaesthetist. If found fit, the patient is administered brief-pulse, bilateral, modified ECT, 2-3 times a week, with proper monitoring of vital signs, of seizure parameters, and of the status during the post-ECT period. Relatives of patients are actively involved throughout the whole process of treatment including assessment, consent, administration and post-ECT care.

Data analysis: Descriptive statistics consisted of frequency counts, percentages, means and standard deviations. Chi-square tests were used for comparisons.

Results

One hundred and fifty three patients had received ECT during the study period, including 55 patients each in 2006 and 2007 and 43 patients in 2008. This amounted to about a quarter of all the inpatient admissions (n = 629) during this period. Four patients who had died, were institutionalized, or had organic brain syndrome were excluded. Of the 149 eligible patients, 65 responded to the first contact and 12 to the second contact. The final sample thus included 77 patient-relative pairs, 20 from 2006, 37 from 2007 and 20 from 2008. Seventy six patients could not be contacted and constituted the ‘non-participant’ group.

Participants and non-participants were compared on demographic parameters (age, gender, marital status, education, occupation, family type and residence), illness variables (age of onset, primary and co-morbid diagnoses), and characteristics of the index episode of treatment with ECT (age, duration, primary and co-morbid diagnoses). The only significant difference that emerged was the significantly lower number of participants with more than 10 years of education ($P<0.01$).

Profile of the study subjects: The study-sample consisted of middle-aged patients, slightly more men than women. Presumably because of their chronic and severe illnesses most patients were not well-educated; a little less than half (44%) were unmarried, and about a third (32%) were unemployed. Relatives were mostly parents of patients; hence, usually much older, married, well-educated and employed (Table I). In developing countries ECT is more often used as an adjunctive treatment for those with psychosis, than for patients with depression. Though patients with psychoses in this study outnumbered those with depressive or bipolar disorders, the index treatment-episode was more often one of severe depression (with/without psychosis), followed by psychotic exacerbations and mania with psychotic symptoms. A high proportion of patients (77%) thus had psychotic symptoms while receiving ECT.

Table I. Demographic profile of study-participants

Demographics	Patients (n=77)	Relatives (n=77)
Age at intake (yr)	36.17 ± 13.5	47.03 ± 12.7
Gender		
Male/Female	46/31	46/31
Marital status		
Married/Unmarried	43/34	71/6
Education (yr)		
≥10 /< 10	24/53	52/25
Occupation		
Employed	20	39
Not employed	24	20
Student/housewife/retired	33	18
Family type		
Nuclear/Non-nuclear	49/28	49/28
Residence		
Urban /Rural	52/25	52/25
Relationship with patient		
Parents		39
Spouse	-	23
Siblings/children		15

All patients were receiving concomitant psychotropics.

The average patient was assessed 18.5 wk after the last ECT (SD- 36.9; median - 4 wk; range - 2-142 wk) (Table II). The majority were assessed 2 - 4 wk post-ECT (62%), followed by 5-24 wk (22%). A minority were evaluated 25-48 wk post-ECT (9%), and beyond 48 wk post-ECT (9%).

Knowledge of ECT: Knowledge was assessed using a 30-item questionnaire. Each item had a correct, an incorrect and a ‘don’t know’ response. Incorrect and ‘don’t know’ responses were clubbed together, because both signified that the participant was unaware. Additionally, participants were also asked to name the sources from which they derived their information about ECT.

The principal source of information for both patients (57%) and relatives (87%) was the treating doctor. About a fifth of the patients (18%) had learnt from their own previous experience, while about a third

Table II. Clinical and treatment profile of patients

Clinical details	Patients (n=77)
Age of onset of illness (yr)	27.2 ± 11.0
Primary diagnosis (based on ICD-10)	
Psychotic disorders	35
(schizophrenia/others)	(29/6)
Depressive disorders	28
(single episode/recurrent)	(15/13)
Bipolar affective disorder	13
Obsessive compulsive disorder	1
Co-morbid psychiatric & physical disorders	41
Details of treatment with ECT[a]	
Index ECT-treated episode	
Severe depression without psychotic symptoms	17
Severe depression with psychotic symptoms	18
Exacerbations of psychosis	33
Mania with psychotic symptoms	8
OCD with depression	1
Chief indications for ECT	
Inadequate treatment response/treatment-resistance	38
Suicidality	25
Marked psychomotor retardation/catatonia	11
Refusal of food/drink	3
Previous treatment with ECT	
Not received/Received[b]	58/19
Dose of medications (mg) during ECT -Mean (SD)	
Atropine	0.20
Succinylcholine	56.4 ± 7.4
Thiopentone	191.8 ± 56.0
Stimulus intensity - (Millico loumbs, mc)	196.17 ± 76.20
Seizure duration - (sec)	35.2 ± 14.0
Mean number ± SD (range) of ECTs received during the index-treatment episode	9.0 ± 3.4 (3 - 22)
Rate of improvement (%) following ECT (index-treatment episode) [7]	
>75	10
51-75	45
25-50	18
<25	4
Timing of assessment post-ECT (wk)	
Mean ± SD	18.5 ± 36.9
Median	4
Range	2 -142

[a] All details pertain to the index-treatment, which refers to the current episode for which patients received ECT; [b] Mean number of ECT-courses received prior to the index treatment was 1.5±0.8; [c] Improvement was rated on appropriate scales- the Hamilton Depression Rating Scale; the Young Mania Rating Scale; The Positive & Negative Symptoms Scale & the Bush Francis Catatonia Rating Scale; improvement expressed as percentage-difference between pre- and post-ECT ratings

of the relatives (35%) had learnt about ECT from others. Relatives were thus significantly more likely than patients, to have acquired their facts from doctors, or other people ($P<0.001$). The media was a less common source for both patients (12%) and relatives (19%).

None of the patients could answer all the questions correctly; only a minority (12,16%) came close to getting all their facts right. The majority (40-55, 52-71%) were only aware of the rudiments of the procedure. Fewer patients (29-38, 38-49%) knew about the more specific aspects of the procedure, the consent process, mechanism, usual indications and side effects. Only a small proportion (3-19, 4-25%) was aware of all possible indications and other finer details. In direct contrast, a greater proportion of relatives (40-74, 52-96%) were well aware about several aspects of ECT; differences in this regard between relatives and patients were often significant. However, even among relatives, few (5-38, 6-49%) knew the intricate details (Table III).

Experience of ECT: Experience of ECT among patients was assessed using a 16-item questionnaire (15 items for relatives). Possible responses either denoted a positive experience, a negative one or an uncertain view. An additional item related to reasons for consenting to ECT.

Most patients (34, 44%) agreed to have ECT because of their prolonged illness, some (28, 36%) because of its severity or non-response, and fewer (15, 20%) because they trusted their doctors. Conversely, a significantly ($P<0.001$) larger majority of the relatives (58, 75%) consented because of severity/non-response of the illness, the rest because of their trust in doctors. A majority of the patients (46-51, 60-66%) were convinced of the benefits of ECT and did not find the experience frightening or upsetting (43-51, 56-66%). Consequently, most (51, 66%) were willing to repeat the treatment. However, many were unhappy about aspects such as information received prior to treatment (49, 64%), delayed treatment, fear of treatment, and other ill-effects of ECT (17-31, 22-40%). A sizeable section of the patients (21-37, 27-48%) were hesitant in evaluating their experience of almost all aspects of the treatment, particularly regarding their experience of the consent process (45-52, 58-68%). Unlike patients, a significantly larger proportion of the relatives (66-99%), compared to patients, judged different aspects of the experience more positively. However, many relatives were also upset by delayed treatment (50, 65%), some by the fear provoked by ECT (26, 34%), and many had

Table III. Knowledge of ECT among patients and their relatives

	Correct response	Patients (n=77)	Relatives (n=77)
Procedure			
1. During ECT, anaesthetic /other medications are used	Yes	55	66*
2. How often is ECT given per week?	1-3 times a week	37	65***
3. How many ECTs do most patients require in one course?	Usually 1-10	29	50**
4. Where is the current applied?	To the head	41	67**
5. Who can administer ECT?	Psychiatrists/doctors	47	65**
6. What is ECT?	Treatment using electricity	43	54
7. Certain investigations are needed before ECT	Yes	40	57**
8. How long is the current applied?	Seconds	18	43***
9. How is ECT given?	By a special machine	16	38**
Informed consent			
10. Is written permission of the patient or his/her family member always necessary?	Yes	37	56**
11. ECT can be given against the wishes of patients and the family	No	31	43
Indications			
12. ECT is often used to …	Treat acute psychiatric conditions not responding to drugs	34	63****
13. ECT is given to only those patients who have little chance of improvement	No	13	22
14. ECT can also be given to older persons (>60-65 yr)	Yes	13	23
15. ECT is given only to inpatients	No	6	17*
16. Pregnant women can also receive ECT	Yes	3	5
Effectiveness/mechanism of action			
17. ECT is useful in treating psychiatric disorders	Yes	41	73****
18. Compared to medications, how useful is ECT?	More or equally useful	47	74****
19. ECT often worsens the psychiatric illness	No	40	54*
20. How does the ECT work?	By correcting brain-changes causing symptoms	31	50***
21. Effects of ECT last only for a short while	Yes	29	38
22. Does ECT result in a permanent cure?	No	15	19
23. Scientific evidence favours the usefulness of ECT	Yes	19	32*
Side effects			
24. Use of ECT leads to temporary impairment of memory	Yes	38	52*
25. Use of ECT leads to permanent loss of memory	No	34	40
26. ECT results in permanent damage to brain	No	35	52**
27. ECT can damage other body-parts permanently	No	37	51*
28. During the ECT chances of death are very high	No	32	44
29. Headache is a common side effect of ECT	Yes	18	31*
30. Most of patients receiving ECT develop epilepsy later	No	29	38

P<0.05, **<0.01, ***<0.001, compared to patients

mixed feelings about other aspects (9-19, 12-25%). (Table IV).

Attitudes towards ECT: These were assessed using a 16-item questionnaire. Each item had 3 alternatives based on which responses were categorised into positive, negative or ambivalent attitudes.

A large member of patients (40-50, 52-65%) held positive attitudes on 7 of the 16 items. Accordingly, a

Table IV. Experience with ECT among patients and their relatives

		Patients (N=7)	Relatives (N=77)
1. How helpful was ECT in your case?[a]	Very helpful	51	65*
	Undecided	9	1
	Not at all helpful	17	11
2. Does your experience suggest that ECT is better than drugs?	Yes Undecided	46	73***
	No	29	1
		2	3
3. Experience with pre-anaesthetic evaluation	Not unpleasant	48	76***
	Undecided	28	1
	Unpleasant	1	0
4. Experience of night prior to the day of ECT	Not unpleasant	43	68***
	Undecided	26	1
	Unpleasant	8	8
5. Experience of waiting for your turn for ECT	Not unpleasant	43	67***
	Undecided	27	0
	Unpleasant	7	10
6. Experience of procedure of ECT	Not unpleasant	44	-
	Undecided	24	
	Unpleasant	9	
7. Experience after waking up after receiving ECT	Not unpleasant	34	66***
	Undecided	31	0
	Unpleasant	12	11
8. Experience with any long term side effects[b]	Not unpleasant	38	64***
	Undecided	31	9
	Unpleasant	8	4
9. How do you rate our overall experience with ECT?	Not unpleasant	51	58
	Undecided	26	19
10. How frightening or upsetting was ECT compared to what you expected?	Not at all frightening	48	51
	Very frightening/slightly frightening	29	26
11. How do you compare receiving ECT to visiting a dentist?	Less unpleasant	43	61**
	Undecided	32	15
	More/ equally unpleasant	2	1
12. Did ECT upset you so much that you would be reluctant to accept it again?	No	51	76***
	Undecided	22	0
	Yes	4	1
13. Considering the effect of ECT, was it delayed in your case?	Yes	9	15
	Undecided	37	12
	No	31	50
14. How was your experience with process of informed consent?	Not unpleasant	25	76***
	Undecided	52	1
15. Do you feel you received sufficient information regarding ECT prior to treatment?	Yes	7	75***
	Undecided	21	1
	No	49	1
16. Did you ever feel you were being forced into accepting ECT?	No	27	74***
	Undecided	45	1
	Yes	5	2
17. Why did you agree to have ECT?	Illness had lasted too long	28	58***
	Illness was very severe	34	0
	Trusted doctor's advice	15	19

[a] All questions were suitably modified for relatives, *e.g.* relatives were asked "How helpful was ECT in the case of your relative?" For purposes of simplicity only the patient versions of these items have been included in this Table

[b] Half of the patients reported memory impairment but this was not persistent in many (<10%)

*P**<0.05; **<0.01 ***<0.001 compared with patients

Table V. Attitudes towards ECT among patients and their relatives

		Patients (n=77)			Relatives (n=77)		
		Positive attitude	Ambivalent attitude	Negative attitude	Positive attitude	Ambivalent attitude	Negative attitude
1.	I am glad that I/my relative received ECT	47	30	0	72	5	0***
2.	I will advise a close relative to receive ECT if recommended	48	27	2	73	3	1***
3.	Treatment with ECT is cruel	50	26	1	73	4	0***
4.	ECT is an inhuman treatment	50	26	1	74	3	0***
5.	ECT is dangerous and should not be used	47	30	0	72	5	0***
6.	ECT is often given to people who do not need it	36	41	0	66	11	0***
7.	ECT is given indiscriminately to people	34	43	0	63	13	1***
8.	ECT is often given as a punishment to violent/angry patients	33	41	3	55	19	3**
9.	ECT is the worst treatment option under any circumstance	48	29	0	73	4	0***
10.	Treatment with ECT should be outlawed	30	45	2	53	24	0**
11.	Treatment with ECT is outdated	18	58	1	30	47	0*
12.	ECT gets you better quicker than medications	40	35	2	71	6	0***
13.	ECT is at times life saving	29	48	0	59	18	0***
14.	Following discovery of new medicines, treatment with ECT is never required	17	59	1	28	49	0
15.	Once a person is given ECT, in future whenever he becomes ill ECT is the only treatment option	17	57	3	29	44	4*
16.	If ECT fails in a patient, then no other treatment will succeed	14	60	3	20	52	5

P*<0.05; **P<0.01; ***P<0.001. All 3 attitudes were compared separately; comparison of positive attitudes with ambivalent and negative attitude clubbed together

majority of the patients were happy to have received ECT and endorsed its use because they felt it was not cruel, inhuman, dangerous, or the worst option for treatment. Simultaneously, 26-60 patients (34-78%) expressed ambivalent attitudes about all aspects of ECT, particularly regarding the indiscriminate/punitive use of ECT and the relevance of the treatment. However, despite such ambivalence, only a small proportion of the patients (0-3, 0-4%) had clearly negative attitudes (Table V). A much larger and significant (*P*<0.5-0.0001) proportion of the relatives (53-74, 69-96%) had clearly positive attitudes on 12 of the 16 items. But even among relatives, many (11-52, 14-68%) were unsure about several aspects of the treatment, though very few (0-5, 0-6%) expressed clearly negative views.

Comparisons of patients from 2006 (n = 20) with those from 2007 and 2008 (n = 57) revealed significant differences on 27 of the total of 62 items. In almost all instances the differences favoured patients who had received ECT in 2006, who were more aware and positive about ECT. However, this trend was not found among the relatives (data not shown).

Discussion

Perceptions and awareness regarding ECT among patients and their relatives could have a significant impact on the outcome of the treatment. However, these have been rarely examined in the Indian context.

Most patients in this study obtained their information about ECT from doctors, past experience or other recipients. This is not unusual among patients who have undergone ECT in countries where it is used frequently. Patients from countries with less frequent use are more likely to acquire their facts from the media[19], and usually have more negative perceptions of ECT[20].

Despite this, patients of this study were poorly informed about ECT. A majority of patients were unaware of anything more than the rudiments of the procedure; very few were familiar with most other aspects. These results mirror the dominant trend in literature, which suggests that patients who receive ECT often know little about what it exactly involves[21]. Some other studies from India[14,15] had earlier reported that a high proportion of patients (>65%) had adequate knowledge of ECT. However, on closer scrutiny the proportion of patients with full understanding of the treatment, particularly about placement of electrodes, duration of stimulus or fits, side effects and indications, was actually much lower (6-17%) in these studies.

Poor information about ECT could be partly due to ECT-induced memory impairment (present in about half of the patients of this study) or confounding effects of current mental state[21]. Alternatively, it could be due to inadequate information offered prior to ECT. Systematic review on this aspect has concluded that only about half of the patients are satisfied by amount of information they receive prior to ECT[22]. In this study, the proportion of patients who felt that they had not received sufficient information regarding ECT prior to treatment was higher than that reported in previous studies from India and other developing countries[8,17,23-25].

Favourable opinions about patients' experience are quite common in literature[21]. However, fear of ECT and concern about side effects and dissatisfaction with consent procedures are also reported. In our study unawareness and discontentment with consent procedures as well as feelings of coercion, indicated deficiencies in the process of informed consent, similar to that reported ealier[22], particularly from developing countries[8,17,25] including India[7,23,24]. Although, the realities of the situation may make for somewhat different norms and standards of consent in developing countries, such shortcomings of the consent process are of great concern. About half of the patients complained of memory impairment, which they found distressing. Memory impairment is usually the commonest side effect reported in virtually all studies of ECT recipients. Rates vary from 29 to 79 per cent of the patients, with persistent loss being reported by at least one-third of them[26].

In this study about two-thirds of the patients felt that they had benefited from ECT and were willing to repeat it again. These results were similar to those of conventional research from clinical settings in developing as well as developed countries, which has shown that a majority of the patients perceive ECT to be helpful and most are willing to undergo the treatment again[21]. But, despite rating ECT so high, many patients of this study often chose to remain ambivalent in their attitudes, although very few were frankly critical of the treatment. This ambivalence could be interpreted in several different ways. Disturbed mood state often leads to negative perceptions of ECT[27], but was unlikely to be a major factor in this study, since all patients were either euthymic or free from psychotic symptoms, when assessed. Attitudes are often not simple for or against decisions; instead these represent a complex trade-off between judgements of benefits and risks. Thus, as in this study, ambivalence might be the norm, rather than the exception[13,26]. However, patients' reluctance to reveal their true attitudes to the doctors who treat them, has generated the maximum debate[13,28]. This notion is further endorsed by several surveys of ECT undertaken by consumer-organizations (using methods different from clinical research), which either report much lower rates of perceived benefit, or more widespread criticism of ECT among respondents[5,26,29].

One of the strengths of the study was inclusion of relatives. Results in this regard were somewhat remarkable in that relatives were much better off than patients in almost every respect. Accordingly, they had better access to diverse sources of information, were more aware of several details concerning ECT, were more likely to be satisfied with different parts of the consent process including information offered prior to treatment, and less likely to perceive coercion. They found the experience of ECT much less disagreeable, reported greater benefit and willingness to accept the treatment again, and also were much more positive regarding ECT. Such a trend favouring relatives has been a consistent finding among studies from developing countries[8,17,24], but has not usually been found in Western studies[6]. The fact that relatives neither suffered from the ill effects of the illness, nor had to endure the experience of ECT or its adverse effects, might have contributed to their better awareness and more positive perceptions. The influence of other variables was uncertain, though relatives with higher levels of education had more positive attitudes about ECT.

The present study suffered from some of the usual methodological limitations. Although the sample size compared well with most other studies on the subject, it can be argued that the number of participants was still relatively small, and the sample was diagnostically heterogeneous. The fact that half of the recipients could not be assessed raises doubts about the representativeness of the sample. However, comparisons between participants and non-participants did not reveal major differences in any respect. Moreover, the demographic and clinical profiles of patients were typical of recipients of ECT in India and other developing countries[7-10]. Also, marked variations in practice of ECT in India[7,10] mean that the results cannot be readily applied to other patients. Thus, the findings might not be truly representative of the awareness and perceptions of all ECT recipients and their relatives in this country. The possibility of a positive bias to the results arising from patients being in remission was unlikely, because the remission rates were not significantly different from other Indian studies[30,31]. Further, the characteristic response among patients was of ambivalence regarding ECT, rather than unequivocal endorsement of the treatment. Every attempt was made to ensure the validity of the questionnaires by using standardised formats[13], by relying on versions used in studies from developing countries[8,16,17], by carrying out a pilot survey prior to the study, and by simultaneous use among a large group of caregivers from the same site[18]. Still, concerns about validity remain, especially when the whole approach of assessing attitudes in this fashion has drawn some criticism[26,32]. The timing of the assessments is also critical. However, the average ECT-assessment interval of 18.5 wk achieved in this study appeared to be in line with previous recommendations[26].

Despite these difficulties, the results of this study were similar to much of the previous data on the subject, both from developing and developed countries. It highlights the areas where the practice of ECT needs to be improved, particularly in developing countries like India. In this regard, recent evidence from accredited ECT clinics in developed countries clearly demonstrates that the stress and discomfort associated with the procedure can be considerably lessened by adhering to certain minimum standards of care[29,30,33,34]. It should not be difficult to implement these standards, which emphasise reduced waiting times, provision of clean and comfortable environments, practical and emotional support by dedicated staff, and close involvement of families of patients. However, adherence to these minimum standards of care will certainly have a positive impact on the perceptions of patients and relatives about ECT, thereby ensuring better access to the treatment for those who are most likely to benefit form it.

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