

THE PRACTICE OF ECT IN INDIA : ISSUES RELATING TO THE ADMINISTRATION OF ECT

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A questionnaire on ECT, tapping attitudes, opinions and usage, was mailed to all medical members of the Indian Psychiatric Society whose addresses were known; 263 (28.8%) responded. This paper, the first in a series that presents the results of the survey, provides demographic data on the respondents and covers issues relating to the administration of ECT. Specific issues discussed include the ECT personnel, location of the ECT facility, certain ECT prescription patterns, psychiatrist-patient interactions on suggestion of ECT, pre-ECT investigations, frequency of administration of ECT, use of regressive ECT and maintenance ECT, length of the ECT course across diagnoses, and use of psychotropic drugs in relation to the ECT course.

The effect of regional variation on the practice of electro-convulsive therapy (ECT) is a subject that has never failed to interest. Information on this subject provides valuable insights not only into the practice of ECT but also into the practice of psychiatry itself (American Psychiatric Association, 1978). Such information further serves to suggest launching grounds for research into specific aspects of ECT, as well as forms the basis for the issuance of guidelines for practice (Pippard and Ellam, 1981; Editorial, 1981).

ECT practice has been studied from as early as 1973 (Frankel, 1973) to as recently as 1991 (Strongren, 1991) from as far north on the globe as Scandinavia (D'Elia *et al.*, 1983) to as far south as Australia (Gassy and Rey., 1990); from as small a set-up as a single hospital (Tancer *et al.*, 1989) through a hospital chain (Weiner and Power, 1980) and a state-wide zone (Frankel, 1973) to a system as large as an entire country (American Psychiatric Association, 1978). Reports are also available from developing countries (Odejide *et al.*, 1987).

Over 30 such surveys have been conducted and published, chiefly from North America and Europe; three continents - South America, Africa and Asia - have sadly lagged behind in research of this nature.

In India, reference to the use of ECT has in a restricted context been made by Vahia *et al.* (1974). Shukla (1981) analyzed patterns of use and the response to ECT in an Indian rural teaching hospital in Jhansi between 1977 and 1980. In 1984, Bagadia *et al.* surveyed the membership of the Indian Psychiatric Society (IPS) for information on the practice of ECT; the study is to the best of our knowledge, not published.

In October, 1990, a national symposium on ECT was held at the National Institute of Mental Health and Neurosciences, Bangalore, with invited speakers and discussants on 8 identified areas of critical importance to research and practice. Over 150 delegates participated from all over India. The opinions expressed on the floor of the house reflected considerable

variations in attitudes, concepts and practice. A recommendation was therefore made that the practice of ECT in the country be surveyed; indeed, much interest in such a study was expressed overseas as well (Fink, 1990; personal communication).

More than half a century after the inception of ECT, its value notwithstanding, for various reasons and from various segments of the population the treatment has come under criticism as never before (Andrade and Andrade, 1990). Consequently, it has become imperative to obtain a comprehensive profile of the practice of ECT in India. The present study therefore sought to survey the membership of the IPS with a view to develop an extensive database of statistics on ECT, covering opinions, attitudes and practice. The broad scope of the study would make it the first of its kind in the country - and, indeed, in Southeast Asia. It was hoped that the results would identify priorities for research and practice, would provide a platform for the evaluation of the use of ECT in India, and would form the basis for the development of a position statement and set of guidelines and recommendations by the IPS.

This paper is the first in a series that presents the results of the ECT survey. Besides providing demographic data of the respondents, it covers issues relating to the administration of ECT.

MATERIALS AND METHODS

An 8 page printed questionnaire, modified from the American Psychiatric Association task force on ECT (1978) and available from any of the

authors of this paper on request, was mailed to all medical members of the IPS whose names and addresses were published in the IPS directory (1990), updated to 1991 from the files of the General Secretary of the Society, and listed as 'current' for postal address veracity at the Editorial Office of the Indian Journal of Psychiatry. A self addressed, stamped envelope was enclosed to facilitate return of the completed forms.

Questionnaires returned over a 3 month period were scored using a coding system that yielded a span of 324 digits over 149 dependant variables. The data were then transferred to the hard disc of an IBM-compatible central computer with multiple peripherals. A total data printout was manually verified for accuracy over 89,163 information bits which included computer categorization details as well as the actual data.

Subsequently, one way analyses (mean \pm standard deviation-MISD and frequently distribution) and, wherever indicated, two way analyses (intervariable dependance and relationships) were conducted using statistical software that was specially designed for the study by an experienced biostatistical analysis computer programmer.

RESULTS

Of 938 psychiatrists to whom the questionnaire had been mailed, 263 responded; 25 questionnaires were returned by the postal department marked "addressee unknown". The response rate was therefore 263/913, or 28.8%.

While the total sample size was 263, considerable differences in effective sample size across variables was observed. This was because of inadvertent omissions in the completion of the questionnaire by the respondents, because of illegible entries, and because certain variables were inapplicable to the respondents effective sample size is hence indicated for each variable.

There were 228 males (86.7%) and 32 females (13.3%) in the sample (n = 260). The MISD age of the males was 41.7 ± 11.6 years, and of the females, 40.5 ± 10.5 years. The MISD age of the pooled sample (N = 260) was 41.5 ± 11.4 years.

Table-1 : Postgraduate educational qualifications* of the respondents (N = 263)

Qualification	Number	(%) of respondents
No postgraduate qualification (only M.B.B.S.)	10	(3.8%)
D.P.M. only	82	(31.2%)
M.D. only	91	(34.6%)
D.P.M. + M.D.	68	(25.9%)
MNAMS/DNB only	1	(0.4%)
DPM + MNAMS / DNB	1	(0.4%)
M.D. + MNAMS / DNB	1	(0.4%)
DPM + MD + MNAMS / DNB	2	(0.8%)
Invalid entries	7	(2.7%)

*Only Indian qualifications were considered.

Table-2 : Respondents' years of graduation and postgraduation (N = 263)

Year	Graduation		Postgraduation	
	Number	% of respondents	Number	% of respondents
Pre 1950	13	(4.9%)	3	(1.1%)
1950 - 1954	9	(3.4%)	4	(1.5%)
1955 - 1959	15	(5.7%)	6	(2.3%)
1960 - 1964	16	(6.1%)	9	(3.4%)
1965 - 1969	17	(6.5%)	18	(6.8%)
1970 - 1974	46	(17.5%)	20	(7.6%)
1975 - 1979	64	(24.3%)	37	(14.1%)
1980 - 1984	53	(20.2%)	70	(26.6%)
1985 - 1989	20	(7.6%)	73	(27.8%)
1990 and after	1	(0.4%)	13	(4.9%)
Invalid or inapplicable entries	9	(3.4%)	10	(3.8%)

**Table-3 : from which respondents obtained their graduate and postgraduate qualifications
(N = 263)**

Geographical area	Graduation		Postgraduation	
	Number	% of respondents	Number	% of respondents
Delhi	8	(3.0%)	15	(5.7%)
Bombay	20	(7.6%)	24	(9.1%)
Bangalore	8	(3.0%)	27	(10.3%)
Kerala	18	(6.8%)	7	(2.7%)
Tamilnadu	29	(11.0%)	23	(8.8%)
Karnataka (Minus Bangalore)	15	(5.7%)	13	(4.9%)
Andhra Pradesh	15	(5.7%)	4	(1.5%)
Maharashtra (Minus Bombay)	26	(9.9%)	27	(10.3%)
Madhya Pradesh	5	(1.9%)	1	(0.4%)
Orissa	5	(1.9%)	1	(0.4%)
Gujarat	14	(5.3%)	16	(6.1%)
Rajasthan	9	(3.4%)	3	(1.1%)
Punjab	10	(3.8%)	13	(4.9%)
Haryana	6	(2.3%)	1	(0.4%)
Jammu and Kashmir	2	(0.8%)	0	(0.0%)
Uttar Pradesh	19	(7.2%)	15	(5.7%)
Bihar	10	(3.8%)	17	(6.5%)
Bengal	23	(8.8%)	14	(5.3%)
Himachal Pradesh	1	(0.4%)	0	(0.0%)
North-eastern States	3	(1.1%)	0	(0.0%)
Other (Goa, Union territories etc.)	10	(3.8%)	23	(8.8%)
Invalid / inapplicable	7	(2.7%)	19	(7.2%)

The postgraduate qualifications, years of graduation and postgraduation, and geographical area in which graduate and postgraduate degrees were obtained are presented in tables 1-3. Details of the respondents place and nature of work are presented in table-4.

Details of the respondents practice over the last 6 months only were solicited as it was considered that recent data rather than lifetime

or averaged data would be representative of current practice. The number of patients seen by the respondents during the previous 6 months is presented in table 5. Twelve respondents (4.6%) indicated that they had seen no patients at all; of these 4(1.5%) were in administrative positions while 8(3.0%) were not engaged in any form of work. These 12 respondents were therefore categorized as "non-practising".

Table-4 : Details of respondents' place and nature of work (N = 263)

	Number	(%) of respondents
1) Location of Practice/residence		
Metropolitan city	127	(48.3%)
Large urban area	98	(37.3%)
Small urban area	24	(9.1%)
Rural area	9	(3.4%)
Invalid entries	5	(1.9%)
2) Primary site of work		
Private clinic	62	(23.6%)
General nursing home	19	(7.2%)
Psychiatric nursing home	34	(12.9%)
Private general hospital	21	(8.0%)
Government general hospital	72	(27.4%)
Government mental hospital	37	(14.1%)
Special services	3	(1.1%)
Other (e.g. "not working")	10	(3.8%)
Invalid entries	5	(1.9%)
3) Nature of primary work		
Clinical, and undergraduate teaching	43	(16.3%)
Clinical, and post graduate teaching	63	(24.0%)
Clinical, and nonteaching	128	(48.7%)
Research and teaching	13	(4.9%)
Research and nonteaching	4	(1.5%)
Administration only	4	(1.5%)
Not working	8	(3.0%)

Table-5: Approximate number of separate patients seen by the respondents during the last 6 months (N = 263)

Number of patients	Number	(%) of respondents
Less than 100	21	(8.0%)
100 - 299	58	(22.1%)
300 - 499	33	(12.5%)
500 - 699	44	(16.7%)
700 - 999	18	(6.8%)
1000 - 1499	23	(8.7%)
1500 - 1999	15	(5.7%)
2000 - 2499	13	(4.9%)
2500 - 2999	4	(1.5%)
3000 and above	16	(6.1%)
Invalid responses	18	(6.8%)

Thirty-six (13.70%) of the practising respondents indicated that they administered ECT neither themselves nor through their junior doctors; thus, with the number of non-practising psychiatrists included, 48 respondents (18.3%) did not use ECT at all during the past 6 months. In other words, only 215 respondents (81.7% of the sample) activity prescribed or used ECT.

Thirty-one psychiatrists (11.8%) did not administer ECT in their own psychiatric facility but referred cases to other psychiatrists when ECT was indicated; 5.5 ± 6.0 patients were so referred by these psychiatrists over the previous 6 months.

One hundred and fifty-one psychiatrists (57.4%) indicated that they give ECT on an outpatient basis at times; 31.3 ± 33.1 patients had received outpatient ECT, during the past 6 months, from these clinicians.

Of the clientele of the 215 psychiatrists using ECT, 13.4 ± 25.3% received ECT during the past 6 months.

The personnel administering ECT and the number of ECTs so administered are described in table-6.

The remaining data are by and large obtained from the 215 respondents (81.7%) who prescribe ECT; percentage in the text and in the tables total to 81.7% in order to retain representation of the 48 respondents (18.3%) who do not use ECT.

Forty-one respondents (15.6%) had been involved in ECT research in the past; 35

(13.3%) were currently so involved, while 14 (5.3%) had involvement both in the past and in the present. The remaining 125 respondents (47.5%) had never had any experience of ECT research.

Fifty-nine psychiatrists (22.4%) administered ECT in a private office setting; 152 (57.8%) administered ECT in an institution while 4 (1.5%) treated patients with ECT in other settings.

The respondent-client interactions in certain respects on suggestion of ECT are presented in table-7.

Table-6 : Number of patients treated with ect by the respondents themselves, and by the respondents' staff or trainees during the previous six months (N = 263)

Number of patients	ECT administered by respondents themselves		ECT administered by respondents' staff or trainees	
	Number	% of respondents	Number	% of respondents
0 - 9	96	(36.5%)	96	(36.5%)
10 - 24	55	(20.9%)	25	(9.5%)
25 - 49	27	(10.3%)	12	(4.6%)
50 - 74	20	(7.6%)	6	(2.3%)
75 - 99	6	(2.3%)	4	(1.5%)
100 - 124	12	(4.6%)	5	(1.9%)
125 - 149	2	(0.8%)	0	(0.0%)
150 - 174	7	(2.7%)	2	(0.8%)
175 - 199	2	(0.8%)	0	(0.0%)
200 or more	19	(7.2%)	11	(4.2%)
Not applicable and invalid responses	17	(6.5%)	102	(38.8%)

(This means, for example, that 20 respondents themselves administered ECT to 50-74 patients over the last 6 months, and that 6 respondents administered ECT through their staff/trainees to 50-74 patients over the last 6 months).

Table-7 : Respondent client interaction on suggestion of ECT*

Interaction	Number	(%) of respondents
1) Patients'/relatives' willingness for ECT		
- Most are willing	102	(38.8%)
- Most are reluctant	34	(12.9%)
- In-between	78	(29.7%)
- Invalid responder	1	(0.4%)
2) Informed consent procedure		
- Oral	30	(11.4%)
- Written	174	(66.2%)
- Tacit or nil	11	(4.2%)

* N = 215 - 81.7% of the sample.

Table-8 : Respondents' commonest schedule of administration of ECT*

Schedule	Number	(%) of respondents
Twice a month	2	(0.8%)
Once a week	2	(0.8%)
Twice a week	62	(23.6%)
Thrice a week	124	(47.1%)
Four to five times a week	7	(2.7%)
No usual schedule	7	(2.7%)
Invalid responses	11	(4.2%)

* N = 215 - 81.7% of the sample.

Table-9 : Other ECT schedule practices *

Number (%) of respondents who	Percentage of patients so treated						Invalid responses
	0%	1-24%	25-49%	50-74%	75-99%	100%	
1. Administer more than one ECT (in separate sessions) a day	181 (68.8%)	18 (6.8%)	1 (0.4%)	2 (0.8%)	2 (0.8%)	5 (1.9%)	6 (2.3%)
2. Administer daily ECT for at least 3 days	115 (43.7%)	74 (28.1%)	7 (2.7%)	8 (3.0%)	5 (1.9%)	4 (1.5%)	2 (0.8%)
3. Use regressive ECT	203 (77.2%)	3 (1.1%)	1 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	8 (3.0%)
4. Used maintenance ECT in the last 6 months	148 (56.2%)	53 (20.2%)	9 (3.4%)	5 (1.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

* N = 215 - 81.7% of the sample

Respondents (n = 215) indicated that of their patients treated with ECT, no pre-ECT investigations were conducted in $42.9 \pm 39.6\%$.

Intra-ECT session issues such as ECT premedication, use of unmodified versus

modified ECT, ECT instrumentation, ECT stimulus, information, electrode placement, seizure duration monitoring and use of multiple ECT seizures per treatment session are presented in a subsequent paper.

Table-10 : Lengths of ECT course across diagnoses *

M \pm S.D. Number of ECTs considered as	For		
	Schizophrenia	Major Depression	Minor Depressive illness
1) An average course	6.7 \pm 2.1 (n = 204)	5.9 \pm 1.6 (n = 205)	4.3 \pm .8 (n = 61)
2) The maximum length of a course	11.5 \pm 4.6 (n = 201)	9.7 \pm 3.2 (n = 201)	6.5 \pm 2.6 (n = 61)

* n is variable as it depends upon the number of respondents prescribing ECT who consider ECT appropriate for the respective diagnosis and who entered valid responses.

Table-11 : Use of psychotropic drugs during and after the ECT course *

	Number	(%) of respondents
1) During the ECT course		
Drugs should almost always be stopped	4	(1.5%)
Drugs should usually be stopped	6	(2.3%)
It matters little whether or not drugs are stopped	8	(3.0%)
Drug should probably be continued	46	(17.5%)
Drugs should almost always be continued	149	(56.7%)
Invalid responses	2	(0.8%)
2) After the ECT course		
Maintenance drugs are required for at least a few months.	200	(76%)
Maintenance drugs are unnecessary	7	(2.7%)
Invalid responses	8	(3.0%)

* n = 215 - 81.7% of the sample.

The ECT schedule practices of the respondents who prescribe ECT are detailed in tables 8 and 9.

Of the 67 respondents (25.1%) using maintenance ECT, 13 (4.9%) employed a once weekly schedule, 33 (12.5%) a once monthly schedule, 5 (1.9%) less frequently than once monthly, and 16 (6.0%) schedules depending on clinical need and judgement.

Lengths of the ECT course across diagnoses are specified in table 10, while use of psychotropic drugs during and after the ECT course is discussed in table 11.

DISCUSSION

The methodology for data collection in ECT surveys has varied from scrutiny of records (e.g., Stromgren, 1988) to field visits (e.g. Pippard and Ellam, 1981) to postal questionnaires (e.g. Weiner and Power, 1980), depending on the objectives of the study. Since the aim of the present study was to obtain a perspective about opinions regarding and attitudes towards ECT, and the practice of ECT by psychiatrists in India, the only method available which would include practitioners in both private and institutional settings was to conduct a postal survey of the membership of the IPS.

Response rate to postal questionnaires in ECT surveys has in certain studies exceeded 90% (e.g. Stromgren, 1991). In comparison, the response rate of 28.8% in this study seems, on the surface, disappointingly low. Appraisal of this response rate must however be tempered

by the realization that circumstances in India differ widely from those in developed countries; there are unfortunately no satisfactory parallels to compare the response rate with in Indian context. It is possible, also, that the length of the questionnaire, necessitating perhaps an hour's time for conscientious completion, would have depressed the response rate.

The records available at the IPS offices do not permit a determination of whether or not the sample in the study is representative of the IPS membership. Although the IPS has a limited database of background information such as age, sex, educational qualification, year of qualification etc. it has no facility to update its information, nor are these data likely to explain a significant proportion of the variance in attitudes, opinions and practice where ECT is concerned.

There is a real possibility that the respondent sample was biased on an important variable; no less than 34.2% of the respondents were involved in ECT research in the past and/or present. The implication of this is that the sample is more likely to be well versed with ECT than the IPS membership as a whole, and consequently that the results are more likely to present an idealized picture.

Interestingly, 13.7% of psychiatrists were practising but not prescribing ECT. While it is tempting to speculate that adverse attitudes towards or experience of ECT may have been responsible, it is more likely that absence of ECT backup facilities (oxygen cylinder, suction apparatus etc.) was the explanation. This could also explain why 11.8% of respondents referred

patients to other psychiatrists for the administration of ECT.

Over half the sample (57.4%) reported using outpatient ECT for an average of about 5 patients per month. Provided that recommended precautions are observed, outpatient ECT reduces hospital costs and produces less disruption in psychosocial life. Furthermore, outpatient ECT reduces the pressure on hospitals, the resources of which are constrained by sheer population weight. For similar reasons, Odejide *et al.* (1987) report frequent use of outpatient ECT in another developing country, Nigeria.

In western and developed countries, the percentage of all psychiatric patients receiving ECT is low - 5% or less, in contemporary practice (e.g. Thompson and Blaine, 1987). In this study, 13.4% (± 25.3) of the psychiatrists' clientele (on average) received ECT, a figure comparable with the 14.3% reported by Shukla (1981) in his rural teaching general hospital practice. Although these Indian figures are higher than western figures, these are not so high so as to raise the spectre that ECT is being overused: considering that ECT is an inexpensive treatment that quickly returns the patient to his environment and is hence more likely to be used as a primary indication. The psychiatrists' case load in India is likely to have a greater representation of psychotic patients who are more likely to require ECT.

While use of ECT in India is certainly not as high as in other developing countries (e.g. 30-60% of hospital patients - see Odejide *et al.*, 1987), the skew in the distribution (of percent-

age use of ECT) is disquieting: The high standard deviation of 25.3 suggests that many psychiatrists treat a large percentage of their patients with ECT. No reason or justification - for this high use seems apparent.

A sizeable proportion of ECT is administered by junior staff and trainees (Table-6). Particularly in large psychiatric setups (e.g. mental hospitals), administration of ECT is viewed as a chore, or as a responsibility to be delegated. There is little to be said in favour of such a stance; administration of ECT is best viewed as a specialists responsibility, and indeed guidelines for privileging practitioners for the administration of ECT can be quite strict (American Psychiatric Association, 1990).

It is heartening that, by and large, patients or relatives attitudes are not unfavourable to the suggestion of ECT (Table-7). Ideally, in view of potential medicolegal ramifications, all use of ECT should be preceded by obtaining informed consent in writing (Table-7).

Respondents indicated that $42.9 \pm 39.6\%$ of their patients receiving ECT were not investigated pre-ECT. While this would be clearly unacceptable in the West (see American Psychiatric Association, 1990), guidelines are required for India - a "Poor" country in which what is medically ideal need not necessarily be medically practical - to determine the extent to which clinical skills can function in lieu of investigations, as well as to determine indications, extent and nature of routine or special investigations in general or special ECT populations. Every psychiatric patient is also a medi-

cal patient and hence deserves a baseline medical investigation; with ECT, the anaesthesia risk merits particular consideration for investigation.

Happily, almost all respondents administered ECT most commonly at a twice or thrice weekly frequency (Table-8); in fact, less frequent ECT may convey no therapeutic benefit while more frequent ECT may be cognitively toxic. Although firm evidence is as yet awaited, there is reason to hope that twice weekly ECT may be as effective and efficient as thrice weekly ECT with the advantage of inducing less cognitive deficit (Andrade, 1990).

There is no evidence that the administration of more than 1 ECT (in separate sessions) per day, or the administration of daily ECT for 3 or more days (Table-9), carries more benefit than conventional 2 or 3 per week ECT schedules. While such schedules of ECT administration are in the light of present (available) knowledge undoubtedly experimental, the large number of clinicians employing these schedules suggests that double-blind, prospective trials are necessary to evaluate the risk-benefit trade-off, with these schedules in comparison with conventional schedules across psychiatric diagnoses.

It is heartening to note that regressive ECT, a procedure with no valid scientific basis (consensus conference, 1985), has almost totally been abandoned (Table-9).

There has been a resurgence of interest in maintenance ECT in the last decade with the discovery that the technique protects against relapse in depressives who relapse despite

maintenance antidepressant or lithium medication (Decina *et al.*, 1987). The high incidence of use of maintenance ECT in the present sample suggests that the procedure may be in use for other reasons as well - perhaps poor drug compliance, convenience of treatment etc. A time cost-energy-risk analysis of maintenance ECT versus maintenance pharmacotherapy is necessary to identify ideal indications for use of maintenance ECT as well as optimal indications for its application in the Indian context. Finally, research is necessary to identify ideal maintenance ECT schedules across psychiatric diagnoses.

The length of average and extended ECT courses as considered appropriate for schizophrenia and major depression (Table-10) more or less tally with recommendations in conventional literature (Fink, 1979). The use of ECT in minor depressive illness - an indication not conventionally accepted - will be discussed in a future paper.

While there is little doubt in literature as well as in Indian practice that maintenance pharmacotherapy is necessary after the ECT course, it is somewhat unsettling to find majority of respondents indicating that psychotropic drug therapy during an ECT course is appropriate (Table-11). Benzodiazepines administered concurrently with ECT interfere with the seizure (Fink, 1987) and possibly with the efficacy of ECT itself (Pertinatti *et al.*, 1990). Concurrent antidepressant drugs could lower the seizure threshold and enhance the cognitive toxicity of ECT (Andrade and colleagues, completed project; report in preparation); the benefit of the ECT-antidepressant combination

in therapeutics is an established (Andrade, 1990). Similar sentiments can be expressed regarding the neuroleptic-ECT combination.

In conclusion, in some respects the administration of ECT in India falls short of the ideal; in other respects, controversies exist that need to be resolved through clinical research. It is hoped that this paper will sensitize clinicians to critical issues as well as prompt relevant research.

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