Assessment of knowledge and attitude about electroconvulsive therapy among caregivers of patients with different psychiatric disorders

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Received 18 June 2012
Accepted 26 November 2012

Middle East Current Psychiatry
2013, 20:205–215

Aim
Few studies have assessed knowledge and attitude about electroconvulsive therapy (ECT) among caregivers of psychiatric patients in Egypt. This study aimed to assess knowledge and attitude about ECT among caregivers of patients with psychiatric disorders.

Participants and methods
The studied sample included 450 caregivers of patients; 286 were men and 164 were women. They were assessed using a scale that measures knowledge and attitudes about ECT.

Results
In all 50.4% of the participants had not received information about ECT. High percentages of participants had correct knowledge and positive attitudes toward ECT. The main significant factor affecting their knowledge and attitudes was the previous experience of their patients with ECT.

Conclusion and recommendation
Despite their defective knowledge, caregivers of patients had correct knowledge and positive attitudes toward ECT. Mental health providers should spend more time providing information to caregivers and patients about ECT.

Keywords:
attitude, electroconvulsive therapy, knowledge

Middle East Curr Psychiatry 20:205–215

2090-5408

Introduction

Electroconvulsive therapy (ECT) is an effective non-pharmacological intervention used for treatment in psychiatry. It offers a useful, safe, and in some cases, life-saving intervention, during which a tiny electrical current is applied to the patient's brain through electrodes. The current produces a seizure lasting from 30 s to 1 min [1]. The induced convulsive seizures in neurons in the entire brain alleviate symptoms of disorders such as major depression, acute manic episodes, schizophrenia, or schizoaffective disorder [2,3]. ECT plays an important role in the treatment of geriatric patients, but its use is limited by cognitive and other side effects [4].

Despite studies proving its efficacy, it remains the most controversial treatment in psychiatry [5]. It was not widely used and maligned because of past abuses. There are no absolute contraindications to ECT; however, consideration is given to the degree of risk to the potential benefits of ECT, such as cardiac decompensation, aortic aneurysm, tuberculosis, and recent fracture [2,6]. Advances since the 1980s have made ECT safe and effective for older adults who cannot tolerate the side effects of antidepressants [7].

Although ECT has received negative attention and stigmatization in the media, this safe intervention has relatively few long-term side effects. Nevertheless, ECT may evoke strong fear and anxiety in clients and families who may envision electrocution, death, or permanent intellectual changes [7].

An attitude is a hypothetical construct that represents an individual degree of like or dislike for an item. It becomes an opinion and involves both thinking and feeling [8]. Attitudes are generally positive or negative views of an individual, place, things, or events. Individuals can also be conflicted or ambivalent toward an object, meaning that they simultaneously have both positive and negative attitudes toward the item in question. Most attitudes are the result of either direct experience or observational learning from the environment.

Although ECT is a safe and efficacious treatment, there is a widespread negative view in public and professional circles. Previous studies that have reported psychiatric patients' and relatives' feelings and attitudes toward ECT have generally yielded positive results [9]. Despite the fact that attitudes toward ECT are a very complex phenomenon, there is no evidence that a particular cultural background affects attitudes toward ECT [10].

The validity of ECT as a therapeutic and often life-saving intervention has been marred by misconceptions.

In addition of its effectiveness and safety, ECT leads to shorter and less costly inpatient treatment, is rarely used in the first line of treatment, and is generally used for the treatment of elderly patients. Certain factors such as social stigma, inadequate undergraduate training, doubts about its efficacy and safety, ambivalence among psychiatrists, and doubts about it being a cost-effective alternative to antidepressant treatment might have limited the use of ECT in the management of depression [11].

Some patients/individuals considered ECT to be a beneficial and life-saving treatment, whereas others reported feelings of terrors, shame, and distress, and found it harmful and an abusive invasion of personal autonomy, especially when administered without their consent [12–14].

In Egypt, there are fears about treatment of mental illness, especially the use of ECT. Although patients with mental illness may respond well to ECT, many are still reluctant to use it because of the belief that it is only given to mad people and will bring bad reputation to the person as well as his/her family. Another false belief is that the patient receiving ECT will need to receive it for life and will become dependent on it [15].

Many studies have addressed the issue of knowledge and attitudes toward ECT not only among the patients and their relatives [16], but also among the lay public [17] and among adolescent patients and their parents. Concerns were frequently expressed, probably because ECT was not fully understood by patients and their families [18].

Aim of the study

The present study aimed to assess knowledge and attitudes of patients' caregivers about ECT in the psychiatric unit of Assiut University Hospitals.

Participants and methods

Setting of the study

The study was carried out at the psychiatric unit of Assiut University Hospital. This inpatient unit includes 68 beds distributed unequally for male and female patients and substance use disorder patients. The rules followed for indications of ECT in the study unit are those generally accepted in the scientific references such as major depressive disorder, bipolar disorder, schizophrenic disorder, and schizoaffective disorder. The daily session in the unit ranged from 15 to 20 sessions/day for inpatients and outpatients. The study was approved by the local ethical committee of the faculty of medicine. A written or oral informed consent was obtained from the participants.

Participants

The study included caregivers of patients of both sexes, 18 years or older, with apparent average intelligence and able to cooperate during the administration of the questionnaire. On the basis of these criteria, 450 healthy individuals (286 men and 164 women) who were caregivers of 385 patients with different psychiatric diagnoses who might need ECT during their management were included in the study. Diagnoses according to the *Diagnostic and Statistical Manual of Mental Disorders*, 4th ed., text revision criteria of this 385 patients were as follows: 186 patients with bipolar disorder, 96 patients with schizophrenic disorder, 69 patients with depressive disorder, and 34 patients with other diagnoses (schizoaffective disorder, brief psychotic disorder, psychotic disorder NOS, substance use disorder, psychiatric disorder because of substance use). It is noteworthy that ECT was not necessarily indicated in all patients. The caregivers included were close relatives of the patients who could take decisions about management of the patients in case of compulsory admission. Of the caregivers 36.4% were parents, 31.8% were brothers and sisters, and sons, and 9.5% were daughters and spouse. The study data were collected before starting the ECT program soon after admission of the patients.

Study tools

The demographic characteristics and clinical data of the patients were collected. These included name, age, sex, level of education, marital status, and history of receiving ECT. The diagnosis was made according to the *Diagnostic and Statistical Manual of Mental Disorders*, 4th ed., text revision criteria.

Sheet for sociodemographic characteristics of caregivers

This included demographic data of the relative's name, age, sex, level of education, marital status, occupation, and degree of relation to the patient. Their socioeconomic status was evaluated using the socioeconomic assessment scale [19]. This scale contains four main variables: the education level of the father and mother, the total family monthly income, occupation of the father and mother, and items about the lifestyle of the family. The total score for an individual was obtained using an equation that depends on these four variables and accordingly the individual was categorized into high, middle, and low socioeconomic class. This scale was published and its validity and reliability was established by its author.

Each patient's caregiver (participant) was assessed using the following.

Questionnaire for assessment of knowledge and attitude about ECT

During the preparation of this questionnaire, we used the original form of Chaven *et al.* [11] composed of 26 items used to assess attitudes and knowledge about ECT. Modification was made by adding 10 questions from other scales about ECT [Arshad *et al.* [20] who assessed patient's beliefs on ECT, Goodman *et al.*'s [21] survey, which measured ECT treatment satisfaction and attitudes (patient satisfaction survey scale), and Virit *et al.* [9] who assessed knowledge and attitudes of the patient and their relatives about ECT of bipolar disorders]. These modifica-

tions were used for assessments of knowledge and attitude suitable for our targeted sample (caregivers of patients with different psychiatric disorders). The final questionnaire used included 23 items to assess knowledge and attitudes about ECT. The participants were given response choices of 'agree', 'disagree', and 'uncertain'. These items were derived from other published literatures [9,11,20,21]. The questionnaire covered areas of efficacy, indications for use, safety, frequency of use, side effects, and practical aspects of ECT administration in addition to questions about receiving information about ECT. The questionnaire was translated into Arabic language. This translation was revised by five experts: three assistant professors in psychiatry and two assistant professors in neurology. A back translation was carried out into English language and compared with the original sentences to insure content validity. However, we did not standardize the scale after translation.

Correct knowledge and positive attitudes were identified according to the scientific literature. The response 'agree' was considered to be correct knowledge and a positive attitude for 10 questions (4, 5, 7–10, 12, 14, 17, 18). The response 'disagree' was considered to be correct knowledge and a positive attitude for the remaining 13 items. No items with 'uncertain' were considered in the results as it did not mean that the participants had correct or false knowledge or held positive or negative attitudes.

All participants were asked about the source of information. Another three questions related to this information were added: are you received the right amount of information about ECT, are you receive enough information about ECT and staff spent enough time with you describing ECT. The answers of these three questions are presented as text only in the results.

Statistical analysis

The data were analyzed using SPSS for Windows, Version 16.0 [22]. Descriptive statistics were used to determine the demographic and clinical characteristics of the sample and were described as mean ± SD. According to the nature of the variables, group differences were compared using the χ^2-test and a *P*-value was considered significant if it was less than 0.05.

Results

Sociodemographic characteristics of the participants

The sociodemographic characteristics of the patients and their caregivers are presented in Table 1.

Only 27.8, 28.6, and 31.6% of the participants correctly knew the answers of questions 1, 3, and 4, respectively, and higher percentages (68, 47.6, and 49.6%) knew the answers of questions 2, 5, and 6, respectively. A high percentage of patients had positive attitudes toward ECT as it appeared from their answers to the questions, except questions 10, 11, 13, 14, and 21 (Table 2).

Although there were no significant differences among caregivers' knowledge and attitude toward ECT according to their socioeconomic status in all items, except item 20 [ECT can cause total and irreversible insanity ($P = 0.02$)], it was found that they had correct knowledge and positive attitudes as indicated by their response to the questions (ECT improves the quality of life, many people are helped by ECT, ECT help patient, many times ECT proves to be life saving, people should not be afraid of ECT, ECT causes increase in the severity of mental and physical illness in the long run, ECT is an inhuman treatment and ECT is given as a punishment to violent/angry patients) (Table 3).

Table 1 Characteristics of patients and their caregivers

Characteristics	Patients number (*N*=385) [*N* (%)]	Caregivers' number (*N*=450) [*N* (%)]
Age (mean ± SD)	31 ± 11.6	36 ± 1.4
Males	225 (58.4)	286 (63.6)
Females	160 (41.6)	164 (33.4)
Level of education		
Illiterate or read and write	179 (46.5)	231 (51.3)
Primary education	26 (6.8)	28 (6.2)
Preparatory education	37 (9.6)	25 (5.6)
Secondary education	126 (32.7)	129 (28.7)
University education	17 (4.4)	37 (8.2)
Marital status		
Single	203 (52.7)	76 (16.9)
Married	147 (38.2)	341 (75.8)
Widowed	12 (3.1)	29 (6.4)
Divorced	23 (6)	4 (0.9)
Diagnosis		
Bipolar disorder manic episode	186 (48.3)	–
Schizophrenic disorder	96 (24.9)	–
Depressive disorder	69 (17.9)	–
Others[a]	34 (8.8)	–
Previous ECT		
Yes	228 (59.2)	–
No	157 (40.8)	–
Occupation		
Unemployed	–	27 (6)
Housewife	–	132 (29)
Student	–	20 (4.4)
Employed	–	101 (22.4)
Worker (working for tips)	–	170 (37.8)
Socioeconomic status		
High class	–	40 (8.9)
Middle class	–	353 (78.4)
Low class	–	57 (12.7)
Sources of information		
Nobody (Don't received)	–	227 (50.4)
Others[b]	–	113 (25.1)
Psychiatrist	–	63 (14)
Media	–	40 (8.9)
Nurses	–	7 (1.6)

ECT, electroconvulsive therapy.
[a]Others (substance use disorders, substance-induced psychiatric disorders, psychotic disorders NOS, brief psychotic disorder, schizoaffective disorder).
[b]Others (nonprofessional, previous experiences, family member, or a friend).

Differences according source of information

Nurses play little role in providing information to patients' caregivers (only seven representing 3.1% of caregivers). Source of information significantly affected knowledge of patients' caregivers ($P = 0.05$). Although a high percentage of patients' caregivers gained information about ECT through previous experiences, nonprofessionals, friends, or another family member, they had correct knowledge and positive attitudes. A high percen-

Table 2 Correct responses provided by patients' caregivers

Statements	Correct response by patients' caregiver Total number ($N=450$) [N (%)]
1-ECT should not be given more than once a week	125 (27.8)
2-There is no need for investigation before ECT	306 (68)
3-ECT should be given only to patients admitted in the ward	129 (28.6)
4-ECT cause fracture as a complication	142 (31.6)
5-Use of ECT leads to temporary impairment of memory	214 (47.6)
6-Use of ECT leads to permanent loss of memory	223 (49.6)
7-ECT improves the quality of life	242 (53.8)
8-Many people benefit from ECT	269 (59.8)
9-ECT helps patients	315 (70)
10-Pregnant women can receive ECT	32 (7.2)
11-ECT is given only to those patients who have little chance of improvement	133 (29.6)
12-Many times ECT proves to be life saving	322 (61.6)
13-Following discovery of new medicines, treatment with ECT should not be done	69 (15.4)
14-ECT can also be given to older patients	101 (22.4)
15-If ECT fails in a patient, then no other treatment will succeed	164 (36.4)
16-ECT is a treatment of last resort	93 (20.6)
17-People should not be afraid of ECT	268 (59.6)
18-ECT is dangerous	173 (38.4)
19-ECT causes increase in the severity of mental and physical illness in the long run	202 (44.8)
20-ECT can cause total and irreversible insanity	216 (48)
21-ECT is painful	85 (18.8)
22-ECT is an inhuman treatment	269 (59.8)
23-ECT is given as a punishment to violent/ angry patients	235 (52.2)

ECT, electroconvulsive therapy.

tage of patients' caregivers who received information about ECT from psychiatrists or mass media had correct knowledge as regard investigation preparing patients to ECT, and side effects of ECT (Table 4).

Differences according to the diagnosis of patients

On studying the relationship between the psychiatric diagnosis of patients and knowledge and attitudes of their caregivers, there were no significant differences among them except that caregivers of patients with depressive disorder more frequently correctly knew the basis at which ECT is given. A significantly higher percentage of caregivers of patients with bipolar disorder believed that ECT improves patients' quality of life and is a treatment of last resort than caregivers of patients with depressive disorder and schizophrenia. Higher percentage of caregivers of schizophrenic patients (52.3%), were against the irreversibility insanity that may be caused by ECT more than caregivers of patients with bipolar disorder (51.6%) and depressive disorder (32.9%) (Table 5).

Comparison among caregivers according to a history of using electroconvulsive therapy in the management of their patients

Previous experience with ECT considerably affected knowledge and attitudes of patients' caregivers in a positive way on all items of knowledge and attitudes, except that ECT is provided only to those patients who have little chance of improvement, if ECT fails in a patient, no other treatment will be successful, and ECT is administered as a punishment to violent/angry patient (Table 6).

Discussion

Despite advances in the pharmacological treatment of major depression, ~15% of depressed patients do not respond to medications and continue to experience depression. Approximately 90% of these patients achieve relief from depression through ECT, making it an effective treatment for patients who are resistant to pharmacotherapy [3].

In the present study, the majority of the participants had not received the right amount of information about ECT (Table 3). This finding is in agreement with Virit *et al.* [9], who reported that more than half of the caregivers of psychotic patients had not received adequate information about ECT. A similar finding extended to the patients themselves and has been reported in different studies, that is, more than half of the patients were not aware of the details of ECT [23–26].

Also, Tang *et al.* [27] reported that only a minority of patients and caregivers had received adequate information on ECT. The authors added that it appears that this effect extended to mental health staff in addition to the general population as supported by Culas *et al.* [28], who found a limited awareness on ECT on questioning mental health staff in a general hospital setting who were considered an important source of information for patients. This lack of information extends along different cultures as reported by Bustin *et al.* [10]. This defective information may be the responsibility of either the psychiatrist or nursing staff as both of them might think that it is the responsibility of the other. This lack of information also extended to nursing staff; only 8.5% of the nursing students reported that they were well informed about ECT [29].

Sources of information about ECT varied in previous studies: health professionals [4], psychiatrists, followed by nurses, caregivers, and media [27]. However, Arshad *et al.* [20] reported that the most common source of awareness was electronic and print media, followed by caregivers, and doctors, and friends. In earlier studies, movies and media were the most popular source of information [30,31]. In addition, Teh *et al.* [32] reported that the knowledge of the participants was from TV, (45. 6%), magazines (18.2%), friends (15%), family members (8.2%), healthcare professionals (11.1%), and radio (14%) and their impression (2.9%). Also, Kerr *et al.* [33] reported that the main sources of information are, in order of frequency, a friend; films and television; psychiatrist; and newspapers and magazines. This is not the case in the present study as the most common

Table 3 Correct responses provided by patients' caregivers in terms of their knowledge and attitudes toward electroconvulsive therapy according to their socioeconomic status

	N (%)			
Statements	High (*N*=57)	Middle (*N*=353)	Low (*N*=40)	Statistics
1-ECT should not be given more than once a week	14 (24.6)	101 (28.6)	10 (25)	$\chi^2=6.2$ $P=0.17$
2-There is no need for investigation before ECT	43 (75.4)	238 (76.4)	25 (62.5)	$\chi^2=2.4$ $P=0.6$
3-ECT should be given only to patients admitted in the ward	21 (36.8)	95 (26.9)	13 (32.5)	$\chi^2=8.7$ $P=0.06$
4-ECT cause fracture as a complication	18 (31.6)	109 (30.9)	15 (37.5)	$\chi^2=5.08$ $P=0.27$
5-Use of ECT leads to temporary impairment of memory	30 (52.6)	168 (47.6)	16 (40)	$\chi^2=2.5$ $P=0.6$
6-Use of ECT leads to permanent loss of memory	32 (56.1)	170 (48.2)	21 (52.5)	$\chi^2=1.9$ $P=0.7$
7-ECT improves the quality of life	29 (50.9)	189 (53.5)	24 (60)	$\chi^2=1.12$ $P=0.98$
8-Many people benefit from ECT	37 (46.9)	206 (58.4)	26 (56)	$\chi^2=1.6$ P=0.97
9-ECT helps patients	41 (71.9)	247 (70)	27 (67.5)	$\chi^2=6.5$ P=0.16
10-Pregnant women can receive ECT	5 (8.8)	24 (6.8)	3 (7.5)	$\chi^2=0.39$ $P=0.98$
11-ECT is only given to those patients who have little chance of improvement	18 (31.6)	108 (30.6)	7 (17.5)	$\chi^2=4.1$ $P=0.39$
12-Many times ECT proves to be life saving	44 (77.2)	52 (70.8)	28 (70)	$\chi^2=1.41$ $P=0.8$
13-Following discovery of new medicines, treatment with ECT should not be done	12 (21.1)	51 (14.4)	6 (15)	$\chi^2=2.9$ $P=0.5$
14-ECT can also be given to older patients	11 (19.3)	97 (22.4)	11 (27.5)	$\chi^2=4.5$ $P=0.3$
15-If ECT fails in a patient, then no other treatment will succeed	21 (36.8)	130 (36.8)	13 (32.5)	$\chi^2=3.5$ $P=0.4$
16-ECT is a treatment of last resort	15 (26.3)	71 (20.1)	7 (17.5)	$\chi^2=2.06$ $P=0.7$
17-People should not be afraid of ECT	39 (68.4)	211 (59.8)	18 (45)	$\chi^2=5.58$ $P=0.2$
18-ECT is dangerous	22 (38.6)	143 (40.5)	8 (20)	$\chi^2=6.8$ $P=0.1$
19-ECT causes increase in the severity of mental and physical illness in the long run	28 (49.1)	155 (43.9)	19 (47.5)	$\chi^2=3.3$ $P=0.7$
20-ECT can cause total and irreversible insanity	33 (57.9)	167 (47.3)	16 (40)	$\chi^2=14.9$ $P=0.02$*
21-ECT is painful	15 (26.3)	61 (17.3)	9 (22.5)	$\chi^2=6.16$ $P=0.18$
22-ECT is an inhuman treatment	40 (70.2)	209 (59.2)	20 (50)	$\chi^2=8.09$ $P=0.08$
23-ECT is given as a punishment to violent/angry patients	32 (56.1)	181 (51.3)	22 (55)	$\chi^2=1.5$ $P=0.8$

ECT, electroconvulsive therapy.
*Statistically significant at $P<0.05$.

sources of information were from previous experiences of the participants' patients, nonprofessional individuals, or friends, followed by psychiatrists, mass media, and then nurses (Table 1). In our culture, the availability of source of information might be controlling this aspect. Shortage of educational program in media, movies, printed papers or books and illiteracy leaves a big gap in this aspect to be filled with other sources of information and ignorance. However, it appeared that healthcare professionals (psychiatrists, clinical psychologists, or mental health nurses) play little role in health education about ECT.

In terms of socioeconomic status (Table 3), it appeared that there were no statistical differences in either knowledge or attitudes of the participants within different socioeconomic classes. Jenaway [34] reported that there was no relation between social class and knowledge of ECT. However, correct knowledge and more or less positive attitudes were found among different classes, which might be related to previous experiences (58.5% of the participants) and not because of the effect of media or socioeconomic status. Previous experiences with ECT represented a good source of information and helped to develop positive attitudes toward ECT, followed by psychiatrists and health professionals [35].

In relation to psychiatric diagnoses, and caregivers' knowledge and attitudes about ECT, Greenberge and Kellner [36], hypothesized that caregivers of patients with major depression have more knowledge and positive attitudes than caregivers of patients with other psychiatric diagnoses. We did not find significant differences among them irrespective of the diagnoses of their patients (Table 5). Similarly, Tang *et al.* [27] found that

Table 4 Correct responses provided by patients' caregivers in terms of their knowledge and attitudes toward electroconvulsive therapy according to the source of information

	N (%)				
Statements	Physician (*N*=63)	Media (*N*=40)	Nurse (*N*=7)	Others (*N*=113)	Statistics
1-ECT should not be given more than once a week	32 (50.8)	7 (17.5)	4 (57.1)	35 (31)	χ^2=61.03 *P*=0.005*
2-There is no need for investigation before ECT	53 (84.1)	37 (85)	2 (28.6)	92 (81.4)	χ^2=52.48 *P*=0.005*
3-ECT should only be given to patients admitted in the ward	22 (34.9)	13 (32.5)	1 (14.3)	29 (25.7)	χ^2=57.499 *P*=0.005*
4-ECT cause fracture as a complication	13 (20.6)	15 (37.5)	0 (0)	42 (37.2)	χ^2=71.939 *P*=0.005*
5-Use of ECT leads to temporary impairment of memory	38 (60.3)	26 (65)	2 (28.6)	64 (56.6)	χ^2=47.4 *P*=0.005*
6-Use of ECT leads to permanent loss of memory	46 (73)	23 (57.5)	2 (28.6)	75 (66.4)	χ^2=52.563 *P*=0.005*
7-ECT improves the quality of life	45 (71.4)	25 (62.5)	6 (85.7)	80 (70.8)	χ^2=51.90 *P*=0.005*
8-Many people benefit from ECT	49 (77.8)	29 (72.5)	5 (71.5)	80 (70.8)	χ^2=34.7 P=0.005*
9-ECT helps patients	56 (88.9)	32 (80)	6 (58.7)	95 (84.11)	χ^2=56.2 P=0.005*
10-Pregnant women can receive ECT	9 (14.3)	8 (20)	0 (0)	8 (7.1)	χ^2=39.7 *P*=0.005*
11-ECT is given only to those patients who have little chance of improvement	25 (39.7)	15 (37.5)	1 (14.3)	40 (35.4)	χ^2=27.9 *P*=0.005*
12-Many times ECT proves to be life saving	55 (87.3)	35 (87.5)	2 (28.6)	102 (90.3)	χ^2=78.7 *P*=0.005*
13-Following discovery of new medicines, treatment with ECT should not be done	17 (27)	10 (25)	0 (0)	13 (11.5)	χ^2=54.15 *P*=0.005*
14-ECT can also be given to older patients	14 (22.2)	9 (22.5)	1 (14.3)	27 (23.9)	χ^2=35.6 *P*=0.005*
15-If ECT fails in a patient, then no other treatment will succeed	33 (25.4)	14 (42.4)	1 (14.3)	53 (46.9)	χ^2=32.5 *P*=0.005*
16-ECT is a treatment of last resort	15 (23.9)	13 (32.5)	1 (14.3)	18 (15.9)	χ^2=56.49 *P*=0.005*
17-People should not be afraid of ECT	52 (82.5)	31 (77.5)	3 (42.9)	87 (77)	χ^2=72.4 *P*=0.005*
18-ECT is dangerous	33 (52.4)	18 (45)	4 (57.1)	53 (46.9)	χ^2=78.7 *P*=0.005*
19-ECT causes increase in the severity of mental and physical illness in the long run	47 (74.6)	21 (52.5)	3 (42.9)	61 (54)	χ^2=78.9 *P*=0.005*
20-ECT can cause total and irreversible insanity	44 (69.8)	31 (77)	3 (42.9)	66 (58.4)	χ^2=67.8 *P*=0.005*
21-ECT is painful	16 (25.4)	6 (15)	0 (0)	21 (18.6)	χ^2=61.5 *P*=0.005*
22-ECT is an inhuman treatment	53 (84.1)	30 (75)	3 (42.9)	85 (75.2)	χ^2=66.2 *P*=0.005*
23-ECT is given as a punishment to violent/angry patients	38 (6.3)	21 (52.5)	5 (71.3)	72 (63.7)	χ^2=25.5 *P*=0.005*

ECT, electroconvulsive therapy.
*Statistically significant.

the level of satisfaction did not differ significantly with patient diagnoses.

The past experiences of patients who receive ECT as the mode of management have positive aspects in the relative's knowledge as a high percentage of them answered questions about ECT correctly as appeared in Table 6. The results reported by Virit *et al.* [9], are in agreement with the present results as they found that caregivers of patients who received ECT have positive attitudes toward ECT and its outcomes.

Individual items discussion

Attitudes toward electroconvulsive therapy

In the present study, although the participants had not received adequate amount of information about ECT, a high percentage had positive attitudes toward it, as it appeared in their response to each statement on the benefits of ECT, (ECT improves the quality of life, many patients benefit from ECT, ECT helps patients, many times ECT proves to be life saving, and patients should not be afraid of ECT), and also in their response to questions that represented negative attitudes (ECT causes an increase in the severity of mental and physical illness in the long run, ECT is an inhuman treatment, and ECT is administered as a punishment to violent/angry patients). This may attributed to their previous experience with ECT (Table 2).

Similar findings have been reported by others [21,23,27,37]; they found that the majority of patient and caregivers had positive attitudes toward ECT. Virit

Table 5 Correct responses provided by patients' caregivers in terms of their knowledge and attitudes toward electroconvulsive therapy according to the diagnosis of patients

Statements	*N* (%)			
	Depression (*N*=79)	BP mania (*N*=225)	Schizophrenia (*N*=107)	Others (*N*=39)
1-ECT should not be given more than once a week	26 (32.9)	60 (26.7)	27 (25.2)	12 (30.8)
2-There is no need for investigation before ECT	49 (62)	151 (67.1)	170 (72.9)	28 (71.8)
3-ECT should be given only to patients admitted in the ward	27 (34.2)	60 (26.7)	29 (27.1)	13 (33.3)
4-ECT cause fracture as a complication	32 (40.5)	61 (27.1)	39 (36.4)	10 (25.6)
5-Use of ECT leads to temporary impairment of memory	39 (49.4)	106 (47.1)	55 (51.4)	14 (35.9)
6-Use of ECT leads to permanent loss of memory	35 (44.3)	114 (50.7)	54 (50.5)	20 (51.3)
7-ECT improves the quality of life	40 (50.5)	136 (60.4)	44 (41.1)	22 (56.4)
8-Many people benefit from ECT	48 (60.8)	142 (63.1)	57 (53.3)	22 (56.4)
9-ECT helps patients	55 (69.9)	162 (72)	69 (64.5)	29 (74.4)
10-Pregnant women can receive ECT	6 (7.6)	19 (8.4)	4 (3.7)	3 (7.7)
11-ECT is given only to those patients who have little chance of improvement	29 (36.7)	64 (28.4)	32 (29.9)	8 (20.5)
12-Many times ECT proves to be life saving	49 (62)	172 (76.4)	71 (66.4)	30 (67.9)
13-Following discovery of new medicines, treatment with ECT should not be done	12 (15.2)	33 (14.7)	18 (16.8)	6 (15.4)
14-ECT can also be given to older patients	20 (25.3)	55 (24.4)	15 (14)	11 (28.2)
15-If ECT fails in a patient, then no other treatment will succeed	32 (40.5)	75 (33.3)	38 (35.5)	19 (48.7)
16-ECT is a treatment of last resort	24 (30.4)	34 (15.1)	22 (20.6)	13 (33.3)
17-People should not be afraid of ECT	43 (54.4)	146 (64.9)	55 (51.4)	24 (61.5)
18-ECT is dangerous	26 (32.9)	93 (41.3)	42 (39.3)	12 (30.8)
19-ECT causes increase in the severity of mental and physical illness in the long run	28 (35.4)	106 (47.1)	49 (45.8)	19 (48.7)
20-ECT can cause total and irreversible insanity	26 (32.9)	116 (51.6)	56 (52.3)	18 (46.2)
21-ECT is painful	11 (13.9)	46 (20.4)	22 (20.6)	6 (15.4)
22-ECT is an inhuman treatment	45 (57)	139 (61.8)	61 (57)	24 (61.5)
23-ECT is given as a punishment to violent/angry patients	41 (51.9)	117 (52)	54 (50.5)	23 (59)

BP, blood pressure; ECT, electroconvulsive therapy.

et al. [9] reported that more than 65% of the respondents among patients as well as caregivers gave correct responses such as ECT is life saving, many times it causes temporary but not permanent memory impairment, and that ECT is not a nonscientific treatment.

In contrast to these findings, Taieb *et al.* [18] reported that patients and their caregivers had many misconceptions as well as a negative attitude toward the use of ECT. This also extended to medical students; Clothier *et al.* [31] explored the attitudes toward ECT of second-year medical students in the USA. Their attitudes were found to be generally negative; 40% believed that psychiatrists misused ECT, whereas 31% actually believed that ECT was used to punish uncooperative or violent patients. Bustin *et al.* [10] reported that patient's attitudes toward ECT were generally negative.

Preparation for and electroconvulsive therapy schedule

Only 27.8% of the participants in the current study could identify that ECT is administered more than once a week, which is slightly similar to that reported by Chavan *et al.* [11], who found that about 35% of the participants agreed that ECT could be administered more than once a week. Also, 68% of the patients were aware of the need for investigations before ECT. A higher percentage (91.6%) was found to be aware that certain investigations are mandatory before ECT. Kerr *et al.* [33] found evidence of many widely held misbeliefs about ECT, the most prevalent of which included that ECT is painful, patients fear conscious shocks, memory may be permanently wiped out, ECT is a barbaric inhuman treatment, and patients are never told what is happening.

Electroconvulsive therapy and memory impairment

In the current study, 47.6% of the caregivers agreed that ECT leads to temporal memory loss and 49.6% disagreed that ECT leads to permanent memory loss; this high percent indicated that participants had knowledge of the effects of ECT on memory, either temporary or permanent. Knowledge of the effect of ECT on memory has been reported by others; Chavan *et al.* [11] reported that a higher percentage of individuals have this information, 63.9% of the caregivers agreed that ECT leads to temporary memory loss, and 92.8% of them disagreed that ECT leads to permanent memory loss and the use of ECT leads to permanent loss of memory. Tang *et al.* [27] reported that 56.3% of the participants disagreed that ECT leads to permanent memory loss. According to Virit *et al.* [9], 74.3% of caregivers disagreed that ECT leads to permanent memory impairment.

In addition, Rush *et al.* [38] reported that 94% of the respondents agreed that memory may be affected by ECT [34]. Also, Virit *et al.* [9] found that about 27.1% of the caregivers agreed that ECT leads to memory impairment, and Freeman and Kendell [23] reported that 74% of their participants agreed that ECT causes memory impairment.

Benefit of electroconvulsive therapy

In the current study, more than half of the participants agreed that many patients benefit from ECT and 70% agreed that ECT helps patients. This finding was in agreement with Virit *et al.* [9], who found that 71.1% of

Table 6 Correct responses provided by patients' caregivers in terms of their knowledge and attitudes toward ECT according to a history of ECT

	N (%)		
Statements	Group I (*N*=263)	Group II (*N*=187)	Significance
1-ECT should not be given more than once a week	83 (31.6)	42 (22.5)	$\chi^2=10.72$ *P*=0.005
2-There is no need for investigation before ECT	196 (74.5)	110 (48.8)	$\chi^2=12.8$ *P*=0.002
3-ECT should be given only to patients admitted in the ward	77 (29.3)	52 (27.8)	$\chi^2=16.20$ *P*=0.005
4-ECT cause fracture as a complication	90 (34.2)	52 (27.8)	$\chi^2=10.9$ *P*=0.004
5-Use of ECT leads to temporary impairment of memory	145 (55.1)	69 (36)	$\chi^2=17.12$ *P*=0.005
6-Use of ECT leads to permanent loss of memory	150 (57)	73 (39)	$\chi^2=14.72$ *P*=0.001
7-ECT improves the quality of life	161 (61.2)	81 (43.3)	$\chi^2=15.11$ *P*=0.001
8-Many people benefit from ECT	170 (64.6)	99 (52.9)	$\chi^2=8.14$ *P*=0.01
9-ECT helps patients	202 (76.8)	113 (60.4)	$\chi^2=14.49$ *P*=0.001
10-Pregnant women can receive ECT	18 (6.8)	14 (7.5)	$\chi^2=9.11$ *P*=0.01
11-ECT is only given to those patients who have little chance of improvement	87 (33.1)	46 (24.6)	$\chi^2=4.91$ *P*=0.08
12-Many times ECT proves to be life saving	203 (77.2)	119 (63.3)	$\chi^2=11.6$ *P*=0.003
13-Following discovery of new medicines, treatment with ECT should not be done	45 (17.1)	24 (12.8)	$\chi^2=6.80$ *P*=0.03
14-ECT can also be given to older patients	66 (25.1)	35 (18.7)	$\chi^2=6.36$ *P*=0.04
15-If ECT fails in a patient, then no other treatment will succeed	96 (36.5)	68 (36.4)	$\chi^2=0.18$ *P*=0.91
16-ECT is a treatment of last resort	58 (22.1)	35 (18.7)	$\chi^2=7.77$ *P*=0.02
17-People should not be afraid of ECT	174 (66.2)	94 (50.3)	$\chi^2=11.6$ *P*=0.0003
18-ECT is dangerous	108 (41.1)	65 (34.8)	$\chi^2=9.99$ *P*=0.007
19-ECT causes increase in the severity of mental and physical illness in the long run	127 (48.3)	75 (40.1)	$\chi^2=9.53$ *P*=0.02
20-ECT can cause total and irreversible insanity	137 (52.1)	79 (42.2)	$\chi^2=8.67$ *P*=0.03
21-ECT is painful	58 (22.1)	27 (14.4)	$\chi^2=10.29$ *P*=0.006
22-ECT is an inhuman treatment	176 (66.9)	93 (49.7)	$\chi^2=13.5$ *P*=0.0001
23-ECT is given as a punishment to violent/angry patients	125 (55.1)	90 (48.1)	$\chi^2=2.16$ *P*=0.43

Group I (their patients had received ECT previously).
Group II (their patients had not received ECT previously).
ECT, electroconvulsive therapy.

caregivers agreed that ECT is beneficial. Also, several studies have supported these findings [20,21,23,26,27,39].

In the current study, only 7.2% of participants had positive attitudes on ECT and pregnancy. Similarly, Chavan *et al.* [11] reported that the majority of the participants did not consider ECT to be safe in pregnancy. This could be attributed to the belief that miscarriage may occur if a pregnant woman receives ECT.

In the current study, only 29.6% of the participants had positive attitudes toward administration of ECT only to those patients who have little chance of improvement, which is similar to that found by other authors [11], in that this major misconception was shared by about 70% of the caregivers and 30.1% of them disagreed. This huge difference in this misconception among our participants was because they were uncertain about this question.

In the current study, more than half of the participants agreed that many times, ECT proves to be life-saving. Similarly, Chavan *et al.* [11] found that more than 85% of the participants believed that ECT may be beneficial under certain circumstances.

The results of the current study are in agreement with the results of Chavan *et al.* [11] that following the discovery of new medicines, treatment with ECT should not be administered [11]. This attitude might have been because many individuals believe in drug treatment for psychiatric disorders rather than ECT.

Electroconvulsive therapy and elderly

In the current study, only 22.4% agreed that ECT can be administered to elderly patients. The agreement about the possibility of administration of ECT in elderly

patients in the other studies was found to be low. Gazdag *et al*. [40] reported that 52% of the participants agreed that ECT should not be use in patients older than 65 years of age and Chavan *et al.* [11] reported that about 41% of caregivers disagreed that ECT can be administered to elderly patients.

Electroconvulsive therapy as a last resort

Also, in the present study, it was found that 36.9% of the participants disagreed that if ECT fails in a patient, no other treatment will succeed; in other words, more than one-third of the participants have a positive attitude toward ECT. Chavan *et al.*[11], in their study, found that a higher percent (66.3%) of caregivers had positive attitudes toward ECT as regard this aspect.

In terms of the attitude of that ECT is a treatment of last resort, only 20.6% of caregivers had a positive attitude and a high percentage had this misconception. This attitude appeared to be shared by other participants in similar studies. Virit *et al.* [9] reported that 42.9% of the relatives agreed that ECT is a treatment of last resort. A higher percentage (60.9%) was found by others; Tang and colleagues [27,40] reported that about 61% of students believed that ECT is a treatment of last resort. Arshad *et al.* [20] found that the most common popular belief about ECT was that it was a treatment of last resort (56%). Similarly, Gazdag *et al.* [41] reported that about 54% of Hungarian psychiatrists stated that ECT is a treatment of last resort.

Fear from electroconvulsive therapy

A number of articles have focused on fear of ECT as a major theme [23,24,42–44]. In the same respect, Rajkumar *et al.* [26] reported fears in terms of general anesthesia, the ECT procedure, possible brain damage and memory impairment, and the stigma related to ECT. Also, Chakrabarti *et al.* [45] found that fear of ECT was reported by a significant percentage of the participants (36% patients to 75% families) and distressing memory loss was major complaint of patient. In addition, Virit *et al.* [9] reported that 55.8% of relatives had a fear of ECT. In contrast, in the current study, 59.6% of the participants agreed that patients should not fear ECT. This might be because of their past experience with ECT as we found that 59.2% of the participants had experience with patients who had received ECT previously.

Electroconvulsive therapy safety

In the current study, 38.4% of the participants agreed that ECT is dangerous, which is slightly higher than reported by others, who found that 28.7% of the caregivers agreed that ECT is dangerous, and about 56.3% of the relatives support the safety of ECT [27]. Also, Gazdag *et al.* [41] found that more than one-third of the students believed that ECT is dangerous. In contrast, Virit *et al.* [9] reported that only 8.6% of the relatives agreed that ECT is dangerous, and 57.1% of them agreed that ECT is safe. Oldewening *et al.* [29] reported that 97% of the participants considered ECT as safe and effective.

In the current study, 44.8% of the participants disagreed that ECT leads to an increase in the severity of mental and physical illness. Arshad *et al.* [20] reported that 39% of the participants believed that ECT could lead to severe mental and physical illness.

In the present study, a higher percent of participants had positive attitudes as regard ECT sequence of causing total and irreversible insanity, this could be explained by 59.2% of the participants their patients previously received ECT and not experienced this negative attitude about ECT. However, Arshad *et al.* [20] found that 34% of the participants believed that ECT can cause total and irreversible insanity.

In the current study, 51.4% of the participants agreed that ECT is painful and only 18.8% disagreed, consistent with Gazdag *et al.* [41] who reported that 54% of the students believed that ECT is painful and only 18.8% disagreed. This indicates a negative attitude because patients become unconscious with the use of anesthesia during the ECT, which is painless irrespective of whether the procedure is modified or direct ECT is administered [41]. Also, Chavan *et al.* [11] reported that 37.4% of the relatives disagreed that ECT is painful.

Electroconvulsive therapy as punishment

In the current study, 59.8% of the participants disagreed that ECT is an inhuman treatment. This disagreement has been reported by many authors ranging from 37 to 75.9% [11,20,27].

Talbot [46] reported that ECT was believed to be as a form of punishment by psychiatric staff. This misconception might be because of the poor image projected by the mass media. In the current study, 52.2% of the participants disagreed that ECT is administered as a punishment, whereas only 10% of them agreed. In this respect, Virit *et al*. [9] reported that as high as 95.7% of the relatives disagreed that ECT is administered as a punishment. Again, Chavan *et al*. [11] found that 63.9% of the relatives disagreed that ECT is administered as a punishment. In contrast, Gazdag *et al*. [41] reported that a high proportion of the respondents (97.6%) believed that ECT is used to punish uncooperative patients.

Strength and limitation of the study

The nonstandardized questionnaire used is one of the limitations of the current study. Moreover, generalization of the results is not absolute because the diagnoses of the patients were nonhomogenous. However, the importance of the topic, the scarce research from upper Egypt, and the good sample size are major strengths of the study.

Recommendations

Healthcare providers (psychiatrists, psychiatric nurses, and clinical psychologists) should be oriented to defective knowledge and misbelieves about ECT that held by patients and their caregivers. They should spend more time with their patients to provide them this information in a simple and informative way.

Acknowledgements

Conflicts of interest

There are no conflicts of interest.

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الملخص العربى
تقييم معلومات واتجاهات أقارب المرضي النفسيين عن العلاج باستخدام الصدمات الكهربائية

توجد دراسات قليلة في مصر لتقييم معلومات واتجاهات أقارب المرضى في العلاج بالجلسات الكهربائية وكان هدف الدراسة تقييم معلومات واتجاهات أقارب المرضى النفسيين عن العلاج باستخدام الصدمات الكهربائية.العينة وطريقة البحث, شملت عينة البحث 450 من أقارب المرضى النفسيين من الجنسين . وتم تقييمهم بواسطة مقياس معلومات واتجاهات أقارب المرضي النفسيين عن العلاج باستخدام الصدمات الكهربائية. النتائج , توصلت الدراسة الى النتائج الآتية , 50.4% من العينة لم تحصل على معلومات عن العلاج باستخدام الصدمات الكهربائية ,وكانت نسبة كبيرة من المشاركين فى البحث لديها معلومة صحيحة و اتجاه ايجابي وقد كانت الخبرات السابقة لمرضاهم في العلاج بالصدمات الكهربائية ذات دلالة إحصائية في هذه المعلومات والاتجاهات الايجابية .الخاتمة والتوصية : بالرغم من النقص الواضح للمعلومات إلا أن أقارب المرضى لديهم معلومات صحيحة وخبرات إيجابية عن العلاج بالصدمات الكهربائية .وتوصى الدراسة إلى أن على القائمين بالرعاية النفسية للمرضى قضاء وقت كافي لاعطاء المعلومات الكافية للمرضى وأقاربهم عن العلاج بالصدمات الكهربائية .