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Knowledge and attitude of electroconvulsive therapy among health sciences students

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Abstract

Objective: The use of Electroconvulsive Therapy (ECT) remains one of the best methods listed under the active treatment portfolio for many mental health disorders, including, but not limited to, depression and catatonic psychosis. However, it receives less acceptance among practitioners despite being approved as a safe and effective treatment method for major mental health disorders. While there may be many factors that reduce its wide use, one of the factors relates to the knowledge and attitude of people towards this therapy. Since health professionals receive more exposure to such treatments, this study attempts to assess the knowledge and attitude regarding (ECT) Therapy among potential health professionals, and senior Health Sciences Students enrolled at a college in the UAE.

Methods: Knowledge and attitudes concerning Electroconvulsive Therapy were assessed using the Attitudes toward (ECT) Therapy questionnaire. The survey was completed by (n=235) senior Health Sciences students at the College of Health Sciences based in Abu Dhabi, UAE.

The sample included currently enrolled nursing Radiography & Medical Imaging (RMI) department students.

Results: Nursing students expressed more Knowledge about Electroconvulsive Therapy than the RMI students. Student exposure to ECT therapy improves their knowledge and attitudes toward it.

Conclusion: Orientation of nursing students as part of their curriculum to the ECT procedure significantly alters their negative attitude toward the ECT. This is justified in the high result of nursing compared to the RMI students.

Keywords: Knowledge, attitude, electroconvulsive therapy, health sciences students, mental health

Introduction

Building trust and establishing reliable alliances in psychiatric care are paramount to patient recovery. Denhov and Topor (2012) ^[39] note that most studies focus on exploring the effectiveness of specific psychotherapy on a particular medical condition. Even though the effects of relationships are studied, the focus is mainly on client-therapist relationships. This certainly is a significant aspect of psychotherapy. Still, suppose a patient can recover successfully. In that case, We believe nurses play an important role in motivating patients and their caretakers to make informed decisions, especially in psychiatric care (Dahlberg & Segesten 2010) ^[36]. Even though there are many factors, these professionals' knowledge and attitude towards a treatment method is significant mainly because most prospective clients do not seek psychiatric treatment by their choice (Pereira *et al.*, 2006) ^[37]. With a lot of stigma around mental health and psychiatric treatment methods, a large amount of apprehensive perception among patients is because of its distressful portrayal in the media (McDonald and Walter, 2009) ^[15]. With proper training and education, nurses can improve their professional attitude and educational skillsets and build interpersonal alliances that can support potential clients to undergo prescribed treatment methods (McCormack & McCance 2006) ^[40]. And also, we believe the attitude and knowledge of nurses strongly influence the quality of care provided to our clients. This paper focuses mainly on the knowledge and attitude towards Electroconvulsive therapy (ECT) because of public and (sometimes) professional perception that this therapy is invasive and causes brain damage. This attitude causes resistance to providing informed consent, considering they must undertake such an invasive treatment. This is due to the irrational messages that continue to be featured on television, radio talk shows, social media, and newspaper articles.

Activist antipsychiatry groups frequently launch protests and disrupt scientific proceedings to advocate against biological psychiatric treatments (Fogg-Waberski, J. & Waberski, W., 2000) [7].

With more standard training and benchmark practices in educational institutions (such as medical and nursing schools), potential health professionals can be educated about societal misconceptions. Accrual of appropriate education and training in the delivery of ECT can eradicate irrational fears about ECT. Emphasising the importance of educating patients, bystanders and professionals can create a positive attitude toward using ECT in appropriate clinical settings. While we reiterate that mental health is associated with a lot of stigma, communities often have a negative perception towards its treatment methods, mainly because the community does not make enough effort to understand the importance of mental health or realise the consequences of not having one.

Electroconvulsive Therapy (ECT), also known as shock therapy, is considered a noninvasive, safe method used to treat severe mental health disorders and assists in rapidly addressing life-threatening conditions Higgins and George (2019) [31]. Even though this therapy remains in the active treatment portfolio of modern therapeutics, it is still debated among health professionals (Sadock & Sadock, 2011) [32]. This therapy is administered under general anaesthesia, where a brief and controlled electric stimulus is applied to the brain via electrodes at the temples, producing a grand mal seizure (Fortinash & Holoday Worret, 2003) [6]. ECT is one of the treatment methods used to cure severe mental health disorders and has proved advantageous for patients affected by major depression and mostly in cases where other forms of therapy, such as medication or psychotherapy, have been least effective or have exhibited most minor tolerance levels such as in life-threatening cases. Lin *et al.*, (2020) [16]. Grover, *et al.*, (2020) [17] found that there are long-term benefits when a patient is administered clozapine and ECT in treating refractory schizophrenia. Research has emphasised that these therapeutic procedures are safe and effective, especially in cases of catatonic patients with schizophrenia and in depressive patients with bipolar disorder (Dabrowski & Parnowski, 2012) [19]. Kellner, Obbels, & Sienaert (2020) [23] states that despite the advancements in stimulation techniques and advanced medications, none of these methods is equal to the improvements resulting from ECT. However, determining the actual time to administer this therapy and proper education that can reduce the stigma surrounding ECT can help promote its wider use and administration.

While most of the research is in a western context, one thing noted was that these research findings and endorsements related to the wide use of ECT differ from region to region. While some parts are banned entirely, some use ECT with or without medications. Globally, there are many stigmas associated with this therapy, and very little research has been conducted to prove its efficacy. These perceptions and stigmatised views can be reduced by educating the potential participants, their bystanders, training medical practitioners medical students, using advanced machines, following standardised procedures, and creating awareness of these methods and reducing the fear surrounding the consequences/ side effects arising from this therapy. (Leiknes, Lindy, & Høie, 2012) [22]. While consent is taken prior to administering these, patients of their bystanders are

often not properly educated about these methods or the science behind these treatment methods (Rafoul, 2020) [28]. The extant literature assesses the level of knowledge and attitude among healthcare students, such as medical and nursing students. Walter *et al.* (2002) [5, 12], in their experimental study on medical students before clinical placement in the United Kingdom and Australia, found that the level of knowledge among students was very poor regarding side effects, administration and indications of negative attitudes to ECT. James *et al.* (2009) [9] reported that although exposure to ECT interventions during the clinical rotation of students is essential, it did not change their knowledge and attitude towards ECT procedures significantly. Tang *et al.* (2002) [14] conducted a prospective cross-sectional study among patients and their relatives regarding knowledge, attitudes, and satisfaction with ECT treatment in Hong Kong. Their study showed that most patients believed they had not received adequate information about ECT and had limited knowledge of the procedure.

Roy-Byrne *et al.* (1991) [4] conducted a study to correlate patient and family perspectives of electroconvulsive therapy with outcomes in Los Angeles. They surveyed twenty-five patients about to undergo electroconvulsive therapy (ECT) and one relative of each patient regarding their attitudes, knowledge, and opinions towards ECT; and then resurveyed them after a course of treatment. The patients were rated on the Hamilton Depression Rating Scale or Young Mania Rating Scale, based on their diagnosis, before and after ECT. Patients and family members who had very positive attitudes toward ECT both before and after the treatment and after the course felt strongly that ECT was beneficial. Their baseline depression severity recorded a high correlation to positive post-ECT attitudes.

This study aims to assess the knowledge and attitude towards ECT among currently enrolled senior Health Science students in the UAE.

Methods

A researcher's worldview and assumptions about a topic determine their methodological approach to any issue. This will underpin the researcher's methodological choices, research strategy, data collection techniques and analysis procedures (Scotland, 2012) [38].

Since the researcher's aim and objectives in this study are to test the hypothesis and objectives by investigating the relationship between knowledge and attitudes (the independent variable) and their effect on Health Sciences students (the dependent variable), a positivist approach is the most suitable in order to answer the research questions. A quantitative, non-experimental, cross-sectional study. The cross-sectional design is one of the observational designs aiming to determine exposure and outcomes at one point since there is no control group in the study (Bryman, 2016) [1].

Participants

The Fatima college of health sciences (FCHS) Research Ethics Committee approved the study. The target participant for the study was approached using web-based questionnaires. A convenient sampling method was used to include senior students (who have completed their theory part and have started the clinical phase in their program) currently enrolled in all the health science programs

(General Nursing, Radiography & Medical Imaging) offered at Fatima College of Health Sciences.

Questionnaire

The online questionnaire was distributed through the learning management portal of the college. We used the questionnaire developed by Teh, S. P. C., Helmes, E., & Drake, D. G. (2007) [30]. This questionnaire contains 11 statements that examine the Knowledge about ECT, its administration and other fundamental questions that assist in understanding the respondent's attitude towards ECT. The questionnaire also includes a set of vignettes where the respondents can judge what they feel is appropriate in each situation. There are choices for each of the 19 statements, and correct answers would receive a point. Some had one correct answer amongst alternatives, while a dummy variable was included for questions with more than one correct answer. The vignettes are hypothetical and would help understand the respondent's attitudes, where they can choose to agree or not and are encouraged to explain their responses. The questionnaire is attached as an appendix to this paper. The questionnaire is titled the Knowledge and Attitudes toward Electroconvulsive Therapy (ECT) questionnaire. While adapting the questionnaire, the only difference was that the names in the vignettes Billa, Harry and Mary were replaced with Ali, Hassan and Mariyam in order to match the regional context.

Data analysis

The Statistical Package analysed data for Social Sciences (SPSS) version 25, 2018. The demographic data were analysed using descriptive statistics (frequency and percentages), and a Chi-square of independence test was conducted to find the association between the level of knowledge and selected demographic variables to assess the association between knowledge and attitude toward ECT among Health Science students.

Results

Demographic Characteristics

The demographic characteristics included the student's gender, age, and main field of study. Two hundred and thirty-five (n=235) Health Sciences students completed the questionnaire. Only female students responded to the survey. Most of the students who responded (124:52.8%) to the survey were in the age group 18-20. The majority of respondents were students from the general nursing program (134: 57.1%), and only 42.9% of students were from the radiography and medical imaging course. These are summarised in table 1 below.

Table 1: Demographics and field of study. N=235

Variables	Category	Frequency (%)
Gender	Female	235 (100)
	Males	0
Age	18-20	124(52.8)
	21-23	78(33.1)
	24-26	33(14.1)
Field of Study	Nursing	134 (57.1)
	Radiography & Medical Imaging (RMI)	101 (42.9)

Knowledge

The main objective of this study was to analyse the level of Knowledge about ECT among Health Sciences students. For this, the students had to answer appropriately for the statements related to 'ECT Knowledge'. The responses for each question were multiple choices, among which one would be a correct answer.

The responses were grouped into two categories (correct vs incorrect). These responses for each statement are summarised in table 2 below.

Table 2: Frequencies of Correct and Incorrect Answers to ECT Knowledge Items

No.	Item	Correct N (%)	Incorrect N (%)
1	What does ECT involve?	135 (57.4)	100 (42.6)
2	On which part of the human body is ECT administered?	180(76.6%)	55 (23.4%)
3	What is the main purpose of ECT?	51(21.7)	184 (78.3)
4	What are the conditions for which ECT is usually recommended as a treatment?	145 (62.0)	90 (38.0)
5	What factors help a psychiatrist decide if ECT is a suitable treatment?	102 (43.4)	133 (56.6)
6	In what age groups is ECT administered?	170 (72.0)	65 (28.0)
7	How is the patient during ECT?	76 (32.3)	159 (67.7)
8	Who administers ECT?	100 (42.6)	135 (57.4)
9	What is the possible side effect of ECT?	140 (59.6)	95 (40.4)
10	What type of relief does ECT provide?	98 (41.7)	137 (58.3)
11	Where is ECT usually conducted?	138 (58.7)	97 (41.3)
	Overall knowledge score	120 (51.0)	115 (49.0)

More than half of the sample (135:57.4%) correctly answered that ECT involves an electrical current, 76 % of the respondents (180) knew that ECT was administered to the head, while only a few of them (51 (21.7%)) knew that the main purpose of ECT is to induce a fit. Also, surprisingly 145 (62. %) students correctly answered that ECT is usually recommended for patients suffering from low or depressed moods, who exhibited weird or eccentric personalities, or for patients who had experienced nervous breakdowns or severe delusions.

Of the total respondents, 102 (43.4%) students also correctly identified that ECT is a suitable treatment in cases where medications are not responsive and during life-threatening

situations that include persistent suicidal ideation or when they decide to halt eating and/or drinking completely.

Most of them (170; 72%) choose to answer that ECT can be applied to any age group. This is the right choice. However, only very few (76: 32.3%) knew that the patient would be asleep and not aware of this procedure. In addition, it was a surprise to see that less than half of the sample knew that medical doctors, anaesthetists, and occupational therapists were the only authorised people to administer an ECT. Regarding possible side effects of the ECT procedure, a total of 140 (59.6%) students correctly stated that ECT could cause neurological and G.I. symptoms. In comparison, only 98 (41.7%) mentioned that ECT could provide

temporary relief. More than half of the sample knew that a hospital/ day clinic was the only place where ECT could be administered.

In general, the overall knowledge score revealed that only 51% of the sample clearly understood this therapeutic procedure. This indicates that there is a lack of adequate knowledge among these students regarding this procedure.

Knowledge about ECT across demographic data

Age category and Knowledge about ECT

The study's second objective was to understand the level of knowledge based on the demographic data collected for the study. The table below summarises the results from the Chi-square test to compare the knowledge items to each age group criteria.

Table 3: Chi-square results for responses on Knowledge Items Across Age Groups N=235

Item	Age Groups				X ²	P value
	Answers	18-20	21-23	24- 26		
What does ECT involve?	Correct	95	32	8	42.121	0.000
	Incorrect	29	46	25		
On which part of the human body is ECT administered?	Correct	109	58	13	34.538	0.000
	Incorrect	15	20	20		
What is the main purpose of ECT?	Correct	34	5	12	17.294	0.000
	Incorrect	90	73	21		
What are the conditions for, which ECT is usually recommended as a treatment?	Correct	55	69	21	39.479	0.000
	Incorrect	69	9	12		
What factors helps a psychiatrist decide if ECT is a suitable treatment?	Correct	18	68	16	103.319	0.000
	Incorrect	106	10	17		
On what age groups is ECT administered?	Correct	78	66	26	12.079	0.002
	Incorrect	46	12	7		
How is the patient during ECT?	Correct	16	45	15	46.914	0.000
	Incorrect	108	33	18		
Who administers ECT?	Correct	28	62	10	65.786	0.000
	Incorrect	96	16	23		
What are the possible side effect of ECT?	Correct	56	70	14	44.205	0.000
	Incorrect	68	8	19		
What type of relief does ECT provide?	Correct	34	39	25	28.357	0.000
	Incorrect	90	39	8		
Where is ECT usually conducted?	Correct	86	30	22	19.852	0.000
	Incorrect	38	48	11		

Statistically significant differences were noted when responses to ECT knowledge items were compared between age groups. A large proportion of the respondents from the age group (18-20) answered only a few questions correctly, such as 95 of them understanding that ECT involves passing an electrical current, and 109 responded that ECT is administered on the head. The majority of wrong answers (106) were for choosing to fit as the main reason for using ECT, while 108 of this age group were not able to understand how the patient was during the procedure.

The majority of the respondents from the age group 21-23 had a correct understanding of the side effects of this procedure (70), knew the conditions under which ECT is usually recommended (69) and 68 respondents correctly identified the factors that help a psychiatrist to decide if ECT is a suitable treatment. But sadly, they have no clue about the actual purpose of administering this therapy as only 5 respondents correctly answered this question.

The third age group (24-26) understands that ECT can be administered to every age group. 26 correct responses have been received for this item and is only item that has received the highest number of correct answers in this age category. They understand that this procedure can only be administered in a medical setting as 22 correct responses have been received for this item. But unfortunately, this group does not understand what this therapy involves as only 8 correct responses have been received for this item.

Field of study and Knowledge of ECT

The third objective of this study is to estimate if the field of study has any effect on the level of Knowledge about ECT. The table below summarises the results from the Chi-square test to compare the knowledge items to each field of study- General Nursing Radiography & Medical Imaging.

Table 4: Chi-square results for responses on knowledge items across field of study N=235.

Item	Main field of study			X ²	P value
	Answers	Nursing	RMI		
What does ECT involve?	Correct	95	40	23.068	0.000
	Incorrect	39	61		
On which part of the human body is ECT administered?	Correct	111	69	6.772	0.009
	Incorrect	23	32		
What is the main purpose of ECT?	Correct	39	12	10.054	0.002
	Incorrect	95	89		
What are the conditions for, which ECT is usually recommended as a treatment?	Correct	77	68	2.371	0.124
	Incorrect	57	33		
What factors helps a psychiatrist decide if ECT is a suitable treatment?	Correct	53	49	1.883	0.170

	Incorrect	81	52		
On what age groups is ECT administered?	Correct	107	27	8.789	0.003
	Incorrect	63	38		
How is the patient during ECT?	Correct	55	21	10.796	0.001
	Incorrect	79	80		
Who administers ECT?	Correct	78	22	31.261	0.000
	Incorrect	56	79		
What are the possible side effect of ECT?	Correct	74	66	2.450	0.117
	Incorrect	60	35		
What type of relief does ECT provide?	Correct	76	22	28.910	0.000
	Incorrect	58	79		
Where is ECT usually conducted?	Correct	96	42	21.466	0.000
	Incorrect	38	59		

There are significant differences in the scores obtained between the students from the nursing and the RMI field of study.

The students who are from the nursing cohort have responded more correct answers than the latter group. The number of responses is detailed in table 4. However, 23 respondents have incorrectly answered the item for the part of the body that where ECT is administered. It is quite surprising to know that despite being health professionals, specifically from the nursing students, they are not aware of this basic information.

Attitude

The fourth objective of this study is to understand the attitude of Health Sciences students towards ECT. For this, the questionnaire has a section displaying four vignette questions (hypothetical situations), that provides the respondents with four responses each. The responses to these questions were tabulated separately and are summarised in the table 5 below. These results show that the majority of the students indicated a positive attitude (support) towards using ECT for in all four vignette questions.

Table 5: Frequencies of Each Attitude in Each Vignette Question

Number of Responses (%)				
Vignette	Strongly Oppose 1	Oppose 2	Support 3	Strongly Support 4
ECT on self	40 (17)	72 (30.6)	104 (44.3)	19 (8.1)
ECT on Ali with contextual problems	31 (13.2)	56 (23.8)	113 (48.1)	35 (14.9)
ECT on Hassan	29 (12.3)	93 (39.6)	98 (41.7)	15 (6.4)
ECT on Mariam who was treated without consent	36 (15.3)	54 (23)	99 (42.1)	46 (19.6)

Knowledge and Attitude

The fifth main objective was to evaluate the association between knowledge and attitude towards ECT. The attitude items were added to reach a total score based on a percentile cut-off point; students were considered as having a negative attitude if their score fell below or equaled the 50th percentile (10). Students were considered as having a positive attitude if their scores were above the 50th percentile (10). A Chi-square test found that there was a statistical association between knowledge and attitude towards ECT. The proportion of students exhibiting an adequate knowledge of ECT was statistically significant when associated with a positive attitude toward this procedure. $X^2(1) = 23.741, p < 0.001$. This implies that there is a positive relationship between attitude and knowledge. The more the people have more Knowledge about ECT, the attitude is more favorable.

Summary of Results

The female age group, 18-20 years old, and studying nursing science formed the vast majority of the study sample. This cohort had responded correctly to major number of statements about ECT. While comparing the level of ECT knowledge among the students from general nursing and RMI, the general nursing students performed better. Nursing students exhibited more Knowledge of ECT. The proportional differences in the number of correct answers when compared to the vignette questions indicates that the more the number of correct answers, the attitude remains positive.

Discussion

This study examined the knowledge and attitudes of Health Sciences students towards ECT. The results of the study demonstrate that half of the respondents (51%) have answered the items correctly. However, at the same time it is worth noting that there is a significant proportion of students (49%) who have not been able to provide correct answers. This indicates that there is a lack of knowledge among these potential health professionals. In spite of being exposed to these topics in their curriculum, it is actually alarming to note the proportion of students who have answered questions incorrectly. This difference can be resolved by imparting more clinical exposure to ECT procedures, repeatedly using the educational materials to train and focus on the theory and practice of this therapy. Improvements in educational measures have certainly improved Knowledge about ECT (AlHadi, *et al.*, 2017) [24] (Netshilema, 2019) [25] (Solomon, *et al.* 2016) [27].

It was interesting to note that among age groups, the youngest age groups had more Knowledge about ECT. This may be due to the enthusiasm to learn and understand about this therapy and also maybe because they have just completed their exposure to clinicals that the information about this therapy is still fresh in their memory. These younger cohort seems to be less exposed to the negative influences propagated by the media and hence are more favorable towards use of this treatment method.

The students from the nursing course had performed better compared to the students from other health sciences courses. This is because they are better exposed to these topics both

in terms of treatment and trained in preparing patients and their clinical exposure include topics like mental health treatment and hence these results are not a surprising reveal. This can also be due to the fact that the nursing students encounter more cases than the other cohort and routinely encounter experiences in their study. They have more chance to practice this treatment, and hence this has certainly influenced their level of knowledge.

The pedagogical elements of nursing course include a lot of information about the theory behind ECT, the detailed procedure in relation to preparation and taking care of potential patients who are to undergo ECT. While the radiological courses also emphasize this information, it is mainly done in a context of monitoring their vitals, say for instance effect of these electric waves in brain imaging, or looking at the electromagnetic effects these electric waves cause in the body. While these are both complex in nature, the two professionals look at different perspectives of this therapy. And this can be one of the reasons accounted for the fact that nursing students have better knowledge compared to students from the RMI.

Conclusion

The research concludes that nursing students have better knowledge and attitude than students from other Health Science cohorts. There is certainly a correlation between knowledge and attitude.

Limitations and Recommendation

The sample includes only female nursing and RMI students' participants from only one health sciences college. It would have been better if the data collection included samples from both gender students, other program cohorts and other health colleges. There were very few studies conducted in this area limiting the amount of research literature in this topic of study. These can be the limitations of the study.

Declarations

Ethics approval and consent to participate: Ethical approval for the study was obtained from the College Institutional Review Board (INTSTF020BSN20 10/15/2020) and the College Research Committee. All the procedures in this study that involved human participants were carried out in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. All methods were carried out in accordance with relevant guidelines and regulations.

Consent for publication: Informed consent was obtained from all individual participants included in the study.

Availability of data and materials: The data available in form of audiotape and transcripts. All data generated or analysed during this study are included in this article. All the data are saved in a secured computer. The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

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