

Does pop-culture affect perception of medical procedures? Report on knowledge and attitude towards electroconvulsive therapy among Polish students

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Summary

Aim. The aim of the study was to investigate the general knowledge and attitudes towards ECT among Polish students, including students of medical faculties. Furthermore, the influence of pop-culture on society's opinion about ECT was investigated.

Methods. For this purpose, 1,370 students have been examined with the usage of the author's questionnaire, which consisted of questions about socio-demographic data, detailed questions about ECT as well as questions about their opinion about influence of pop-culture on the reception of this procedure. The respondents were divided into four subgroups depending on the faculty of their studies: human sciences, technical, medical and health sciences.

Results. The results show that the knowledge about ECT among Polish students is on a very low level, as in many cases the therapy is considered as painful, ineffective or even illegal.

Conclusions. The influence of the media, especially film industry, on creating a negative opinion on the subject of ECT is significant. Furthermore, many respondents obtain their knowledge about this procedure from television or from the Internet, where the information is often incorrect

Key words: electroconvulsive therapy, stigmatization, Polish students

Introduction

Electroconvulsive therapy (ECT) was widely used in the previous century, however, the dynamic development of science and pharmacology as well as negative social attitude towards it resulted in decreasing number of indications in which ECT can be used, especially as the first-line treatment. Although nowadays it is not as widely utilized, this method is still used in medicine, since it is an effective and safe

form of treatment for many psychiatric illnesses such as severe depression, mania and catatonia. [1–3]. Many studies have shown that in some cases ECT is more effective than pharmacotherapy, e.g., in the treatment of severe depression [4, 5]. In addition, ECT does not cause permanent organic brain damage, as demonstrated in the studies [6]. The risk of death of a patient undergoing ECT is comparable to the risk of death during anesthesia for minor surgical procedures [7]. Despite many scientific evidences confirming the benefits of this therapy, its social reception is negative. One of the reasons for this is that there are many myths associated with the ECT, such as the beliefs that it can cause deterioration of mental and psychical illness in the long run, total and irreversible insanity, or that it is a form of torture [8]. Furthermore the image of this procedure is undoubtedly influenced by pop-culture, for instance, by films like *One Flew Over the Cuckoo's Nest*, *Requiem for a Dream*, *Girl, Interrupted* or *A Beautiful Mind*. All of those movies portray not only ECT, but also psychiatry as a whole, in an extremely negative way, deriving from cultural motif of repressive psychiatry popular in the second half of the 20th century. All of these films have won prestigious awards like Academy Awards or Golden Globes, which resulted in their wide-ranging screening around the world, thus enormous impact on society's perception on ECT. The aim of this work was to examine knowledge and attitude toward ECT among Polish students.

Materials and methods

The analysis was conducted on the group of 1,370 students, including 1,001 women and 369 men, with the usage of an online survey, which consisted of 20 questions. The target group were students of Polish universities only, aged 19–26. The survey was published on Facebook in various student groups in order to gather the data from as many universities across the country as possible. The authors encouraged potential respondents to take part in the study via those Facebook pages only. The questionnaire was divided into three parts. The first one gathered data about students' age, sex, faculty of the studies, name of the university and year of the studies, as well as the size of the city of residence (number of inhabitants). There was one additional question for students of medical faculties about whether they have already finished their psychiatry course and passed the final exam. The second part of the questionnaire asked detailed questions about ECT (indications for the use, contraindications, side effects, ethical and legal issues concerning ECT and its safety during pregnancy). The survey consisted of both single-choice and multiple-choice questions. For each correct answer in single-choice questions the respondent was awarded with 1 point and each incorrect answer was given 0 points. In multiple-choice question, every correct answer was given partial credit of 1 point, while each incorrect one resulted in negative mark. If the sum of the partial points was lower than 0 then the overall score for the question was 0, when the sum of the partial points was positive then respondent was given 1 point for the question. In the last part of the survey, students stated where they have first encountered the topic of ECT and whether, in their opinion, pop-culture may affect society's perception of ECT. Moreover, respondents had to choose all the films

they have seen about this topic from list added to the questionnaire, which included: *Girl, Interrupted*, *A Beautiful Mind*, *Requiem for a Dream* and *One Flew Over the Cuckoo's Nest*. The aim of this question was to seek whether there is a correlation between those movies and the attitude towards ECT. Lastly, the survey asked whether students believe that those films, as well as the pop-culture in general, may have an impact on patients' decision to undergo ECT and whether they contribute to further stigmatization of the procedure.

Respondents were divided into four categories depending on the faculty of their studies: socioeconomic sciences, technical, medical and health sciences. The statistical analysis was performed using Statistica version 13.1. The results were considered statistically significant when the significance level (p) was lower than 0.05.

Results

The mean score obtained by students of all the faculties was 35.57%, which indicates extremely poor level of knowledge on the issue among Polish undergraduates. Medical students obtained 45.82%, however, in the group that have already passed psychiatry exam the mean result was 62.97%, which shows great improvement of knowledge of 49.5%. Demographic data gathered in the survey are illustrated in Table 1.

Table 1. Demographic data gathered in the survey

Demographic data	Faculty			
	Medicine	Health sciences	Technical sciences	Socioeconomic sciences
Mean age (years)	22.4	21.5	21	21.6
Sex structure	Women – 70% Men – 30%	Women – 73% Men – 27%	Women – 48% Men – 52%	Women – 80% Men – 20%
Mean number of watched films regarding ECT	2.11	1.88	1.62	1.87
Mean score in the test (%)	45	34	30	26

The study shows that only 12.6% of all the respondents were able to properly point out all indications for ECT, 63.0% of them were students of medicine and 44.0% of them were after their psychiatry exams. Interesting thing is that as much as 75.9% of students were certain that pregnancy is contraindication for ECT. Moreover, 37.9% of all participants responded that ECT is ineffective, 37.4% stated that ECT is unethical and 55.9% claimed that ECT is painful for the patient. In the group of medical students, the results were better, since 17.3% of undergraduates believed that ECT is ineffective, 20.66% believed that it is unethical and 38.66% thought that the procedure is painful. The scores obtained by the students in all other questions of the second part of the questionnaire are shown in table 2 and table 3.

Table 2. Results in single-choice questions

Statement	Percentage of respondents who agree with the statement (%)					
	Medicine students			Students of technical sciences	Students of health sciences	Students of socioeconomic sciences
	Before psychiatry exam	After psychiatry exam	Total			
ECT is ethical	75.62	96.55	79.34	59.8	61.64	43.21
ECT is safe	66.16	95.4	71.37	47.05	52.68	37.18
ECT is effective	76.11	94.25	79.34	57.84	62.36	42.21
ECT is widely performed	79.6	96.55	82.61	63.72	68.81	53.76
ECT is painful	56.21	85.05	61.34	35.29	43.01	27.63
Patient is not conscious during ECT	65.42	93.1	70.34	39.7	51.61	40.45
ECT can be performed in pregnant women	32.08	80.45	40.69	16.17	20.78	10.05
ECT cannot be performed without consent	44.52	37.93	43.35	45.09	44.08	46.98

Table 3. Results of multiple-choice questions

Question	Answer	Percentage of given responses (%)
What are indications for electroconvulsive therapy?	Severe depression, when medicaments are contraindicated or ineffective	61
	Dementia	16
	Depressive disorder during pregnancy, when medicaments are contraindicated	26
	Severe episodes of schizophrenia	75
	Treatment of drug addiction	23
	ADHD	13
What are contraindications for electroconvulsive therapy?	Pacemaker	95
	Increased intracranial pressure	73
	Age below 18 years	49
	Uncontrolled diabetes	29
	Stroke in the last 4 months	79
	Retinal detachment	56

table continued on the next page

What are the side-effects of electroconvulsive therapy?	Memory problems	66
	Brain damage	57
	Burns	46
	Personality changes	26
	Deterioration of mental state	20

In case of the third part of the questionnaire, 83.4% of the participants had seen at least one film from the list added to the survey. Moreover, 93.1% agreed that films might negatively influence patients' perception of ECT and 81.2% of respondents agreed that patients might refuse ECT because of social stigmatization caused by pop-culture. More interestingly, the Kendall rank correlation coefficient revealed that number of watched films about ECT is negatively correlated with the general score below 30% ($Z = -2.637$), while on the other hand in the group of students with general score equal to or above 30% this correlation is positive ($Z = 3.720$), as is shown in Graph 1 and Graph 2, respectively.

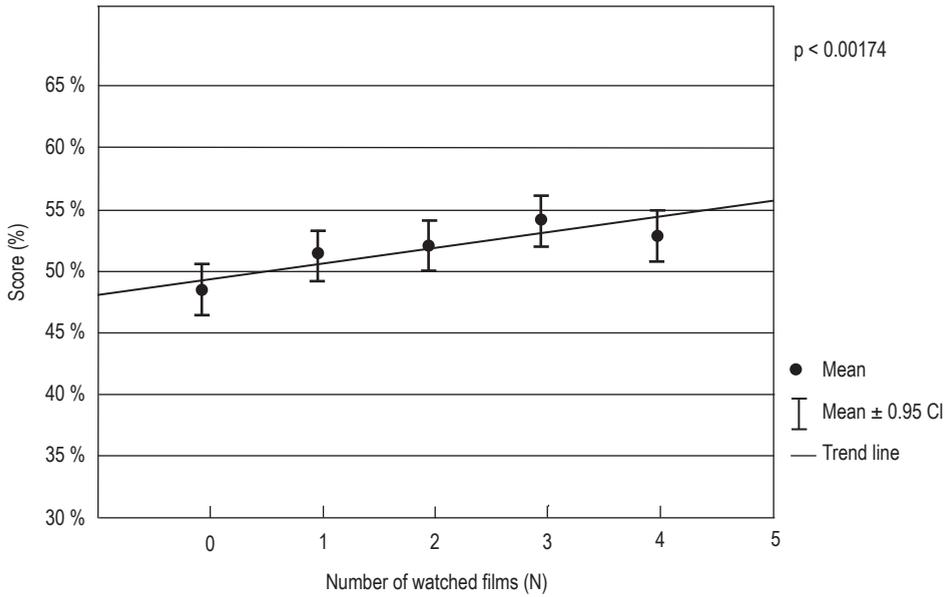
What is also substantial is that the Mann-Whitney U test revealed that women watch more films touching the matter of ECT than men ($p = 0.001$) and more often recognize ECT as unethical ($p < 0.001$).

There are also significant differences in the influence of film on knowledge about ECT between different faculties. Students of socioeconomic faculties obtained mean score at the level of 26.15%, which was the lowest score among all the faculties. The mean score obtained by the students of technical faculties was 30.0% and in case of the students of health sciences the mean score was 34.61%. Students of medicine achieved the highest score; their mean score was 45.82%.

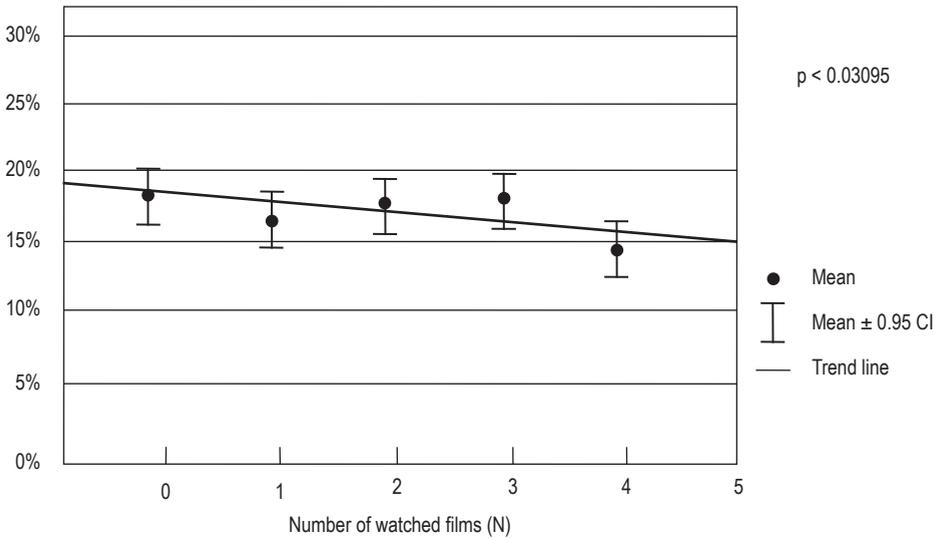
The Mann-Whitney U test have shown that students of technical faculties who consider ECT as ineffective or unsafe watch more films picturing ECT than students of the same faculties who consider ECT as effective ($p = 0.023$) and safe ($p = 0.046$). In the group of students of socioeconomic faculties, the Mann-Whitney U test disclosed that students who assume that the patient is awake during ECT watch more films showing this subject than students who state that the patient is unconscious ($p = 0.047$). In the group of students of health sciences, the analysis did not demonstrate any statistically significant influence of number of watched films on attitude or knowledge about ECT.

In the group of medical students, the Kendall rank correlation coefficient revealed that the more films about ECT undergraduates watched, the better score in the questionnaire they obtained ($p < 0.001$) and were able to point out more indications for the procedure ($p < 0.001$). In addition, the Mann-Whitney U test showed that students who consider ECT as painful or illegal in Poland watch fewer films than students who claimed that it is not painful ($p = 0.002$) and that it is a procedure carried out all over the world ($p = 0.002$).

Kruskall-Wallis test (ANOVA) confirmed that the differences in scores obtained by each student group were statically significant ($p < 0.001$)



Graph 1. Influence of number of watched films on test score in individuals with the score equal to or above 30%



Graph 2. Influence of number of watched films on test score in individuals with the score lower than 30%

Discussion

While ECT is effectively used in psychiatry nowadays [10], the low level of knowledge about this procedure, not only in the society but also among medical staff, contributes to its stigmatization [11]. The lack of education regarding this issue and the enormous effect of films and mass media, which inaccurately describe the therapy, further contribute to the negative attitude towards ECT [12]. However, ECT is not the only method the importance and perception of which has changed throughout the years along with growing knowledge. One of the shameful examples in the history of psychiatry is lobotomy, which in the 1940s and the 1950s was one of the most commonly used therapies in psychiatry. Lobotomy was abandoned and banned due to its numerous and severe side effects, invasive character and controversial atmosphere surrounding it [13]. This therapy had negatively affected the perception of all the psychosurgical procedures, including anterior capsulotomy and anterior cingulotomy, which are effective and still performed methods [14].

All of this indicated the importance of elevating society's consciousness about psychiatric procedures. One of the ways of achieving this effect should, naturally, be increasing the awareness among students of all the faculties, so that their perception of this procedure would be similar to their perception of any other medical intervention. However, this study shows that the general awareness among Polish students, despite their faculty, is very low, even regarding such essential matters as ethical or legal issues. Nevertheless, those results are similar to the ones obtained in studies conducted in other European countries, which indicates that the stigmatization and lack of knowledge about ECT is a global problem [15]. The reason for such a poor level of awareness might be the attitude towards psychiatry and mental illnesses as a whole, which leads to the creation of taboo surrounding the topic [16]. The lack of education and negative attitude towards psychiatry partly explains the level of knowledge among students whose faculties are not associated with medicine at all, however, poor awareness among health sciences and medical students comes as a surprise. The most disturbing thing is that majority of health sciences students not only do not know contraindications for and side effects of ECT but, most importantly, think that ECT is painful and unethical.

Another shocking thing is that most of the students of health sciences, technical and socioeconomic sciences believe that the patient does not undergo general anesthesia during the procedure, which might be the cause of demonizing ECT. Furthermore, the picture of ECT as a long gone method of treatment contributes to the relatively high percentage of incorrect answers in the question regarding its legal status [17]. Moreover, the study indicates that Polish students, including medical students, are unaware that ECT is a safe and effective method of treatment during pregnancy [18]. Another very concerning issue is the correlation between watching movies regarding ECT and the level of knowledge about this procedure because majority of respondents in this study indicated them as a primary source of information about the topic. Also many other studies show that the two main sources of information about ECT are films and the mass media [19].

Only in the last 53 years in American cinema ECT was shown in 22 movies, including 2 awarded with an Oscar (*One Flew Over The Cuckoo's Nest*, *Ordinary People*). While initially portrayed as a dramatic but effective psychiatric intervention, ECT in films has come to stand for something quite different, representing the brutal and generally futile attempt to control an individual [20].

In Poland, due to insufficient financing of psychiatric care, most of its facilities are perceived by the public opinion as prison facilities. Moreover, headlines such as “Wrongly convicted and locked up in psychiatric hospital – it’s a horror!” [21], which are gaining popularity, can enhance distrust for mental health services and procedures. All of that may contribute to developing associations between psychiatric treatment, especially the most controversial procedures such as ECT, and the reluctance of patients to undergo therapy.. Furthermore, most of the mentioned films present the procedure being performed on a conscious individual, which can further induce negative emotions and thoughts. However, the results of this study show that those films, despite their extremely damaging picture of ECT, negatively affect only students of socioeconomic and technical sciences. More shockingly still, the study suggests that the more films medical students watch the better are their answers, which stands in contradiction to most of the studies on the subject [11]. Although it is quite surprising, the authors assume that the reason for this might be the fact that most of medical students who watched any of the listed films became interested in the topic of ECT, thus they searched information about the procedure in more reliable sources. Moreover, medical students have an opportunity to witness the procedure, which has positive impact on their attitude, regardless of their interest in psychiatry [22]. Some sources show, that even watching a didactic videotape explaining and demonstrating ECT during the lecture can significantly improve the overall knowledge [23]. All of that implies that the collaboration between mental health sector, film and television industries is essential in educating and informing society about mental illnesses and ECT [24].

Conclusions

The main purpose of this research was to investigate the level of knowledge about ECT among Polish students, as well as their attitude to this method. The study showed that the general awareness about ECT is on a very low level, not only among non-medical students but also among students of health sciences and medicine. One of the main factors of such a perception of ECT is undoubtedly pop-culture and the proof of this thesis can be found in many popular films that are well known around the world. In these movies, ECT is shown in a spectacular but false way. Unfortunately many viewers accept those pictures in a non-reflective way. Many respondents claim that this is the main source of their knowledge on the issue, without trying to confront it with other sources. The analysis also showed that students’ susceptibility to the image of ECT promoted by pop-culture is highly depended on their knowledge about this therapeutic method. In authors’ opinion it is crucial to increase public awareness on the subject of ECT in Poland so that this therapy ceases to be a taboo. The key is wide and common access to reliable information about ECT, owing to which it will

be treated like any other therapeutic method in medicine – seen from the perspective of scientific research, not of superstitions. Only then it will be possible to change the society's perception of this therapy and effectively cope with the stigmatization of not only ECT, but also psychiatry as a whole.

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