

THE VALUE OF AUTOPSY IN MEDICAL EDUCATION: STUDENT'S ATTITUDES & OPINION

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ABSTRACT:

BACKGROUND: The autopsy has been regarded as a valuable adjunct to undergraduate medical education. Autopsy as an educational experience helps the students to correlate clinical findings with basic medical sciences. However, they might be somewhat less willing to consent an autopsy on themselves or their own relatives. It is important to get the views of medical students in relation to its relevance in medical education and to justify the continuous inclusion of autopsy in medical curriculum.

OBJECTIVE: To determine the thoughts, feelings & attitude of medical students towards autopsy & its value in medical education.

SETTING & DURATION OF STUDY: Study was conducted in Punjab Medical College, Faisalabad during academic years 2011 & 2012.

STUDY DESIGN: Cross Sectional Study.

MATERIAL & METHODS: Self-administered Questionnaire was distributed among 250 students of 3rd & 4th year MBBS classes who had completed the course of Forensic Medicine & finished their tenure in Postmortem Unit. They were asked to respond anonymously to a set of questions concerned with the thoughts and feelings of autopsy, death & grief as well as their views on the importance of autopsy to medical education, reactions to the first autopsy they watched, attitude towards having autopsy performed on themselves or any relative and influence of autopsy on specialization in the subject of Forensic Medicine & Toxicology.

RESULTS: Out of 210 respondents, 140 (66.67%) were female while 70 (33.33%) were males. Most of the students 188 (89.52%) agreed on the importance of autopsy in medical education and 158 (75.23%) suggested that medical students should observe and participate in more autopsies. The majority 193 (91.90%) students felt that autopsy should not be scrapped from the medical curriculum. Fifty (23.80%) respondents would not mind autopsy being performed on themselves and their relatives. Only a few students agreed to specialize in Forensic Medicine of whom 6 (2.82%) were females and 14 (6.66%) were males. Forty three students don't want to specialize in this subject because it is dirty procedure & deals with death, while fifty respondents would rather specialize in some other field. Nineteen students felt that Forensic Medicine is not lucrative. Eighty Six (47.77%) students were uncomfortable on the first day in the autopsy room compared to 114 (63.33%) who remained comfortable.

CONCLUSION: The exposure of students to autopsy is important to their medical education. The knowledge of medicolegal autopsy will broaden the student's perceptive and will help the legal system in delivering quick justice in criminal cases. A variety of emotional reactions were conveyed

by the students towards experience of watching autopsies but the procedure was acceptable to majority and they recommended watching autopsy for all medical students. The autopsies being important teaching tool should be revived and carefully adjusted in the programmes designed to teach the students as part of the medical curriculum about death and its process. The students should be provided opportunities to attend autopsy demonstrations and presentations on the utility of autopsies during the clinicopathological meetings of that hospital.

KEY WORDS: Medical Students, Attitude, Autopsy, Medical Education, Forensic Medicine.

INTRODUCTION:

The word autopsy is derived from the ancient Greek "autos" oneself and "opsis" sight; literally meaning "to see for oneself". Autopsy can be divided into Forensic or Medicolegal & Clinical or academic autopsies. A clinical autopsy helps in the identification of a person's illness or cause of death whereas the medicolegal autopsy plays vital role in the administration of justice^{1,2}.

The autopsy has long been recognized as a valuable educational experience and the Gold standard by which post mortem diagnosis are made³. The courses of Forensic Medicine and Pathology encourage undergraduates of medical institutions to participate in autopsy sessions but few students find the experience of watching postmortem examination counterproductive, as they are clearly distressed by the procedure. The uses and importance of autopsy go far beyond the traditional uses of teaching clinical pathophysiology, clinical correlations with gross & microscopic anatomy of diseases and visual skills. The potential role of autopsy in education regarding legal / judicial proceedings, vital statistics, and epidemiological investigations as well as in understanding of medical uncertainty, fallibility & grief also can't be ignored⁴.

In the earlier days of the 19th century, Xavier Bichat, declared "*You may take notes for twenty years, from morning to night at the bedside of the sick, upon the diseases of the viscera, and all will be to you only a confusion of symptoms,.....a train of incoherent phenomena. Open a few bodies and this obscurity will disappear*"⁵. The use of clinical autopsy has been declining during the last few decades and autopsy rate has also been falling throughout the world including United States. In England & Wales; out of the total 94,455 coronial autopsies in 2013, only 1132 hospital autopsies

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were performed which accounted for 1.20% of total autopsies. The situation becomes worse; when medical students are debarred from attending autopsies in some areas despite the fact that students while attending autopsies can appreciate the large number of conditions in different patients^{6,7,8}. Such decline has certain effects on quality assurance, public health issues, treatment plans, misdiagnosis, clinical audit and teaching of both medical students and trainee pathologists⁹⁻¹¹.

The major source of teaching the undergraduates in Pakistan is Medicolegal / Forensic Autopsy because Clinical or Medical autopsy has not been requested so far during the last Twenty Seven years experience of the authors. The students are exposed to autopsies to familiarize them to the morphological changes of organs and tissues in diseases, to acquaint them to Forensic Medicine and to equip with the knowledge of autopsy in research because eventually these students will become forensic experts & clinicians and are likely to misinterpret the autopsy findings, if they have not properly watched few autopsies.

In Pakistan, there are very few studies so far been conducted regarding the views / perceptions of medical students towards autopsy. This study is aimed to determine the attitudes & opinion of medical students toward autopsy and to know how they experience medicolegal autopsies, which are used as a teaching strategy in Forensic Medicine. The term 'medicolegal' in this context applies to all autopsies of cadavers whose deaths are deemed unnatural including cases of sudden &

unexpected deaths.

MATERIAL AND METHODS:

This study was conducted among the students of 3rd year & 4th year MBBS classes of Punjab Medical College, Faisalabad, Pakistan during academic years 2011 & 2012. Those who had completed their course work in Forensic Medicine including rotational tenure for watching autopsy, were randomly selected for the study. Questionnaire was designed in consultation with the faculty of Forensic Medicine & in the light of day to day discussion with the students during autopsy sessions. The questionnaires were distributed among them, participation was voluntary & they were asked not to disclose their identity. Participants were requested to provide demographic information as well as their experience & attitudes towards autopsy. Total 250 students participated in the study. The questionnaires were collected and the comments offered were evaluated. The data were entered, analyzed and results obtained were interpreted in text, figures & tables.

RESULTS:

Out of the total 250 students among whom questionnaires were distributed, 210 (84%) were returned duly completed consisting of 140 (66.67%) females and 70 (33.33%) males. The percentage of gender distribution among the respondents is given in Fig: 1.

The age range of respondents fall between 20 and 25 years because the commonest age of admission into the 1st year MBBS class of Medical Colleges in Pakistan is between 17 to 19 years. The age distribution shown in Table: 1.

Majority 144 (68.58%) of respondents, watched 3–4 autopsies while only 36 (17.14%) watched more than Five autopsies during the period of their posting in autopsy suit whereas; 12 (5.71%) of them watched 1–2 autopsies and 18 (8.57%) students were unable to watch even a single autopsy during their rotation in Postmortem unit. The numbers of autopsies watched by students in relation to gender is shown in Table: 2.

In the light of responses shown in Table: 3; One

Hundred & Forty Seven (70%) students stated that the number of autopsies they watched was enough, whereas; 46 (21.90%) indicated that the number was not adequate. However, a total of 158 (75.23%) respondents recommended the medical students to watch more autopsies.

Most of the students, 188 (89.52%) agreed that watching autopsy is necessary and 183 (87.14%) were of the view that they have learned something after watching the medico legal autopsies. The majority; 119 (56.66%) suggested that medical students should actively participate in performing autopsies.

Knowing the fact that watching autopsy is necessary for their education, 160 (76.20%) students would not want autopsies to be performed on them or their nearest relatives after the death. Most of them, 193 (91.90%) suggested that autopsy should not be removed from the medical curriculum and 178 (84.76%) were of the opinion that it has a role in the health care delivery system of our country.

One Hundred & Eighty (85.71%) students had given various reasons for not specializing in Forensic Medicine. Out of those, 43 (23.89%) do not wish to specialize in Forensic Medicine because it is dirty procedure and deals with death; while 50 (27.78%) of them said they had decided to specialize in some other fields. Sixty Eight (37.78%) had no interest in it, whereas 19 (10.55%) of them felt that Forensic Medicine as a profession is not lucrative.

Out of the total 210 respondents, only a few students 20 (9.52%) agreed to specialize in Forensic Medicine; of those 6 (2.85%) were females and 14 (6.66%) were males. This indicates that very few females want to specialize in the subject of Forensic Medicine. Reasons given by 180 (85.71%) respondents as why they don't like to specialize in subject; are given in Table: 4.

One Hundred & Eighty (85.71%) students responded to the questions on how they felt on watching the first autopsy which is shown in Table: 5. Out of those 180 students, majority 134 (74.44%) were females and 46 (25.56%) males. Sixty three (35%) students were slightly uncomfortable while 23 (12.77%) consisting of 17 (9.44%) females and 6 (3.33%) males remained very uncomfortable on their first day

in the autopsy room whereas; 114 (63.33%) students remained throughout comfortable while attending the procedure of postmortem examination.

Eighty Five (40.47%) respondents felt that the dead bodies have not been given the respect which is their due. They were of the view that the autopsy was done very quickly, viscera were collected & preserved without observing standard operative procedures and the dead body was usually handed over to the relatives without proper stitching & cleaning. The unnecessary chats and remarks by the mortuary staff during autopsy procedure were also disliked by the observing medical students.

DISCUSSION:

—A surgical operation is attended with pain and is for the benefit of the Individual, an autopsy is free from pain is for the benefit of humanity.
"Paul. H. Brussaral"

Autopsy has been for centuries part of medical education, providing benefits to medical students in terms of knowledge, skills as well as development of respect, empathy and compassion. Autopsy is useful to society, medical practice and medical education¹². Majority of students agree about necessity and usefulness of autopsy in medical education and its value has also been appreciated by the students in medical curriculum. These views are comparable to other studies containing the opinion about autopsy¹³⁻¹⁴. Literature review has highlighted the potential value of autopsy in undergraduate teaching, but its prominence has diminished in recent decades due to decline in autopsy rate and medical students in some institutions may qualify without ever entering a mortuary¹³. The declining autopsy rates had been documented by some authors in different jurisdictions including England / Wales, Canada, France, China & Zambia¹⁵⁻¹⁷.

The decline in autopsy rate has great concern to the undergraduates as well as medical educators. There are various reasons for this decline which include availability of modern diagnostic techniques, inadequate training of the concerned physicians as to the importance of autopsy, competing departmental demands, limited curriculum time and failure to obtain

consent from the relatives⁵. Besides curriculum reform, the use of technical alternatives such as videos / CD-ROMs and prevailing legislation have all contributed to the declining use of the autopsy as a teaching tool¹⁸⁻²⁰.

In our study, most of the students were in age range of 20 to 25 years because common age of admission into medical college falls between 17 and 19 years. This is consistent with finding of studies conducted by Waheed G et al¹⁵ and Khoo JJ et al²¹.

In the present study, 144 (68.58%) students watched 3-4 autopsies while 36 (17.14%) witnessed more than five autopsies. Twelve (5.71%) of students watched only 1-2 autopsies whereas 18 (8.57%) respondents were unable to watch even a single autopsy during the period of their posting in autopsy suit. This situation could be understood by the facts that in our set up i.e. Punjab Medical College Faisalabad, the period of rotation for 3rd year MBBS students is two months in autopsy section. The students are divided into three batches and they attend the autopsy session twice a week. The time for watching autopsy is fixed from 11:00 AM to 1:00 PM and the chances for medical students to attend this important pathological maneuver become less due to their busy schedule of studying other subjects.

Although 147 (70%) students were of the view that number of autopsies they watched were enough whereas; 46 (21.90%) opined that the number was not adequate. However, 158 (75.23%) respondents recommended the medical students to watch more autopsies. This higher percentage of students asking to watch more autopsies can be explained by the fact that observation of autopsies by students is compulsory as part of the medical curriculum. These findings are comparable with those of a study conducted by Ahmad N et al²² wherein 87% respondents were of the opinion that students should watch more autopsies.

Among 210 respondents, majority 188 (89.52%) agreed with the fact that autopsy is mandatory and 183 (87.14%) stated that they have learnt some important findings after watching postmortem examinations whereas; 119 (56.66%) suggested that medical students should actively participate in performing autopsies. These findings are comparable with

study conducted by Ahmad N et al²² indicating the positive views of 96% students in favor of autopsy & its usefulness in medical education; these views are supported by Botega et al²³ showing that majority of students agreed to the importance of watching autopsy. The similar findings were observed by Conran et al²⁴ in USA, wherein 85% students opined that autopsy should be mandatory for all medical students. A study conducted by Khoo JJ et al²¹, explained views of the participants that attending autopsy allowed them to reflect on the process of dying and they became more prepared to accept the death of their patients. Another study conducted in India by Pervaz SU et al²⁵ incorporated positive attitude and interest of more than 50% of the participants towards watching more autopsies so that they will be able to conduct the same during their future career.

As regards the matter of being autopsied oneself, the majority 160 (76.20%) students don't want autopsies to be performed on them or their nearest relatives. These findings differ from studies conducted by Sanner³ in Sweden & Jadav CJ in India²⁶, wherein 90% and 82.5% of the students respectively agreed for autopsy to be performed on themselves, though most of them felt uncomfortable on thinking about autopsy. In our study only 50 (23.80%) students agreed to the autopsy being performed on them. This may be due to the fact that 86 (40.95%) of our students felt uncomfortable on watching autopsies. These findings are consistent with those of other studies^{13,24}.

Although majority 119 (90.95%) students considered the first autopsy they witnessed, to be beneficial & valuable educational tool but some authors indicated that autopsy makes most students feel uncomfortable because students are not prepared psychologically for what they see during an autopsy²⁷. The experience of dissection of corpse is frightening & emotionally traumatic procedures. Some authors have stated that students reported severe disturbances, such as fright & nightmares, after attending first postmortem examination^{21,27,28}. It is suggested that medical students should be prepared psychologically to avoid such feelings of emotional distress in order to have better experience & benefits of

these procedures. Teaching of undergraduate medical students with the help of autopsies is a low cost technique which is appreciated by the students and applies to diverse medical specialties and skills¹².

While giving the reasons for not specializing in Forensic Medicine, 180 (85.71%) students expressed differently. Out of those, 43 (23.89%) don't wish to specialize in Forensic Medicine being dirty procedure and deals with death whereas; 50 (27.78%) of them had already decided to specialize in other fields. Sixty Eight (37.78%) had no interest in the specialty while 19 (10.55%) of them have a view that Forensic Medicine as a profession is not lucrative in Pakistan. These findings compare favorably with other studies conducted by Ekanem et al¹³, Waheed G et al¹⁴, and Ahmad N et al²². The value & utility of autopsy has been emphasized in literature / many studies provision of the "hidden curriculum" in medical education; those aspects of medical practice which cannot be taught through the formal teaching session but subconsciously absorbed by observing the teacher's attitude and activities^{20,29}. The impacts of attending postmortem examinations on the diagnostic as well as communication skills have been well documented in the study conducted by Bamber et al³⁰, indicating potentially enhancing future patient care due to the knowledge gained by the doctors while attending autopsies. The exposure of medical students to autopsy is important to their medical education since those who are not exposed will not be able to deliver in their subsequent years of clinical practice.

The attitude of medical teachers should encourage the students to become more interested in observing autopsies. By using the innovative technology in teaching autopsies to the medical students, the procedures could be made more interesting in order to attract the students to this important teaching tool. Autopsies provide important learning opportunities for students of Forensic Medicine to update their clinical knowledge and pathological findings about steps involved in procedures of postmortem examinations^{31,32}.

CONCLUSION & RECOMMENDATIONS:

Although our students were aware of the potential benefits of autopsy; a variety of emotional reactions were conveyed by them towards this experience but majority have recommended watching autopsy for all medical students. An emphasis must be placed on the importance of autopsy in teaching / training and research activities related to clinical problems & medical audit. In some jurisdictions, decision of excluding autopsies from medical curriculum means that students are denied an effective &

popular learning resource and the doctors of future will find themselves struggling to explain a procedure they have never watched.

In this modern era, we should not lose sight of the contribution of autopsy towards teaching / training of the medical students. Apathetic attitude of the staff working in autopsy suit (including doctors), use of older autopsy techniques, dirty equipments and careless procedures keep the students away from subject. Demonstrators should promote a sense of its value, to influence and modify student's opinions before they start discussing the

Table: 1. Age & Sex Distribution among Respondents

Age (Years)	Males	Females	Total
20 – 21	38 (18.09%)	87(41.42%)	125 (59.52%)
22 – 23	21(10%)	39(18.57%)	60 (28.58%)
24 – 25	11(5.23%)	14(6.66%)	25 (11.90%)
Total	70 (33.3%)	140 (66.66%)	210 (100%)

Table: 2. Numbers of autopsies watched in relation to Gender

Gender	Number of autopsies attended				Total
	1 – 2	3 – 4	> 5	Not a Single one	
Male	4 (1.90%)	41 (19.53%)	13 (6.19%)	15 (7.15%)	73 (34.76%)
Female	8 (3.81%)	103 (49.05%)	23 (10.95%)	3 (1.42%)	137 (65.24%)
Total	12 (5.71%)	144 (68.58%)	36 (17.14%)	18 (8.57%)	210 (100%)

Table: 4. Reasons for not specializing in Forensic Medicine (n=180)

Sr.#	Reasons	Percentage
1	Don't have interest in Forensic Medicine.	68 (37.78%)
2	Decided to specialize in some other field.	50 (27.78%)
3	Forensic Medicine as profession is not lucrative & has limited scope in Pakistan.	19 (10.55%)
4	Because autopsy is a dirty procedure & one has to deal with death.	43 (23.89%)
Total		180 (100%)

Table: 5. Reactions to the first autopsy watched (n=180)

Reactions	Male	Female	Total
Comfortable	18 (10%)	96 (53.33%)	114 (63.33%)
Slightly uncomfortable	22 (12.22%)	41 (22.78%)	63 (35%)
Very uncomfortable	6 (3.33%)	17 (9.44%)	23 (12.77%)
Total	46 (25.56%)	134 (74.44%)	180 (100%)

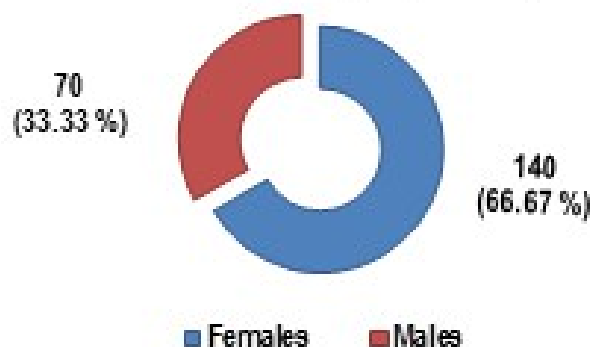
Table: 3. Responses of Medical Students to the Questions.

Questions	Response		Total
	YES	NO	
Do you fully understand the meaning of word "Autopsy"?	197 (93.80%)	13 (6.20%)	210 (100%)
Do you think that autopsy is a useful and necessary procedure in medical education?	188 (89.52%)	22 (10.48%)	210 (100%)
Should undergraduate medical students watch autopsies?	168 (80%)	42 (20%)	210 (100%)
Do you think that number of autopsies you watched were sufficient for you & your class fellows?	140 (66.67%)	70 (33.33%)	210 (100%)
Do you think attending post mortem examinations had educational benefits for medical students?	188 (89.52%)	22 (10.48%)	210 (100%)
Would you suggest that medical students should watch more autopsies?	158 (75.23%)	52 (24.77%)	210 (100%)
Should the students actively involved in performing autopsies?	119 (56.67%)	91 (43.33%)	210 (100%)
Did you learn anything from autopsies you watched?	183 (87.14%)	27 (12.86%)	210 (100%)
Do you think that viewing autopsy is useful & rewarding for medical students?	191 (90.95%)	19 (9.05%)	210 (100%)
Should watching autopsy be scrapped from the curriculum of medical undergraduates?	17 (8.10%)	193 (91.90%)	210 (100%)
Is there any role of autopsy in Health Care Delivery System?	178 (84.76%)	32 (15.24%)	210 (100%)
At the death, would you like autopsy to be performed on you or any of your nearest relatives?	50 (23.80%)	160 (76.20%)	210 (100%)
Do you think that autopsy is disrespect to the dead body?	85 (40.47%)	125 (59.53%)	210 (100%)
Can you learn the topic of autopsy by only reading books & without watching videos or personally witnessing autopsies?	23 (10.95%)	187 (80.05%)	210 (100%)
Did you suffer from any stress or unpleasant experience on watching autopsy?	86 (40.95%)	124 (59.05%)	210 (100%)
Would you like to specialize in Forensic Medicine?	20 (9.52%)	190 (90.48%)	210 (100%)

process of dying and death. Autopsies being important teaching tool should be revived and carefully adjusted in the programmes designed to teach students as part of medical curriculum about death & its process.

Fig. 1. Showing Percentage of Gender among Respondents

Gender Distribution Among Respondents (n=210)



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Blessed is the man who always kept the life after death in his view, who remembered the Day of Judgment through all his deeds, who led a contented life and who was happy with the lot that Allah had destined for him.

Wealth is the fountain head of passions.

Tongue is a beast, if it is let loose, it devours.

Woman is a scorpion whose grip is sweet.

Anyone who loves us Ahlul Bayt must be ready to face a life of austerity.

Hazrat Ali (Karmulha Wajhay)