

Knowledge and societal perceptions regarding autopsy amongst different educational backgrounds in Karachi, Pakistan

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Abstract

Objective: To find out awareness levels about legislation/authorisation and objectives of autopsy among common people, and to assess correlation between opinions and academic levels.

Methods: The cross-sectional questionnaire-based study was conducted from March 2019 to September 2019 after approval from Ziauddin University, Karachi, and comprised adult subjects from the community having various academic backgrounds. Data was collected on their knowledge, perceptions and concerns regarding autopsy. Data was analysed using SPSS 20.

Results: Of the 260 individuals approached, 106(40.8%) were males and 143(55%) were females, while 11(4.2%) did not specify their gender. Overall, 123(47.3%) were aged 18-25 years. After 7(2.7%) dropouts, the total number of respondents was 253(97.3%). Of them There were 208(82%) subjects who marked "Yes" to knowing the meaning of autopsy, and 115(55.3%) of them had high academic level, while 93(44.7%) had low educational level. Also, 93(44.7%) participants correctly knew the purpose behind an autopsy. Regardless of the academic level, 135(21.7%) subjects marked "Organ removal" as their concerns regarding an autopsy, while 114(18.3%) marked "Disfigurement of body".

Conclusion: Although majority of the subjects had a positive perception of autopsy, in-depth questioning revealed a clear lack of correct knowledge on the matter.

Keywords: Autopsy, Awareness, Pakistan, Cross-sectional studies. (JPMA 71: 1613; 2021)

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Introduction

The word 'autopsy' has Greek roots meaning "seeing with one's own eyes".¹ The history of autopsy proper dates back to 367BC, during the time of King Ptolemy I Soter of Egypt based in Alexandria.² Back then, primitive dissections were conducted on executed criminals in an attempt to learn more about human structures and functioning. Since then, autopsy has been refined and practised for the study of the human body and for investigation into disease processes. The medico-legal autopsy is defined as a postmortem examination performed with the intent of determining the cause and manner of death³ including the manner of death (MOD) and time of death (TOD), where necessary and possible.⁴ It plays an essential role in aiding the justice system by providing facts that can exonerate the innocent and reveal the guilty and in identifying individuals in mass disasters, like bomb explosions.

Despite the importance of postmortem examination, autopsy rates have been falling around the world since the early 1970s.⁵ A 2012 study from Indonesia, a country with similar medico-legal system as Pakistan's, revealed autopsy rates <23% in unnatural deaths.⁶ This may be due to the fact that pre-mortem diagnostic capabilities have vastly improved, eliminating the need for cause-of-death (COD)

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investigations after the demise of a person.⁵ This decline has been most noticeable in wealthy nations, where hospital laboratory and imaging facilities, techniques of criminal deduction, and national citizen databases are highly advanced and available to individuals of every strata.⁷ In a low and middle income country (LMIC) like Pakistan⁸ most people are unable to afford basic healthcare and remain unaware of their rights to have deaths investigated. It would therefore be prudent to assume that autopsies play a greater role in establishing COD in medical cases and of providing factual evidence in criminal deaths. However, the rates of autopsy in Pakistan remain meagre despite a death rate of 6.9 per 1000⁹ and high crime index.¹⁰ The last mortality statistics collected for Karachi were in 2001.¹¹ Moreover, there have been no further statistical surveys for the local districts, or, if they have been done, they are not available on public records.

The medico-legal system in Pakistan operates via a modified continental framework, i.e., the initiation of investigations into death is done primarily by the police, or by magistrates in cases of custodial deaths. These investigations are ordered under section 174 of the Criminal Procedure Code (CrPC) of Pakistan when the relevant authority encounters sudden, suspicious or unexplained deaths, or deaths due to criminal intent.

As of 2015, the literacy rate in Pakistan is 57.9%¹², with a range of educational levels found among the adult

population; from primary education to post-doctoral, as well as just vocational training and seminary education. The major religion in Pakistan is Islam with 96.4% followers, with the remaining 3.6% practising Christianity, Hinduism, Sikhism and others.¹²

The current study was planned to find out the awareness levels about legislation/authorisation and objectives of autopsy among the general public, and to see if opinions are correlated with academic levels.

Subjects and Methods

The cross-sectional questionnaire-based study was conducted from March to September 2019 at Ziauddin University. After approval from the ethics review committee of Ziauddin University, Karachi, the sample size was calculated at 95% confidence interval (CI) and 5% margin of error which was deemed most appropriate in line with literature.^{13,14} The sample was raised using non-probability convenience sampling technique from the community while focussing on adults regardless of age, gender and occupation with levels of education. Those who refused to participate were excluded, and so were those employed or involved with any forensic-related field. Data was collected after informed consent using a pre-designed questionnaire prepared in both English and Urdu languages for maximum participation. The questionnaire gathered data about knowledge, awareness and perceptions of individuals on the issue of autopsy.

The preamble of the questionnaire contained brief information about the study, followed by two sections. The first section was designed to assess an individual’s existing knowledge about autopsy and its related procedures, including questions on consent and financial expenses. The second part focussed on the perspective and concerns of the participants regarding autopsy of relatives. For several questions, >5 options were given.

The questionnaire was pre-tested before being distributed, and adjustments were made to incorporate the pre-test feedback. Most questionnaires were self-administered online via Google Forms, while a few were conducted by the authors during face-to-face interviews and their answers were subsequently recorded on the forms.

Demographic data was also gathered. Low educational level included pre-primary, primary, secondary, matriculation, intermediate and vocational training, while high educational level included bachelors, masters and doctorate levels.

Data was analysed using SPSS 20.

Results

Of the 260 individuals approached, 106(40.8%) were males and 143(55%) were females, while 11(4.2%) did not specify their gender. Overall, 123(47.3%) were aged 18-25 years (Table 1). After 7(2.7%) dropouts, the total number of respondents was 253(97.3%).

Of the 253(97.3%) who responded, 208(82%) said they were familiar with the word ‘postmortem’ and its meaning, 26(10.3%) marked “maybe”, and 19(7.5%) did not know at all. Of the 208(82%) subjects who said they knew the meaning of autopsy, 115(55.3%) respondents belonged to high educational level, and 93(44.7%) belonged to low level. Also, 93(44.7%) of them correctly marked all the purposes for conducting an autopsy, i.e., identifying COD, TOD, MOD, disease processes, and providing proof of guilt/innocence; 115(55.3%) marked one or more purposes; and 10(4.8%) said they were not sure.

To the question asking about the place where the autopsy was conducted, 159(62.85%) of all the respondents correctly marked “Government hospital”, 112(44.3%) marked “Mortuary”, 59(23.3%) marked “Private Hospital”, and 4(1.6%) marked “Home”.

To the question, “In which situations would an autopsy be advisable?”, 218(86.2%) respondents correctly marked that autopsies should be advised in suspicious cases, 105(41.5%) in cases of unnatural death and 103(40.7%) said

Table-1: Socio-demographic profile of the study population.

Variables	n (%)
Gender	
Males	106 (40.8)
Females	143 (55.0)
Prefer not to Answer	11 (4.2)
Age group	
18-25	123 (47.3)
26-35	83 (32.0)
36-45	31 (11.9)
46-55	11 (4.2)
56-65	12 (4.6)
Educational level	
Pre-primary	3 (1.2)
Primary (class 1-5)	5 (1.9)
Secondary (class 6-8)	23 (8.8)
Matric (class 9-10)	47 (18.0)
Intermediate (class 11-12)	35 (13.5)
Vocational institute	19 (7.3)
College	113 (43.5)
Masters& PhD	15 (5.8)
Education Sector	
Public	80 (30.8)
Private	172 (66.2)
Did not answer	8 (3.0)

Table-2: Concerns of participants regarding autopsy according to education level.

Main Concerns regarding autopsy	Lower Educational Level (% of responses)	Higher Educational Level (% of responses)	% of total responses (combined)
Confidentiality	7.5	9.0	16.5
Risk of infection	3.7	4.5	8.2
Disfigurement body	6.3	12.0	18.3
Organ removal	11.2	10.4	21.7
Delay in funeral	4.7	8.7	13.3
Against religion beliefs	7.5	8.0	15.6
All above	3.2	3.2	6.4
Total	44.1	55.9	100.0

Table-3: Public opinion on why more autopsies are not conducted.

Public opinion on why autopsies are not done more often	Lower Educational Level (% of responses)	Higher Educational Level (% of responses)	% of total responses (combined)
Family concern	10.6	13.8	24.4
Religious view	9.1	19.3	28.5
Expense	2.1	5.7	7.9
Lengthy	0.6	2.8	3.4
Unnecessary	5.9	0.4	6.4
No trust on legal system	7.2	16.8	24.0
Not sure	3.4	2.1	5.5
Total	39.1	60.9	100

sudden death. However, 49(19.4%) knew that it should also be conducted in cases of accidental death, and 37(14.6%) mentioned mass disasters, with 4(1.6%) respondents saying they were not sure.

To the question, "In cases of medico-legal autopsy, who gives consent?", the 176(57.7%) respondents incorrectly marked "Family", while the correct choice "Police" was selected by 85(33.6%), followed by "State/Government" 77(30.4%), "Person who discovered the body" 11(4.4%), "Friends" 7(2.8%). Besides, 23(9%) were not sure.

To the question pertaining to financial responsibility for autopsy expenses, 113(44.7%) marked "Family of Deceased", while the correct response "State/Government" was marked by 106(41.9%), followed by "Hospital" 39(15.4%), "non-governmental organisation / non-profit organisations (NGO/NPO)" 11(4.3%) and "Relatives/Friends" 10(4%). Besides, 48(19%) were not sure.

When asked if they would ever consider autopsy for their own relative, 116(45.8%) answered "Yes", 67(26.5%) answered "No" and 70(27.7%) answered "Maybe".

When asked if they have had any personal experience of autopsy in case of a relative's death etc., 26(10.3%) replied in the affirmative.

The third question asked them if they felt autopsy was

against the teachings of Islam, and 45(17.7%) replied with "Yes", 71(28%) "No" and 137(54.2%) replied with "Maybe".

To the question, "What are your main concerns regarding autopsy?", 135(53.4%) respondents marked "Organ removal" followed by 114(45.1%) who marked by "Disfigurement of body". "Confidentiality" was marked by 103(40.7%) subjects, "Against religious beliefs" 97(38.3%), "Delay in funeral rites" 83(32.8%) and "Risk of infection" 51(20.2%). A total of 40(15.8%) respondents marked all the given options as their concerns. The responses between both educational levels were comparable, except for "Disfigurement of body" (Table 2).

To the question about the reason why, in their opinion, autopsies were not conducted more frequently, 134(53%) respondents said it was owing to the public's religious beliefs about autopsy. The second most common answer 115(45.5%) was "Family concern", followed by "Lack of trust in legal system" 113(44.7%), "Expenses" 39(15.4%), "Unnecessary" 30(11.9%), "Not sure" 26(10.2%) and "Length of the process" 16(6.3%). There was difference of opinion between the high and low academic groups (Table 3).

Discussion

The majority in the current study, regardless of their academic background, were not fully aware of the significance of post-mortem. The results are in accordance with literature.^{13,15} A 2012 study reported that 101 bodies were exhumed in order to determine cause of death in criminal cases, and 87% of them had not undergone autopsy before burial.¹⁶ In the context of such findings, the current study highlighted the importance of primary autopsies, especially in suspicious deaths.

The most common reason for avoiding autopsies in both low and high educational groups was the fear of body disfigurement and removal of organs. Muslims believe the whole body, with all parts intact, should be buried.¹⁷ To have tissue removed from a dead body for the purpose of investigation is still a topic of debate amongst religious scholars, especially due to the strong belief that the soul still feels physical pain post-death.¹⁸⁻²⁰ It is imperative that eminent Muslim scholars be educated about the importance of autopsy and the technicalities of the procedures. A recent paper from Turkey surveyed the knowledge and opinions of various local religious scholars and prayer-leaders, and concluded that involving them in educating society about the religious aspects of autopsy could help alleviate fears and disinformation amongst the public.²¹ However, disfigurement of the body and whole organ removal need not be necessary anymore, especially with the introduction of minimally-invasive autopsy techniques. Studies have shown that this technique holds

greater acceptability amongst the public and therefore may improve the outlook people have towards autopsies.²² Furthermore, the public holds a misconception about organ removal and needs to be reassured of the fact that organs cannot be taken for transplantation from dead bodies as they no longer remain viable after the cessation of vital functions.

Another notable concern is the wish for a swift and dignified burial for the deceased, which may not always be possible if a postmortem investigation is to be conducted since paperwork and procedure takes time. This concern has been echoed especially by parents of neonates and babies who preferred speedy burials to ease the bereavement process.^{23,24}

In a study in Nigeria, public members stated “lack of feedback of results” as a reason for disinclination towards autopsy.²⁵ This could be interpreted as either an incompetency on the part of the medico-legal official conducting the procedure, or a disinclination for true results of the COD to be shared for fear of backlash towards the doctors who were treating the patients pre-mortem. A 2016 study revealed medical students were largely not keen on pursuing the field.²⁶ When doctors themselves are not inclined, they cannot advise the public adequately when an autopsy is indicated. A 2015 review²⁷ stated that the discrepancies between antemortem and postmortem diagnoses, especially CODs, should not be a source of discouragement or fear of litigation, but rather encourage clinicians and practitioners to use these findings as a quality assurance tool to improve diagnosis and treatment protocols for future patients.

Conclusion

Although majority of the subjects had a positive perception of autopsy, in-depth questioning revealed a clear lack of correct knowledge on the matter. The findings are important as they shed light on the public's opinion regarding autopsies and the many reasons for its decline in a city where deaths due to unknown causes are frequently un-investigated. Regardless of educational background, there is a need for greater public awareness into the procedures and benefits of autopsies.

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References

1. The Merriam-Webster.com Dictionary. 2020 Definition of Autopsy. [Online] [2019 Dec 26]. Available from: URL: <https://www.merriam-webster.com/dictionary/autopsy>.
2. Campbell M, Robertson H. Autopsy History | The Complete History of the Autopsy. [Online] 2018 [Cited 2018 December 26]. Available from: URL: <https://www.popularmechanics.com/science/health/a25633042/autopsy-history/>.
3. The Free Dictionary by Farlex: McGraw-Hill Concise Dictionary of Modern Medicine. 2002 Definition of Forensic Autopsy. [Online] [Cited 2019 Nov 26] Available from: URL: <https://medical-dictionary.thefreedictionary.com/forensic+autopsy>.
4. Byard RW, Pekka Saukko, Bernard Knight: Knight's forensic pathology. 4th ed. Forensic Sci Med Pathol 2018; 14: 147.
5. Stempsey WE. The penetrating gaze and the decline of the autopsy. AMA J Ethics 2016; 18: 833-8.
6. Afandi D. Profile of medicolegal autopsies in Pekanbaru, Indonesia 2007-2011. Malaysian J Pathol 2012; 34: 123-6.
7. Bassat Q, Castillo P, Alonso PL, Ordi J, Menendez C. Resuscitating the dying autopsy. PloS Med 2016; 13: e1001927.
8. Pakistan [Data [Online] 2020 [cited 2020 February 1]. Available from: URL: <https://data.worldbank.org/country/pakistan?view=chart>
9. Pakistan Death Rate, 1950-2018. [Online] 2018 [Cited 2019 November 16]. Available from: URL: <https://knoema.com/atlas/Pakistan/Death-rate>.
10. Crime Rate by Country Population. [Online] 2018 [Cited 2019 November 16]. Available from: URL: <http://worldpopulationreview.com/countries/crime-rate-by-country/>.
11. Bhurgri A, Bhurgri Y, Khan Y, Sharih U, Naqvi F, Soomro I. Mortality statistics in South Karachi. J Pak Med Assoc 2001; 51: 446-9.
12. South Asia: Pakistan — The World Factbook - Central Intelligence Agency. [Online] 2018 [Cited 2019 November 16]. Available from: URL: <https://www.cia.gov/library/publications/resources/the-world-factbook/geos/pk.html>.
13. Subedi N, Paudel IS, Kandel D, Chudal A. Knowledge and Perception of Public Towards Medico Legal Autopsy in Nepal. J Lumbini Med Coll 2018; 6: 6-10.
14. Moorthy TN, Thenmoli R. Study of Knowledge, Attitude and Perceptions regarding Medicolegal Autopsy among Malaysian Hindus: A focus on Hinduism. J Bio Innovation 2016; 5: 890-9.
15. Marinescu D, Gyurka GA, Miclaus R, Nemet C, Rogozea L. Perceptions and Attitudes of Romanian People Toward Autopsy Procedures According to the Level of Knowledge. Am J Forensic Med Pathol 2017; 38: 193-8.
16. Mirza FH, Adil SE-e-R, Memon AA, Paryar HA. Exhumation—Nuisance to the dead, justified? J Forensic Leg Med 2012; 19: 337-40.
17. Bamousa MS, Al-Fehaid S, Al-Madani O, Al Moghannam S, Galeb S, Yousef M, et al. The Islamic approach to modern forensic and legal medicine issues. Am J Forensic Med Pathol 2016; 37: 127-31.
18. Rispler-Chaim V. The ethics of postmortem examinations in contemporary Islam. J Med Ethics 1993; 19: 164-8.
19. Al-Dawoody A. Islamic law and international humanitarian law: An introduction to the main principles. Int Rev Red Cross 2017; 99: 995-1018.
20. Mohammed M, Kharoshah MA. Autopsy in Islam and current practice in Arab Muslim countries. J Forensic Leg Med 2014; 23: 80-3.
21. Avsar A, Okdemir E, Keten A, Kaya O. Religion, Culture, and Autopsy: A Survey With Muslim Religious Officials. Am J Forensic Med Pathol 2019; 40: 347-50.
22. Maixenchs M, Anselmo R, Zielinski-Gutierrez E, Odhiambo FO, Akello C, Ondire M, et al. Willingness to Know the Cause of Death and Hypothetical Acceptability of the Minimally Invasive Autopsy in Six Diverse African and Asian Settings: A Mixed Methods Socio-Behavioural Study. PloS med 2016; 13: e1002172.
23. Meaney S, Gallagher S, Lutomski JE, O'Donoghue K. Parental decision making around perinatal autopsy: a qualitative investigation. Health Expect 2015; 18: 3160-71.

24. Cassum LA. Refusal to autopsy: a societal practice in Pakistan context. *J Clin Res Bioeth* 2014; 5: 198.
 25. Oluwasola OA, Fawole OI, Otegbayo AJ, Ogun GO, Adebamowo CA, Bamigboye AE. The autopsy: knowledge, attitude, and perceptions of doctors and relatives of the deceased. *Arch Pathol Lab Med* 2009; 133: 78-82.
 26. Bagga IS, Goyal V, Singh A, Chawla H, Goel S, Sharma S. Knowledge towards post-mortem examination and reasons for not specialising in morbid anatomy: study among medical undergraduate students. *Int J Res Med Sci* 2016; 4: 2792.
 27. Van den Tweel JG, Wittekind C. The medical autopsy as quality assurance tool in clinical medicine: dreams and realities. *Virchows Arch* 2016; 468: 75-81.
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