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Age based perception towards ethical issues and challenges involved in forensic examination of burned dead bodies in India through forensic autopsy

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Abstract

Every birth and death that takes places in the India is solemnized by virtue of culture and religious practices. However, when a suspicion arises with respect to the nature of death or the action that has resulted in death, a forensic autopsy is carried out. Post mortem and forensic examination of the deceased bodies are considered to be an unholy action violating cultural and religious practices of individual communities. Several media and news reports have shown the agitation towards forensic autopsies, people in both rural and urban India have shown a negative impact and opinion towards forensic autopsy. The situation appears magnified when it is focused over burned corpses and thus an ambiguity on public opinion prevails. Therefore this research aims to analyze the opinion of public towards forensic examination of burned bodies through medico legal autopsy having relationship with age group. By virtue of using non probability convince sampling method and using chi square and correlation methods it could be found out that there is a significant and contrasting relationship between public opinion on forensic examination of burnt bodies through autopsies and age groups. It could also be found out that The younger generation has a tendency to agree and gives a positive opinion towards removing parts of bone or the bone as a whole for the reason for forensic autopsy yet the older generation tends to give a negative opinion towards removing bones or parts for the motivation behind forensic examination of a burnt bodies. Therefore the study recommends that Educational awareness should be carried out by the public so that public can understand the main reason for examination.

Keywords: Age groups, burnt bodies, public opinion, forensic examination, autopsy.

Introduction

In the growing world of commerce, culture and medicine, every birth and death that takes places in the country is analysed and recorded by virtue medico technical advancement[1]. When a suspicion arises with respect to the nature of death or the action that has resulted in death, a forensic examination is carried out[2]. The term forensic examination indicates the scientific works in examination of evidences in order to throw light on the suspected crime or to help solving a crime[3]. The most common form examination of a deceased body is autopsy[4].

An autopsy is also mentioned as a post-mortem or examination of corpse, obduction, necropsis, or autopsia cadaverum. It involves mainly a procedure that consists of a thorough surgical examination and investigation of a dead body by itemization for the purpose of determining the cause and nature of death or to evaluate any disease or injury that may be tool for research or educational purposes[5]. In most common sense an autopsy can be classified into two distinct types namely; Forensic autopsy and Clinical autopsy.

A forensic autopsy is utilized to decide the reason and way of death[6]. Forensic science includes the application of the sciences to answer inquiries important to the legal framework. In a forensic autopsy the Medical examiners endeavor to decide the season of death, the correct reason for death, and what, in the event that anything, went before the death.

A forensic autopsy may incorporate getting natural examples from the deceased for toxicological testing, including stomach substance[7]. Toxicology tests may uncover the nearness of at least one compound "poisons" which may include all synthetics, in adequate amounts, can be delegated a toxic substance and their amount[8].

Since after death disintegration of the body, together with the gravitational pooling of organic liquids, will essentially modify the real condition, toxicology tests may overestimate, as opposed to think little of, the amount of the speculated substance. Whereas clinical autopsy means Clinical autopsies serve two major purposes. They are performed to gain more insight into pathological processes and determine what factors contributed to a patient's death[9,10]. Autopsies are also performed

to ensure the standard of care at hospitals. Autopsies can yield insight into how patient deaths can be prevented in the future.

A forensic autopsy can be performed in various corpses which include natural dead bodies, suicidal bodies, poisoned bodies and burned bodies[7]. In a country like India, Performing autopsies is backed by complex issues as it involves various ethical and social constraints. Examination of bodies and analysis through dissection is perceived as a social and religious taboo in the country. Media and news reports have projected that people in both rural and urban India have shown a negative impact and opinion towards forensic autopsy. However an ambiguity prevails with public opinion towards the examination of burned bodies.

The general perception towards a burned corpse is more sensitive when compared to that of other corpses, thereby making the idea of forensic examination more severe. On the other hand there is also a growing trend of scientific and in trend approach could be found in present generation age groups which welcomes the procedure of post mortem. Therefore this research aims to analyze the opinion of public towards forensic examination of burned bodies through medico legal autopsy having relationship with age group.

Objectives of Study: i. To identify ethical issues involved in forensic examination of burnt dead bodies. ii. To compare the issues and challenges involved in forensic autopsies of burnt bodies and other bodies. iii. To analyze the opinion of public towards forensic examination of burned bodies through medico legal autopsy having relationship with age group.

Review of literature: Burned dead body: Damage that is caused to the skin or other body parts caused by extraordinary warmth, flame, contact with warmed items, or synthetic compounds[11]. Burn profundity is for the most part sorted as first, second, or third degree is called as burn[12]. Burn profundity is for the most part sorted as first, second, or third degree[13].

A burnt dead body or a burnt corpse is a body of a deceased which burnt in nature. The nature of a burnt corpse is mainly of two types, body burnt or is exposed to flame after death and the other type is where the cause of death is as result of exposure to flame.

Properties of a burned corpse: In forensic examination, one can normally encounter a number of cases where burnt corpses are brought for identification and post mortems[14]. Properties of burnt corpse are completely different when compared to other corpses. A drastic change occurs during burning process and cause difficulties in forensic examination tests[14,15]. Physical changes occurring in burnt corpse include deformation and fragmentation due to heat-induced shrinkage, alter the morphological indicators that are critical for anthropometric analysis of species, sex, age, and stature estimation[16]. In addition to the physical alterations, "heat in the burning process also induces chemical changes in the body due to combustion and pyrolysis of chemical substances. Degree of modification increases with rising temperatures, and includes degradation of DNA, which compromises forensic identification techniques[16,17]. We therefore need to know details of these problematic influences, as well as consider the degree of heat to which the specimen had been exposed. Such information will help forensic scientists to interpret test results obtained from burnt bones more accurately.

Forensic autopsy of a burned body: In a burnt body, a lot of changes occur in the body which are both physical and chemical in nature, thus normal forensic autopsy cannot be performed in these corpses. The solution available is the bones[18]. A bone is an inflexible organ that establishes some portion of the vertebrate skeleton[18,19]. Bones bolster and ensure the different organs of the body, create red and white blood cells, store minerals, give structure and support to the body, and empower portability. Bones arrive in an assortment of shapes and sizes and have a complex interior and outside structure. They are lightweight yet solid and hard, and serve different capacities[18-20]. Bone tissue (rigid tissue) is a hard tissue, a sort of thick connective tissue. It has a honeycomb-like framework inside, which gives the bone inflexibility, bones are mainly used for the purpose of autopsy[21].

The bones are removed from the body [burnt] and is carefully analysed using various methods such as PCR amplification and other bio technological methods. Since the bodies are exposed to heat, the texture and the pattern changes and also the chemical composition changes[21,22]. Thus various chemicals are used on the body, so that the inner and pure substances could be identified and the examination could be performed steadily.

Problem of the study: In a country like India, every action is backed by rituals and moral practices. Ceremonies of death and birth in India are based moral and cultural practices. Post mortem and forensic examination of the deceased bodies are considered to be an unholy action violating cultural and religious practices of individual communities.

Several media and news reports have shown the agitation towards forensic autopsies, people in both rural and urban India have shown a negative impact and opinion towards forensic autopsy. The situation tends seem magnified when it is focused over burned corpses and thus an ambiguity on public opinion prevails. Therefore this research aims to analyze the opinion of public towards forensic examination of burned bodies through medico legal autopsy and its with age group.

Methodology

Study area: A. As the researcher intends to take an over view on the examination of burnt bodies, the study is divided into two categories – i. public opinion towards removing bones or parts of bones from the burnt body, ii. public opinion towards use of chemicals over the parts of the burnt body.

Methods of study: Analytical Method, Quantitative method, Comparative method, Descriptive method.

Type of research: Applied Research, Quantitative Research, Explorative Research, Comparative research, Descriptive research

Data collection: Present study is based on Primary as well as Secondary sources of data, which are as- Primary Sources: Primary data is collected by collecting questionnaire from general public, Secondary Sources: Secondary data is collected through literature of N.G.O. reports, Government Reports, Websites, Research Articles, Newspapers.

Methods of sampling: Non probability sampling, Convenience sampling.

Variable used: Independent variable: Age groups, Dependent variable: Public opinion on removing bones or parts of bones from burnt bodies. Public opinion on usage of chemicals on burnt bodies.

Statistical Tool used: Chi square analysis, Correlation{ symmetric measures}

Sample size Calculation: A sample size of 1578 is chosen by which 578 respondents are in the age group of 18 to 25 years, 443 respondents in the age group 26-35 years and 424 respondents in the age group 36 and above years.

Table-1: Frequencies and Sample size.

Valid age group	Frequency	%	Valid %	Cumulative %
18-25	578	40	40	40
26-35	443	30.6	31	31
36 above	424	29.3	29	29
Total	1445	99.9	100	

In the current study, the respondents targeted are general public, since the investigation is with a motive to find out relationship between age group and public opinion on forensic examination of burnt corpses, it is divided on the basis of age groups. so a survey is collected from 578 respondents in the age group of 18-25 years, 443 respondents are in the age group 26-35 years and 424 respondents in the age group 36 and above years thereby having a total of 1445 respondents.

Tables and Calculation: In this study for each issue a survey is done where a sample size mentioned is taken and the percentage is also mentioned, to determine the validity and the determine the study results chi- square analysis and correlation symmetric measures method is used.

In the chi square test, when the pearson value of 'Asymp. Sig' value is less than 0.05, the alternate hypothesis is considered and when the pearson value 'Asymp. Sig' value is greater than 0.05, the null hypothesis is accepted. In the correlation symmetric measures test when the pearsons of 'Asymp. Sig' is value is less than 0.05, then alternate hypothesis is proved, if not null hypothesis is taken into account.

Hypothesis: i. H_0: there is no significant and contrasting relationship between public opinion on forensic examination of burnt bodies through autopsies and age groups. ii. H_1: there is a significant and contrasting relationship between public opinion on forensic examination of burnt bodies through autopsies and age groups.

Concept Analysais : Public opinion on removing bones or parts of bones from the burnt body- its relationship with age group.

As discussed in the above paragraphs it could be understood that post Mortem of burned bodies involves various issues and challenges. A normal autopsy could not be performed in the case of a burned deceased bodies. The part of bones or the bones fully are removed from the deceased body and it is carefully analyze using various bio technical methods. Removing of bones or parts of bones from a deceased body has a contrasting response from the public. There is a significant association between the age group and public acceptance towards removing bones. The younger generation tends to agree and gives a positive opinion towards removing parts of bone or the bone as a whole for the purpose of forensic autopsy but the older generation tends to give a negative opinion towards removing bones or parts for the purpose of forensic examination of a burnt bodies. Therefore it can be stated that the younger generation has a positive opinion towards removing bones or parts of bones from the bodies, whereas the younger generation do not support as it is believed that removing bones would violate religious rights and beliefs of individuals and communities. The pearson chi square value of 'Asymp. Sig' is 0.01 which value is less than 0.05, thus it could be stated that there is a relationship between public opinion on forensic examination of burnt corpses by partly or wholly removing bones and age group.

Another procedure that is used for the purpose of forensic examination of burnt bodies is usage of chemicals on the corpse. Various chemicals including alcohols are used over the body so that the ash and the shirked surface are either removed or is partially recovered and using which the red blood cells and the white blood cells are tested from the body. Once a chemical is used on a burnt body, the body can only be buried as the chemicals may also be inflammable and corrosives. Thereby the crematory right cannot be performed. The younger generation shows a positive opinion towards this form of examination whereas the older generation shows a descending opinion towards this form of examination.

Table-2: Relationship between removing bones or parts of bones from the burnt body and age group.

Age group	Public opinion on removing bones or parts of bones from burnt bodies			Total
	Yes	No	May be	
18-25	286	222	70	578
26-35	208	151	84	443
36-above	164	173	87	424
Total	658	546	241	1445

Chi-Square Tests	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	18.076[a]	4	.001
Likelihood Ratio	18.629	4	.001
Linear-by-Linear Association	2.235	1	.135
N of Valid Cases	1445		

Table-3: Relationship between using chemicals on a burnt body and age group.

Age group	Public opinion on usage of various chemical substances for purpose of Forensic examination					
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Total
18-25	91	117	140	57	173	578
25-35	60	122	3	122	136	443
36 above	133	123	104	28	44	424
Total	284	362	247	207	353	1445

Chi-Square Tests	Value	df	Asymptotic significance (2-sided)
Pearson Chi-Square	72.172[a]	8	.000
Likelihood Ratio	70.796	8	.000
Linear-by-Linear Association	14.965	1	.000
N of Valid Cases	1445		

Symmetric measures		Value	Asymptotic standard error[a]	Approximate T[b]	Approximate significance
Interval by Interval	Pearson's R	.102	.025	3.887	.000[c]
Ordinal by Ordinal	Spearman Correlation	.105	.026	4.001	.000[c]
N of Valid Cases		1445			

In the symmetric measures it could be noted that the pearsons of 'Asymp. Sig' is 0.00 which value is less than 0.05, thus it could be stated that there is a relationship between public opinion on forensic examination of burnt corpses by using chemicals and age group. The pearson chi square value of 'Asymp. Sig' is 0.00 which value is less than 0.05, thus it could be stated that there is a relationship between public opinion on forensic examination of burnt corpses by partly or wholly removing bones and age group.

Results and discussion

In a burnt body, a considerable measure of changes happen in the body which are both physical and chemical in nature, in this manner normal forensic autopsy cannot be performed in these corpses. Properties of burnt corpse are totally unique when compared to other corpses. Since the bodies are presented to heat, the surface and the pattern changes and also the chemical arrangement changes .The bones are expelled from the body [burnt] and is carefully analyzed using various methods, for example, PCR amplification and other biotechnological methods or various chemicals are utilized on the body, so that the inner and unadulterated substances could be recognized and the examination could be performed steadily. A normal autopsy couldn't be performed in the case of consumed deceased bodies. Removing of bones or parts of bones from a deceased body has a contrasting reaction from the general population. There is a significant association between the age gathering and open acceptance towards removing bones. The younger generation has a tendency to agree and gives a positive opinion towards removing parts of bone or the bone as a whole for the reason for forensic autopsy yet the older generation tends to give a negative opinion towards removing bones or parts for the motivation behind forensic examination of a burnt bodies.

The younger generation demonstrates a positive opinion towards examination using chemicals on the burnt body whereas the older generation demonstrates a descending opinion towards this form of examination.

The current study is influenced by educational knowledge and forward thinking of Indian public. The younger generation perceives a situation with a scientific knowledge, as a result of which they show a positive opinion towards the examination of burnt bodies. Another factor or parameter that influences the current study results is religious and moral values. The Indian society is mainly formed and united by cultural and religious practice, these conducts and practices tend to influence both birth and death. When a post mortem is performed on a burnt dead body it tends to violate religious aspects of the community as a result of which objection arises.

When the current study is compared with the other kinds of post mortem, the rationale of opposition in other forms of corpses is that it violates their cultural and religious practices whereas this reason is only part of the objection in the case of post mortem of a burnt body, forensic examination of burnt bodies are objected because of the practice of removal of part or whole of the bones from the body and usage of chemicals on the body. This procedure doesn't apply in the case of other deceased bodies.

Therefore this study recommends that, educational awareness should be carried out by the public so that public can understand the main reason for such examination. These awareness programs shall be focused on the older age groups, so that they will be able to understand the issues at a broader perspective. There can also be camps or community programs conducted by doctors or medical experts so that the public can understand the advantages of such autopsies.

Findings: i. Normal forensic autopsy cannot be performed in Burnt corpses. ii. Properties of burnt corpse are totally unique when compared to other corpses. iii. Removing of bones or parts of bones and usage of chemicals from a burnt deceased body has a contrasting response from the public. iv. The younger generation demonstrates a positive opinion towards examination using chemicals on the burnt body but the older generation demonstrates a descending opinion towards this form of examination. v. The younger generation has a tendency to agree and gives a positive opinion towards removing parts of bone or the bone as a whole for the reason for forensic autopsy yet the older generation tends to give a negative opinion towards removing bones or parts for the motivation behind forensic examination of a burnt bodies.

Recommendations: i. Educational awareness should be carried out by the public so that public can understand the main reason for examination. ii. These awareness programs shall be focused on the older age groups, so that they will be able to understand the issues at a broader perspective. iii. There can also be camps or community programs conducted by doctors or medical experts so that the public can understand the advantages of such autopsies. iv. New advanced technologies can be used for the autopsies of burnt bodies so that it does not violate the moral and religious beliefs of the society.

Conclusion

As discussed in the study, it could be understood that Normal forensic autopsy cannot be performed in Burnt corpses. Properties of burnt corpse are totally unique when compared to other corpses. Removing of bones or parts of bones and usage of chemicals from a burnt deceased body has a contrasting response from the public. The younger generation demonstrates a positive opinion towards examination using chemicals on the burnt body but the older generation demonstrates a descending opinion towards this form of examination. The younger generation has a tendency to agree and gives a positive opinion towards removing parts of bone or the bone as a whole for the reason for forensic autopsy yet the older generation tends to give a negative opinion towards removing bones or parts for the motivation behind forensic examination of a burnt bodies.

Thus, it could be stated that there is a significant and contrasting relationship between public opinion on forensic examination of burnt bodies through autopsies and age groups. The study recommends that awareness programs shall be focused on the older age groups, so that they will be able to understand the issues at a broader perspective. A further study can be carried out with respect to the ways of changing the mentality of Indian public towards forensic autopsies.

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