

# Students' Opinions on Autopsy and Death

*De Villiers FPR*, M Med (Paed), PhD, FACP, FCPaed  
*Ruhaya M*, M Med (Paed)  
 Department of Paediatrics and Child Health,  
 University of Limpopo (Medunsa Campus)

**Correspondence:** Prof. FPR de Villiers, Department of Paediatrics and Child Health,  
 PO Box 221, MEDUNSA, 0204, Tel: 012-521-4445, Fax: 012-521-3627,  
 Email: johnchild@medunsa.ac.za

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## Abstract

**Background:** Autopsies are commonly seen on television, but are less common in real life. Worldwide, the autopsy rate has declined drastically over the past half century, from approximately 50% to only five to 22% in the 1990s. These percentages are inflated by the number of forensic autopsies, which suggests that hospital autopsy rates for other purposes are very low. Some students graduate without witnessing a formal autopsy, and some students and medical practitioners consider the autopsy to be of little value. The purpose of this study was to assess the thoughts and feelings of students towards autopsies at the end of their medical training.

**Method:** A survey of final-year medical students' thoughts and feelings on the autopsy, death and grief was performed by means of a self-administered questionnaire. Informed consent was obtained and the study was approved by the Ethics Committee.

**Results:** Of the 164 respondents, 64 were female and 100 male. Their ages varied from 22 to 40, with a mean of 27,7 years. Only 11% had discussed their wishes with regard to an autopsy on themselves with their family, while 33% had discussed funeral arrangements. Most students thought that aspects of the autopsy should be changed, e.g. the deceased should remain anonymous, the number of students observing an autopsy should be reduced, the atmosphere should be more respectful and the organs should be handled with more care. During training, students have insufficient opportunities to discuss their thoughts and feelings about the autopsy, and issues of grief and death are insufficiently dealt with.

**Conclusions:** Students' emotional reactions are an important, but unfortunately neglected, aspect of medical training. Student teaching needs to deal effectively with expected reactions through the understanding and management of these emotional responses towards cadaver dissection and other medical procedures. At both undergraduate and postgraduate levels, medical education must emphasise the importance of the autopsy. This means that academic institutions need to perform a sufficient number of autopsies for students to have the opportunity to observe and participate in them.

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## Introduction

The autopsy is an extremely common occurrence on television programmes, to the extent that entire series are devoted to it. Unfortunately, this is far from the case in real life, with fewer autopsies being performed worldwide over the past 50 years.<sup>1</sup> In North America, the rate fell from 50% after World War II to 15% in 1980, in Sweden it fell from 46% in 1969 to 31% in 1993, and in Belfast from 30% in 1990 to 18% in 1999.<sup>2,3,4</sup> In England, the rate was only five to 22% in 1992.<sup>5</sup> Most of the above rates are inflated by the number of forensic autopsies, which suggests that the hospital autopsy rates for other

purposes are very low;<sup>5</sup> for example, in Northern Ireland the hospital autopsy rate fell from 22% in 1990 to 8% in 1999.<sup>4</sup>

Despite its important contribution to medical training, research and medical audit, students graduate from some medical schools without having witnessed a formal autopsy,<sup>1,6</sup> with some students and even doctors disregarding its value.<sup>7,8</sup> The main cause of the low autopsy rate seems to be changes in the system of medical education and the medical profession's attitude towards the autopsy.<sup>1,2,9</sup>

The autopsy is not just used for the determination of the cause of death and its contributing factors. As a mechanism

of medical quality control, the autopsy has a multifaceted role, including the confirmation, clarification and correction of ante-mortem clinical diagnosis;<sup>2</sup> the verification of diagnoses made by newer investigative techniques;<sup>2,10</sup> the evaluation of the performance of surgical and medical management; and the monitoring of possible adverse effects.

It is true that most people, including health personnel, associate the autopsy with the determination of the cause of death. In many cases, the precise cause is unknown; for example, perinatal autopsies were the only means of establishing the diagnosis in about a quarter of the deaths in neonates.<sup>11,12,13</sup>

It is very distressing for the family of the deceased not to know the disease that deprived them of their loved one. It is also uncomfortable for the doctor who is not able to explain the cause to the family because no autopsy has been performed.

Autopsy studies reveal that misdiagnosis is a relatively common occurrence, even where the diagnosis has been established by sophisticated modern investigative technologies. Approximately 7% to 13% of autopsies establish a clinically missed major diagnosis that might have caused a different therapeutic approach and thereby resulted in cure or prolonged survival.<sup>6,11,14,15</sup> Another 12% to 29% show a clinically missed major diagnosis for which treatment would not have been changed.<sup>6,11,14,15</sup> The error rate on death certificates before the autopsy has been reported to be as high as 40%.<sup>1,6,16</sup> In providing a final and correct diagnosis, the autopsy serves to reassure relatives and alleviate feelings of guilt or blame relating to the death of the deceased.<sup>16,17,18</sup>

The purpose of this study was to assess the thoughts and feelings of students towards the autopsy at the end of their medical training, in order to suggest improvements in the teaching system with regard to the autopsy.

## Methods

Data were collected by means of a self-administered questionnaire that consisted of a number of multiple-choice questions, some of which required more than one answer. This questionnaire was used in a similar study in Sweden.<sup>2</sup> The questions covered the following: socio-demographic factors; the students' future plans with regard to their career; whether they experienced the handling of the corpse and the autopsy as acceptable; whether they discussed their wishes with regard to their own funeral or autopsy with family or friends; and whether issues around death and grief were discussed during their training.

The data were collected during the first week of orientation in the departments of Paediatrics, Internal Medicine, Surgery, Orthopaedic Surgery,

and Obstetrics and Gynaecology. The data collection procedure was discussed beforehand with the student coordinators and with student representatives. The student coordinator arranges the orientation for the students in the department, and is the Head of Department or a senior consultant. After the orientation session, a researcher (MR) or the student coordinator explained the questionnaire. The students had the opportunity to ask questions, and were then given time to fill in the questionnaire. Some students requested more time to return the questionnaire. In the Department of Family Medicine, the students attended rural hospitals before returning the questionnaire. The written consent form was signed before filling in the questionnaire and after the explanation of the study. The study project was approved by the Research, Ethics and Publications Committee of the Faculty of Medicine of MEDUNSA. The data were analysed with a computerised statistical system (EPI Info 6). Responses from the questionnaires were coded, entered as data, and statistical techniques were applied. Descriptive statistics consisted of the calculation of frequencies and means. Differences between the opinions of the group agreeing with the question statement and the group disagreeing with it were assessed using the chi-square test conducted at the 5% significance level. Neutral responses, including "cannot answer" or "no definite opinion", were omitted from the statistical calculations. Totals that do not add up to 100 in the reporting of the results are due to the fact that some answers were omitted by some respondents.

## Results

In 1998, there was a total of 254 final-year MB ChB students at MEDUNSA. Two hundred and thirty-nine attended the orientation sessions in the different departments and received questionnaires. The follow-up for students attending Family Medicine at the time of the study was difficult and yielded a low return, as they left for their rural attachment immediately after the

orientation sessions. One hundred and sixty-six questionnaires were completed and returned. Four were discarded as unsuitable because many important questions had not been answered. Only two questionnaires were returned by those who did not attend the orientation sessions. A total of 164 (65%) completed questionnaires were used for the study.

The ages of the students ( $n = 131$ ) were between 22 and 40 years, with a mean of 27.7. The students' responses were divided into those from three age groups: 22 to 24, 25 to 29 and over 30 years of age.

Sixty-four (39%) of the 164 students were female and 100 (61%) were male. One hundred and twenty belonged to Christian denominations, 27 were Hindus and nine were Muslims. Eight students did not belong to any of the above religions. In relation to their professional future, 44 students (35% of those who answered the question) stated that they would like to specialise in the surgical field (Surgery, Obstetrics and Gynaecology, and surgical subspecialties), 40 (31%) wanted to specialise in the medical field (Internal Medicine, Paediatrics and medical subspecialties), and seven (6%) wanted to specialise in non-clinical specialities. Thirty six (28%) said they would prefer to work as general practitioners after registration.

About a third of the students (51; 31%) had a close relative who had undergone an autopsy, while half (86; 52%) had no such experience and 27 students (17%) did not know.

Only 18 students (11%) had discussed having an autopsy performed on themselves with their relatives and had informed them about their wishes concerning an autopsy. The age of the students showed a weak relationship with the discussion about autopsy ( $p = 0,051$ ), but the numbers involved are small. However, 59 students (33%) had already discussed their funeral arrangements with their relatives. Older students experienced more concern about their funeral than younger ones (see Table I). The difference is statistically significant ( $p = 0,0015$ ). In general, all students tended to discuss funerals more

**Table I:** Relationship between Age and Discussion of Funeral

STUDENTS' RESPONSES			
AGE	YES	NO	TOTAL
22-24	11	14	25
25-29	19	44	63
30 +	19	12	31
TOTAL	49	70	119

Chi square = 8,42  
p-value = 0,015

**Table II:** Discussion of Autopsy and Funeral

STUDENTS' RESPONSES			
	YES	NO	TOTAL
AUTOPSY	15	107	122
FUNERAL	49	70	119
TOTAL	64	177	241

Chi square = 25,75  
p-value = 0,0000004

readily with their relatives than they would discuss autopsies. This showed a highly statistically significant difference ( $p = 0,0000004$ , Table II).

During the autopsies, 53 students (32%) thought that the corpse was handled respectfully, 37 (22%) said it was handled disrespectfully and for 61 students this varied on different occasions. As a consequence, only 42 students (26%) thought that the autopsy procedure was good as it is, but the remaining 122 thought that some aspects of it should be changed. The point stressed by most was that the anonymity of the deceased should be strictly maintained (37%). Other troublesome aspects were that the number of students in the group should be smaller (12%), that the atmosphere should be more respectful (29%), and that the organs should be handled with care (4%).

During their training, only 15 students (9%) had the opportunity to discuss their thoughts and feelings about autopsy sufficiently, 45 (27%) had never discussed this at all and 98 (60%) had never discussed it with their teachers. Similarly, the issues of death, grief and crisis were sufficiently dealt with for 26 students (16%), not sufficiently for 80 students (49%) and not at all for 48 (29%).

## Discussion

Most aspects of the autopsy have been studied extensively, particularly with

regard to its value in the medical audit, in teaching, in research and in epidemiology. Until recently, few studies focussed on the attitudes of people involved in performing the autopsy and even fewer on students' attitudes.<sup>7</sup> Those studies that were undertaken showed different approaches and used different questionnaires, but the objectives and findings were comparable. Unfortunately, most of these studies were published in pathology journals, which are seldom read by medical practitioners.<sup>3,7,9</sup> Considering the role played by medical practitioners in the process of performing autopsies, every effort must be made to communicate the importance of the autopsy to them.

In South Africa, the profession does not seem to have noted the decline of the autopsy. There are few studies on the autopsy or the attitudes of people involved in autopsies.<sup>19,20</sup> Berlin et al. found that 16,7% of general practitioners did not know that they could request a non-coroner (medico-legal) post-mortem examination.<sup>17</sup> The situation is unlikely to be different in this country.

The questionnaire return of 65% was considered good, and was comparable to that in other studies.<sup>3,9,16</sup> Most of the non-respondents did not complete the questionnaire on the spot, but took it away for completion later. The relatively high percentage of non-respondents can be explained by the sensitive nature of the topic, since there was also a great deal of non-response in other

studies.<sup>9,16</sup> Talking about death arouses feelings of anxiety and is a subject most people prefer to ignore. The sensitive nature of the autopsy seemed to be confirmed in this study by the low return from students who did not attend the orientation session, and by the relatively high percentage of internal non-respondents (those who avoided answering some of the questions in the questionnaire). A certain degree of introspection and anxiety tolerance is required to be able to answer these kinds of questions.<sup>3</sup>

Outside medical school, students appear to be unexposed to the reality of autopsy within the community. Only a third of them know of a deceased member of his or her family who underwent an autopsy. Only a tenth of the students had discussed with relatives the possibility of their own autopsy. This reflects the rarity with which autopsy is carried out in their communities. Death is rarely spoken about, and autopsies even less so. Although death is accepted as a natural and an inevitable phenomenon by all of mankind, many people live in fear of the thought of their own death, perhaps for fear of the unknown state of non-existence. Each death of a friend represents a profound emotional challenge, not only because of the loss of the loved one, but also because it is a reminder and a presage of the demise of the self. People learn to cope with the reality, but no one is exempt from this recurrent emotional struggle. In the current study, only a third of the students had discussed their own funeral with relatives. The figure for this response is three times higher than that for discussion about autopsy, a difference which was highly significant statistically.

Funerals are important social occasions in African society. They are seen as part of "our culture" and are thus a ready topic for conversation.<sup>21</sup> The cost of funerals is a frequent topic of conversation. Funeral societies play a vital role in the community, and paying contributions to them and attending funerals are virtually compulsory.<sup>21</sup>

In this study, age had a strong influence on the students' discussion of

their funerals with relatives. The older students were more concerned than the younger ones about the funeral ( $p = 0,0015$ , Table I). Their concern about their autopsy did not quite reach statistical significance ( $p = 0,051$ ).

Although the majority of students (58%) considered the first autopsy they attended to be rewarding, confirming its educational value, the autopsy makes most students feel uncomfortable.<sup>19</sup> These reactions are aggravated because students are not prepared psychologically for what they see during an autopsy.<sup>7,22</sup> The experience of medical procedures, such as the dissection of a corpse and surgical operations, are frightening and emotionally traumatic.<sup>7</sup> Some students report severe disturbances, such as nightmares, after post-mortem dissections.<sup>22</sup> Students should be prepared psychologically to avoid these feelings of emotional shock in order to experience the benefits of these procedures.<sup>7,19,22</sup>

The physical environment of the autopsy room, the emotional atmosphere in which the autopsy is carried out, including the way the corpse is handled, and the behaviour of the pathologist have a strong influence on students.<sup>9,23</sup> In this study, one third of the students were satisfied with the way the corpse was handled. Only one quarter thought that the procedure needed no improvement, while the majority suggested that some aspects be modified in order to afford more respect to the deceased. As found in similar studies, these expressions of dissatisfaction seem to be universal among all student.<sup>7,9</sup> For example, in Sweden, 38% of students were not satisfied with the way the body was handled.<sup>9</sup> Similarly, in England, 42% of students thought that there should be reverential silence during autopsies, and 79% felt that the audience should be as small as possible.<sup>7</sup> However, our students' feelings of dissatisfaction seemed to be very pronounced in this study.

In most medical schools, the issues of grief, death and feelings about autopsy are not dealt with during medical training, and are not integrated into the medical curriculum.<sup>7,9</sup> In this study, nearly

60% of students had not had an opportunity to express their feelings about the autopsy. The few who noted that they had that chance quite probably experienced it in informal situations outside the clinical milieu.<sup>9</sup> The dissection of a dead body is not simply a technical exercise; it raises emotional feelings with regard to human mortality and dignity.<sup>22</sup> Students are confronted with the most direct evidence of death, especially in relation to their own mortality.<sup>7</sup> If these feelings and thoughts are not channelled properly, certain students will understandably rapidly develop a coping mechanism to face the frightening autopsy experiences in order to reduce stress and to benefit intellectually from it.<sup>22,23</sup> This mechanism consists of emotional withdrawal and a feeling of detachment from the cadaver having been a human being.<sup>22,24</sup> Students may intellectualise the procedure, dehumanise the corpse through over-professionalism or become habituated to the situation.<sup>22</sup> Possible consequences of this detachment could be that, later in their medical career, some might subconsciously maintain the same behaviour towards their patients to a certain extent, losing sensitivity towards them.<sup>22</sup> Patients could then be dealt with intellectually as 'disease cases' and not as human beings with feelings, needs and dignity.<sup>22</sup> Conversely, other students may not develop this coping mechanism. They would consider the autopsy as a dehumanising, insensitive and repulsive procedure.<sup>25</sup> They would not benefit from the educational aspects of an autopsy, but would develop a negative attitude towards it. A few students in this study (10%) showed this tendency, as did students in other studies.<sup>9</sup>

The students' emotional reactions are an important, but unfortunately neglected, aspect of medical training. The teaching needs to deal effectively with expected reactions through an understanding and management of these opposing innate responses towards cadaver dissection and other medical procedures. Medical practitioners must graduate as emotionally well-balanced individuals.

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