

# Attitudes and Perceptions of Filipino Clinicians and Pathologists towards the Autopsy as a Medical Tool

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## ABSTRACT

**Background.** Globally, autopsy rates have been continually declining over the course of several years. Previous studies have shown that the perception of pathologists and clinicians may serve as significant factors which may affect the performance of autopsy and contribute to its decreased rate. This study was conducted to determine the attitudes and perceptions of Filipino clinicians and pathologists toward the autopsy as a medical tool.

**Methodology.** This is a cross-sectional descriptive survey of two groups of physicians. Forty-four (n = 44) pathologists nationwide and thirty-three (n = 33) clinicians from Central Visayas participated in the study. A total of seventy-seven (n = 77) physicians completed a survey using a standardized online questionnaire.

**Results.** Of the 77 respondents, 94% of clinicians and 75% of pathologists believed that autopsies could provide relevant findings that could change future clinical practice. Despite this, only 6% of clinicians and 20% of pathologists indicated that the number of autopsy cases in their institutions was sufficient. With regards to their practice, pathologists most strongly agreed (mean = 4.30) that material for medico-legal autopsies should be readily available for teaching and research. However, they most strongly disagreed (mean = 2.00) that residents receive adequate training in performing medico-legal autopsies. The two groups of physicians surveyed determined that there is a deficiency in the number of autopsy cases. This is further influenced by clinicians' concerns about litigation, religious/superstitious beliefs, and the delay in releasing autopsy results. Furthermore, pathologists specified that performing autopsies was excessively time-consuming with an unjustifiable cost. Sixty-two percent of the pathologists signified more strongly than the clinicians that modern diagnostic techniques have diminished the need to perform hospital autopsies. Nonetheless, 86% of Filipino physicians acknowledged that the autopsy is an important medical tool that should be performed for patients with unknown diagnoses and unexpected death. The number of observed and/or performed autopsy cases was a major factor that affected the pathologists' attitudes and perceptions toward autopsy.

**Conclusion.** In general, there is recognition of the autopsy's usefulness as a medical tool among the pathologists and clinicians surveyed. However, the lack of cases referred for autopsy remains a challenge undermining the benefits that are derived from its performance

*Key words: autopsy, pathologists, clinicians, attitudes, perceptions*

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## BACKGROUND

The autopsy is a specialized surgical procedure which is commonly used to determine the cause and manner of death. The cause of death is a medical reason for the cessation of life, while the manner of death consists of the circumstances surrounding the death of a patient.<sup>1</sup> There is a common notion that autopsies should only be performed whenever there is uncertainty concerning the cause of death. Albeit this is a valid reason, it must be emphasized that the autopsy serves a two-fold purpose: one, it enables the thorough evaluation of the presence and extent of disease; and two, it provides a means by which the effectiveness of therapeutic procedures is evaluated to benefit the patient's family, hospital staff, and the future practice of medicine.

The relevance and value of autopsies have been well documented. The study by Hooper et al., demonstrated that physicians value the autopsy as a relevant clinical tool



and that the results could affect their medical practice.<sup>2</sup> This belief was maintained across various medical specialties, years of practice, and prior experiences with autopsy. Furthermore, the study by Hull et al., reinforced the value of autopsy by demonstrating that internal medicine and pathology resident physicians considered the autopsy to be a necessary procedure which provides answers to clinical questions, reveals information not previously identified by medical imaging or not otherwise known in a patient's life, and affects management decisions of future cases.<sup>3</sup>

In the Philippines, an autopsy is performed under the following circumstances: whenever required by special laws; upon orders of a competent court, a mayor, and a provincial or city fiscal; upon written request of police authorities; whenever the Solicitor General, provincial, or city fiscal as authorized by existing laws, shall deem it necessary to disinter and take possession of remains for examination to determine the cause of death; and whenever the nearest kin shall request in writing the authorities concerned to ascertain the cause of death.<sup>4</sup> For patients who die in accredited hospitals, an autopsy may be performed once permission from the next of kin has been obtained by the director of the hospital. Thus, the decision to perform an autopsy is largely based upon proper appraisal by the clinician, and on the approval by the next of kin.

Autopsy rates have been continually declining over the course of several years. Studies showed that autopsy was once considered the "gold standard" in medical diagnosis such that historical data suggested autopsy rates of 50 to 85% during the 1950s and 1960s in the United States. It has declined in use to just 9.4% in 1994.<sup>5</sup> In 2004, the study by Burton et al., suggested that autopsy rates in US hospitals have declined to less than 6%.<sup>6</sup> By 2011, National Center for Health Statistics data concluded that autopsy rates in the US had declined by more than 50 percent from 1972 through 2007.<sup>1</sup> At a hospital in France, the autopsy rates declined during the last 10 years, which is in accordance with what has been documented in the United States, as well as in England and Wales (a decrease from 8.9% in 1966 to 1.7% in 1991).<sup>7</sup>

The autopsy rate is calculated as the number of deaths undergoing autopsy per all deaths expressed per 100 deaths. Perpetual Succour Hospital registered a total of 2,338 deaths from January 2015 up to December 2019. Of these deaths, only two (2) autopsy procedures have been performed in the institution, both occurring in 2019. Thus, the hospital autopsy rate in a span of five (5) years is 0.08%.

Research suggests that pathologists and clinicians alike have different perceptions and attitudes towards autopsy and the different factors related to its decrease. McManus and his colleagues demonstrated that the decline over the past 20 years is perceived significantly more by pathologists than clinicians.<sup>8</sup> However, another study by Chariot, et al. showed that pathologists were "satisfied" with the current decline of autopsy rate in the conditions in which they are currently performed and that the pathologists did not complain about this decrease.<sup>7</sup>

On the other hand, although Nemetz and his colleagues concluded that the explanations behind autopsy rates

are multi-factorial and conditional, studies by Eriksson and Sundstrom, have implied that the attitude and interest of clinicians toward autopsy seemed to be the major explanation for the decline of the rate.<sup>5,9</sup> This was supported by Hooper et al., who also suggested that the most important variable in determining whether an autopsy is performed is the requesting physician's general attitude toward autopsy.<sup>2</sup>

Work from previous studies has indicated that the perception of pathologists and clinicians may serve as significant factors which may affect the performance of autopsy, as well as contribute to its decreased rate. It is the goal of the researcher to be able to determine these perceptions with regards to autopsy in the local setting, and perhaps give light to current conditions.

## OBJECTIVES

The researcher aimed to determine the attitudes and perceptions of Filipino clinicians and pathologists towards the autopsy as a medical tool.

### Significance of the study

Information gleaned from this study may benefit administrators, clinicians, and pathologists alike in understanding how the autopsy is perceived by medical professionals, as well as in identifying certain perceptions and attitudes that may or may not have contributed to its recession. Furthermore, the number of autopsy cases in our institution has been observed to be decreasing in number, thus, it is the hope of the researcher that determining the autopsy rate will provide the scientific community concrete data of this change in the local setting.

### Review of related literature

A decreasing trend in the number of autopsy cases has been documented worldwide. Previous studies have concluded that while the reasons for this decline may be multi-factorial, some articles have implied that the perceptions of physicians towards autopsy indeed have an effect.<sup>5</sup>

In 2004, a study by Burton and his colleagues aimed to determine the relation of physicians' recommendations regarding autopsy, as well as patient and surrogate decision-maker characteristics, to autopsy performance. The researchers investigated the association between autopsy performance and the strength of a physician's recommendation for autopsy. The study concluded that the strength of the postmortem recommendation by the physician was the factor most strongly associated with autopsy performance.<sup>6</sup>

A similar conclusion was obtained in the study by Hooper et al., in 2007, which aimed to investigate the nature of physician attitudes about autopsy in a large and varied population and to relate these attitudes to certain physician demographic variables. The study instrument was a 10-question survey which was designed for distribution to all attending physicians at several institutions. The researchers observed from the literature that the most important variable in determining whether an autopsy is performed is the requesting physician's general attitude toward autopsy. Additionally, their study showed that one

of the most crucial factors influencing this attitude is the physician's level of experience with autopsy in training and practice.<sup>2</sup>

Thus, it could be implied that the physicians' attitudes towards autopsy could be the main determinant for the decline in autopsy rates. It was investigated by the study of Eriksson and Sundstrom in 1993, which aimed to explore the reasons behind the decline in autopsy rate in three hospitals in Sweden. Their study concluded that a change in the attitude and interest of clinicians toward autopsy was suggested as the major explanation for the decline of the autopsy.<sup>9</sup>

### Barriers to performance of autopsy

In the study by Nemetz et al., the following were hypothesized reasons for the decline in autopsy rates: improvements in diagnostic technology, fear of litigation, removal of defined minimum autopsy rate standards, a lack of direct reimbursement, and lack of standardization of the autopsy as a medical procedure with resultant lack of credibility as a valid outcome or performance measure. Among the hypothesized reasons for the decline in autopsy rates, hospital administrators identified improved diagnostic technology as the most important cause.<sup>5</sup>

The study by Hull and associates in 2007 compared internal medicine and pathology resident physicians' perceptions of the autopsy. In the study, pathologists identified two factors with high importance in determining autopsy rate. Pathologists suggested that clinicians think autopsies are unnecessary because of medical imaging, and that asking for an autopsy is too much trouble for a clinician. Further, the study implied that it was unclear whether pathologists as a group enjoyed doing autopsies since it was determined that many pathologists do not perform them anymore and that many hospitals no longer have a morgue.<sup>3</sup>

A study by Chariot et al., aimed to analyze the different factors that could influence hospital autopsy rates, such as legal constraints, autopsy reporting times, opinions of physicians requesting autopsies and pathologists regarding the usefulness of autopsy in patient care, and use of autopsy material in research publications. Clinicians agreed that the main reason for their disinterest in autopsy was the long response time, such they were dissatisfied with the delay in obtaining written autopsy reports. Additionally, the clinicians' absence during the procedure also was identified as a reason for their disinterest.<sup>7</sup>

Previous studies on autopsies in Japan have revealed that many physicians do not pursue an autopsy even when they feel that it is necessary. The study by Maeda and his colleagues showed that the low autopsy rates were related to the pursuit of autopsy bringing suspicion of medical error upon the physician respondents. Additionally, physicians regarded other methods such as noninvasive blood testing or tissue sampling as significant factors contributing to low autopsy rates.<sup>10</sup>

### Differences in perception

Past articles also brought to light differences in perceptions between the different physician groups, such as differences in perception towards the autopsy rate. In 1992, a study by

MacManus and his colleagues determined that significantly more pathologists than clinicians believed autopsy rates have fallen over the past 20 years. This was supported by the study by Nemetz et al., which concluded that despite having recognized the decline in autopsy rates, only 25% of the respondents felt that autopsy rates should be higher.<sup>5</sup>

The study by Hull and his colleagues identified a difference in the intensity of perception between internal medicine physicians and pathologists, such that pathologists were more inclined to agree that autopsies were important to provide closure for families. Another important finding was that the internal medicine physicians felt that they had not received adequate instruction on what occurs during an autopsy, nor could they answer technical procedural questions. Additionally, although internists were comfortable in obtaining consent for autopsies, they did not feel that they were able to receive sufficient guidance on how to request them. Internists also believed that pathologists experienced job satisfaction associated with performing an autopsy more than pathologists reported.<sup>3</sup>

These differing opinions were supported by the study of Chariot and his colleagues which showed that one of the causes of their reluctance to perform autopsies is the fear of contracting an infectious disease. Pathologists also indicated that they were not satisfied with the conditions in which they had to perform the procedure. Lastly, the pathologists in this study agreed that they were "satisfied" with the current decline of hospital autopsy rates in the conditions in which they are currently performed since they felt that autopsies were a low priority and were not stimulated by requesting physicians, who were usually not present during the procedure and who rarely expressed interest in the results.<sup>7</sup>

These different attitudes and perceptions were met with a genuine concern stated in some studies, which contemplated that the pathologists' skill in autopsies could decline if a critical number of cases were not provided to training pathologists, thereby making autopsy reports less useful to the physicians.<sup>3</sup> This same concern was expressed by pathologists who also stressed that the decline in autopsy rate will induce loss of expertise.<sup>7</sup>

### Support for autopsy

Despite the previously discussed barriers to the performance of an autopsy, it is still widely believed that the autopsy is a useful medical tool. The study by Start et al., found that senior pathologists strongly agreed with statements relating to the importance of autopsies about workload, medical audit, and accreditation for residency training. Likewise, strong support was given for the attendance of clinicians at autopsy demonstrations and for the suggestion that material from medico-legal autopsies should be made available for teaching and research. On the other hand, the respondents expressed strong disagreement with the statements that advances in diagnostic techniques have diminished the role of autopsies, that performing autopsies does not further pathologists' education, that the cost of autopsies may not be justifiable within a limited budget, and that the autopsy should no longer be part of the pathology board examination. With regard to accreditation, most pathologists supported the

suggestion that accreditation for training should be linked to an adequate autopsy rate.<sup>11</sup>

Additionally, studies showed that both internal medicine and pathology resident groups strongly agreed that autopsies were important for their respective education, research, medical quality control, and public health.<sup>2,3</sup> Moreover, both groups disagreed that autopsies had no value and that they were useless if the findings were not treatable in life. As a final suggestion, internists stated that they would request autopsies more frequently if they had seen one.<sup>3</sup>

## METHODOLOGY

### Research design

This study employed a cross-sectional descriptive survey design to determine the attitudes and perceptions of Filipino clinicians and pathologists towards autopsy as a medical tool.

### Research locale

This study was conducted online in two parts. First, the study survey was distributed nationwide among Filipino pathologists. Second, the study survey was administered among clinicians practicing in Central Visayas. The study was conducted from August 2022 to June 2023.

### Sampling design

The first part of the study utilized a purposive sampling technique wherein the respondents of the study were members of the Philippine Society of Pathologists, Inc. (overall national society).

The second part of the study utilized a purposive sampling technique wherein the respondents of the study were members of the Philippine College of Physicians Central Visayas Chapter and the Philippine Pediatric Society Central Visayas Chapter.

### Respondents of the study

The respondents of the study were members of the following societies: Philippine Society of Pathologists, Inc. (overall national society), the Philippine College of Physicians Central Visayas Chapter, and the Philippine Pediatric Society Central Visayas Chapter. Respondents of this study included resident doctors, fellows, and consultants who were affiliated with these specialty societies and practicing in the fields of Pathology, Internal Medicine, and Pediatrics, respectively.

### Data gathering procedure

An ethical approval for the conduct of the study was secured from the Institutional Review Board of Perpetual Succour Hospital of Cebu. After securing the ethical approval, the researcher gathered pertinent data on the number of autopsies done in our institution, as well as the number of deaths. The researcher acquired consent from the specialty societies and thereafter coordinated with the Secretariat of each specialty society for the distribution of the survey questionnaire. An informed consent was sent online together with the questionnaire. The completed questionnaires were then retrieved and collated; after which, appropriate statistical analyses were applied.

### Statement of confidentiality

The records of the study were collected and stored in a secure file accessible by the researchers only. Respondents were not identified by name, social security number, address or phone number. All research data were treated with the utmost confidentiality. In the event of any publication or presentation resulting from the research, no personally identifiable information would be shared.

### Research instrument

The study tool that was used in this study was a comprehensive questionnaire adapted from the untitled questionnaire used by Start, et al. and the questionnaire entitled "Autopsy Research Questionnaire" used by Hooper et al. Correspondence from the authors of both questionnaires was secured before using the survey questionnaire. Before the administration of this questionnaire, a pilot study using 10 respondents was conducted using an online survey tool. Modifications were done at the end of the pilot study.

The questionnaire distributed to pathologists consisted of 3 sections with 27 question items in English. The first part of the questionnaire consisted of informed consent and 7 items to determine the profile of the respondent. The second part consisted of 10 questions that explored pathologists' different attitudes and perceptions towards autopsy. Each question in this portion required a response using a 5-point Likert scale (5 = strongly agree, 4 = somewhat agree, 3 = neither agree/disagree, 2 = somewhat disagree, and 1 = strongly disagree) to measure the respondent's degree of agreement to the statements regarding autopsy. The third part consisted of 10 questions that explored the pathologists' attitudes and perceptions towards autopsy. Each question required a response using a 5-point Likert scale (5 = strongly agree, 4 = somewhat agree, 3 = neither agree/disagree, 2 = somewhat disagree, and 1 = strongly disagree) to measure the respondent's degree of agreement with the statements regarding autopsy.

The questionnaire distributed to the Clinicians consisted of 2 sections with 27 question items in English language. Sections 1 and 2 of the clinicians' questionnaire contained identical questions to that of sections 1 and 3 of the pathologists' questionnaire, respectively.

### Data analysis

For this study, frequency and percentage distribution were used to describe the demographic profile of the respondents, which include their gender, age, work, number of years of experience, religion, and number of autopsy cases observed or participated. In addition, mean, standard deviation, and relative frequency (in percentage) were utilized to describe respondents' attitudes and perceptions toward autopsy.

Meanwhile, ANOVA or analysis of variance was utilized to determine the difference in respondents' attitudes and perceptions towards autopsy when grouped according to their profile. SPSS Win (Statistical Package for the Social Sciences in Windows) and Microsoft Excel Analysis tool pack were used. An alpha level of 0.05 was used in the statistical treatments.

**Scope and limitation of the study**

The study was conducted in two parts. The first part was conducted among pathologists nationwide. The second part of the study was conducted among clinicians practicing in Central Visayas only. Physicians without internet access were not included in the study. The study is limited by the number of pathologist and clinician respondents who were able to complete the online survey conducted.

**RESULTS**

**Part one – Survey among pathologists**

**Demographic profile**

A total of 44 pathologists participated in this research and completed the online questionnaire. Table 1 presents the profile of the respondents of the study. The majority of the respondent pathologists (n = 44) belong to the 31-34 age group, are predominantly female, and are Roman Catholic. They are comprised mostly of consultant pathologists (56.8%) and resident physicians in training (40.9%). The majority of the respondents had 0 to 3 years of experience (34.1%), followed by those with 4 to 5 years of experience in their profession. Only 2.3% of the pathologist respondents stated that they were not able to observe or participate in any autopsy, while most of the respondents said that they were able to observe or participate in less than 5, 5-10, and more than 20 cases.

**Pathologists' attitudes and perceptions toward autopsy**

Table 2 presents the pathologists' attitudes and perceptions toward autopsy. The respondents agreed that performing autopsies will further their knowledge and experience in pathology (mean = 4.14). Moreover, while the pathologist respondents agreed that autopsies are an important part of a pathologist's work (mean = 4.16), the respondents agreed that performing autopsies can be excessively time-

consuming, considering other demands on their time (mean = 3.53). The table shows that the highest mean score was recorded in item number (8) (mean = 4.30). This follows that most respondents strongly agreed that the material from medico-legal autopsies should be readily available for teaching and research purposes. Pathologists also agreed that medico-legal autopsies arising from post-operative deaths should be performed by an independent pathologist from another center (mean = 3.93) and that a hospital autopsy should be recommended on every tenth death in the hospital as part of the clinical audit.

On the other hand, the lowest mean is in item number (3) (mean = 2.00). This shows us that the respondents disagreed that pathology residents receive adequate training in performing medico-legal autopsies. In addition, respondents showed a neutral (mean = 2.84) response to the statement that pathology residents received adequate supervision and training in hospital autopsies even though most respondents agreed that a minimum number of autopsies per year should be one of the requirements for the accreditation of a pathology residency training program of an institution (mean = 2.64). Lastly, respondents neither agreed nor disagreed that the performance of a minimum number of autopsies should be a requirement for their society's Diplomate examination (mean = 2.91).

**Pathologists' general attitudes and perceptions towards autopsy**

Table 3 shows the general attitudes and perceptions of pathologists towards autopsies. Among all the statements, the lowest mean score was recorded for statement number 1 (mean of 2.36). This showed that pathologists disagreed that the number of autopsy cases in their institution is sufficient to meet departmental goals for knowledge, research, and education.

**Table 1. Demographic profile of the respondents**

	Total n= 77	Clinicians, n=33		Pathologists, n=44	
		F	%	F	%
<b>Gender</b>	Female	26	78.8	24	54.5
	Male	7	21.2	20	45.5
<b>Age</b>	27 to 30 years old	18	51.72	6	13.6
	31 to 34 years old	7	20.69	19	43.2
	35 to 38 years old	4	13.79	6	13.6
	39 years old and above	4	13.79	13	29.5
<b>Current work</b>	Consultant	8	24.24	25	56.8
	Fellow	5	15.15	1	2.3
	Resident Physician	20	60.61	18	40.9
<b>Number of years of experience</b>	0 to 3 years	23	69.7	15	34.1
	4 to 5 years	4	12.1	13	29.5
	6 to 8 years	1	3.03	6	13.6
	9 to 11 years	2	6.06	3	6.8
	12 years and above	3	9.09	7	15.9
<b>Religion</b>	Roman Catholic	30	90.9	39	88.6
	Christian	1	3.0	1	2.3
	Islam	1	3.0	1	2.3
	Protestant	1	3.0	3	6.8
<b>Autopsy cases observed or participated</b>	0 (none)	18	54.5	1	2.3
	Less than 5	14	42.4	12	27.3
	5 to 10	1	3.0	12	27.3
	11 to 20	0	0	7	15.9
	More than 20	0	0	12	27.3
<b>Department</b>	Internal Medicine	20	60.6	-	-
	Pediatrics	13	39.4	-	-

**Table 2.** Pathologists' attitudes and perceptions towards autopsy

Statement	Mean	Sd	Interpretation
1 Autopsies are an important part of a pathologist's work.	4.16	1.10	Agree
2 Pathology residents receive adequate supervision and training in HOSPITAL autopsies.	2.84	1.33	Neutral
3 Pathology residents receive adequate training in performing MEDICO-LEGAL autopsies.	2.00	1.10	Disagree
4 A minimum number of autopsies per year should be one of the requirements for the accreditation of a pathology residency training program of an institution.	2.64	1.57	Agree
5 Performing autopsies will further my knowledge and experience in pathology.	4.14	0.93	Agree
6 I find that performing autopsies can be excessively time-consuming, considering other demands on my time.	3.53	1.20	Agree
7 Medico-legal autopsies arising from post-operative deaths should be performed by an independent pathologist from another center.	3.93	1.09	Agree
8 Material from medico-legal autopsies should be readily available for teaching and research purposes.	4.30	0.93	Strongly Agree
9 A hospital autopsy should be recommended on every tenth death in the hospital as part of the clinical audit.	3.45	1.42	Agree
10 The performance of a minimum number of autopsies should be a requirement for our society's (PSP) Diplomate examination.	2.91	1.61	Neutral

**Table 3.** Clinicians and pathologists' general attitudes and perceptions towards autopsy

Items	N	Mean	Sd	Interpretation
1 The number of autopsy cases in my institution is sufficient to meet departmental goals for knowledge, research, and education.	Clinicians	1.85	0.97	Disagree
	Pathologist	2.36	1.37	Disagree
2 Autopsy results are available in timely fashion.	Clinicians	2.39	0.97	Disagree
	Pathologist	2.89	1.30	Neutral
3 Autopsies can provide relevant findings that could change future clinical practice.	Clinicians	4.58	0.71	Strongly Agree
	Pathologist	4.09	0.88	Agree
4 Currently, modern advances in diagnostic techniques have diminished the need to perform hospital autopsies.	Clinicians	3.09	0.95	Neutral
	Pathologist	3.73	1.44	Agree
5 The decision to request for an autopsy is affected by concerns about lawsuits due to unexpected findings from the procedure.	Clinicians	3.55	1.15	Agree
	Pathologist	4.09	1.02	Agree
6 Many family members refuse autopsy because of religious objections and/or superstitious beliefs.	Clinicians	3.52	1.35	Agree
	Pathologist	4.16	1.08	Agree
7 Whenever possible, clinicians should attend autopsies that they have requested on their patients.	Clinicians	4.00	1.17	Agree
	Pathologist	4.27	0.90	Strongly Agree
8 Patients with unknown diagnoses and unexpected deaths should always be subjected to autopsy.	Clinicians	4.36	0.90	Strongly Agree
	Pathologist	4.39	0.92	Strongly Agree
9 The autopsy will help the family go through the grieving process.	Clinicians	3.94	0.83	Agree
	Pathologist	3.30	1.11	Neutral
10 The cost of performing an autopsy is justified for training institutions with a limited budget.	Clinicians	3.70	0.88	Agree
	Pathologist	3.09	1.36	Neutral

The statement with the highest mean score—for the pathologists—was observed in statement number 8 (mean = 4.39). The study showed that the pathologist respondents strongly agreed that patients with unknown diagnoses and unexpected deaths should always be subjected to autopsy.

Table 4 shows the relative frequency of pathologists' responses when asked about their general attitudes and perceptions towards autopsy. Responses recorded as "Strongly Agree" and "Somewhat Agree" were added under the column "Agree", while responses noted under "Somewhat Disagree" and "Strongly Disagree" were added under the column "Disagree".

Regarding the perceived lack or decline in cases, 59% of pathologists disagreed that the number of autopsy cases in their institution is sufficient to meet departmental goals for knowledge, research and education.

When asked about the timeliness of autopsy results, the pathologists showed different responses among themselves with thirty-six percent (36%) agreeing that results are delayed while thirty-four percent (34%) felt that results are available on time. This accounted for their mean neutral response of 2.89.

Seventy-five percent (75%) of pathologists agreed that autopsies can provide relevant findings that could change future clinical practice. However, the study showed that the majority (62%) of pathologists agreed that modern advances in diagnostic techniques have diminished the need to perform hospital autopsies.

When asked about possible barriers to the performance of an autopsy, seventy-seven percent (77%) of pathologists agreed that the decision to request an autopsy is affected by concerns about possible lawsuits due to unexpected findings from the procedure. Moreover, eighty-four percent (84%) of pathologists agreed that many family members refuse autopsy because of religious objections and/or superstitious beliefs.

Regarding physician participation in the procedure, eighty-four percent (84%) of pathologists agreed that clinicians should attend the autopsies that they have requested on their patients. Moreover, the majority of pathologists (86%) agreed that patients with unknown diagnoses and unexpected deaths should always be subjected to autopsy.

The study showed that while a majority (41%) of pathologists—agreed that the autopsy will help the family go through the grieving process, thirty-nine percent (39%)

**Table 4.** Relative frequency of clinicians and pathologists' general attitudes and perceptions towards autopsy

Statements	Physician Group	Responses (%)		
		Agree (SA+A)	Neutral (N)	Disagree (D+SD)
1 The number of autopsy cases in my institution is sufficient to meet departmental goals for knowledge, research, and education.	Clinicians	6	21	73
	Pathologists	20	20	59
2 Autopsy results are available in timely fashion.	Clinicians	6	45	48
	Pathologists	36	30	34
3 Autopsies can provide relevant findings that could change future clinical practice.	Clinicians	94	3	3
	Pathologists	75	20	5
4 Currently, modern advances in diagnostic techniques have diminished the need to perform hospital autopsies.	Clinicians	39	30	30
	Pathologists	62	9	30
5 The decision to request for an autopsy is affected by concerns about lawsuits due to unexpected findings from the procedure.	Clinicians	51	33	15
	Pathologists	77	11	9
6 Many family members refuse autopsy because of religious objections and/or superstitious beliefs.	Clinicians	60	15	24
	Pathologists	84	9	7
7 Whenever possible, clinicians should attend autopsies that they have requested on their patients.	Clinicians	72	12	15
	Pathologists	84	9	7
8 Patients with unknown diagnoses and unexpected deaths should always be subjected to autopsy.	Clinicians	85	9	6
	Pathologists	86	9	4
9 The autopsy will help the family go through the grieving process.	Clinicians	69	27	3
	Pathologists	41	39	21
10 The cost of performing an autopsy is justified for training institutions with a limited budget.	Clinicians	54	39	6
	Pathologists	34	34	32

**Table 5.** Difference in clinicians' attitudes and perceptions towards autopsy when grouped according to their profile

Variables	F	p	Interpretation
Gender	0.020	0.891	Not Significant
Age	0.356	0.567	Not Significant
Work	1.129	0.296	Not Significant
Years of Experience	0.990	0.413	Not Significant
Religion	0.611	0.627	Not Significant
Number of autopsy cases observed/participated	0.485	0.632	Not Significant
Department	1.200	0.305	Not Significant

**Table 6.** Difference between pathologists' attitudes and perceptions towards autopsy when grouped according to their profile

Variables	F	p	Interpretation
Gender	0.044	0.834	Not Significant
Age	2.824	0.101	Not Significant
Work	0.405	0.528	Not Significant
Years of Experience	1.427	0.240	Not Significant
Religion	1.163	0.288	Not Significant
Number of autopsy cases observed/participated	7.915	0.008	Significant

of the pathologists had a neutral response, while only three percent (3%) disagreed, thus accounting for their mean neutral response of 3.30.

The results of this study showed that only thirty-four percent (34%) of the pathologists perceived the cost of performing an autopsy to be justified for training institutions with a limited budget, while another thirty-four percent (34%) neither agreed nor disagreed.

**Difference in attitudes and perceptions towards autopsy when grouped according to profile**

Table 6 shows the difference in the pathologists' attitudes and perceptions towards autopsy when grouped according to their gender, age, work, years of experience, religion, and number of autopsies observed/participated. The result revealed no significant differences in the respondents' attitudes and perceptions towards autopsy when grouped

according to their gender, age, work, years of experience, and religion. However, a significant result ( $p < 0.05$ ) was noted when associated with the number of autopsy cases observed/participated. This implies that the pathologists' experience in practicing autopsy is a factor that affects their attitudes and perceptions towards it.

**Part two – Survey among clinicians**

**Demographic profile**

A total of 33 clinicians from Central Visayas participated in this research. Table 1 presents the profile of the respondents of the study. The majority of the respondent clinicians (n = 33) belong to the 27-30 age group, are predominantly females, and are Roman Catholic. They are comprised mostly of resident physicians in training (60.61%) followed by consultants (24.24%) and practicing in the field of Internal Medicine (60.6%). The majority of

the respondents (69.7%) had experience of 0 to 3 years in their profession. Most of the clinicians were not able to observe or participate in any autopsies at all (54.5%).-

### ***Clinician's general attitudes and perceptions towards autopsy***

Table 3 shows the general attitudes and perceptions of clinicians towards autopsy. Among all the statements, the lowest mean score for clinicians was recorded for statement number 1 (mean of 1.85). Like the pathologist group, clinicians disagreed that the number of autopsy cases in their institution is sufficient to meet departmental goals for knowledge, research, and education.

The statement with the highest mean score for the clinicians was noted in statement number 3 (mean = 4.58), which implied that clinicians strongly agreed that autopsies could provide relevant findings that could change future clinical practice.

Table 4 shows the relative frequency of responses from clinicians when asked about their general attitudes and perceptions toward autopsy. Responses recorded as "Strongly Agree" and "Somewhat Agree" were added under the column "Agree", while responses noted under "Somewhat Disagree" and "Strongly Disagree" were added under the column "Disagree".

Seventy-three percent (73%) of clinicians disagreed that the number of autopsy cases in their institution is sufficient to meet departmental goals for knowledge, research and education. This shows congruence with that of the pathologists' perception on the same topic. When asked about the timeliness of autopsy results, forty-eight percent (48%) of clinicians disagreed that autopsy results are available in timely fashion.

Almost all the clinicians (94%) of the study agreed that autopsies can provide relevant findings that could change future clinical practice. The clinicians perceived this more strongly than the pathologists with mean responses of 4.58 and 4.09, respectively.

When asked about the impact of modern advances in diagnostic techniques, thirty-nine percent (39%) of the clinicians agreed that these have diminished the need to perform hospital autopsies. In addition, thirty percent (30%) of the clinicians had a neutral response, while thirty percent (30%) disagreed, thus accounting for their mean neutral response of 3.09.

Fifty-one percent (51%) of clinicians agreed that the decision to request for an autopsy is affected by concerns about possible lawsuits due to unexpected findings from the procedure. Moreover, sixty percent (60%) of clinicians stated that many family members refuse autopsy because of religious objections and/or superstitious beliefs.

Regarding physician participation in the procedure, seventy-two percent (72%) of clinicians stated that clinicians should attend autopsies that they have requested on their patients. Moreover, majority (85%) of clinicians agreed that patients with unknown diagnoses and unexpected death should always be subjected to autopsy.

The study showed that majority of clinicians agreed that the autopsy will help the family go through the grieving process. More clinicians (69%) perceive this than the pathologists (41%).

The results of this study showed that clinicians (54%) perceived the cost of performing an autopsy to be justified for training institutions with a limited budget, while thirty-nine percent (39%) had a neutral stance.

### ***Difference in attitudes and perceptions towards autopsy when grouped according to profile***

Table 5 depicts the difference in the clinicians' attitudes and perceptions towards autopsy when grouped according to gender, age, work, years of experience, religion, number of autopsies observed, and department. The result revealed no significant differences in the clinicians' attitudes and perceptions towards autopsy when grouped according to their demographic profile since the computed p values are greater than alpha level 0.05. This entails that their profile is not a factor that affects their attitudes and perceptions toward autopsy.

### ***Statistical difference between two groups***

The researchers also compared the attitudes and perceptions towards autopsy of clinicians and pathologist respondents through the Independent T-test. The result revealed a t-value of 0.615 with a computed p-value of 0.541 which is greater than 0.05; hence, there was no significant statistical difference in the attitudes and perceptions of the two groups.

## **DISCUSSION**

Globally, autopsy rates have been observed to be steadily declining for the past years. Although there are no official autopsy registries in our country, the calculated autopsy rate in five years of 0.08% for our institution supports this observation. The autopsy rate considered data from 2015 until 2019 in order to reduce possible effects that could have been brought on by the start of the COVID-19 pandemic in 2020.

This study shows that the lack of cases is felt by both groups of respondents, who perceived that the number of autopsy cases in their institutions was insufficient to meet departmental goals for knowledge, research, and education. This is particularly important for pathologists, wherein the autopsy is regarded as an important part of their work since they believe that performing it will further their knowledge and experience in pathology. In the Philippine setting, a minimum number of autopsy cases is required for the accreditation of the residency training program of an institution. This administrative measure is in fact supported by the respondents of this study, who also advocated that a hospital autopsy be performed for every tenth death in the hospital as part of the clinical audit.

The deficiency in the number of autopsy cases in our institutions perhaps contributes to the pathologists' lack of confidence in the adequacy of supervision and training that residents receive in performing hospital and medico-legal autopsies. In line with this perceived inadequacy in training, the pathologists of this study neither agreed



nor disagreed that applicants who are about to take the Diplomate Board Exam should require a minimum number of autopsies. This perhaps arises from the hesitancy about whether sufficient knowledge could have been gained during residency training before the examination.

The results of this study showed that while pathologists understood the importance and necessity of autopsy in their profession, they also demonstrated several negative perceptions towards it. Most of them felt that performing autopsies was excessively time-consuming, considering other demands on their time. They also felt that the cost of performing autopsies was not reasonable for those with a limited budget. More importantly, the pathologists believed more strongly than the clinicians that modern advances in diagnostic techniques have diminished the need to perform hospital autopsies. This in line with findings from the study by Maeda et al., wherein physicians believed that the cause of death can be determined by other forms of investigation such as blood tests.<sup>10</sup>

The responses of the clinicians in this study also showed that they exhibited some negative perceptions toward autopsy. Together with the pathologists, clinicians agreed that their decision to request for an autopsy is affected by litigation concerns due to unexpected findings from the procedure. They also perceived that family members refuse autopsy due to religious and/or superstitious beliefs. Lastly, in contrast to the pathologists' neutral response, the majority of the clinicians felt that autopsy results were delayed and unavailable on time.

Despite all the negative perceptions exhibited by the respondents, the results of this study also revealed several attitudes and perceptions that supported the performance of the autopsy.

Clinicians believed more strongly than pathologists that autopsies provided relevant findings that could change future clinical practice and that the autopsy would help the family cope with their grief. The respondents also supported that patients with unknown diagnoses and unexpected deaths should always be subjected to autopsy. Meanwhile, pathologists believed more strongly than clinicians that the requesting physician should attend the autopsies of their patients. This is in line with the findings by Start et al., which emphasized that there should be increased participation by clinicians.

The results of this study determined that the clinicians' demographic profile is not a factor that could affect their attitudes and perceptions toward autopsy. Moreover, the number of years of experience also did not appear to be a significant factor in the attitudes and perceptions of both pathologists and clinicians toward autopsy.

On the other hand, this study showed that the number of observed and/or performed autopsy cases was a factor that affected the pathologists' attitudes and perceptions toward autopsy. The results of the study demonstrated that the majority of the clinicians were not able to observe

nor participate in any autopsy case, while almost all the pathologists were able to perform or witness at least 1 or more. This implies that actual participation in the autopsy procedure is the main factor that produced an impact on the physicians' perceptions and attitudes towards autopsy. However, determining the presence or absence of a relationship between the number of autopsy cases observed with the attitudes and perceptions of the pathologists could not be done in this study due to the nominal character of the data that was collected in the demographic profile.

## CONCLUSION AND RECOMMENDATIONS

In general, there is recognition of the autopsy's usefulness as a medical tool among the pathologists and clinicians surveyed. However, the lack of cases referred for autopsy remains a challenge undermining the benefits derived from its performance. There are also attitudes and perceptions among pathologists that performance of the autopsy may be too time-consuming and costly in a limited resource setting. Clinicians surveyed acknowledged that religious beliefs and concerns about litigation affected their decision to refer cases for autopsy.

The following recommendations are made based on the findings of this study: (1) to generate more robust data, increasing the number of respondents to the online survey, expanding the scope geographically, as well as inviting practitioners beyond internists and pediatricians may be considered; (2) there may be a need to provide information and orientation to clinicians themselves on the value of the autopsy as a medical tool to improve referral of cases, as well as providing them with communication strategies to address concerns or questions on the autopsy from family members of the deceased to improve consent taking.

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Both authors certified fulfillment of ICMJE authorship criteria.

## AUTHOR DISCLOSURE

Both authors declared no conflict of interest.

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