

*Full Length Research Paper*

# Health professionals' stance towards medical laboratory technology: A cross-sectional study

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Received 15 April, 2017; Accepted 26 May, 2017

The practice of modern medicine would be impossible without the tests performed in the clinical laboratory. In today's era of rapidly evolving medical research and application, medical laboratory technology plays an integral role in the health care system. In spite of this, the propensity of giving less value to the profession by certain health practitioners might reduce the health team mobilization which eventually could affect health service for patients. The aim of the present study was to describe the stance of health professionals towards medical laboratory technology. An institutional based cross-sectional survey was carried out among health professionals working in Jimma University Specialized Hospital (JUSH) and Training Health Centers (THCs), between February, 2014 and March, 2014. Anonymous self-administered structured questionnaire was used to generate data on: socio-demographic characteristics of the respondents and their attitude towards medical laboratory technology. Participants were asked to rate their response using 3-5 point Likert scale in order of importance. Out of 135 questionnaires that were distributed, 108 were completed and returned giving an overall response rate of 80%. The study revealed that 81 (75%) of the respondents showed favorable attitude towards medical laboratory technology. Specifically, 85.7, 81.3 and 72% of physicians, health officers and nurses, respectively, demonstrated favorable attitude. On top of this, 68.5% of subjects believed that medical professionals' laboratory contribution to better patient management was 'very important'. However, 12 (11.1%) of the respondents had unfavorable attitude and have indicated some unwelcome behaviors. Although, majority of the study subjects had a favorable attitude towards medical laboratory technology, the observed unfavorable response may affect team spirit and quality care received by patients. Promotion of team training may enhance team spirit among the health care members which ultimately improves the quality of patient care.

**Key words:** Attitude, medical laboratory technology, health professionals, Ethiopia.

## INTRODUCTION

Health care service involves a range of professionals (Ker et al., 2003). Health care service involves a range of

professionals (Ker et al., 2003) who work together to determine the presence, extent or absence of disease

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and provide data needed to evaluate the effectiveness of treatment (Ker et al., 2003; Wayne and Dale, 2001; Dargahi et al., 2012).

Making a clinical diagnosis with subsequent laboratory confirmation is part of the art of medicine. Among allied health care providers, medical laboratory technology is one of the most important fields that gives the service on a scientific foundation by providing accurate information to those responsible for treating patients, deciding health priorities and allocating resource, monitoring the development and spread of infectious pathogens, and to those deciding effective control measures against major prevalent disease (Cheesbrough, 1981; Bashawri et al., 2006). Without reliable medical laboratory support, patients are less likely to receive the best possible care, the source of disease may not be identified correctly, epidemics and spread of major communicable disease will not be cleared reliably (Cheesbrough, 1981; WHO, 2011).

Collaboration among different health professionals in health provision facilities is an essential tool of developing professionalism (Dargahi et al., 2012). In this era when the clinical laboratory is becoming vital in the hospital and community setting, it is crucially important that health professionals should have a clear meaning and idea of medical laboratory profession. As one member of the healthcare group knows little about the other, communication may break and so do a collaboration.

In Ethiopia, the profession of medical laboratory science is one of the most under-recognized parts. The actual interaction in Ethiopia between medical lab professionals and the rest of healthcare members is not clearly indicated and explored. But in clinical and public health medicines, medical lab professionals provide diagnostic activities to be utilized by clinicians or other professionals.

There are a number of health professionals in Ethiopia who believe that it is possible to reach on patient diagnosis predominantly based on only clinical data regardless of the information obtained from medical laboratory department (unpublished data). Yet, no study was conducted in the country concerning the attitude of health professionals towards medical laboratory technology. Therefore, the purpose of this survey was to gain an understanding of the attitude of health professionals towards medical laboratory technology.

The specific objectives were to determine the following: how much of health professionals believe that information obtained from medical laboratory technology is important in routine patient diagnosis? How professionals rate their work relation with medical laboratory professionals? Which other factors could influence professionals' attitude towards medical laboratory technology?

The present study was conducted to fill this gap and the finding will also be used as baseline information for further similar studies.

## **MATERIALS AND METHODS**

### **Study setting and period**

To address the above objectives, this cross-sectional survey was carried out among medical and other health professionals working in Jimma University Specialized Hospital (JUSH) and Training Health Centers (THCs) between February, 2014 and March, 2014. Jimma town is located in the Southwest part of Ethiopia, about 335 km away from the capital Addis Ababa. The THCs are situated about 60 km radius around Jimma town which were designed to provide health service for the surrounding community and team training program for Jimma University graduating class health science students.

### **Sample size, sampling technique and data collection**

All health professionals who volunteered to participate in the study during the data collection period were included conveniently in the present study. The self-administered anonymous structured questionnaire, filled by the respondents, was used to generate data on the socio-demographic characteristics of the respondents and their attitude towards medical laboratory technology. A three to five-point Likert scale, ranging from 1 (strongly agree) to 5 (strongly disagree), was created for some of the questions. There were fill-in the blanks, yes/no questions and multiple-choice responses. To avoid response bias, medical laboratory professionals were excluded from the study. Data was collected under the supervision of the chief investigator and was completed preferably at the convenient time of the study subjects. Generated data were compiled and analyzed with SPSS v20. Frequency tables, charts and descriptive summary measures were used to present data.

### **Operational definition**

#### ***Favorable attitude***

When participants responded positive answers to  $\geq 75\%$  of the questions they were provided, it was considered as favorable attitude.

#### ***Ethical considerations***

The study was reviewed and approved by an Institutional Review Board (IRB) of the University of Jimma. Before the research, staff explained the purpose and importance of the study, written informed consent was obtained from each study subjects. Individual records were coded and accessed only by research staff

## **RESULTS**

### **Socio-demographic data**

A total of 108 professionals returned the questionnaire, making the response rate 80%. The majority: 70 (64.8%), were males. Most of the respondents were nurses, 44 (40.7%) and physicians, 21 (19.4%). The mean age of the participant was 25.5 years. Most of the respondents, 36 (33.3%) had a service year of  $\leq 1$  year with mean service year of 4.7 (Table 1).

**Table 1.** Socio-demographic character of the study participants working at Jimma University specialized hospital and training health centers; 2014.

Variables	n (%)	
<b>Age</b>		
21 -25	58 (53.7)	Mean age 25.5 years
26-30	15 (13.9)	
31-35	13 (12)	
36-40	11 (10.2)	
41-45	10 (9.3)	
46-50	1 (0.93)	
<b>Sex</b>		
Male	70 (64.8)	Male: Female ratio 1: 0.54
Female	38 (35.2)	
<b>Professional category</b>		
Medical doctor	21 (19.4)	
Pharmacy	11 (10.2)	
Radiology	2 (1.9)	
Health officer	16 (14.8)	
Nurse	44 (40.7)	
Environmental health	5 (4.6)	
Others	9 (8.3)	
<b>Service year</b>		
≤ 1	36 (33.3)	
2-5	34 (31.5)	
6-9	11(10.2)	
≥10	27 (25.0)	

### Attitude towards medical laboratory profession

Majority of the respondents, 82 (75.9%) had a favorable attitude towards medical laboratory technology, in contrast, 12 (11.1%) of them had unfavorable attitude and the rest, 14 (13%) were unable to decide. When percentage with in a category was observed separately, 18 (85.7%) of physicians, 13 (81.3%) health officers (HO) and 32 (72.7%) nurses indicated favorable attitude (Figure 1).

Of the respondents, 74 (68.5%) believed that medical laboratory professionals contribution to the good patient outcome is 'very important', the rest, 34 (31.5%) believed it is 'good'. From those who believed medical laboratory professionals contribution to the good patient outcome is very important, the physicians took the lead, 17 (80%) followed by health officers, 12 (75%) (Table 2).

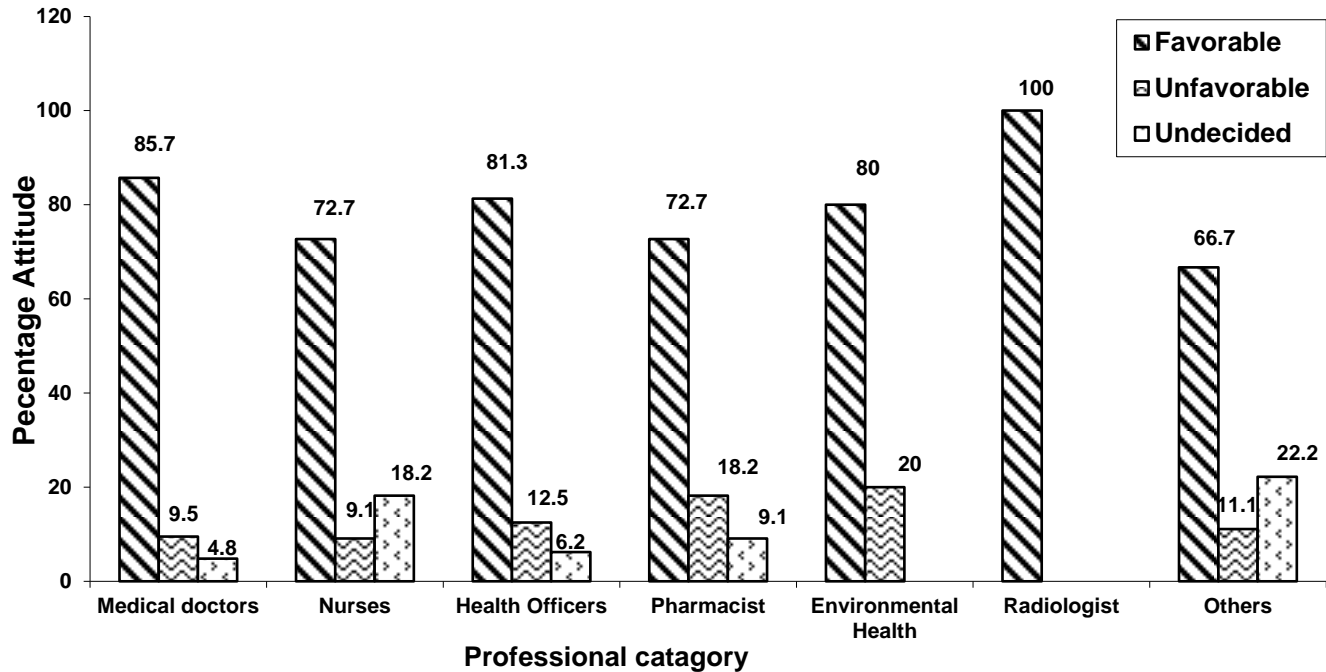
Most of the study participants, 53 (49.1%) disclosed that medical laboratory professionals (laboratorians) working in their health institution were 'fairly competent', 43 (39.8%) of them reported that they were 'competent' and the rest, 12 (11.1%) noted that they were 'incompetent' (Table 3). The respondents work relation

with laboratory professionals was rated as excellent, very good, good and bad, respectively with these percentage: 16 (14.8%), 24 (22.2%), 37 (34.3%) and 12 (11.1 %). The rest reported, fairly good. When the first three rates are considered together as 'good', it accounts for 71.3% (Table 4)

The degree in which medical laboratory professionals exchange valid data with those who utilize it in a timely fashion was rated as good, fairly good and poor which respectively accounted for 56 (51.9%), 18 (16.7%) and 17 (15.7%). Most of the respondents, 59 (54.7%) believed that the salary and incentive that the medical laboratory professionals obtained was unsatisfactory.

Regarding the reason why laboratory service facility in Ethiopia is very weak, the participants disclosed the following; shortage of equipment and supplies, shortage of qualified personnel, poor maintenance system, lack of close follow up and supervision and lack of public health leadership that accounted for 34.9, 18.3 17.3, 16.2 and 13.3%, respectively.

The possible reason why laboratory service face different problems in developing countries was asked, the participants rated the following; weak integration of



**Figure 1.** Distribution of health professionals according to their attitude towards medical laboratory technology at JUSH and TCHs, 2014.

**Table 2.** Participants' rate on the contribution of medical laboratory technology for good patient outcome; 2014.

Professional category	Very important	Important	Total
	n (%)	n(%)	n (%)
Medical doctors	17 (80)	4 (20)	21(100)
Pharmacist	6 (54.5)	5 (45.5)	11 (100)
Nurse	30 (68.2)	14 (31.8)	44(100)
Health officer	12 (75)	4 (25)	16(100)
Radiologist	1(50)	1 (50)	2(100)
Environmental health	2 (40)	3 (60)	5(100)
Others	6 (66.7)	3 (33.3)	9(100)
<b>Total</b>	<b>74 (68.5)</b>	<b>34 (31.5)</b>	<b>108 (100)</b>

**Table 3.** Participants' perception on the level of medical laboratory professionals competency in Jimma University specialized hospital and training health centers, 2014.

Professional category	Competent	Fairly competent	Incompetent	Total
	n (%)	n(%)	n (%)	n (%)
Medical doctors	3 (14.3)	10 (47.6)	8 (38.1)	21 (100)
Pharmacist	4 (36.4)	7(63.6)	0	11 (100)
Nurse	20 (45.5)	21(47.7)	3 (6.8)	44 (100)
Health officer	9(56.1)	6 (37.5)	1 (6.3)	16 (100)
Radiologist	0	2 (100)	0	2 (100)
Environmental health	4 (80)	1(20)	0	5 (100)
Others	3(33.3)	6 (66.7)	0	9 (100)
<b>Total</b>	<b>43 (39.8)</b>	<b>53 (49.1)</b>	<b>12 (11.1)</b>	<b>108 (100)</b>

**Table 4.** Work relationship of medical laboratory professionals with other group of health professionals, 2014.

Professional category	Good	Bad	Total
	n (%)	n (%)	n (%)
Medical doctors	11 (52.4)	10 (47.6)	21(100)
Pharmacist	11 (100)	0	11(100)
Radiologist	1 (50)	1(50)	2(100)
Health officer	10 (62.5)	6 (37.5)	16(100)
Nurse	33 (75)	11(25)	44(100)
Environmental health	3 (60)	2 (40)	5(100)
Others	8 (88.9)	1 (11.1)	9(100)
<b>Total</b>	<b>77 (71.3)</b>	<b>31 (28.7)</b>	<b>108 (100)</b>

science (38.8%), lack of public health leadership (31.3%) and inadequate human resource (29.9%).

## DISCUSSION

Among the non-respondents, medical specialists and general medical practitioners accounted for the highest number; this might be related to their relative high work load. The medical laboratory profession becomes the heart of hospitals today. The practice of modern medicine is impossible without the aid of medical laboratory professionals (Medical Laboratory Science, 2005) this might be the reason why more than three-quarters of the respondents in this study have demonstrated favorable attitude towards medical laboratory technology. Even though there was no related literature found against which this finding could be compared, the observed unfavorable attitude (12; 11.1%), could affect health professionals' team spirit.

Competence in one's area of expertise is a major prerequisite for harmonious interdisciplinary team work. Accurate laboratory test results depend on staff being competent in performing a range of procedures that occur throughout the entire examination process (WHO, 2011). Almost half, 53 (49.1%) of the respondents believed that laboratory professionals working in their institution were fairly competent and 12 (11.2%) of the subjects responded that laboratory professionals were incompetent. Some medical laboratory professionals' perceived incompetency especially by the physician and nurses might contribute to develop an unfavorable attitude towards laboratory profession.

The final goal of health team is to provide appropriate and relevant patient care, a disagreement that could exist within a team in health service unit that has the potential to be destructive. The present study showed that 77 (71.3%) of the respondents stated their work relation with laboratorian was good.

More than half of the respondents, that is, n= 59 (54.7%) believed that salary and incentive that the laboratorian earn was unsatisfactory. Unless professionals'

activity is complemented with proportional incentive and salary packages, individuals' motivation and service provision energy might be compromised. As described by Yami et al. (2001), 67 (46.2%) of the health workers in the same study area are dissatisfied with their job. The major reasons reported for their dissatisfaction were lack of motivation, inadequate salary, insufficient training opportunities and an inadequate number of human resources. Effective implementation and sustainability of quality laboratory programs rely on the development of appropriate incentive and promotion strategies to increase laboratorian satisfaction at their current job (Marinucci et al., 2013) so that they could work and motivated to satisfy their customers.

The interchange of information between medical laboratory and the clinicians is a daily occurrence (Hengr et al., 2001). Among the respondents, n=56 (51.9%), 18 (16.7%), 17 (15.7%) and 17 (15.7%) reported that the degree in which laboratory professional exchange laboratory result timely was good, fairly good, very good and poor, respectively. High rate of poor response was reported by physicians, n=8 (38.1%). This again might have contributed its share to developing negative attitude by some of the physicians.

Laboratory service in developing countries like Ethiopia faces different problems to advance public health. Almost in all health institutions in Ethiopia, medical laboratories were reported with a shortage of common supplies and reagents. Common and simple tests were not even done due to severe reagent shortages (Tegbaru et al., 2004, 12).

This study also showed that lack of public health leadership, shortage of equipment and supplies, poor maintenance system, lack of close follow up and supervision and a shortage of trained personnel were the main reasons mentioned by respondents as a factor for very weak laboratory service facility in health institutions of Ethiopia. It is also stated by other studies (Tegbaru et al., 2004; Kassu and Assefa, 1999).

The problem in the laboratories aggravated particularly at peripheral level due to different reasons like lack of properly designed laboratory rooms, lack of water and

electricity access, shortage of equipment and supplies, shortage of skilled man power, weak integration of science and absence of maintenance and spare parts (Tegbaru et al., 2004). According to the respondents rate among the factors mentioned above, shortage of equipment and supplies account for the higher percentage (34.9%). This might be explained by the low socioeconomic standard of the country (Tegbaru et al., 2004; Ali et al., 2012).

Although, the topic is an area that has not been touched in detail so far, the numbers of study subjects were quite limited to draw strong conclusions. Similarly, the study did not take into account the familiarity and frequent service users of the laboratory discipline as it may be difficult to compare physicians with nurses considering their main role in the health team. With these limitations, the study finding will be an important entry for further studies to promote health professionals team spirit.

In conclusion, majority of the respondents had a favorable attitude towards medical laboratory technology. But, there were some professionals who demonstrated unwelcome perception to the field. Therefore, continuous effort should be in place to promote team spirit among healthcare team members and to scale up the health service for patients. Similar studies with adequate sample size should be considered.

#### Abbreviations:

**HO**, Health Officer; **JUSH**, Jimma University Specialized Hospital; **MD**, medical doctor; **SPSS**, statistical package for social sciences; **THC**, training health center.

#### CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

#### ACKNOWLEDGMENTS

The author thanks all the respondents for their time in completing the questionnaires.

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