



# A national survey of academic articles reading and retrieving of laboratory professionals

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**Background:** The laboratory medicine is usually an important hub between the patient and health care system in aspects of diagnosis and monitoring of diseases. With so much attention drawn toward the provision of quality laboratory services, it becomes imperative to assess the knowledge of laboratory professionals. This work was therefore aimed at understanding the learning and working situation of laboratory professionals through the investigation of article reading and retrieving.

**Methods:** The questionnaire designed by “Questionnaire Star” was launched for a month. The survey was conducted among the national laboratory professionals by WeChat from September 27, 2016 to October 27, 2016. The outcome was retrieved and analyzed by “Questionnaire Star” again.

**Results:** There are 883 questionnaire replies across more than 30 districts in the survey. The responders are the laboratory professionals from different positions including the university students, the postgraduate students, the staffs working at hospital, teachers, retired staffs and so on. When talking about the frequency of literature reading, 59.3% of them chose “monthly or yearly”, 25.8% of them chose “weekly”, 9.1% of the repliers preferred to “daily” and 5.9% never do it. As regards the frequency of consulting academic databases, 37.9% of responders accessed scientific databases weekly and 33.2% accessed monthly, followed were yearly (14.2%), daily (8.1%) and never (6.1%). In addition, we found that 55.4% of the responders never published articles and 40.3% whose article publication numbers were less than 5 every year. Of course, the impact factors of those publications were less than 5 (89.1%) mostly.

**Conclusions:** The articles reading and retrieving situation of laboratory professionals were simply found by this survey. And it will have a positive influence on the improvement of their specialty learning.

**Keywords:** Laboratory professional; articles; reading; retrieving

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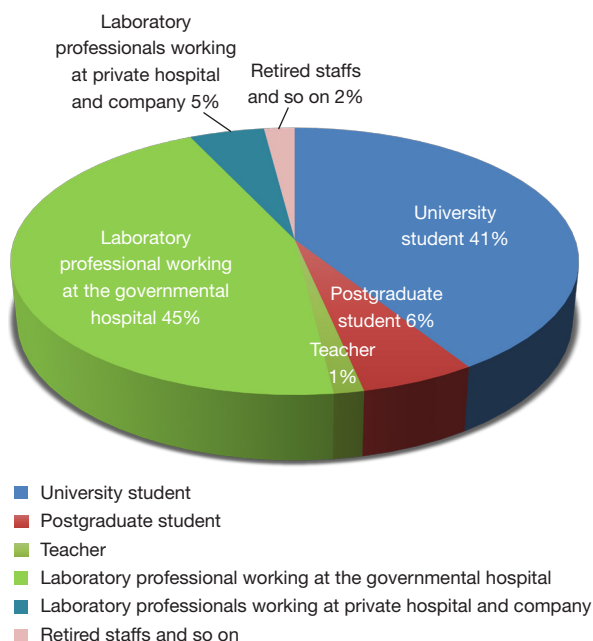
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## Introduction

As a scholar said, “If an organization does not learn faster than the rate of change in their environment, they die” (1). Recent years, the laboratory medicine has developed rapidly. New markers and detection technologies are emerging, giving the laboratory medicine new contents

and developable space as well as various new challenges to the inspection workers. Therefore, the inspectors should to update the knowledge and skill continually to provide patients with the modern superior health services (2). Literature reading is one of the effective methods to understand the latest developments in the scientific field.



**Figure 1** Distribution of repliers.

However, there have been no relevant articles, as far as we know, described the literature reading and retrieving of the laboratory professionals in our country. Against this background, this study aimed at understanding the awareness of updating the knowledge among national laboratory professionals to assess the work and study situation of them.

## Methods

### *The design and analysis of questionnaire*

This questionnaire was designed by “Questionnaire Star”, a website typically used to make questionnaire. The questionnaire has several kinds of questions, including sentence completion, single choice and multiple choices. Meanwhile, utilizing powerful analysis function of this website, questionnaire was retrieved and analyzed by it too.

### *The distribution of questionnaire*

WeChat, a social software released by Tencent Inc. in January 2011, has successfully surpassed other social networking tools and become the most fashionable way of mobile social networking in china. At present, its active accounts have reached 438 million (3). By concerning the

various WeChat public numbers, people can use mobile phone to browse the relevant information whenever and wherever to understand the latest developments in science. So this software was chose to publicize the questionnaire among laboratory professionals.

## Results

In order to having a fair idea of literature’s reading and retrieving among laboratory professionals, this survey was given out for a month. There are 883 replies collected in all up to the closing date and there are more than 30 districts covered by this survey.

### *The constituent of responders*

The largest number of replies were provided by laboratory professionals working in the public hospital (44.9%), followed by university students (41.0%), postgraduate students (5.7%), laboratory professionals working in private hospital and company (5.0%), teachers (1.5%), retired staffs and so on(2.1%) (Figure 1).

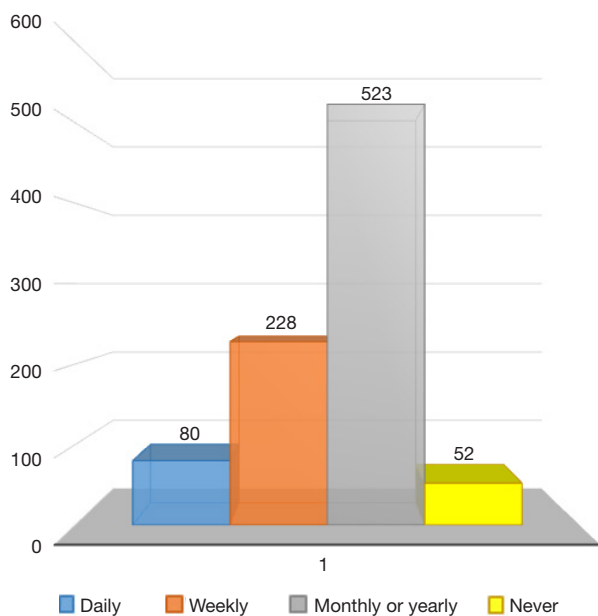
### *The situations of literature reading*

As regards the frequency of reading academic articles, 59.2% responded “monthly or yearly”, 25.8% said “weekly”, 9.0% chose “daily” and 5.9% chose “never” (Figure 2). Among the repliers who chose “daily”, first-class of governmental hospital’s workers accounted for over half proportion (53.8%), followed were postgraduate students (22.5%) and university students studied at key universities (13.8%). It indicates that the three parts above are more positive in daily working and studying than others. Besides, among “never” people, university students who studied at general universities shared a large proportion (65.4%), followed were staffs working at private hospital and company (25.0%). This disparity suggest that the students who studied at university and the staffs working at private hospital and company hardly understand academy or broaden their horizon by reading literatures.

Moreover, amongst those who have the experiences of reading articles, it be found that there were other valuable information, such as reasons of reading (Table 1), the methods of reading literature (Figure 3) and the most popular journals—*Clinical Chemistry* and *Chinese Journal of Laboratory Medicine* were found.

**The situations of literature retrieving**

As regards the frequency of consulting academic databases, 37.9% of responders accessed scientific databases weekly and 33.2% accessed monthly, followed were yearly (14.2%), daily (8.1%) and never (6.1%) (Figure 4). Being similar to the situations of literature reading, university students who responded “daily” and “weekly” were higher than staffs working at private hospital and company, however, it is far lower than the first-class governmental hospital’s workers and postgraduate students. When asked about “which



**Figure 2** Frequency of article reading.

database do you usually use”, a large number of them chose foreign database—PubMed (50.1%) and national database—Hownet (49.0%), respectively.

**The situations of publication**

All participants were also asked the questions of “How many articles do you usually publish each year” and “what are the impact factors of these articles”. The survey reveals that 55.4% of the responders never publish articles, 40.3% whose article publications were less than 5 every year. Of course, the impact factors of those publications are less than 5 (89.1%) mostly.

**Discussion**

To authors’ knowledge, this is the first survey to study the learning and working situation of laboratory professionals. In order to expand the coverage, questionnaire was distributed by WeChat. And it is using this powerful and widely used social tool that we collected 883 replies, covering more than 30 districts which include provinces, autonomous districts and municipalities. In addition, the responders were come from various positions of laboratory professionals, which made the data become more representative.

It is clear that the frequency of articles retrieving in domestic focus on monthly (33.2%) and weekly (37.9%). Early this year, an Italy scholar had done a similar survey. The survey revealed that workers often consult academic databases many times per day (17.6%), daily (33.9%) and

**Table 1** Reasons of reading among replies

Reasons of reading	University students	Postgraduate students	Teachers	Workers at governmental hospital	Workers at private hospital and company	Retired staffs and so on	Grand total
Seeking inspiration for scientific effort	56	46	3	108	4	3	220
Retrieving useful data for the daily task	75	1	7	165	24	4	276
Keeping pace with the newest development in the field of laboratory medicine	52	1	2	85	10	4	154
Improving the abilities of reading and writing in English learning	45	0	1	6	1	1	54
Others	85	2	0	31	3	6	127
Grand total	313	50	13	395	42	18	831

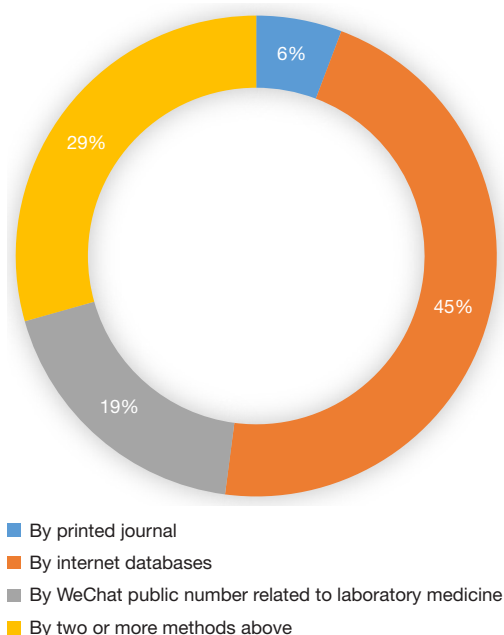


Figure 3 The methods used by readers.

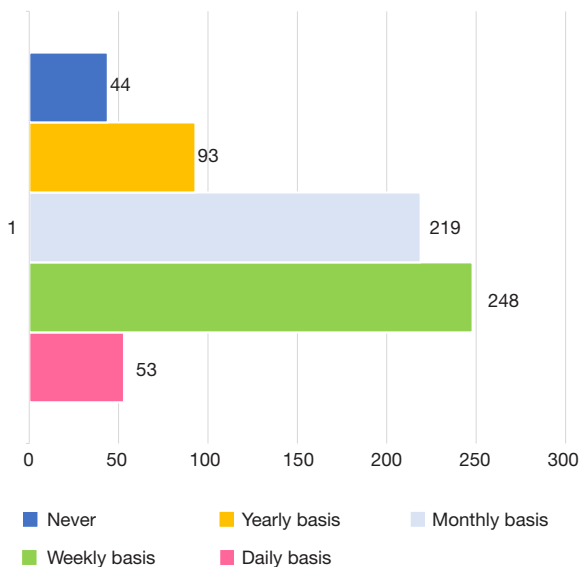


Figure 4 Frequency of article retrieving.

Table 2 The comparison of literature retrieving

Frequency of literature retrieving	China (%)	Italy (%)
Frequency more than weekly	46	86.0
Never	6.1	0.3

weekly (34.5%) in Italy (4). The people whose retrieving frequency more than weekly (weekly, daily and many times per day) in Italy is nearly 1.9 times over ours (weekly and daily) (Table 2). However, the people who never access databases in our country (6.1%) are 20 times as much as Italian (Table 2). Besides, there are 92.8% Italian have publications below 5 each year while there are 40.32% in our country (4). The impact factors of those articles at home concentrate on the range of less than 5 mostly. In spite of the fact that impact factor is not the most trustworthy index to reflect journal’s influence power and quality, it is still the numerical, objective, easily accessible parameter compared with other indexes in journal (5). What’s more, there are still 55.38% of responders never have the experience of publishing. It suggests that the awareness of domestic laboratory professionals in updating the knowledge is far below the Italian.

The differences between our country and Italy, I think, may be attributed to several factors. Firstly, the importance of laboratory doesn’t be taken seriously whether among clinicians or patients, which reduces the enthusiasm of inspectors to enhance themselves. Besides, increasing automatic equipment has softened workers’ professional judgment and more and more laboratory professionals begin to adapt this “don’t worry” model, causing fewer and fewer workers want to acquire new knowledge and improve their professional skills willingly.

To improve this situation, several measures, in my view, should be taken without any hesitation. First and foremost, laboratory professionals should not only focus on the detection of specimens, but also communicate with the clinicians more closely. Moreover, laboratory should strengthen business assessment and implement cumulative elimination system. Only by these ways can workers have the crisis awareness and update knowledge actively. Last but not least, some lectures and other academic exchange activities should be organized to help laboratory professionals understand the latest scientific research results.

All in all, the result of this survey may be valuable in enlightening national laboratory professionals and helping them to have a more positive attitude towards studying and working under the new medical model. I hope that the medical laboratory workers in our country can strive to accumulate knowledge and understand the latest developments in laboratory medicine to provide better

services for patients and clinicians.

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### Footnote

*Conflicts of Interest:* All authors have completed the ICMJE uniform disclosure form (available at <http://dx.doi.org/10.21037/jlpm.2016.12.04>). Bing Gu serves as an unpaid Executive Editor of *Journal of Laboratory and Precision Medicine* from November 2016 to October 2021. The authors have no other conflicts of interest to declare.

*Ethical Statement:* The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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