

Students' Perception and Expectation towards Pharmacy Education: A Qualitative Study of Pharmacy Students in a Developing Country

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ABSTRACT

Background: Pharmacy education is a vital element sustaining the supply of pharmacists to meet the needs in the social and health care sectors. Understanding the perception and expectation of pharmacy students towards their study is pivotal to the maintenance of public health services in a country. **Objectives:** This study uses China as a sample of developing countries and seeks implications for the future development of pharmacy education. **Methods:** A total of 20 undergraduate students majoring in pharmacy at a university in the Guangdong province participated in in-depth individual interviews. Content analysis was adopted. **Results:** Four main themes were identified: intention of pursuing pharmacy education, need satisfaction by pharmacy education, implementation of pharmacy education and passion for a pharmacy practice. **Conclusion:** The poor motivation of pharmacy students and the low social status of pharmacists are some of the factors that may need to be addressed so as to enhance pharmacy education in developing countries in which the orientation of pharmacy education as well as the social status of pharmacists are similar to that in China.

Key words: Pharmacy, Education, Student engagement, Expectation, Motivation.

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INTRODUCTION

Pharmacy is a health profession that links health practices to chemical sciences. It plays an important role in the functioning and maintenance of the health care sector by promoting health among the public and by supporting cost-effective and rational use and prescription of medications.^{1,2} In China, higher education in pharmacy can be traced back to the Qing Dynasty,³ with eight institutions offering pharmacy programmes having already been available before the establishment of the People's Republic of China in 1949.³ Until 2016, there have been in total 458 tertiary institutions in China offering undergraduate programmes in pharmacy,⁴ including 137 comprehensive universities, 103 medical colleges, 101 polytechnic universities, 66

normal colleges, 28 agricultural universities, 11 ethnic colleges, 10 financial colleges and two forestry colleges. These institutions are under the governance of different parties,⁴ including the Ministry of Education, the Ministry of Health, the General Logistics Department of the People's Liberation Army and the governments in different provinces. They shoulder the responsibility of training pharmacists to meet the social and medical needs in China.

Pharmacy education is a vital element sustaining the supply of pharmacists to meet the needs in the social and health care sectors. Meanwhile, pharmacy undergraduates currently in schools will become the next generation of pharmacists. They will play an important role in



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influencing or even shaping the development of the pharmacy profession in the near future. Taking this into consideration, understanding the perception and expectation of pharmacy students towards their study is pivotal. Over the years, few studies have been devoted to examining the attitudes and attributes of pharmacy students in China. For example, earlier studies have adopted questionnaires to examine the attitudes of pharmacy undergraduates towards game-based learning,⁵ and to assess the metacognitive awareness in pharmacy students at Wuhan University of Science and Technology.⁶ Recently, Li and co-workers have also examined the empathy in Chinese pharmacy undergraduates by using a cross-sectional study and have proposed the need of integrating humanities into the curriculum to facilitate the interpersonal and philosophical development of pharmacy students.⁷ These studies, however, have only examined the attributes of pharmacy students for their future professional practices. None of the reported studies so far have attempted to understand the expectation and perception of Chinese pharmacy undergraduates, who are actually one of the most important stakeholders in pharmacy education, towards their study. This study seeks to give voice to pharmacy undergraduates whose needs and expectation have always been overlooked during the research and development of pharmacy education. Regarding the high similarity between the situation in China and that in India (and many other developing countries such as those in the Middle East) in terms of the orientation of pharmacy education and the social status of pharmacists,⁸⁻¹² it is expected that by using China as a research sample of developing countries, implications provided by this study for teaching and learning in pharmacy education can function as a reference to facilitate the development of pharmacy education in developing countries worldwide.

METHODOLOGY

A qualitative descriptive study, which attempts to elucidate how human beings make sense of their experience and how meaning to the experience is assigned,¹³ was employed in this study. In addition, no pre-developed theory or conceptual framework was used so as to avoid preconceptions when data were collected and analyzed.

Setting and Participants

The participants were recruited from a pharmacy programme at a university in the Guangdong province. The total number of students in that programme was about 200. A total of 20 students (10 % of the total number of students) participated in this study. Of these,

there were 5 year-one students (including 3 males and 2 females), 5 year-two students (including 2 males and 3 females), 5 year-three students (including 4 males and 1 female) and 5 year-four students (including 4 males and 1 female). The main criterion for inclusion in this study was that participants should be majoring in pharmacy.

Data Collection and Data Analysis

A qualitative descriptive design was adopted in this study to achieve credible and direct reflections on participants' views and to make effective description of the collected data possible. 20 in-depth individual interviews, with around 2 hr spent with each participant, were carried out in a private room. They were conducted in Mandarin and were audiotaped. The data collected were first transcribed verbatim and were then translated into English. Content analysis was employed. Transcripts were first read and reread to highlight significant narratives and to draw meanings from each transcript. Analysis was subsequently conducted to compare the meanings drawn from different transcripts. Four core research themes were finally discerned after peer checking among researchers.

Ethical considerations

All participants were provided with a consent form to ensure that participants involved in this study were totally on a voluntary basis. Before the interview was conducted, participants were informed of their rights to withdraw from the study. The participants were also given an explanation of the objective of this study. The privacy and confidentiality of their contributions were guaranteed. A research code was assigned to each of the participants to represent their identity so as to protect their anonymity. Ethical approval to commence this study was granted by the Human Ethics Committee at the participating university prior to data collection.

Trust worthiness

The credibility, dependability and conformability of the study were enhanced to secure the trustworthiness of the reported findings. To enhance credibility, interview questions were set in a way that descriptive data reflecting real experiences were collected. Dialogues were then paraphrased by the interviewer so as to accurately interpret participants' views. With regard to dependability and conformability, the former was achieved by audit trails performed throughout the process of data collection, thematization and analysis; whereas the latter was enhanced by peer checking

performed among researchers during the course of the study to reach a consensus about the research themes drawn from the data.

RESULTS

A total of 20 participants, including 13 males and 7 females, were interviewed. Their experience, perception and expectation towards their study and their identity as a pharmacy student were categorized into four themes:

Intention of pursuing pharmacy education

Around 80% of the participants have disclosed that they pursued the pharmacy programme because of passive reasons (e.g., being assigned by the University or failure to pursue a major in clinical medicine) rather than their own interest in pharmacy. One participant noted, "I was assigned to take pharmacy as my major. But because I do not have a specific major that I think I must pursue in my mind, I accept this offer". Another participant also stated, "Pharmacy is not the ideal major in my mind. I want to be a physician, but my scores were not high enough. At the end, I have been assigned to this major. I just accept it."

Some of the participants have indicated that they had no clue about what to expect from pharmacy before they enrolled into the programme. This was demonstrated by the response of one participant, "I completely had no clue what pharmacy was when I was assigned pharmacy to be my major...pharmacy is the choice I make when I am not sure what I really like...instead of saying I have chosen pharmacy, it might be more suitable to say that pharmacy has chosen me...this is probably my destiny." Only 10% of the participants have mentioned that they chose to pursue pharmacy because of their drive to help patients in the clinical sector after graduation. One participant, however, has experienced the discrepancy between his/her initial expectation on the major and his/her feeling about the major after his/her formal study. He/she disclosed that he/she lost his/her interest in pharmacy during the study. He/she stated that, "I chose pharmacy as a major because I thought that learning pharmacy would be very useful. It could help people and save lives. At that time, I believed that even I could not learn well or could not become a pharmacist at the end; I still could have knowledge in medicine. After I have truly involved in this major, I realize that I am too naïve. It is not something I am really interested in."

Need satisfaction by pharmacy education

Around 30% of the participants have shown positive feelings towards their current study in pharmacy. Many of them have thought that pharmacy education can

bring the knowledge or skills that could be useful in their daily life, either in helping people around or in personal development. Some participants have also indicated that the pharmacy programme involves courses that are of interest to them. For example, one participant noted, "I am interested in health sciences. Some courses provided by the pharmacy programme are related to what I am interested in. What I learnt may help me to protect my family". Another participant stated, "I feel that studying pharmacy is not that bad. I am quite interested in learning chemistry and the pharmacy programme involves some courses related to chemistry."

Over 60% of the participants, however, felt that they have encountered a discrepancy between what they expect and what they finally get from their study in pharmacy. Some participants have also mentioned that the knowledge gained from the pharmacy programme cannot be used in daily life. This was exemplified by the response of one participant: "Things in pharmacy are very theoretical and cannot be used in my daily life. I feel I have not learnt much useful stuffs even though I have taken the programme for years."

Implementation of pharmacy education

Pharmacy is a subject that encompasses multiple fields of knowledge. 10% of the participants have, however, expressed confusion over the focus of the subject knowledge taught and they have raised concerns on the failure to master a specific subject area deeply through the programme. One participant mentioned, "I think pharmacy is a profession that involves knowledge in different fields. I do not know the situation in other pharmacy schools. But, based on my first-hand experience as a pharmacy student, I think the things I have to learn are branching out in all directions". Another participant also stated, "Many things have to be studied, but very superficially. I do not think I have learnt any subject knowledge deeply till now".

In addition, over 50% of the participants have expressed that they are pessimistic towards their future after graduation from a pharmacy programme. This was shown by the response of one participant: "I have a better understanding of the situation of pharmacy in China only after I have formally become a pharmacy student. I wish I know the situation of pharmacy before my enrolment into the pharmacy programme. I think the development of pharmacy in China is not very satisfactory. People working in pharmacy have not been respected much...if I could choose again; pharmacy would be off my list." Many of them have attributed this to their feeling that pharmacy in China is immature. Some students have also mentioned that pharmacists

in China are more like dispersers, with the professional status being much inferior compared to that of other medical practitioners such as physicians. One participant said, “Studying pharmacy may help us get a job, but it is just a job, not a good job.”

Passion for a pharmacy practice

Only two participants have expressed their interest in working as pharmacists in the clinical setting after graduation of his/her current programme. One participant, however, stated, “It is a waste if I do not work in pharmacy. I have spent some many years studying it. Frankly, I know that pharmacy is not my interest. Yet, I hate doing research. Going to the pharmaceutical industry as a salesman or as a researcher is not what I wish to do. I think working in the clinic as a pharmacist may be something I comparatively prefer to choose”. He/she said that he/she chose the path of clinical pharmacy just because he/she did not want to waste his/her degree rather than because of his/her true interest. Some participants have also indicated that their plan of not undertaking a pharmacy practice was partly due to the influence of their parents. This was exemplified by the response of one participant: “My parents told that the future of pharmacy is poor and will not be as money-making as other professions like finance and IT. I think pharmacy is not my prioritized choice when I choose my future job”. For all of these participants, salary and the social status of the job have been suggested to be two important factors that have caused the parents not to advise the participants to continue pursuing a profession in pharmacy after graduation.

Approximately 40% of the participants have shown their interest in pursuing a job in hospitals, drug stores, or pharmaceutical industries. One participant has mentioned that he/she sticks to a pharmacy-related job because of his/her passion for drug development. He/she stated, “I hope I can work in the pharmaceutical industry, apply for grants and develop some drugs to treat rare diseases. I have seen some reports, saying that there are many rare diseases out there. Yet, companies have spent little money to develop drugs to treat these diseases, making those patients feeling that they have been abandoned by the world.” On the other hand, one participant has also expressed his plan to pursue a job in a non-related sector: “Just want to get a job. Probably being a social servant. Have no intention of continuing dealing with a job that is related to my major.” Apart from joining the job market, around 60% of the participants have indicated their wish to continue pursuing a postgraduate degree. Among them, approximately 70% of these participants have no

intention of pursuing a postgraduate degree in pharmacy. Some of them have indicated their interest in pursuing their postgraduate studies in pure science such as biology and chemistry.

DISCUSSION

Enhancement of students' motivation

Results of our study have revealed that most of the participants have known little about pharmacy, or even have not heard of pharmacy, before they are admitted to the pharmacy programme. This situation can be explained by the policy of admission adjustment in the educational system of China. Since 2008, China has adopted the policies of “parallel preference” and “score priority”. Under these policies, students can choose multiple colleges and majors during their application to tertiary institutions. For example, in 2019, the Education Examination Authority of Guangdong Province allowed a student to indicate 15 parallel college choices during his/her application to undergraduate admission, with each of the college choices containing 6 choices of programme majors.¹⁴ Despite the possibility of making multiple choices, final admission to a specific college and a specific major totally depends on the student's scores in the National College Entrance Examination (CEE).¹⁵ If a student does not have a score that is high enough to compete with other candidates for a specific major at his/her university-of-interest, he/she may still have an opportunity to be given an offer by that university. The offer, however, will be for a major other than the one originally selected by the student. The student may also choose to insist on his/her major preference. In this way, he/she will only be able to be admitted to a university other than his/her target one, or in the worst case, will not be taken successfully by any other university in China and will fail to get to tertiary education. In general, most students in China would agree to be adjusted to another major, just to avoid risking himself/herself of not getting admitted to a tertiary institution.¹⁵ Taking this fact into consideration, it is not difficult to understand the uninformed decision made by many of the participants in this study when they were admitted to the pharmacy programme.

This situation actually deserves serious attention in the educational perspective because it directly links to the motivation of pharmacy students in learning. Here motivation is defined as a reason that leads to a particular act of a person. According to the self-determination theory, three major different types of motivation can be identified.¹⁶ One is intrinsic motivation, in which an act is performed out of a person's enjoyment and

interest. The second one is extrinsic motivation, in which an act is performed due to reasons other than inherent satisfaction. The last one is amotivation, which accounts for the act undertaken with the lack of any self-determination. Results of this study reveal that around 80% of the participants pursue the pharmacy programme due to extrinsic motivation, which is largely caused by the reluctance of losing an opportunity to gain tertiary education and hence results in the acceptance of a major other than the major-of-interest. This finding suggests that, in the future implementation of pharmacy education in China, the enhancement of motivation among students will become paramount. In fact, motivation is one of the important driving forces for active and self-regulated learning, which has been found to contribute to successful learning.¹⁷ This has been demonstrated by previous studies, which have adopted self-report measures and have revealed that academic performance shows a positive relationship with a number of components (including appropriate motivational beliefs, learning strategies, or even participation in learning activities) of self-regulated learning.¹⁸⁻²²

Pre-disclosure of programme objectives

Pharmacy education in China has been focusing mainly on drug products, with a special emphasis on the regulatory, chemical and pharmaceutical aspects.²³ Students taking pharmacy as their major will generally receive education that encompasses general education (e.g., English, Mathematics, Physics, Chemistry and Biological Sciences), didactic pharmaceutical education (e.g., Drug Analysis, Pharmacology, Pharmaceutics, Medicinal Chemistry and Pharmacy Administration) and experiential education, which involves less than 6-month of internship in a setting that involves techniques related to the pharmacy major.²⁴ Because most of the pharmacy programmes provided by universities in China are not designed to be patient-oriented but instead are planned in a product-oriented manner,²⁵ clinical elements in the curriculum are lacking. Our results suggest that this situation may not be fully known by students before they enrol in a pharmacy programme. This is also one of the major reasons accounting for the discrepancy between participants' expectation and the reality as expressed by some of the participants in this study.

To reduce possible discrepancy between how students expect and what students get, it is suggested to make clear to students about the focus of each of the pharmacy programmes provided by universities in China. In China, disciplines are categorized into first or second levels. Disciplines at the first level can be regarded to

be analogous to majors in the US;³ whereas those at the second level are analogous to either minors or areas of concentrations within a major.³ In the case of pharmacy education, clinical pharmacy has been put to the second level.^{26,27} This might cause confusion to students when they need to differentiate patient-oriented pharmacy programmes from the product-oriented ones. This is one of the causes of the disappointment experienced by some of the participants, who have complained about the lack of proper clinical training provided by the pharmacy programme. Taken this into consideration, if the differentiation of these two types of programmes can be made clearer to students, this will help reduce the disappointment experienced by a pharmacy student who intends to practice pharmacy clinically but mistakenly takes a product-oriented pharmacy programme.

Establishment of professionalism in pharmacy

In this study, we have identified that one of the major factors discouraging pharmacy students in China to continue pursuing a profession in pharmacy is the low social status of the profession as perceived by the participants or their parents. Such perception might be caused partly by the lack of recognition of the importance of drug handling and management. This has been suggested by the comparatively slow development of regulations in the pharmaceutical area in China. In fact, the need of establishing a legal system for drug safety supervision has been recognized only since the 1980s, during which the Drug Administration Law was issued by the National People's Congress to put the research, production, selling and use of drugs under a legal framework.²⁴ The awareness of the need of a high level of professionalism in practices related to drugs may help improve students' passion for the pharmacy profession.

Another direction that may help enhance pharmacy students' passion for their profession is to promote the legal recognition of the professionalism of a pharmacist. At this moment, pharmacists are accredited by two systems in China. One is a specialized system which accredits a pharmacist by assigning a specific title (e.g., chief pharmacist, associate chief pharmacist, pharmacist in-charge, pharmacist and assistant pharmacist) that reflects the pharmacist's level of education and work experience.²⁴ The other one is the licensure system, in which one has to pass the national pharmacist licensing examination in order to get the Licensed Pharmacist Certificate. This examination is overseen by the China Food and Drug Administration (CFDA) as well as the Ministry of Human Resources and Social Security.²⁸ In China, people who complete only secondary education,

or those university graduates with a non-pharmacy major, may still be eligible to take the pharmacist licensing examination as long as they have a certain amount of working experience.²⁴ In fact, up to 2016, there are in total 342,109 licensed pharmacists in China.⁴ Among them, only 31.3% of licensed pharmacists in China have degrees at the undergraduate or postgraduate levels.⁴ The rest of them have only a high school diploma and some training (which often takes only around 3-6 months for completion) at the college level.⁴ This might partly raise an impression that pharmacy is not a very professional discipline to practice. This may also be one of the reasons explaining why less than 50% of the pharmacy students have shown interest in pursuing a pharmacy-related job and that most of the students deciding to pursue a postgraduate degree have also indicated their little intention of sticking to a degree in pharmacy.

CONCLUSION

Pharmacy students are one of the most important stakeholders in pharmacy education. This, coupled with the limited research in the literature on the perception of pharmacy students in China towards their study and their profession, serves as the fundamental motives for formulating and implementing this study. Four themes have been identified and their implications for future pharmacy education have also been discussed. Here it is worth mentioning that because in-depth interviews were adopted as the only means of data collection, the accuracy of the data collected might have been affected if false or vague memories have occurred when participants have performed their recall of their past experience. Despite this, this study provides information related to some of the thoughts, concerns and perception of pharmacy students in China towards pharmacy. It is hoped that this information can facilitate the development of more student-oriented and need-based education in pharmacy in other developing countries (in which the orientation of pharmacy education and the social status of pharmacists are similar to that in China) to satisfy both students' expectation and social needs in health care.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

ABBREVIATIONS

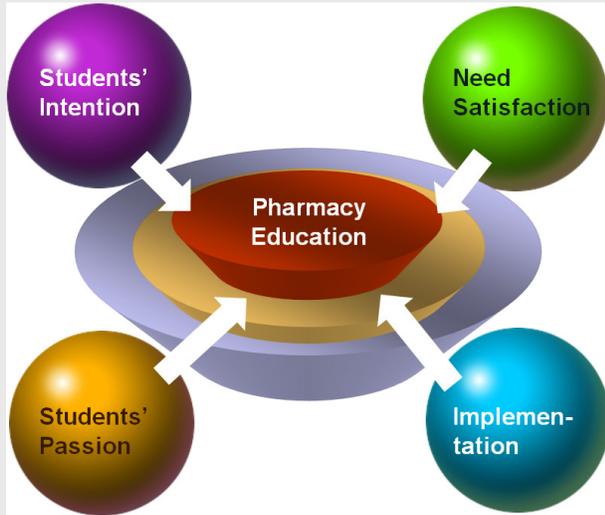
CEE: National College Entrance Examination; **CFDA:** China Food and Drug Administration.

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PICTORIAL ABSTRACT



SUMMARY

The objective of this article is to understand the perception and expectation of pharmacy students towards their study so as to seek implications for the development of pharmacy education in developing countries. China is used in this study as a model country. Four main themes have been identified: intention of pursuing pharmacy education, need satisfaction by pharmacy education, implementation of pharmacy education and passion for a pharmacy practice. Our results show that the poor motivation of pharmacy students and the low social status of pharmacists are some of the factors that may need to be addressed for the enhancement of pharmacy education.

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