Responses of Healthcare Providers and Public towards Six Years Pharmacy Practice Program (Pharm.D) in South India

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ABSTRACT

Introduction: Pharmacists stand at the interface between research and development, manufacturer, prescriber, patient and the medicine itself. The hallmark of the pharmacy curriculum became a focus on patient care as it was realized that no part of the pharmacy curriculum included patient contact. This was made reticent during 2008, as the pharmacy profession moved to a six years Pharm.D program in India. However, relatively little information has been published describing the current status of Pharm.D education of India. Methods: The instrumentation survey of six months duration was performed among healthcare providers, practitioners and academicians to assess the responses and awareness of Pharm.D in south India towards a standard self-administered questionnaire. Results: Out of 350 respondents 44.28% were physicians, 22.86% were nurses, 18.57% were pharmacists and 14.47% were public. The current study delineated that six years pharmacy practice specialty program (Pharm.D) objectives, curriculum and its practices, was well received and appreciated by physicians and pharmacists, which was found to be in contrast among nurses and public. The research accentuates the recognition of patient centered pharmacy services at all levels of health systems, providers and consumers are still at infancy. Conclusion: The researchers felt the responses will be optimistic, when a series of awareness, orientation and sponsorship programs on facilitating, strengthening and supporting the program outcomes of Pharm.D is promoted by the Indian statutory bodies governing medical, nursing and pharmacy education, on escalating roles of pharmacist-delivered patient care and shift toward health system implementation in terms of patient care and drug safety.

Keywords: Consumers, healthcare professionals, pharmacy practice, survey

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INTRODUCTION

The Profession of Pharmacy is an integral part of the healthcare system worldwide.[1] Pharmacist plays a vital role in health-care delivery systems, as they are highly accessible among all health-care workers[2] and provide a wide range of services ranging from manufacturing and regulating medicines, distributing and dispensing medicines, to providing medicine information and pharmaceutical care services.[2,3] They also serve as regulators and policy makers to control, manage, and supply quality medicines to their nations, and as educators and researchers for pharmacy education and health-related research areas.[4]

In developing and industrialized countries alike, efforts to provide health care, including pharmaceutical care, are facing new challenges. These include the rising costs of health care, limited financial resources, a shortage of human resources in the health care sector, inefficient health systems, the huge burden of disease, and the changing social, technological, economic and political environment which most countries face. While globalization has brought countries closer together in trade of products, services and in recognition of academic degrees and diplomas, for example, it has led to rapid changes in the health care environment and to new complexities due to increased travel and migration.[5] Another major challenge is ensuring that medicines are used rationally. This requires that patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements for an adequate period of time, and at the lowest cost to them and their community.[6]

Pharmacists stand at the interface between research and development, manufacturer, prescriber, patient and the medicine itself. WHO has called for greater involvement of pharmacists in the general health care system and wider use of their broad academic background. In its statement of policy, FIP says that the changes in the pharmacist's role must be reflected in the basic and continuing education of pharmacists,[7] with a greater focus on student learning. The new paradigm for pharmacy requires that pharmacists are far more than experts in pharmaceutical chemistry and pharmaceutics. They have to understand and apply the principles behind all the activities necessary to manage drug therapy.[7] In 1999, the European Association of Faculties of Pharmacy (EAFP) proposed a shift during the pharmacy study programme from laboratory-based sciences to practice and clinical sciences.[8]

The movement towards the patient care approach has occurred to varying degrees in some countries such as the UK and the USA.[9-12] It encompasses care in its widest application, *i.e.,* the opportunity for pharmacists to change and improve patient outcomes as integral, active members of the patient care team. However, pharmacy curricula have long been neglected at many institutions, which have helped perpetuate the undervalued status of pharmacists in the health care sector, particularly in developing countries. In traditional pharmacy curricula, the emphasis is often on the technical aspects of pharmacy, rather than on professional practice. In the 1990's a new philosophy of pharmacy practice was coined by Helper and Strand pharmaceutical

care. The touchstone of this approach was that the pharmacist should take up responsibility for assisting patients to obtain the very best outcomes from their use of medications.[13] This was in response to a number of reports that indicated that pharmacists were doing a relatively admirable job of distributing medications things performing so well in giving information about how to best use them and assisting patients with getting the best results.[14] This concept originated from a term, defined in 1975 by Mikael[15] as a subset of medical care. As the hallmark of the pharmacy curriculum became a focus on patient care it was realized that no part of the pharmacy curriculum included patient contact. By the late 1990's all this was mute because the profession had moved to a six year Doctor of Pharmacy (Pharm. D). This was in stark contrast to nearly all other training programs for health professionals. The colleges moved to incorporate this modification this as well in United States of America.

Pharmacy education in India traditionally has been industry and product oriented. In contrast to the situation in developed nations, graduate pharmacists prefer placements in the pharmaceutical industry. To practice as a pharmacist in India, one needs at least a diploma in pharmacy, which is awarded after only 2 years and 3 months of pharmacy studies. These diploma-trained pharmacists are the mainstay of pharmacy practice. The pharmacy practice curriculum has not received much attention.[16] In India, there has been a surge in the number of institutions offering pharmacy degrees at various levels and a practice-based doctor of pharmacy (Pharm.D) degree program was started in some private institutions in 2008. However, relatively little information has been published describing the current status of Pharm. D education of India. Although the curriculum of Pharm. D emphasizes the clinical and patient-oriented aspects of the profession, it overemphasizes basic sciences (such as chemistry and analysis), while subjects such as pharmaceutics and health policy have been overlooked. The launching of the Pharm.D program in India has sparked an enormous amount of debate among educators and policymakers.

Hence, the current research study is planned to describe the changing face of the pharmacy profession and its practice, and how the program is received among healthcare providers; medical and paramedical academicians and public. The findings of the current study may stimulate discussion and critical analysis and planning, and will be of value in further adaptation of the Pharm. D education and its practice to desire educational outcomes defining the significance and role of pharmacists as an active member in healthcare team, providing individual patient and population based pharmaceutical care services with global standards.

MATERIALS AND METHODS

Study design

Longitudinal, self-administered questionnaire, instrumentation survey.

Study site

Healthcare settings (private corporate, secondary referral, tertiary care teaching) each one; medical and nursing institutions one each, and two pharmacy institutions and public in a rural resource limited setting of Andhra Pradesh (Ananthapuramu).

Study duration

Six months (December 2016-May 2017).

Study sampling

Convenience sampling

Study criteria

Healthcare providers, medical and para-medical academicians, and

public who were available and showed their willingness were included and available non-responding participants were excluded from the study.

Study population

350 out of which physicians as practitioners were 125, and academician's 30 nurses as practitioners were 65, and academicians 15 pharmacists as practitioners were 25, and academicians 40 and public 50.

Ethical approval

The ethical approval was obtained from the institutional review board (IRB) of Raghavendra Institute of Pharmaceutical Education and Research (RIPER), Ananthapuramu, Andhra Pradesh, India.

Statistical analysis

All the obtained data were entered into a personal computer on Microsoft Excel Sheet and analyzed using Statistical Package for Social Science (SPSS, IBM, Chicago, USA) version 20 and the obtained responses were documented based on criteria of Likert scale. Cronbach's alpha value was calculated to confirm the reliability and correlation between inventories of the self-administered validated questionnaire.

Study procedure

The current longitudinal instrumentation survey of six months duration was performed to assess the responses, awareness and receiving of the six years pharmacy practice specialty program introduced by the Pharmacy Council of India among the healthcare professionals (physicians, nurses, and pharmacists) as practitioners and academicians in varied healthcare settings and institutions, and public in Ananthapuramu district of south India, through a validated 12 inventories self-administered questionnaire.

Questionnaire validation

The current standard self-administered questionnaire comprising of 12 inventories (out of which 11 inventories reflects the study objectives and 1 inventory illustrates the demography particulars of the study participants like: age, gender, literacy, education qualification, profession), was validated in three steps.

Step 1: Pilot study: A preliminary pilot pretesting of the questionnaire (comprising of 15 inventories) was done on 20 each randomly selected health-care professionals, academicians and of the varied healthcare settings and institutions, with the purpose of identifying the practical and communication difficulties while surveying. Furthermore, the pilot testing allowed us to modify the ambiguous and unsuitable questions.

Step 2: Assessment of reliability and internal consistency: The reliability and internal consistency of the questionnaire based on Cronbach's alpha coefficient value[17] were between 0.7 and 0.8, and was found reliable.

Step 3: Final draft and standard: Furthermore, the questionnaire after its final drafting was reviewed by expert panel in subjects and curriculum for the face validity, content validity, and the relevance and comprehensiveness.

Structure of questionnaire

The standard self-administered questionnaire illustrates the demography particulars of study participants, followed by the individual participant's awareness about the existence of six years/ three years post baccalaureate Pharm.D program with pharmacy practice as specialization in India. If the answer to this question is **YES** the participants are eligible to answer remaining 11 inventories specific to study objectives, if the answer is **NO** the vice-versa (*i.e.,* they are not eligible to participate in the study further and the response is documented as incomplete).

Data collection and analysis

Initially, a protocol was prepared explaining the purpose of study through critically evaluated biomedical literatures which was submitted along with a validated self-administered questionnaire as data collection form and proper consent from concerned hospital/institutional authorities to the IRB for approval, for which ethical clearance was, authorized (RIPER/IRB/2017/008). After the ethical clearance, the survey questionnaire was administered to individual health care providers/professionals (physicians, nurses and pharmacists in hospital), faculty of medical and allied health sciences and the public. By explaining the objective of current research study on one-on-one (face to face) basis, the obtained responses were documented based on criteria of Likert scale. The survey was conducted in English. All the inventories of the questionnaire were close ended design, for its reliability, ease of understanding and time saving. The responses thus obtained were further interpreted to correlate the findings with the study objectives.

RESULTS

The present study involved 400 respondents out of which 350 responses were complete, among which 155 (44.28%) were physicians, 80 (22.86%) were nurses, 65 (18.57%) were pharmacists and 50 (14.47%) were public. The demographic details of the participants involved in the survey were categorized based on gender distribution, age distribution, educational qualification and professional status. In our study, there were 52.86% male and 47.14% female, in which there was equal distribution of gender 24.86%, among age group between 21-30 and 41-50 years respectively. In our study, literacy rate was higher (95.72%), in which 50.86% were male and 44.86% were female, among which 89.55% were healthcare professionals with equal distribution of gender, and 10.45% were public. We found that 93.14% were employees and 6.86% were entrepreneurs, results of which are thoroughly assessed and summarized in Table 1 (Socio demography distribution of study participants).

Assessment of responses towards the standard self-administered questionnaire among healthcare professionals and public

In our study, the responses of study participants who gave their willingness and complete information towards the self-administered questionnaires developed to ascertain the objectives of study were collected and interpreted, results of which are summarized in Figure 1 (Responses of physicians towards the standard self-administered questionnaire), Figure 2 (Responses of nurses towards the standard self-administered questionnaire), Figure 3 (Responses of pharmacists towards the standard self-administered questionnaire) and Figure 4 (Responses of public towards the standard self-administered questionnaire).

Table 1: Socio-demography distribution of study participants

| Age distribution (in years) | Total | p-value | Gender distribution | | p-value |
			Male	Female	
21-30	87	0.0001	47	40	0.000123
31-40	81	0.0006	46	35	0.01017
41-50	86	0.019	45	41	<0.0001
51-60	70	<0.0001	32	38	0.0001
>61	26	<0.0001	15	11	0.076
	350		185	165	
Literacy					
Literate	335	0.00034	178	157	<0.0001
Illiterate	15	<0.0001	7	8	<0.0001
Education qualification					**Total**
HSE			10	5	15
Diploma			8	3	11
Degree			6	3	8
MBBS			29	21	50
MBBS with specialization			67	38	105
Diploma in Nursing			8	32	40
Bachelors in Nursing			13	32	45
Diploma in Pharmacy			9	7	16
Bachelors in Pharmacy			7	4	11
Masters in Pharmacy			13	5	18
Pharm. D			2	4	6
PhD			6	3	9
Profession					
Daily wages			11	4	15
Private employee			8	3	11
Entrepreneur			19	5	24
Physician as practitioner			84	41	125
Physician as academician			13	17	30
Nurse as practitioner			12	53	65
Nurse as academician			0	15	15
Pharmacist as practitioner			20	5	25
Pharmacist as academician			25	15	40
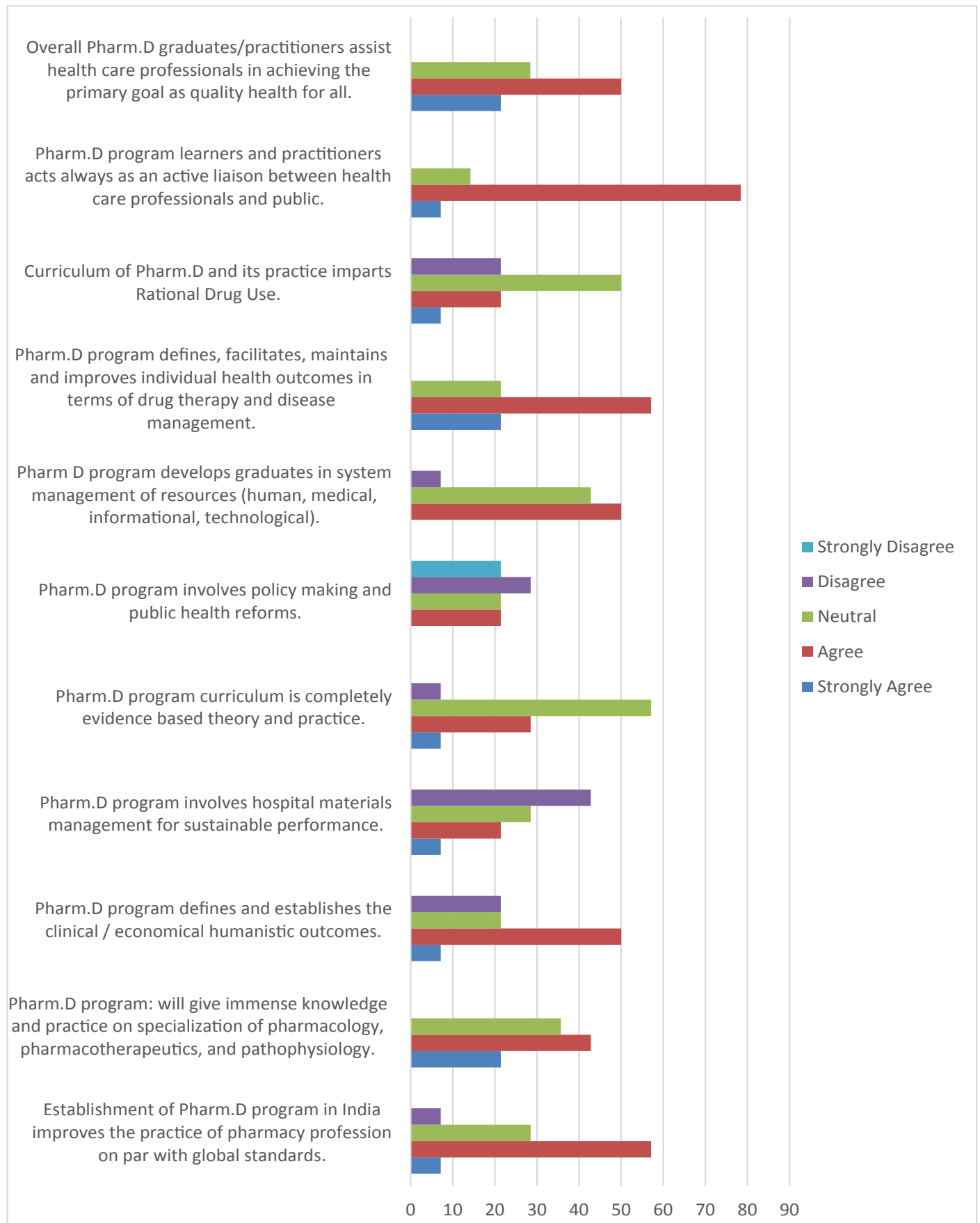
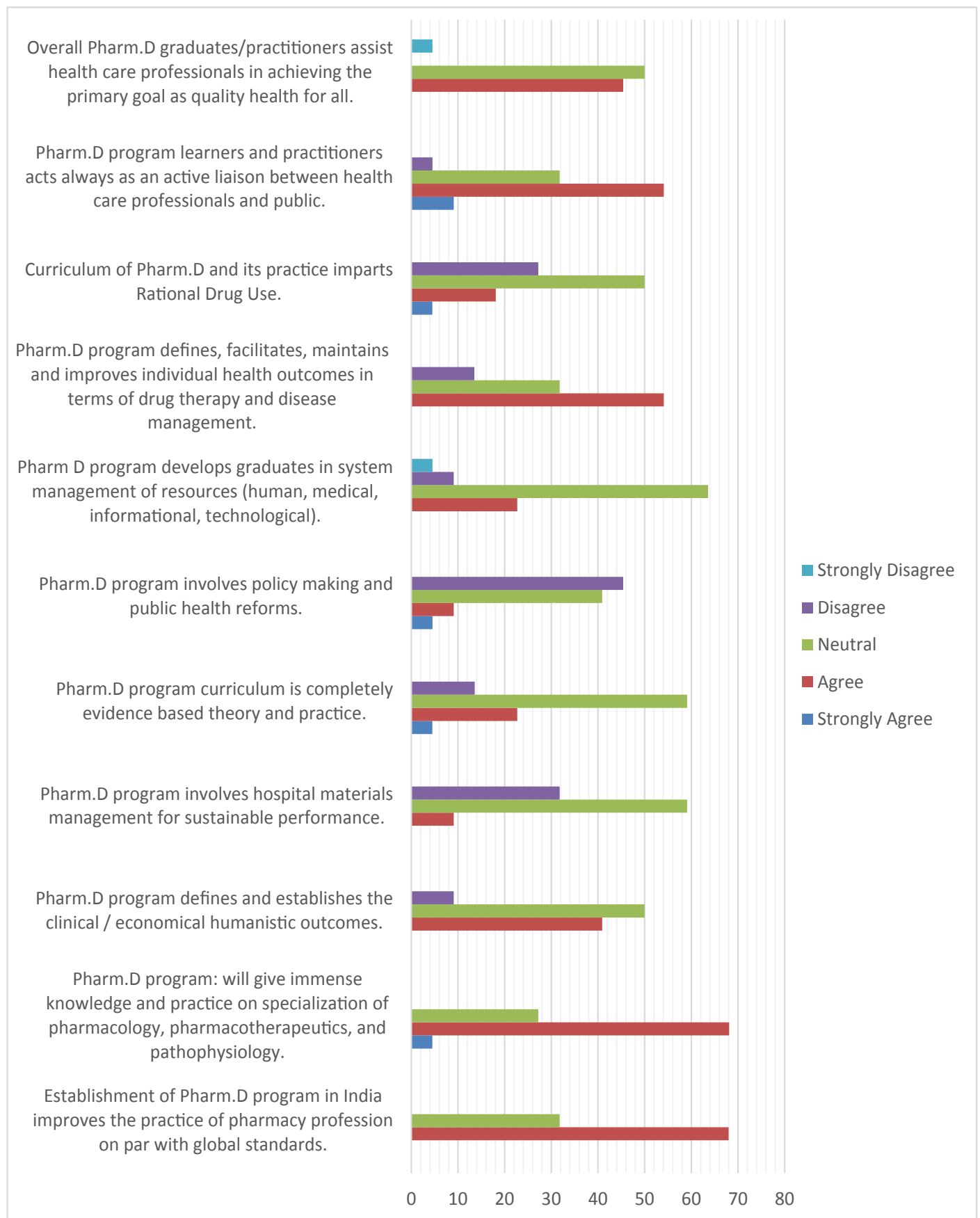**Figure 1:** Responses of Physicians towards the Standard Self-administered questionnaire

Figure 2: Responses of Nurses towards the standard self-administered questionnaire
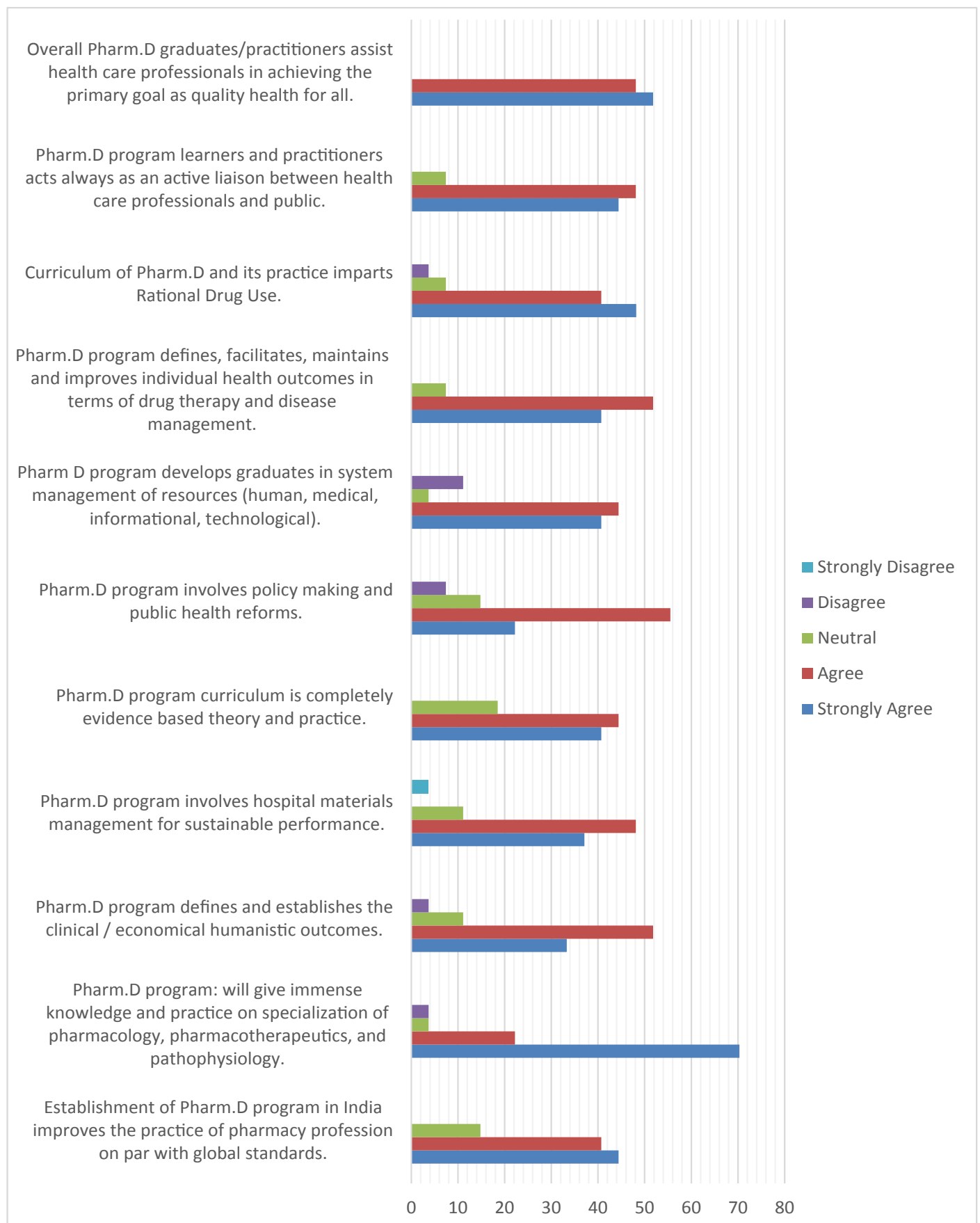
Figure 3: Responses of Pharmacists towards the standard self-administered questionnaire
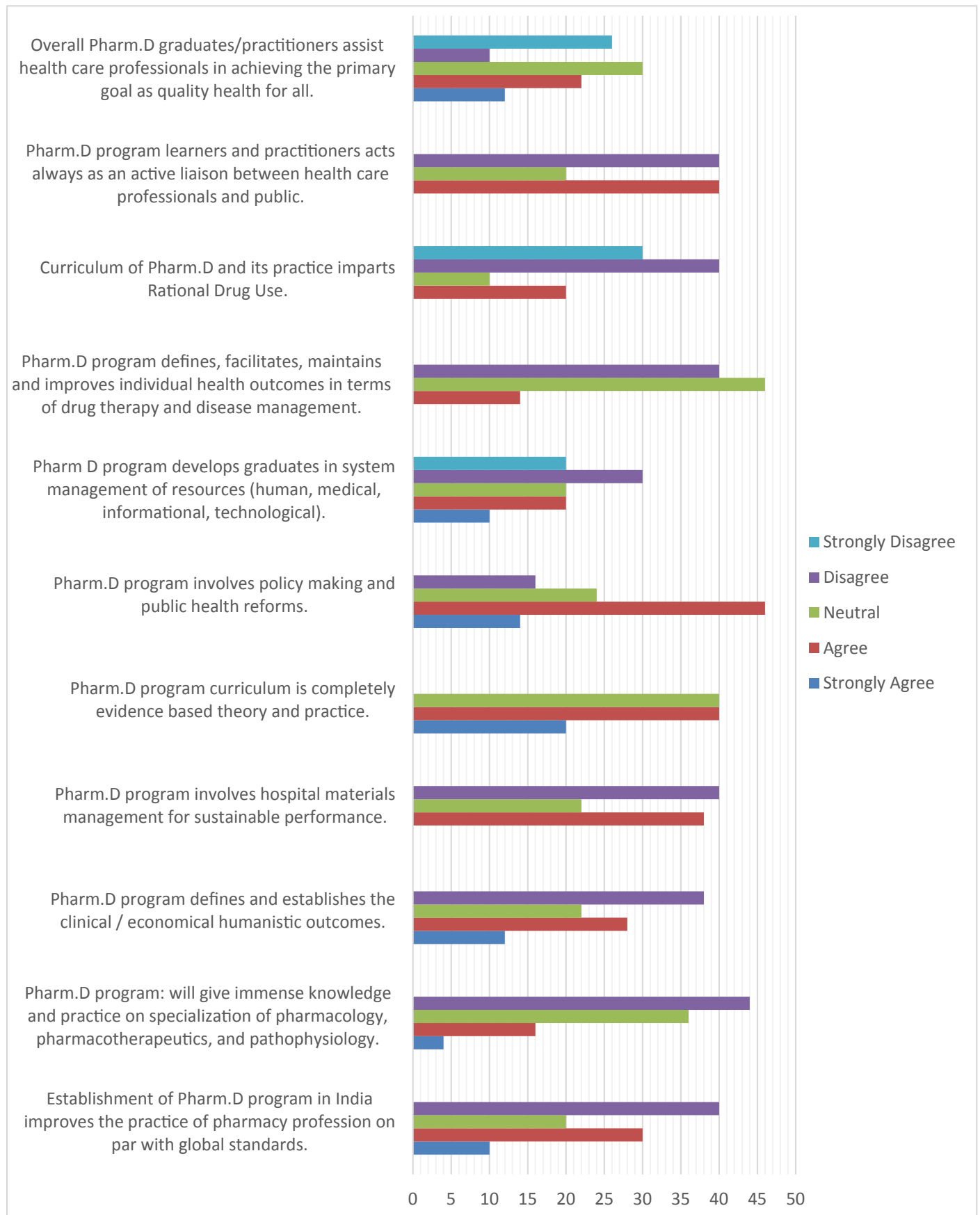
Figure 4: Responses of Public towards the standard self-administered questionnaire

While assessing the responses of healthcare professionals and public, regarding the establishment of Pharm.D program in India; whether it improves the practice of pharmacy profession on par with global standards, majority of healthcare professionals (57.1% physicians, 68% nurses and 40.7% pharmacists) and one-third of public agreed for this. It was found that public disagreed (44%) regarding the curriculum of Pharm.D program with clinical specialty courses like pharmacology, pharmacotherapeutics, and pathophysiology could improve knowledge and clinical skills immensely for a better patient care, but physicians (42.8%) and nurses (68.1%) agreed on average basis, and pharmacists (70.3%) strongly agreed. Average number of healthcare professionals (50% physicians, 40.9% nurses and 51.8% pharmacists) agreed that the curriculum of Pharm. D defines and establishes clinical, economic and humanistic outcomes in relation to patient care and drug safety, whereas 38% public disagreed. No healthcare professionals (42.8% physicians and 31.8% nurses) and 40% public apart from pharmacists (48.1%) agreed that the curriculum of Pharm. D involves and manages the inventories effectively. Furthermore, the response regarding the evidence based Pharm. D curriculum was found to be neutral among 57.1% physicians and 59.1% nurses, but 44.7% pharmacists and 40% public agreed to this.

In our study, 28.5% nurses and 45.4% physicians disagreed; and 55.5% pharmacists and 46% public agreed that the role of Pharm.D program is significant in policy making and public health reforms. Only 44.4% of pharmacists identified that role of Pharm D program graduates in system management of resources (human, medical, informational, technological), remaining participants responses were neutral and disagree. Majority of healthcare professionals (57.1% physicians, 54.1% nurses and 51.8% pharmacists) agreed that Pharm.D program defines, facilitates, maintains and improves individual health outcomes in terms of drug therapy and disease management, whereas the response of public was found to be neutral. The role of Pharm. D curriculum in terms of rational drug use was identified and strongly agreed only by pharmacists (48.2%), but the response of physicians and nurses were neutral, and public (40%) disagreed. Most of our healthcare professionals (78.4% physicians, 54.1% nurses and 48.1% pharmacists) agreed that Pharm. D curriculum prepares the graduates as a very effective liaison between healthcare provider and consumers, whereas the response of public was neutral. Utmost 50% physicians, 45.4% nurses and 48.1% pharmacists agreed that the curriculum of graduate level entry Pharm. D program plays a pivotal role in achieving the primary goal as quality health for all, whereas the response of 30% public was found neutral.

DISCUSSION

The current longitudinal, self-administered questionnaire, instrumentation survey of 6 months duration is the first study in India, performed in three types of health care settings, two pharmacy institutions and a medical and nursing college each, and also among public to assess the responses, awareness and receiving of the 6 years pharmacy practice specialty program Pharm.D (Doctor of Pharmacy) in south India towards a standard self-administered questionnaire which included 350 respondents.

In our study, the curriculum of Pharm.D was well received among physicians and pharmacists, regarding the inclusion of subjects / courses in specific to clinical specialties, outcome based education, research and practices; in relation to health system practices and delivery, is of quality standard. The acceptance of Pharm. D curriculum and its definite role in the management of resources (human, medical, informational, technological and inventory control); health policy making and reforms was found fewer among healthcare providers and public except pharmacists.

Maintenance and improvement of individual patient health outcomes in terms of drug therapy and disease management, effective liaisons stated as objective of Pharm.D at graduate entry level was well received appreciated and understood by all healthcare professionals, which was less among public. The current study delineated that six years pharmacy practice specialty program (Pharm.D) objectives, curriculum and its practices, was well received and appreciated by physicians and pharmacists, which was found to be in contrast among nurses and public.

CONCLUSION

The research accentuates that recognition of patient centered pharmacy services at all levels of health systems, providers and consumers is still at infancy. Hence, we the researchers felt the responses will be optimistic, when a precise framework on inter professional collaboration of health system is mechanized on expanding roles of pharmacist-delivered patient care in improving patients health outcomes.

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