

RESEARCH ARTICLE

# Focus of societal responsibility in the vision and mission statements of the United States pharmacy schools/ colleges

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## Keywords

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Societal responsibility  
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## Abstract

**Objective:** To assess the prevalence of societal responsibility languages and themes on education, research, and professional service in pharmacy programmes' vision and mission statements. **Methods:** The authors collected the vision and mission statements of 142 pharmacy programmes by visiting each programme's website. The statements were compiled and uploaded in NVivo 12. Deductive qualitative analysis and a topic extraction method with embedded principal component analysis (WordStat 8) were used to identify thematic dimensions of the statements. The number of programmes citing the respective themes were recorded. A Chi-square test was used to statistically analyse the prevalence of themes between the programme categories. **Results:** Education, research, professional practice, and societal service emerged as prominent themes. The prevalence of research, professional practice, and leadership themes was significantly higher in the vision statements of public programmes than private programmes. In the mission statements, the citation of a research theme was significantly higher in public programmes than private programmes. The citations of serving the diverse population and underserved population were very limited in the vision (6% and 5%) and mission statements (11% and 6%). Topic analysis conformed to the identified prominent themes and lack of societal responsibility theme in the mission statements. **Conclusions:** The prominent themes included education, research, and professional service to society at large. There is a distinctive lack of citations of societal responsibility towards underserved populations in the vision and mission statements.

## Introduction

In recent years, there has been an increasing emphasis on the societal services of healthcare education institutions to facilitate engagement with various stakeholders (Boelen C. & Heck, 1995; Lindgren & Karle, 2011; Murray *et al.*, 2012; Boelen *et al.*, 2016). Health education programmes are obligated to address the health care needs of diverse populations, regions, and nations through education, research, and service (Boelen C. & Heck, 1995). In the United States of America (USA), the healthcare service for underserved

populations remains a national concern (Vanderbilt *et al.*, 2013). Shortages of primary care workforce in rural and underprivileged urban areas have raised concerns about the role of healthcare education institutions in generating a healthcare workforce to serve underserved populations (Council on Graduate Medical Education, 2007; Mullan *et al.*, 2010). There is a renewed call to orient medical education towards preventative health and primary care of diverse populations (Bhatt & Bathija, 2018). Likewise, pharmacy education is geared toward training aspiring pharmacists to provide accessible care to patients in

underserved communities (Rooney, 2020). Within the changing healthcare environment, the functions of pharmacists are expanding to provide more direct patient care services and help reduce certain burdens on primary care physicians (Avalere Health LLC, 2018). In underserved communities in both rural and urban areas, pharmacists are often the most accessible healthcare providers. Pharmacists play vital roles in improving patient outcomes through medication therapy management, screenings and patient education (Mossialos *et al.*, 2015; M. A. Scott, Heck, & Wilson, 2017). Higher education institutions deliberately communicate their identities, missions, and goals to the stakeholders and the public through vision and mission statements (Alegre *et al.*, 2018). A vision statement is future-oriented, aspiring, and is meant to inspire by drawing an image of what an organisation needs to achieve (Kose, 2011; Gurley *et al.*, 2015). A mission statement captures an institution's unique and long-term goals and sets the direction for strategic decisions (Ingersoll, Witzel, & Smith, 2005; Moghal, 2012). Within literature, content analyses of vision and/or mission statements of business organisations ( Braun *et al.*, 2015; Gurley *et al.*, 2015; Leggat & Holmes, 2015; Alegre *et al.*, 2018) and higher education institutions (Morphew & Hartley, 2006; Ozdem, 2011; Cortés-Sánchez, 2017; Bayrak, 2020) including business schools (Orwig & Finney, 2007) and social sciences (Holosko *et al.*, 2015) have been reported. The literature on the textual and thematic analyses of vision and mission statements of healthcare education programmes is limited. There have been several analytical dissection attempts of the mission statements of medical schools (Lewkonja, 2001; Mullan *et al.*, 2010; Morley *et al.*, 2015). Status of societal responsibility in the mission statements of medical schools from the United States, United Kingdom, and Australia were first reported by the Royal Society of Medicine (RSM) in 1992 (White & Connelly, 1992). Subsequently, several studies identified thematic content related to tripartite responsibilities: education, research, and service in the mission statements of US medical schools (Lewkonja, 2001; Morley *et al.*, 2015). Of note, Morley and colleagues reported that the medical schools with a higher degree of social responsibility content in their mission statements were associated with a higher percentage of graduates entering in primary care and underserved areas (Morley *et al.*, 2015). In a recent study, while education and research themes were found prevalent in medical school mission statements, the emerging themes such as primary care, diversity, and service to the underserved were understated. Hafferty and colleagues performed a textual analysis of the mission statements of 144 medical schools. They found considerable variations in the themes on research,

primary care, diversity, leadership, learning environment, social responsibility, etc. (Hafferty, Grbic, & Hafferty, 2019). The mission statements of family medicine training programmes were found not to promote family medicine (Bhat-Schelbert *et al.*, 2004).

Like any other higher education institutions, pharmacy schools/colleges develop their vision and mission statements, which are accessible to the public and stakeholders. These statements may provide valuable insights into pharmacy programmes' self-defined purposes and commitments to societal needs. The Accreditation Council for Pharmacy Education (ACPE) Standards 2016 requires that the programme's mission statement be consistent with the programme's commitment to education, research and scholarship, as well as professional and societal service (ACPE, 2016). The dimensions of the US pharmacy programmes' vision and mission statements and their possible constituent elements or themes remain to be explored.

The objective of this study was to assess the prevalence of societal responsibility languages along with themes on education, research, and professional service in pharmacy programmes' vision and mission statements. In addition, the pharmacy schools/colleges were stratified between public *versus* private and old (accreditation before 2000) *versus* new (accreditation during/after 2000) to compare the results.

## Methods

### Data collection

The population for this study comprises the 142 US pharmacy programmes listed on the Accreditation Council for Pharmacy Education (ACPE) website. Two investigators visited each programme's homepage from August to October of 2020 to search for and gather vision and mission statements. The authors compiled the vision and mission statements and uploaded them onto NVivo (QSR International, Burlington, MA, USA), a qualitative data analysis software.

The total number of words and sentences in each vision and mission statements were recorded. Using NVivo Word Query functions, a word cloud analysis of the vision and mission statements was conducted to measure the citation frequency of words. For word frequency analysis, the grammatical words such as conjunctions, prepositions, articles, and other nonsignificant words were excluded by using the "stop words" function in NVivo. In addition, using "stemming", counts of words with similar meaning and singular or plural forms were combined. In citation frequency analysis, multiple appearances of a single code (a word or phrase) in a given statement was

included. The Text Query function of NVivo was used to count the citations of phrases (e.g. patient-centred care, patient care, diverse populations).

Standard data coding strategies for the coding of textual materials were employed (Vaughn & Turner, 2016; Graneheim, Lindgren, & Lundman, 2017). Deductive qualitative analysis was used during the review of vision and mission statements. A set of pre-defined codes was created based on the authors' knowledge of the pharmacy professional activities, ACPE 2016 standards, and published studies on textual analysis of mission statements (Valsangkar et al., 2014; ACPE, 2016; Hafferty et al., 2019). Two authors independently reviewed each vision and mission

statements. Themes with the pre-defined codes were identified and organised within three thematic categories or nodes (education, research, and service). The codes related to "service" (node) were grouped into three subcategories (known as child nodes in NVivo): patient care services, professional services and societal service. The occurrences of these codes were manually checked to ensure that they matched with associated themes and recorded under respective parent nodes or child nodes in NVivo 12 (Figure 1). 'Societal service' content was defined as a textual citation that reflects a goal of pharmacy education to prepare future pharmacists capable of serving society and diverse populations, including in medically underserved populations and regions.

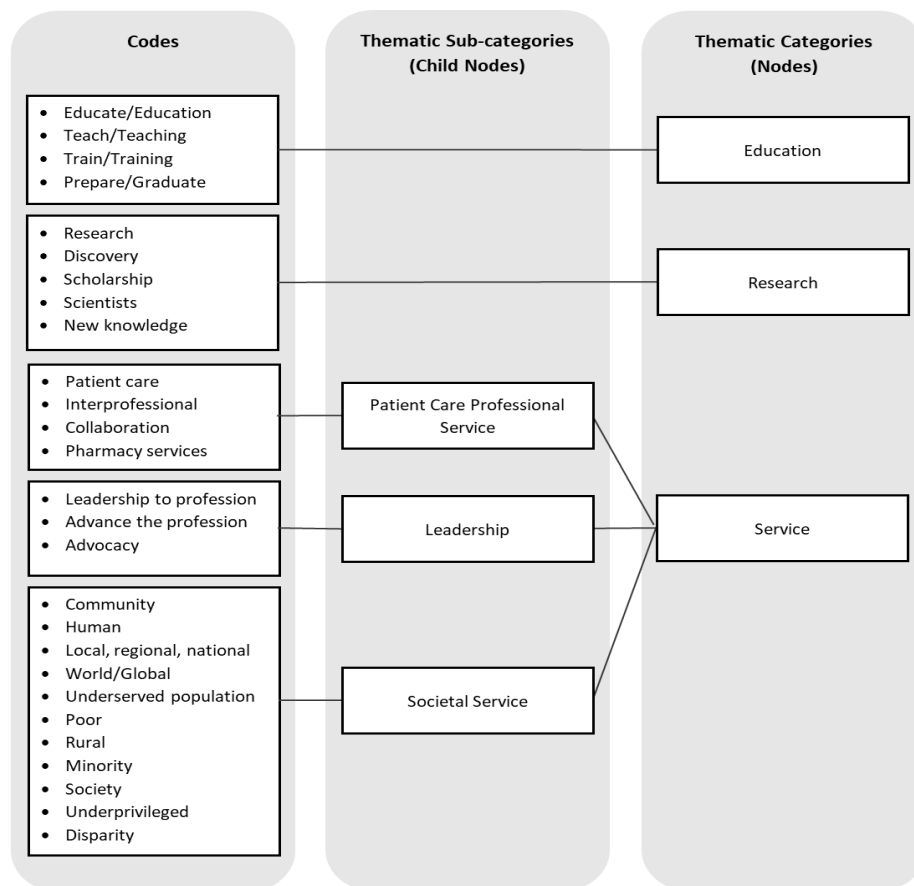


Figure 1: Deductive approach of coding pharmacy programme mission statements using NVivo version 12

**Data analysis**

The citations of multiple codes associated with a single theme were reconciled to produce a single data set. Upon reaching a consensus between two investigators (MAI and RMT), the coding of vision and mission statements was finalised. Then, the number of programmes citing the themes were identified and

recorded in a Microsoft Excel worksheet. The pharmacy programmes were categorised based on initial accreditation (old vs new) and public versus private statuses of the schools/colleges. To statistically analyse the prevalence of themes between the programme categories, a Chi-square test was used (Statistics

calculators, Social Science Statistics, [Quick Statistics Calculators](#)) with  $p < 0.05$  considered as significant.

In addition, the Topic Extraction method was utilised (WordStat 8, Prevails Research, Montreal, Canada) to identify latent thematic dimensions or factors across the mission statements. In combination with natural language processing, the topic extraction method involved principal-component factor analysis with Varimax rotation to estimate latent continuous variables. Factors having eigenvalues greater than 1.0 and factor loadings of 0.4 were retained. Before topic extraction, four text preprocessing steps were applied including, word stemming, substitution (e.g. substitution of misspellings), and exclusion of words (words not to be included in content analysis). This study was determined to be “Not Human Subjects Research”, and therefore, IRB approval was not required by the Institutional Review Board of the American University of Health Sciences.

## Results

The website search of 142 colleges and schools of pharmacy identified 107 and 142 vision and mission statements, respectively. On average, each vision statement was composed of  $1.41 \pm 1.10$  sentences (range 1-4) and  $33 \pm 32$  words (range 6 -189). The average number of sentences and words per mission statement was found to be  $1.54 \pm 1.12$  (range 1-7) and  $41 \pm 30$  words (range 3 - 259), respectively.

The word cloud analysis showed that the most frequently cited words included health, education, pharmacy, patient, care, and research for both vision and mission statements (Figure 2). For over 90% of the programmes, the vision statements were structured with words that characterised the statements as future-oriented, motivational, and aspiring. The examples of frequently occurring words included excellence, recognised/recognition, innovation, and transformational, etc. Similarly, in the mission statements, words were selected to capture the programmes' unique purposes and practices, expectations of academic accomplishments, promises of success, and institutional reputation. Examples of words used to describe the programmes and graduates' desirable attributes included dedicated, committed, compassionate, innovative, etc.

(A) Vision statements



(B) Mission statements



**Figure 2: Word Cloud analysis of the US pharmacy programmes' vision and mission statements**

Table I represents the citation frequency of each pre-defined code under parent nodes and child nodes. For example, the codes under education were cited the most, followed by research, professional practice, leadership, and societal service. In aggregation, the words underserved, underprivileged, minority, or rural were cited six and nine times in the vision and mission statements, respectively. The words diverse (patient/population) were cited six and 16 times in the vision and mission statements, respectively.

**Table I: Frequency of the pre-defined codes (words or phrases) appearing in US pharmacy programmes' vision and mission statements**

Thematic categories	Codes (words/phrases)	Number of citations	
		Vision statements	Mission statements
Education	Students	46	71
	Educate, Education	58	113
	Teach, teaching	4	14
	Train	1	10
	Prepare	4	42
	Knowledge	4	22
	Pharmacists	19	49
Research	Research	56	73
	Scholar, Scholarship	19	47
	Discover, Discovery	13	24
	Scientists	8	19
	New Knowledge	0	5
Service Professional practice	Health	64	119
	Healthcare	9	28
	Patient care, Patient-centered care	19	55
	Interprofessional	10	24
	Collaboration	6	10
	Practice	37	39
	Practitioner(s)	12	20
	Medication therapy management	1	4
Leadership to profession	Leader, leadership	46	50
	Advocate, advocacy	2	8
	Advance (profession)	23	25
Societal service	Society	6	13
	Community	22	53
	Human	7	7
	Local	6	19
	Regional	3	9
	National	5	6
	Global (World)	12	12
	Diverse (patients, population)	6	16
	Underserved, underrepresented, underprivileged, minority	6	9
	Improving health and wellness	27	54

The vision and mission statements were grouped under the thematic categories and subcategories. The major themes identified in the vision and mission statements included education, research, clinical practice, leadership, and societal service (Table II). The Education theme was present in 66% of US pharmacy schools' vision statements, while research, pharmacy practice, leadership, and societal service were

referenced in 58%, 70%, 69%, and 43% of vision statements. The numbers of schools that reported service towards the diverse and underserved populations in their vision statements were 6% and 5%, respectively (Table II). The prevalence of the research, professional practice, and leadership themes were significantly higher in the vision statements of public programmes than private programmes.

**Table II: Prevalence of education, research, pharmacy practice, leadership, and societal service themes in the vision and mission statements of US pharmacy programmes**

Pharmacy programme categories	Thematic elements of US pharmacy school vision and mission statements Number of programmes (%)						
	Education	Research	Pharmacy practice	Leadership	Society at large	Societal service Diverse population	Underserved population
<b>Vision statements</b>							
All (n=107)	71 (66)	62 (58)	75 (70)	74 (69)	46 (43)	6 (6)	5 (5)
Public (n=53)	37(70)	38 (72) <sup>a</sup>	41 (77) <sup>b</sup>	44 (83) <sup>c</sup>	23 (43)	3 (6)	2 (4)
Private (n=54)	34 (64)	24 (44)	34 (63)	30 (56)	23 (43)	3 (4)	3 (3)
Old (n=61)	38 (62)	37(61)	41 (67)	45 (74)	24 (39)	4 (7)	1 (2)
New (n=57)	33 (72)	25 (54)	34 (74)	29 (63)	22 (48)	2 (4)	4 (9)
<b>Mission statements</b>							
All (n=142)	137 (96)	111 (78)	132 (93)	86 (61)	107 (75)	16 (11)	8 (6)
Public (n=72)	69 (96)	62 (86) <sup>d</sup>	67 (93)	44 (61)	54 (75)	6 (8)	3 (4)
Private (n=70)	68 (97)	49 (70)	65 (93)	42 (60)	53 (76)	10 (14)	5 (7)
Old (n=85)	83 (98)	71 (84) <sup>e</sup>	80 (94)	53 (62)	64 (75)	6 (7)	3 (4)
New (n=57)	53 (93)	40 (70)	52 (91)	33 (58)	42 (74)	10 (18)	5 (9)

<sup>a</sup> Significant difference in the number of public vs private programmes citing research theme in vision statements ( $p<0.001$ )

<sup>b</sup> Significant difference in the number of public vs private programmes citing pharmacy practice theme in vision statements ( $p<0.05$ )

<sup>c</sup> Significant difference in the number of public vs private programmes citing leadership theme in vision statements ( $p<0.05$ )

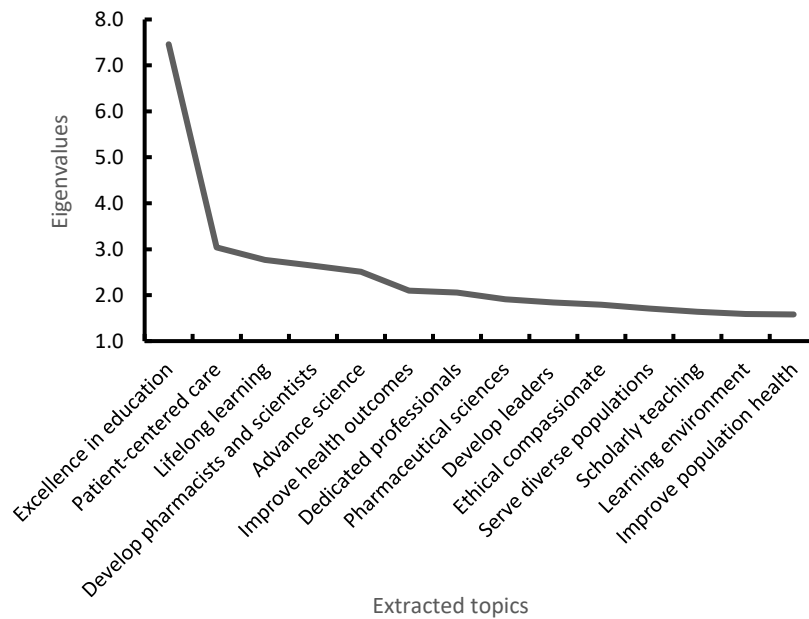
<sup>d</sup> Significant difference in the number of public vs private programmes citing research theme in mission statements ( $p<0.001$ )

<sup>e</sup> Significant difference in the number of old vs new programmes citing research theme in mission statements ( $p<0.05$ )

Similarly, in the mission statements, the predominant themes included education (96%), research (78%), professional practice (93%), leadership (61%), and societal service (75%). There was a significantly higher prevalence of research themes in the mission statements of the public (86%) and older programmes (84%) compared to private (70%) and new programmes (70%) (Table II). The citations of service to the diverse population and underserved population appeared in 11% and 6% of mission statements, respectively. There were no significant differences between public versus private or older versus new programmes in the citation of service to the diverse and underserved populations in vision or mission statements.

The vision statements of 26% (n=28) programmes appeared as an articulation of a preferred future without explicit citation of education, research, or service themes. In several instances, the vision and

mission statements were inconsistent with their widely accepted definitions and were found to be inverse in semantics. The topic extraction approach using factor analysis extracted 15 topics as demonstrated in the scree plot with eigenvalues above 1.0 (Figure 3). The constituents of the steep slope of the scree plot represent the important principal components which involved education excellence, patient-centred care, lifelong learning, pharmacist and scientist development, advanced science, and improved health outcomes. The shallow slope demonstrates topics that contribute little to the thematic dimensions of the mission statements. The components in the shallow slope included developed leaders, ethical compassion, serve diverse populations, scholarly teaching, learning environment, and improve population health. The service to underserved populations was not captured in the topic analysis.



**Figure 3: Scree Plot representing the Eigenvalues of extracted topics**

## Discussion

This is the first study, to the best of the authors' knowledge, reporting the textual and thematic analysis of the vision and mission statements of US colleges and schools of pharmacy. In this study, 107 vision statements and 142 mission statements were reviewed. The vision and mission statements of US pharmacy programmes are well associated with their commonly accepted meanings in the literature (Kose, 2011; Gurley *et al.*, 2015). The vision statements of pharmacy programmes, for instance, displayed expressions of a dream or aspiration for the future state of the programmes using terms such as excellence, recognition, innovation, and transformation, etc. Similarly, US pharmacy programmes' mission statements act as public statements of their broad range of purposes, identify stakeholders they serve and set strategic directions for achieving desired objectives. The content analysis showed that pharmacy programmes' mission statements captured the unique strategic course of action of educating, developing, and preparing graduates with desirable attributes such as dedicated, committed, compassionate, innovative, etc. The stated purposes were to serve the stakeholders such as patients, profession, society, and populations at local, regional, national, or global level for improving health. The mission statements of all schools are unified in their emphasis on health as an objective. The vision statements were much shorter than the mission statements. In some instances, constructions of vision and mission statements were found to be inconsistent

and interchanging in semantics. With the recent paradigm shift in pharmacy education, pharmacy programmes' vision and mission statements should reflect the current state of pharmacy training for contemporary pharmacy practice and societal needs. This study evaluated the self-described missions of US pharmacy programmes. The statements of traditional academic activities such as education, research, and service were prominent in the vision and mission statements of US pharmacy schools/colleges.

The word cloud analysis of the vision and mission statements identified the most cited words, which included education, research, health, healthcare, and service. These themes identified in the US pharmacy schools are consistent with the contemporary functions of any higher or professional education setting, such as education and training for developing a highly qualified workforce, producing knowledge via research, and providing service to society at large. The findings are consistent with the mission statements of US medical schools, which reflect a tripartite focus to train future physicians, serve as research institutions, and provide medical care through affiliated hospitals and clinics (Valsangkar *et al.*, 2014).

In this study, the "education" theme was contextually linked to "generate", "produce", "develop" graduates for the contemporary practice of pharmacy. There is significant attention to improving the quality of teaching and student learning experience from academics, higher education organisations, and governing bodies worldwide (Little *et al.*, 2007;



AlHaqwi & Taha, 2015; Hunt *et al.*, 2018). Increasingly, teaching excellence is recognised and supported worldwide through inclusion in the faculty promotion and tenure system, awards, grants, and fellowship in medical and pharmacy education (Hammer *et al.*, 2010; Gardner & Daniela, 2014; Hunt *et al.*, 2018).

Most pharmacy schools prioritised education and research in their vision and mission statements. The highest percentage of public and older schools cited research in their mission statements compared to private and newer pharmacy programmes. Increased attention in scientific research among higher education has been a long-existing phenomenon. The generation of new knowledge has become more and more visible in university missions (Scott, 2006; Marginson, 2007). Over the past decade, research performance has been a significant indicator of university ranking and prestige (Vernon, Balas, & Momani, 2018). In pharmacy education, graduate programmes have evolved to include interdisciplinary research programmes beyond traditional discipline-specific research (Lebovitz, Swaan, & Eddington, 2020). This is evident by the higher citation frequency of research in the mission statements of public pharmacy schools compared to private schools. A similar pattern of variation has been observed in the themes of medical school mission statements. The medical schools that are offering MD degrees, older, and in the top tier of NIH-funding prioritised research in their missions more than the DO-granting, newer, and bottom tier NIH-funded schools (Valsangkar *et al.*, 2014).

According to the US Department of Health & Human Services, underserved populations experience increased relative risk or susceptibility to adverse health outcomes due to limited resource availability, low health literacy, residence in medically underserved areas, or other disparities for race, religion, language, gender, sexual orientation, social status, etc. Many regions across the country, including rural and inner-city urban areas, fall into medically underserved areas (US Dept. of Health & Human Services, 2020). Current legislation paved the way for pharmacists to provide diverse patient care services to underserved populations across the nation (Gentry CK *et al.*, 2016). The integration of pharmacists into interprofessional collaborative practice models has been shown to improve healthcare quality, reduce health care costs, and increase patient access to care (Brown, 2013; Gentry CK *et al.*, 2016).

With pharmacists' evolving roles in primary care, the inclusion of societal responsibility towards underserved populations in the vision and mission statements of pharmacy programmes is expected. In the current study, the authors found that service to society at large

appeared in 49% of the sampled vision statements and 75% of mission statements, including the service to the professional or scientific community. The citation of service to diverse and underserved populations was very limited in the vision (6% and 5%) and mission statements (11% and 6%). Citation of these themes was more prevalent in private schools' mission statements than the public schools with a high research emphasis. This result is consistent with the observation in medical schools that social missions are less apparent in schools with higher support from the National Institutes of Health (Mullan *et al.*, 2010).

Topic analysis, as depicted in the scree plot, helps to visualise the relative importance of the factors. The factors contributing to the steep slope of the scree plot included education excellence, patient-centred care, lifelong learning, developed pharmacists and scientists, advanced science, and improved health outcomes. These are consistent with the major themes that were identified in the content analysis using the deductive approach (e.g. education, research, practice). While serving diverse community was in the shallow slope of the scree plot, service to underserved populations was not captured in the topic extraction, indicating the lack of emphasis in the mission statements.

One may argue about the applicability of the findings of this study to individual schools. This study demonstrates a distinctive lack of citation of societal responsibility towards underserved populations in the pharmacy programmes' mission statements. This finding raises a concern that if the theme of societal responsibility towards underserved populations is not featured in a school's mission statement, it may not be given its due importance in the programme. Alternatively, as pharmacy programmes do periodic strategic planning, there is an opportunity to review mission statements and embrace the emerging societal needs of serving vulnerable populations and regions. The incorporation of societal service towards underserved population themes may lead to tangible outcomes. A pharmacy programme would likely emphasize the implementation of thematic elements of mission statements. This is also in concordance with ACPE Standards 2016 that pharmacy programmes require an assessment of programme missions.

There are several limitations of this study. Firstly, since the vision and mission statements were gathered from school websites, there is an ambiguity regarding how recent the statements were. There is a possibility that the most recent iterations were not available on the websites as some programmes may have been going through modifications of vision and mission statement content. Secondly, the vision statements of all 142 programmes could not be identified from websites. It is



likely that some programmes may have vision and mission statements merged. Thirdly, this study did not explore the outcomes linked with the programmes' missions. Future studies are warranted to examine more closely the link between mission, strategic goals, and outcomes.

## Conclusions

The prominent themes that emerged in the vision and mission statements included education, research, and service to society at large. There is a distinctive lack of citations of societal responsibility towards underserved populations in the pharmacy programmes' vision and mission statements. The findings may serve as a call for US pharmacy schools and colleges to be more conscientious and proactive in updating their mission statements and incorporating the language of societal responsibility. Accordingly, initiatives at the pharmacy programme level for serving the underserved population or regions need to be developed. Future studies are warranted to assess the outcomes of social missions of pharmacy education.

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