



# Perspectives of Student Pharmacists on the Recent Expansion and Opportunities of the Pharmacy Profession



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## Introduction

The advancement of pharmacist roles has led to an expansion of career opportunities within the pharmacy field, many of which may be perceived as unconventional or even unheard of by the general public. Currently, there is little data to show whether pharmacy students also share the same gap in knowledge of these emerging avenues and opportunities. As the responsibilities of pharmacists continue to advance with innovations and discoveries within healthcare, the importance of pharmacy students' comprehensive understanding of these different roles become prevalent in their pursuit of a career in the pharmacy field.

## Goal and Objectives

The **primary goal** of this study is to determine the extent of a pharmacy student's knowledge on the expansion of opportunities within the pharmacy profession both before and throughout pharmacy school.

- **Specific Aim I:** To evaluate the extent of pharmacy students' knowledge of the various pharmacist career opportunities and the sources of their knowledge prior to matriculation to pharmacy school.
- **Specific Aim II:** To evaluate the extent of pharmacy students' knowledge of the various pharmacist career opportunities and the sources of their knowledge currently while they are in pharmacy school.
- **Specific Aim III:** To determine if pharmacy students have changed their post-graduate plans (switching from one pharmacy career field to another) and if so, what factors influenced these changes.
- **Specific Aim IV:** To evaluate how students regard virtual delivery of pharmacy services.

## Methods

- This is a cross-sectional study utilizing a 29-question survey. The survey assessed student participants' knowledge of various pharmacist roles before and during enrollment in pharmacy school, contributing factors to student participants' knowledge of those opportunities, and student participants' perceptions of recent advancements within the pharmacy profession.
- Participants were recruited through email distribution of surveys to pharmacy schools throughout California via CAPSLEAD faculty advisors of each respective school. Surveys were also sent through pharmacy organizations. Participants will take a survey administered through Qualtrics.

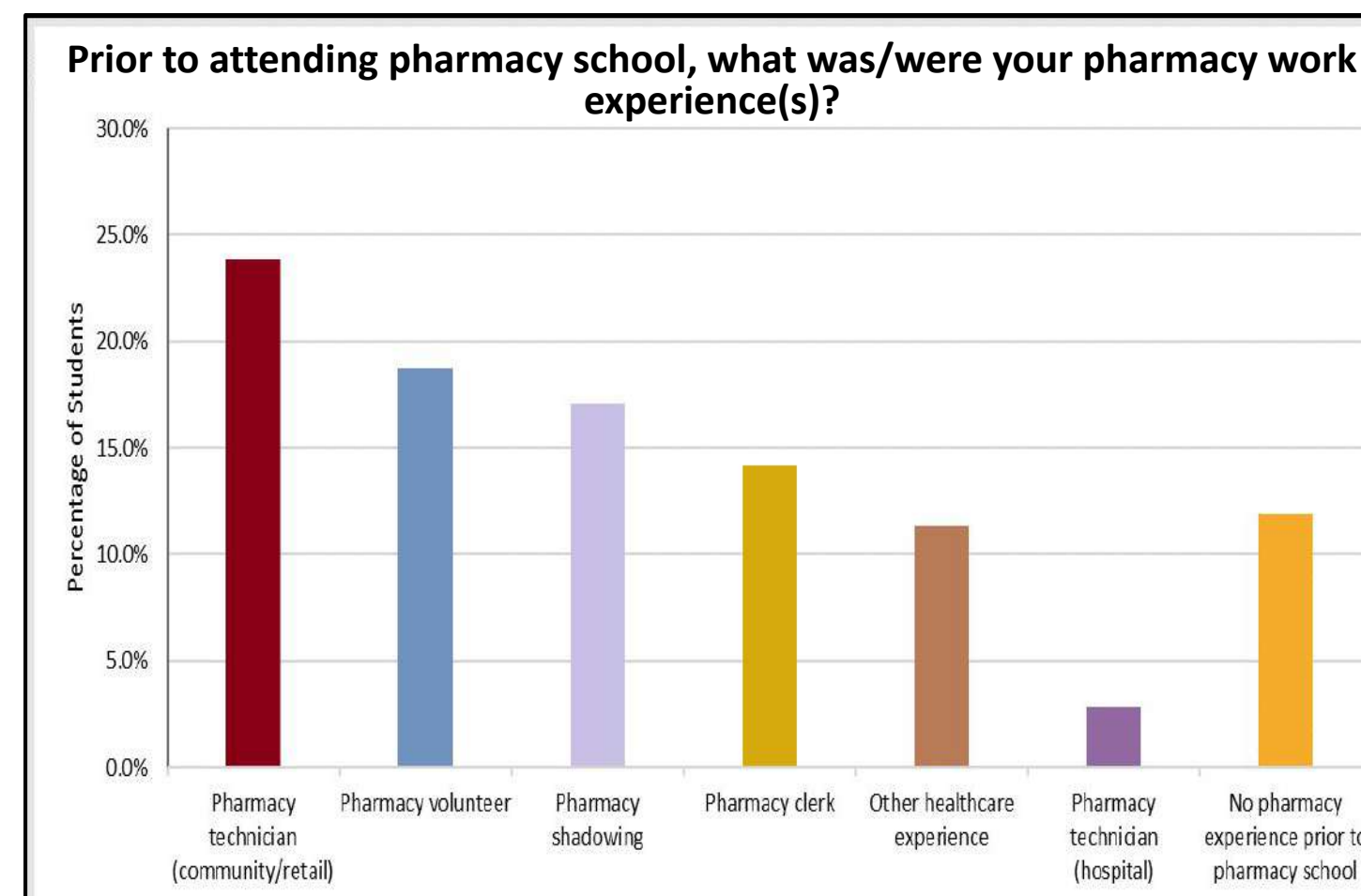
Survey questions available for viewing via QR code:



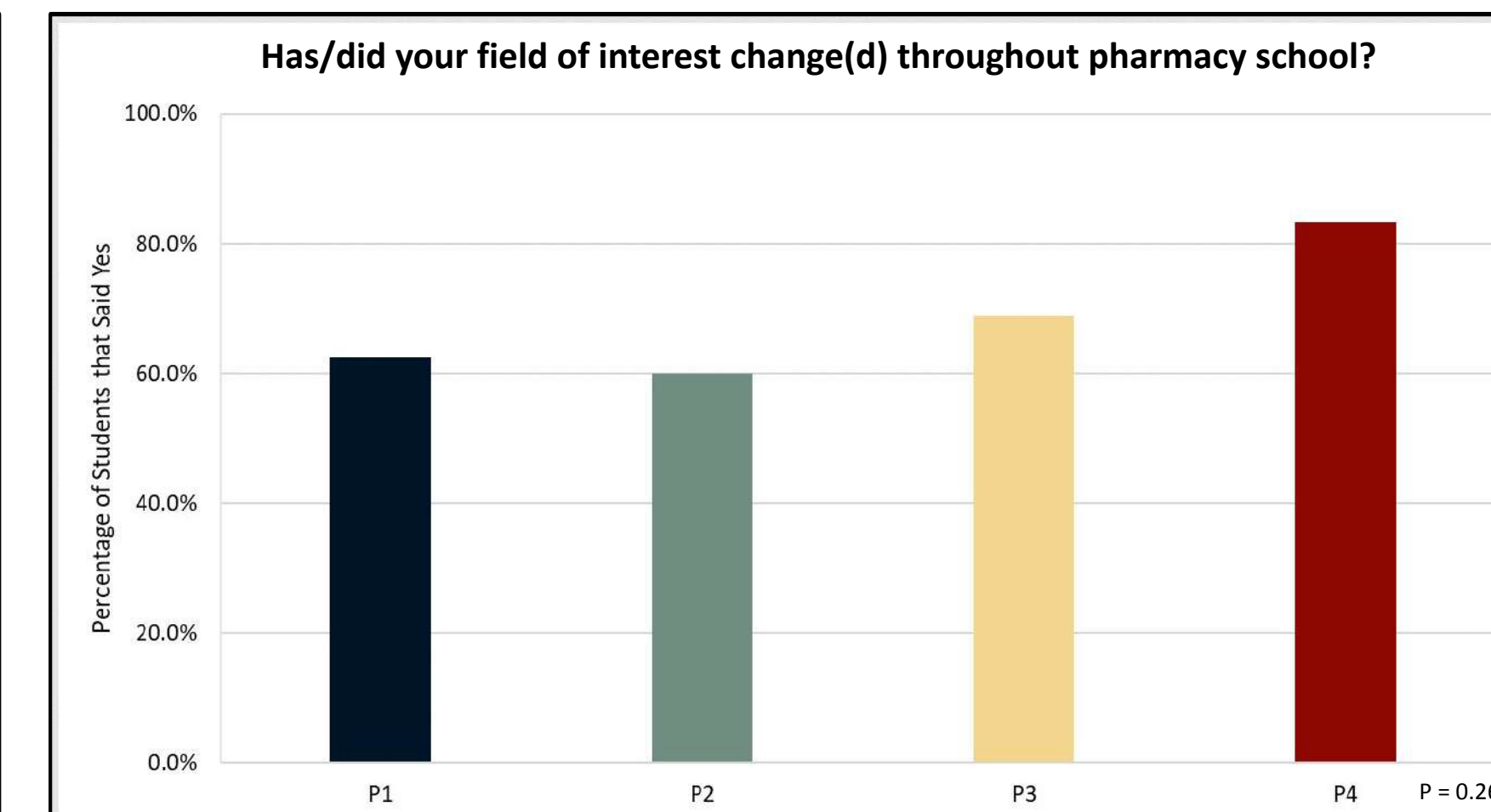
## Results

Table 1. Baseline Characteristics		
Characteristics	N	(%)
Year in Pharmacy School		
P1	32	(28.9%)
P2	35	(32.7%)
P3	18	(16.8%)
P4	22	(20.6%)
Gender		
Male	33	(30.8%)
Female	72	(67.3%)
Age		
17-24	49	(45.8%)
25-31	46	(43.0%)
32-39	8	(7.5%)
>40	4	(3.7%)
Race/Ethnicity		
Asian/Pacific Islander	65	(60.8%)
Black/African American	3	(2.8%)
Hispanic or Latino	13	(12.2%)
Non-Hispanic White	14	(13.1%)
Other	12	(11.2%)
Grade Point Average		
3.5-4.0	29	(27.1%)
3.0-3.49	26	(24.3%)
2.5-2.99	18	(16.8%)
2.0-2.49	51	(47.8%)
Not Applicable*	22	(20.6%)

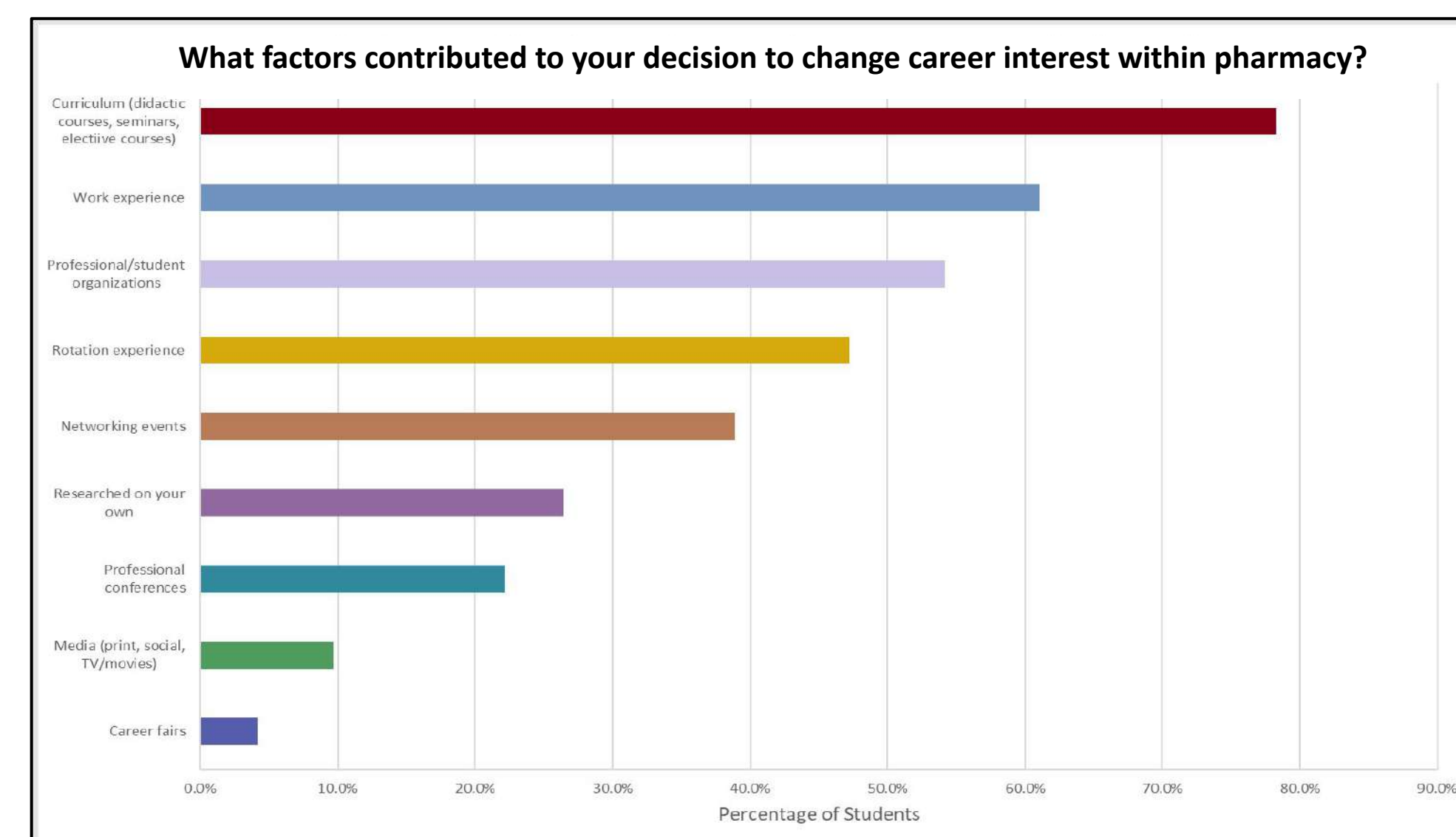
\*Grade Point Average - Not Applicable: Universities that do not use a GPA grading system, no courses completed yet, etc.



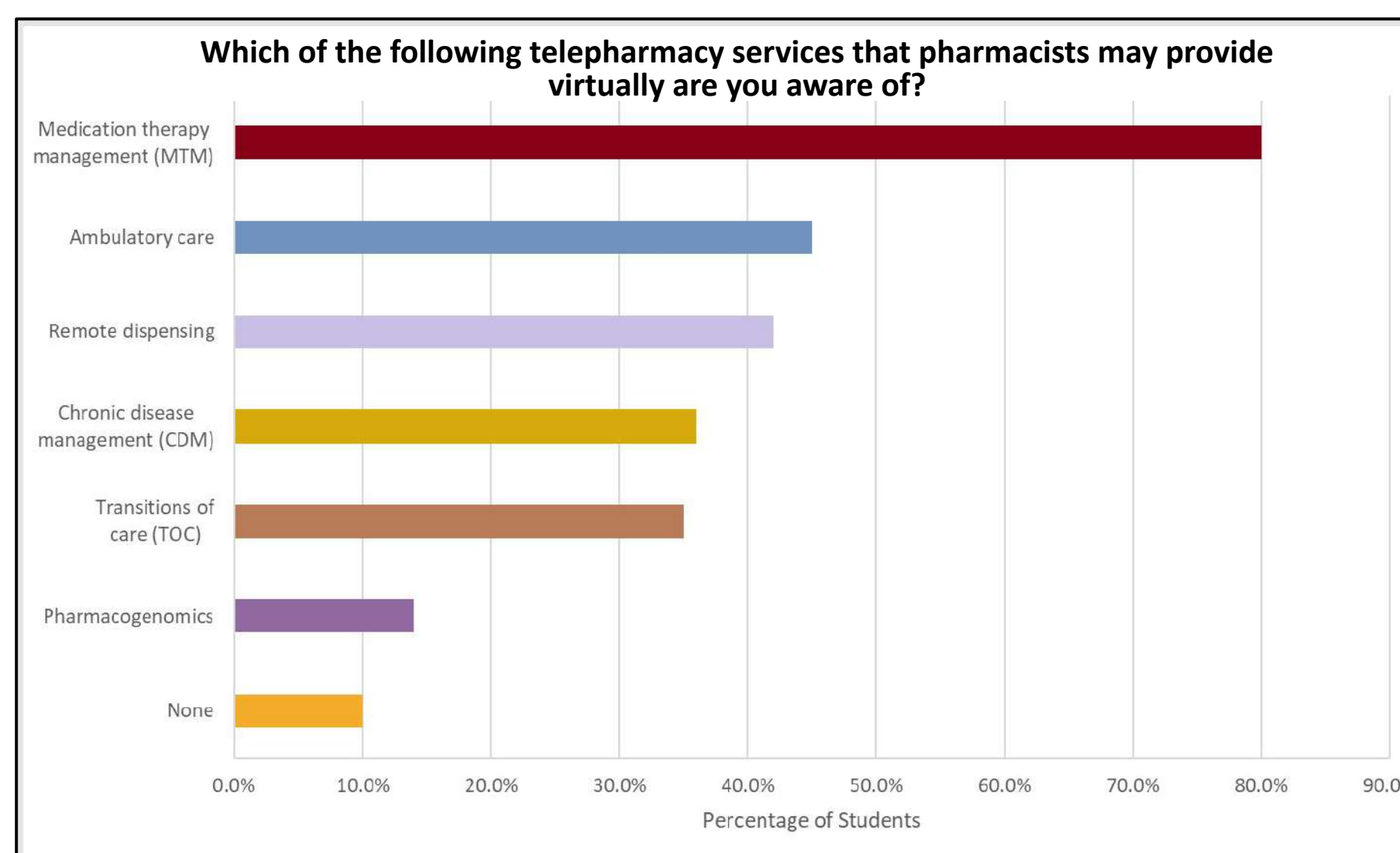
**Figure 1. Pharmacy Experience Prior to Pharmacy School**  
Approximately 40% of the students worked as pharmacy technicians in a community setting while less than 5% of the students had hospital experience.



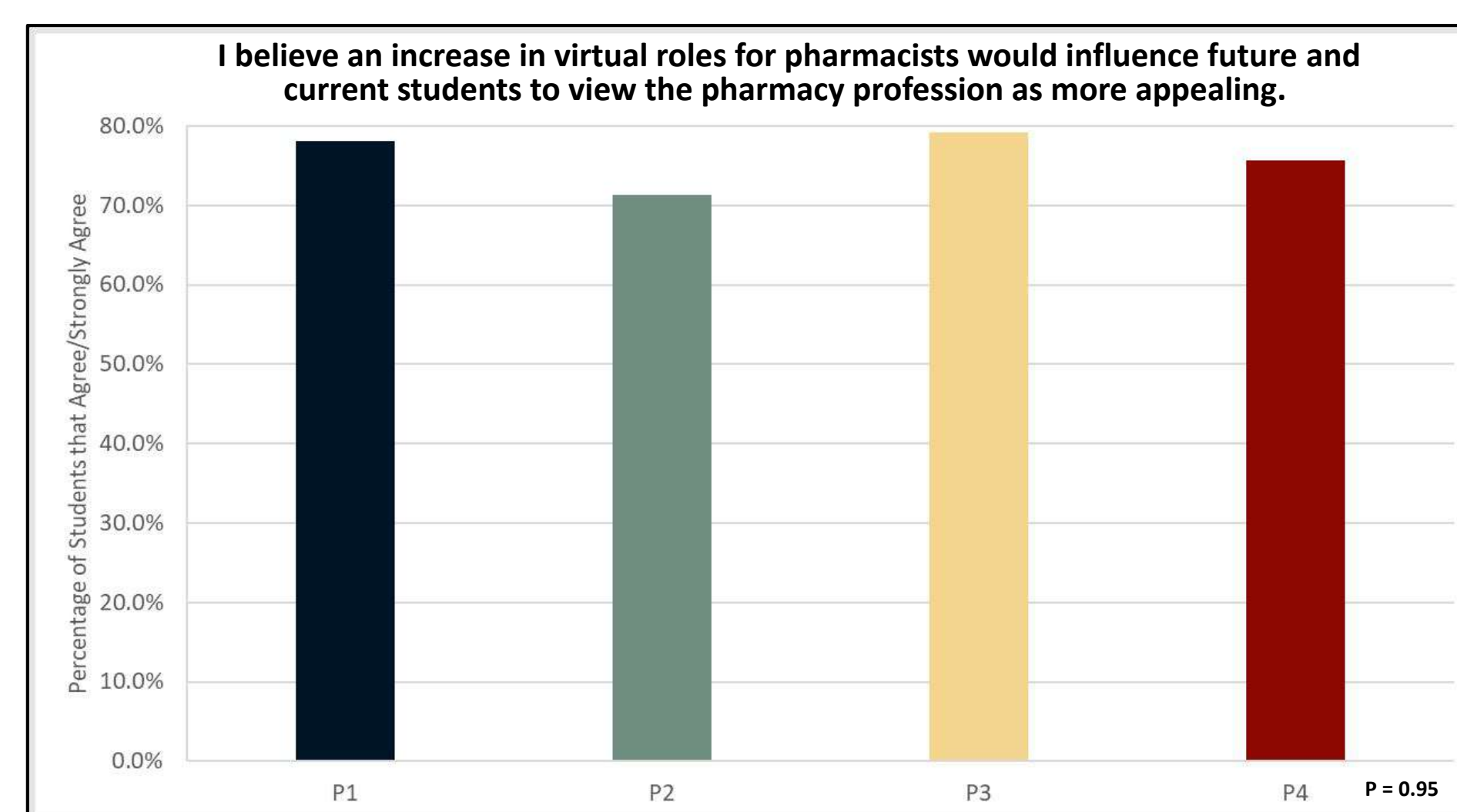
**Figure 2. Field of Interest Change Throughout Pharmacy School**  
A majority of the students (68%) expressed changing their field of interest since beginning pharmacy school. P4 students (and P3 students enrolled in a 3-year program) had the highest proportion of students within a single class (83%) who expressed a change in their field of interest.



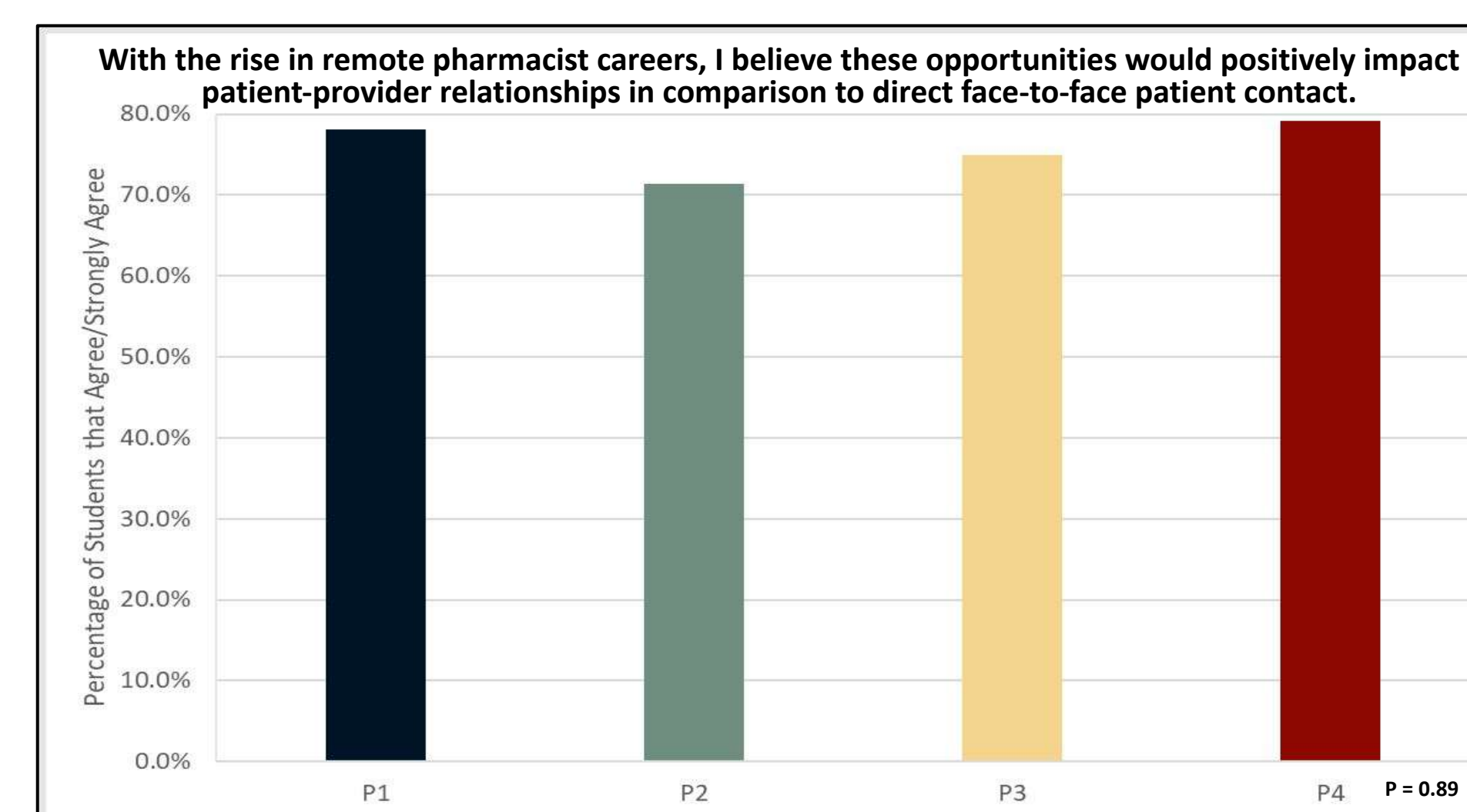
**Figure 3. Contributing Factors in Decision to Change Career**  
Among the different factors listed, the pharmacy school curriculum was identified the most often, followed by work experience and involvement in professional organizations. Professional conferences, media, and career fairs were identified the least frequently.



**Figure 4. Awareness of Virtual Pharmacy Services**  
Student pharmacists were most aware of virtual Medication Therapy Management (MTM) services, followed by Ambulatory Care services and Remote Dispensing. The virtual pharmacy service that students were least aware of was Pharmacogenomics.



**Figure 5. Appeal of Virtual Pharmacy Services**  
The majority of student pharmacist participants (85%) indicated that an increase in virtual opportunities for pharmacists would influence future and current students to view the pharmacy profession as more appealing. This was consistent throughout all 4 years of students.



**Figure 6. Impact of Virtual Pharmacy Services on Patient-Provider Relationships**  
The majority of student pharmacist participants (76%) believe that an increase in virtual opportunities for pharmacists would positively impact patient-provider relationships, in comparison to direct face-to-face patient contact. This was consistent throughout all 4 years of students.

## Discussion

- Due to the limited baseline experience as incoming students (Figure 1), students' fields of interest would naturally change as their knowledge of pharmacy practice expanded throughout schooling.
- The number of years students have been in pharmacy school is likely to contribute to their decision to change career interests due to increased knowledge of the scope of pharmacy from didactic courses and professional organizations (Figure 2).
- In contrast with the passive knowledge gained from curriculum, work and professional organization involvement allow for direct opportunities for students to practice in different settings and determine whether they want to change their career interest (Figure 4).
- Students believed that the rise in telepharmacy due to the COVID-19 pandemic had a positive impact on patient-provider relationships (Figure 6) and appeal of the pharmacy profession (Figure 5). Since the scope of pharmacy is constantly evolving, it is important for students to be exposed to these new opportunities to determine the best approach to optimize patient health outcomes and advocate for the profession<sup>4</sup>.
- This study explored other potential contributing factors (including recent legislations) that were not found to be statistically significant. However, due to the limitations of this study, these factors should be further examined in future research.

## Conclusions

- Pharmacy students had the most experience in retail settings when beginning pharmacy school, but throughout the pharmacy curriculum their field of interest changed.
- Remote pharmacy services may reshape and broaden the role that pharmacists have in patient care, thus further expanding the scope of practice as healthcare providers.
- To increase student awareness of the constantly evolving career opportunities, further emphasis should be placed on the importance of work experience and student participation in professional organizations.

## References

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