



LOMA LINDA UNIVERSITY

School of Pharmacy

PHARMACY SCHOOLS' ATTITUDES TOWARD CANNABIS AND ITS INFLUENCE ON CURRICULUM

Boica, Mariana; Do, Tra; Erickson, Shasta; Hamada, Harrison; Hopkins, J. Andrew; Quinones, Angelica; Shaba, Noor; Trieu, Rosa Gavaza, Paul PhD; Kawahara, Nancy, PharmD, MSED; Zough, Farnoosh PharmD, BCPS
Loma Linda University School of Pharmacy



INTRODUCTION

Historically, cannabis has been the most commonly used and abused illicit substance around the world. Cannabis remains classified as a schedule 1 controlled substance with no approved clinical use. Through state legislations, forty-two of fifty states in the United States have passed cannabis use as legal, decriminalized or medically acceptable. With the increase of patient access to cannabis, there is an increased need for drug information. As drug experts, questions for pharmacists regarding dosage, safety, efficacy, and potential drug interactions persist amongst patients coming into local pharmacies. While clinical use has not been established in healthcare settings, patients are interested in utilizing cannabis. There is a lack of clinical research regarding cannabis and its possible therapeutic benefits. As of 2020, there is only one FDA approved prescription medication with cannabidiol, CBD and two with THC, Nabilone and Dronabinol. Regardless of student or institution attitudes on cannabis use, the focus lies on patients and their need for information to safely use cannabis should they choose to under their own discretion.

OBJECTIVES

- The purpose of this study is to:
- ❖ Determine the extent to which cannabis topics are taught and should be taught in pharmacy schools in the United States.
- ❖ Assess if pharmacy schools adequately prepare students to answer questions regarding cannabis to the general public
- ❖ Determine the association among the school's/college's integration of cannabis topic, their state laws regarding cannabis, and the school's characteristics (i.e., religious affiliated or not, public or private).
- ❖ Identify challenges faced by schools and colleges of pharmacy in integrating cannabis topics into their curriculum.
- ❖ Assess faculty attitudes and confidence regarding their knowledge, student's knowledge, and their school's allocation of time in cannabis related subjects.

METHODOLOGY

- ❖ A 14-question web-based survey using Qualtrics was developed to query academic deans/pertinent faculty members of pharmacy schools in the United States.
- ❖ An email was sent to various faculty and staff members (i.e. assistant professors and assistant deans for academic affairs) of every pharmacy school in the United States. This email provided a link to the study as well as requested that the email recipients forward the study survey to their respective faculty and staff.
- ❖ The survey variables included: state and school demographics, marijuana education, challenges in instruction, legalization and/or marijuana implementation progress.
- ❖ The survey was distributed electronically to at least one representative of each pharmacy school in the US. All the data was downloaded to Microsoft Excel 2018 and then uploaded to SPSS for analysis. Descriptive statistics (e.g. means, standard deviations, frequency distributions) were computed for all study variables. Chi-Square tests were assessed to determine the differences in mean attitude scores. A p-value of $\alpha \leq 0.05$ will be considered statistically significant.

RESULTS

- ❖ A total of 52 responses were recorded, with 32 being female and 20 are male, from a total of 14 states.
- ❖ Respondents were administrators (n=10), instructors (n=2), assistant professors (n=17), associate professors (n=13), and professors (n=10).
- ❖ The primary disciplines of the responders were pharmacy practice (n=36), basic sciences (n=11), and social and administrative sciences (n=5).
- ❖ Out of the 52 responses, 71% (n=37) reported medical marijuana use was legal in their state and 31% (n=16) reported recreational use of marijuana was legal in their state
- ❖ 50% of responders (n=26) reported their pharmacy school was a faith based institution
- ❖ 65% of respondents came from a private institution, while the remaining (n=18) are from public institutions

RESULTS

Percentage of Responses Per State

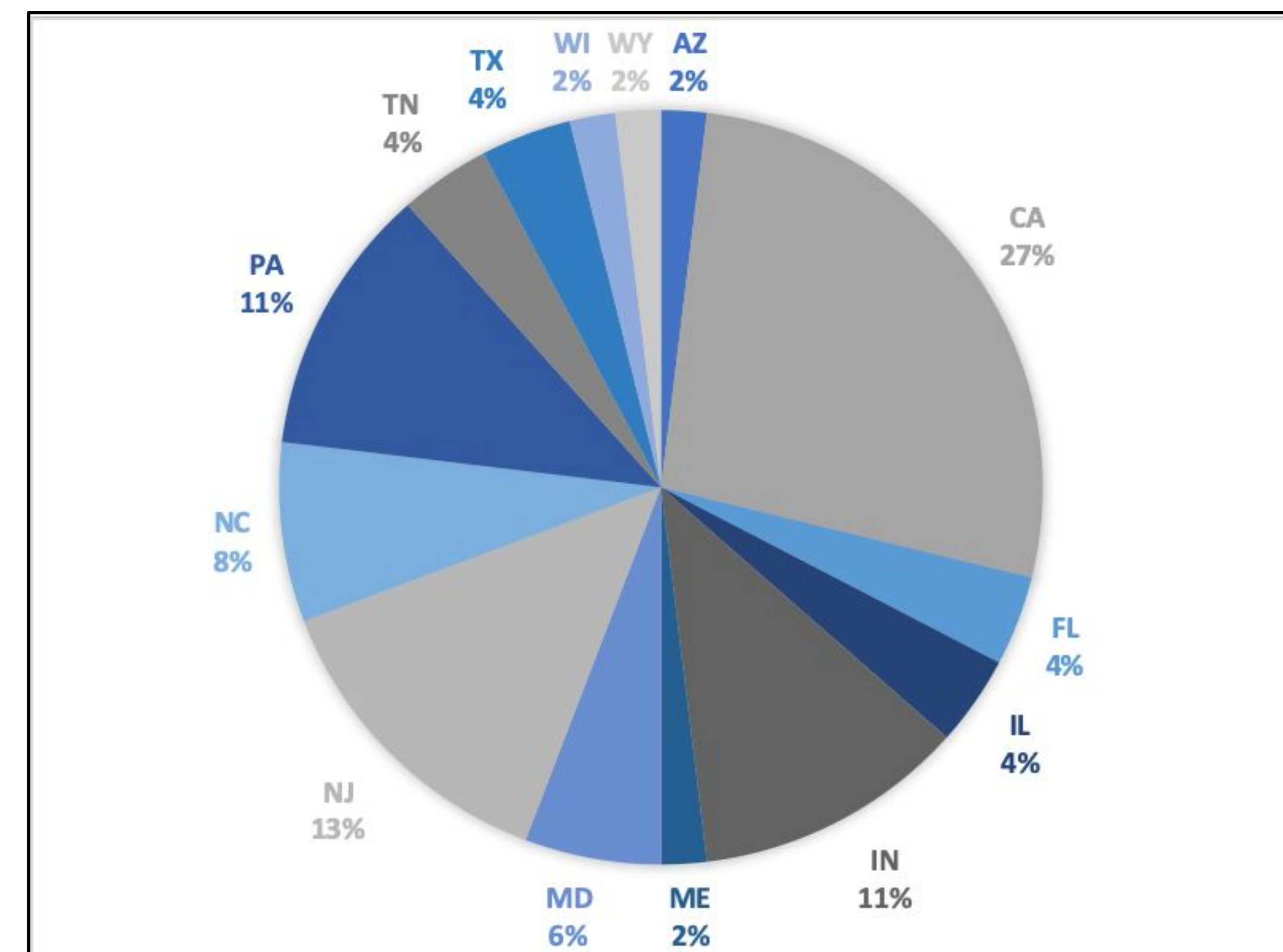


Figure 1: Participants' Respective State

Demographics

Items (n=52)	Response	Frequency (%)
Is medical marijuana legal in your state?	Yes	37 (71%)
	No	15 (29%)
Is the use of recreational marijuana legal in your state?	Yes	16 (31%)
	No	36 (69%)
Is your institution faith based?	Yes	26 (50%)
	No	26 (50%)
Is your institution private or public?	Private	34 (65%)
	Public	18 (35%)
What is your gender?	Male	20 (38%)
	Female	32 (62%)
Is cannabis taught in the didactic curriculum at your school?	Yes	12 (23%)
	No	34 (65%)
	In progress	6 (12%)

Table 1: Participants Responses to Demographic Survey Questions

Pharmacy School's Attitudes Towards Cannabis

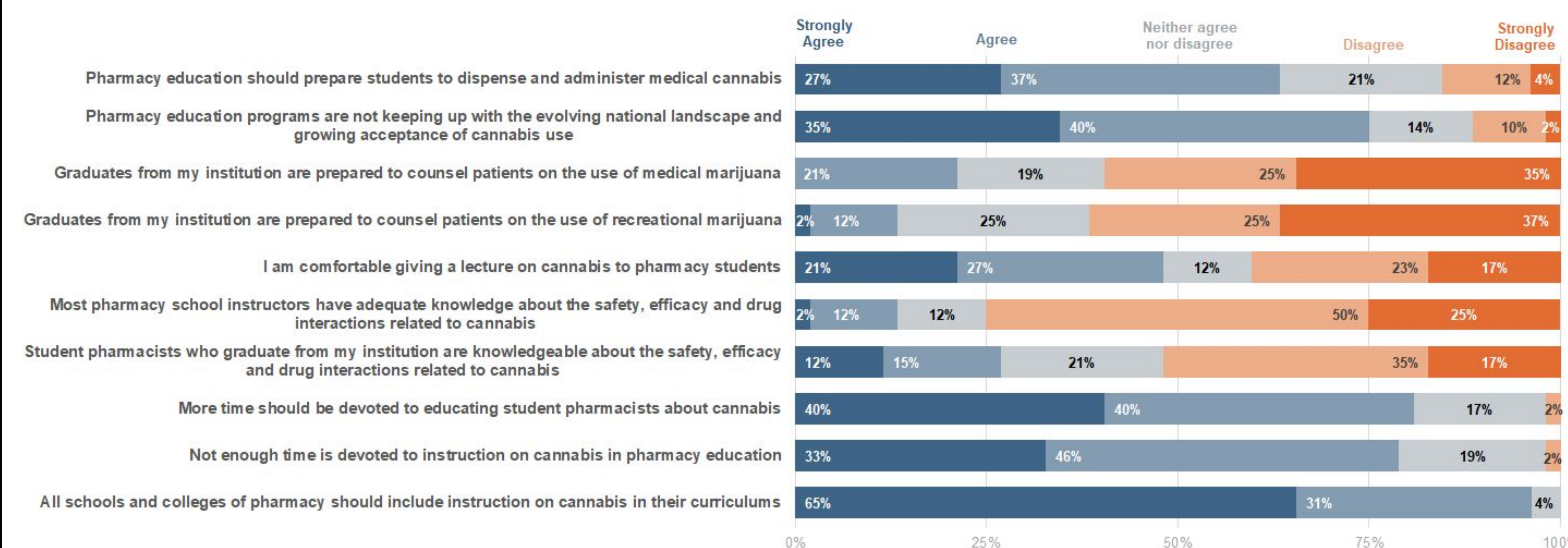


Table 2: Attitudes of Pharmacy Schools

		Is cannabis taught in the didactic curriculum at your school?				P-value
		Count	Yes	Count	No	
All schools and colleges of pharmacy should include instruction on cannabis in their curriculums.	Strongly disagree	0	0%	0	0%	0.376
	Somewhat disagree	0	0%	0	0%	
	Neither agree nor disagree	0	0%	2	7%	
	Somewhat agree	7	29%	9	32%	
	Strongly agree	17	71%	17	61%	
Not enough time is devoted to instruction on cannabis in pharmacy education.	Strongly disagree	0	0%	0	0%	0.009
	Somewhat disagree	2	8%	1	4%	
	Neither agree nor disagree	8	33%	2	7%	
	Somewhat agree	13	54%	11	39%	
	Strongly agree	3	13%	14	50%	
More time should be devoted to educating student pharmacists about cannabis.	Strongly disagree	0	0%	0	0%	0.06
	Somewhat disagree	1	4%	0	0%	
	Neither agree nor disagree	7	29%	2	7%	
	Somewhat agree	10	42%	11	39%	
	Strongly agree	6	25%	15	54%	
Student pharmacists who graduate from my institution are knowledgeable about the safety, efficacy and drug interactions related to cannabis.	Strongly disagree	2	8%	7	25%	0.142
	Somewhat disagree	7	29%	11	39%	
	Neither agree nor disagree	7	29%	4	14%	
	Somewhat agree	6	25%	2	7%	
	Strongly agree	2	8%	4	14%	
Most pharmacy school instructors have adequate knowledge about the safety, efficacy and drug interactions related to cannabis.	Strongly disagree	7	29%	6	21%	0.238
	Somewhat disagree	10	42%	16	57%	
	Neither agree nor disagree	2	8%	4	14%	
	Somewhat agree	5	21%	1	4%	
	Strongly agree	0	0%	1	4%	
I am comfortable giving a lecture on cannabis to pharmacy students.	Strongly disagree	2	8%	7	25%	0.424
	Somewhat disagree	7	29%	5	18%	
	Neither agree nor disagree	2	8%	4	14%	
	Somewhat agree	8	33%	4	21%	
	Strongly agree	5	21%	6	21%	
Graduates from my institution are prepared to counsel patients on the use of recreational marijuana.	Strongly disagree	7	29%	12	43%	0.593
	Somewhat disagree	6	25%	7	25%	
	Neither agree nor disagree	8	33%	5	18%	
	Somewhat agree	3	13%	3	11%	
	Strongly agree	0	0%	1	4%	
Graduates from my institution are prepared to counsel patients on the use of medical marijuana.	Strongly disagree	5	21%	13	46%	0.094
	Somewhat disagree	5	21%	8	29%	
	Neither agree nor disagree	7	29%	3	11%	
	Somewhat agree	7	29%	4	14%	
	Strongly agree	0	0%	0	0%	
Pharmacy education programs are not keeping up with the evolving national landscape and growing acceptance of cannabis use.	Strongly disagree	5	21%	0	0%	0.05
	Somewhat disagree	4	17%	3	11%	
	Neither agree nor disagree	10	42%	11	39%	
	Strongly agree	5	21%	13	46%	
	Strongly disagree	1	4%	1	4%	
Pharmacy education should prepare students to dispense and administer medical cannabis.	Strongly disagree	4	17%	2	7%	0.102
	Neither agree nor disagree	8	33%	3	11%	
	Somewhat agree	8	33%	11	39%	
	Strongly agree	3	13%	11	39%	
	Strongly disagree	0	0%	0	0%	

Table 3: Attitudes of Pharmacy Schools That Do Not Include Cannabis in Their Curriculum

DISCUSSION

- ❖ Both pharmacy schools that currently teach and do not teach about cannabis feel that pharmacy students have inadequate knowledge about the safety, efficacy, and drug interactions related to cannabis.
- ❖ Significant response to not enough time devoted to instruction on cannabis in pharmacy education.
- ❖ Pharmacy institutions are not keeping up with the evolving landscape surrounding marijuana.
- ❖ Recent pharmacy graduates are not prepared to counsel their future patients on the use of recreational or medical marijuana.
- ❖ The inclusion of cannabis in didactic curriculums across the country can be associated with the belief that pharmacy schools are doing enough to keep up with the evolving landscape surrounding marijuana.
- ❖ The inclusion of cannabis in didactic curriculums across the country can be associated with the belief that enough time is devoted to marijuana topics in the classroom.
- ❖ Overall, schools are not confident in their faculties' knowledge on cannabis topics.
- ❖ Half of instructors do not feel confident in their ability to give a lecture on cannabis to pharmacy students.

LIMITATIONS

- ❖ Due to cannabis being a sensitive topic, some of our target participants opted out of the survey, leading to a smaller sample size than was anticipated.
- ❖ This study is based on pharmacy school faculty attitudes, which may incur some bias depending on personal beliefs.
- ❖ Types of tests were limited to chi-square and demographic analysis, as the study involved descriptive answers rather than numeric values.

CONCLUSION

- ❖ The majority of pharmacy school faculty and staff around the nation agree that cannabis should be included in pharmacy school curriculum
- ❖ As litigation surrounding marijuana changes, the implementation of training and education programs regarding the subject will be needed along with further analysis of the topic in pharmacy education.

ACKNOWLEDGEMENTS

- ❖ We would like to thank Rite Aid for their continuous support of the CAPSLEAD program and the California Society of Health-System Pharmacists (CSHP) for the opportunity to present our poster at this year's seminar.
- ❖ We would also like to thank Loma Linda University for sponsoring us to represent our school at the 2020 CAPSLEAD Conference.

REFERENCES

1. Abazia, D. T., & Bridgeman, M. B. (2018). Reefer madness or real medicine? A plea for incorporating medicinal cannabis in pharmacy curricula. *Currents in Pharmacy Teaching and Learning*, 10(9), 1165–1167.
2. Berlekamp, D., Rao, P., Patton, T., & Berner, J. (2019). Surveys of pharmacy students and pharmacy educators regarding medical marijuana. *Currents in Pharmacy Teaching and Learning*, 11(7), 669–677.
3. Caligiuri, F. J., Ulrich, E. E., & Welter, K. J. (2018). Pharmacy Student Knowledge, Confidence and Attitudes Toward Medical Cannabis and Curricular Coverage. *American Journal of Pharmaceutical Education*, 83(5), 424–432.
4. Moeller, K. E., & Woods, B. (2015). Pharmacy Students' Knowledge and Attitudes Regarding Medical Marijuana. *American Journal of Pharmaceutical Education*, 79(6), 85.
5. Moeller, K. E., McGuire, J. M., & Melton, B. L. (2020). A nationwide survey of pharmacy students' knowledge and perceptions regarding medical cannabis. *Journal of the American Pharmacists Association*, 60(1).
6. National Conference of State Legislatures. (2020, March 10). *State medical marijuana laws*. Legislative News, Studies and Analysis | National Conference of State Legislatures. <https://www.ncsl.org/research/health/state-medical-marijuana-laws.aspx>
7. Ramsey, D. C. (2020). Cannabis and the role of the pharmacist. *Journal of the American Pharmacists Association*, 60(1), 205–206.
8. Schmitz, N., & Richert, L. (2020). Pharmacists and the future of cannabis medicine. *Journal of the American Pharmacists Association*, 60(1), 207–211.
9. Smithburger, P. L., Zemaitis, M. A., & Meyer, S. M. (2019). Evaluation of medical marijuana topics in the PharmD curriculum: A national survey of schools and colleges of pharmacy. *Currents in Pharmacy Teaching and Learning*, 11(1), 1–9.