

BACKGROUND

- Cannabidiol (CBD) is expected to be a nearly \$2 billion industry by 2022.¹
- Recent State and Federal legislation are making CBD, specifically over-the-counter CBD (OTC-CBD), more accessible to the public, well before adequate studies have been conducted.²
- It is important to assess the knowledge of the upcoming generations of pharmacists on CBD.

OBJECTIVES

To assess the pharmacy students'

- baseline knowledge of CBD and self-rated competency of OTC-CBD product pharmacotherapy,
- concerns about OTC-CBD product safety and level of preparedness with answering questions about the product, and
- current and future education and resources to assess the need of education in pharmacy school curriculum.

METHODS

Study Design

- Observational cross-sectional study

Survey

- The 23 question survey, developed using previous literature that utilized surveys to gain pharmacist and student perspectives on many aspects of cannabis-containing products.³
- Assessed for face validity and completeness by 1 SIUE School of Pharmacy student in each of the 2020-2023 classes and 2 SIUE faculty members
- The survey was active from 8/15/2019–10/31/2019 and 3 reminders were sent during this time.

Survey Sections

- Demographics (age, primary pharmacy practice setting, year in pharmacy school, pharmacy school attending, whether a course covering CBD is included in the student's school of pharmacy curriculum, if they received any prior formal education on the use of CBD and where that information was obtained)
- Knowledge regarding CBD products and laws (6 true/false or multiple choice questions)
- Competency in pharmacotherapy of CBD products (3 Likert-type scale questions: strongly competent – strongly incompetent)
- Level of preparedness for counseling patients and healthcare providers on CBD (2 Likert-type scale questions: not at all prepared – highly prepared)
- Concerns regarding use of CBD products (5 Likert-type scale questions: no concern – highly concerned)
- Current and future educational needs

Study Sample

- Professional Year 1 – Professional Year 4 pharmacy students at Southern Illinois University Edwardsville, Chicago State University, Butler University, and University of Wisconsin Madison
- 1,570 were invited, 347 provided responses; giving a response rate of 22.1%

Statistical Analysis

- Descriptive statistics used for all survey items
- Data reported as percentages and calculated using Microsoft Excel

RESULTS

Demographics

Figure 1: Which pharmacy school do you attend?

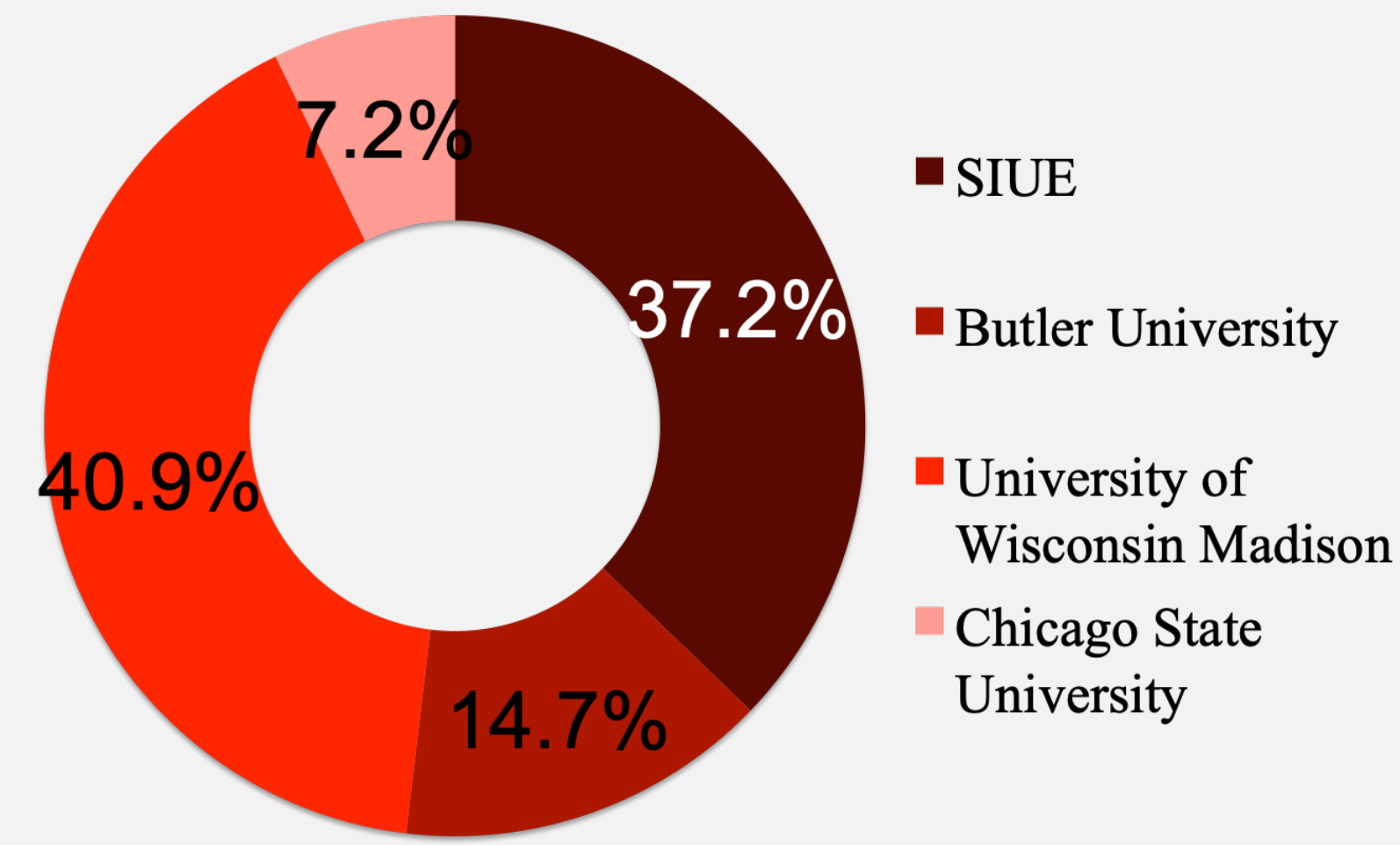
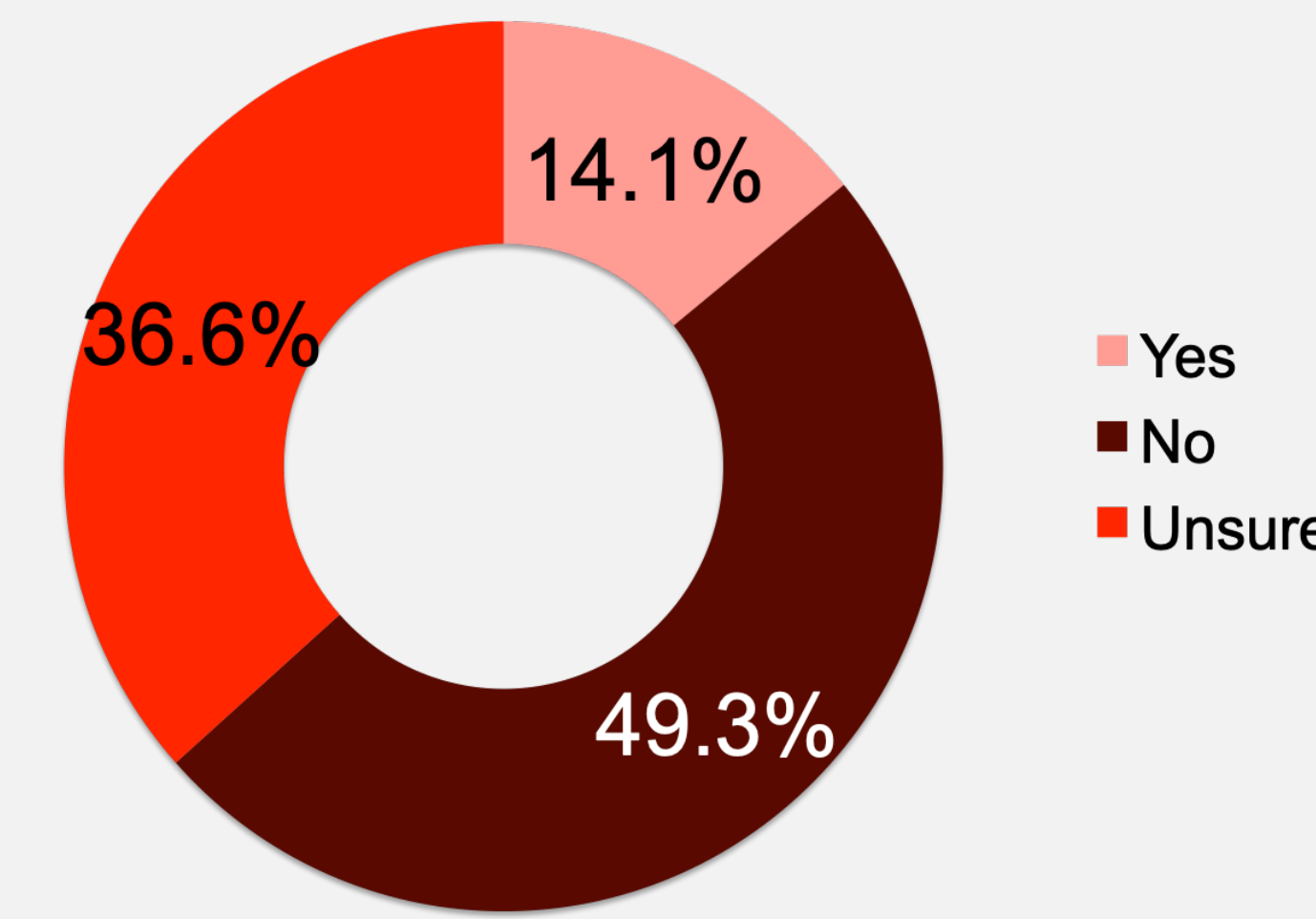


Figure 2: Is there a required course at your school of pharmacy that covers CBD?



Objective 1: Knowledge Assessment

Question	Answered Correctly N (%)	Answered Incorrectly N (%)	Unsure N (%)
It is likely for OTC-CBD products that contain no more than 0.3% THC to exert euphoric effects on the user? [Correct Response: No]	224 (65.1)	53 (15.4)	67 (19.5)
OTC-CBD containing products (i.e. oils, capsules, topicals) are FDA approved products. [Correct Response: False]	261 (75.2)	41 (11.8)	45 (13)
According to the World Health Organization's Expert Committee on Drug Dependence, CBD is generally well tolerated in humans with a good safety profile. [Correct Response: True]	202 (58.4)	28 (8.1)	116 (33.5)
Under the Federal Controlled Substances Act, cannabis derived CBD prescription drugs that contain no more than 0.1% THC are classified under what drug schedule? [Correct Response: Schedule V]	125 (36)	222 (64)	NA
OTC-CBD has been well studied for which of the following medical conditions? [Correct Response: None of the above]	147 (42.4)	200 (57.6)	NA

Objective 1: Self-Reported Competency in Pharmacotherapy Knowledge of CBD Products

Pharmacodynamics	18.8%	81.2%
Pharmacokinetics	19.4%	80.6%
Pharmacology	26.5%	73.5%

Competent (orange), Incompetent (dark red)

Objective 2: Level of preparedness

Question	Not at all Prepared N (%)	Slightly, Somewhat Prepared N (%)	Moderately, Highly Prepared N (%)
Patient Counseling	196 (56.5)	126 (36.3)	25 (7.2)
Discussing with a Healthcare Provider	211 (61.2)	107 (31)	27 (7.8)

RESULTS

Objective 2: Concerns about CBD products

Concern	No Concern N (%)	Slightly, Somewhat Concerned N (%)	Moderately, Highly Concerned N (%)
Safety of over the counter CBD product use (drug interactions, contraindications, adverse reactions)	26 (7.5)	142 (40.9)	179 (51.6)
Consistency in quality of over the counter CBD products	12 (3.5)	85 (24.5)	250 (72)
Federal regulation related to over the counter CBD products	20 (5.8)	110 (31.7)	217 (62.5)
Psychoactive effects and potential addiction from over the counter CBD product use	76 (21.9)	144 (41.5)	127 (36.6)
Limited evidence of therapeutic benefits from over the counter product use	24 (6.9)	120 (34.6)	203 (58.5)

Objective 3: Current and Future Education

Figure 3: Would you like to see CBD-related material incorporated into your school of pharmacy's curriculum?

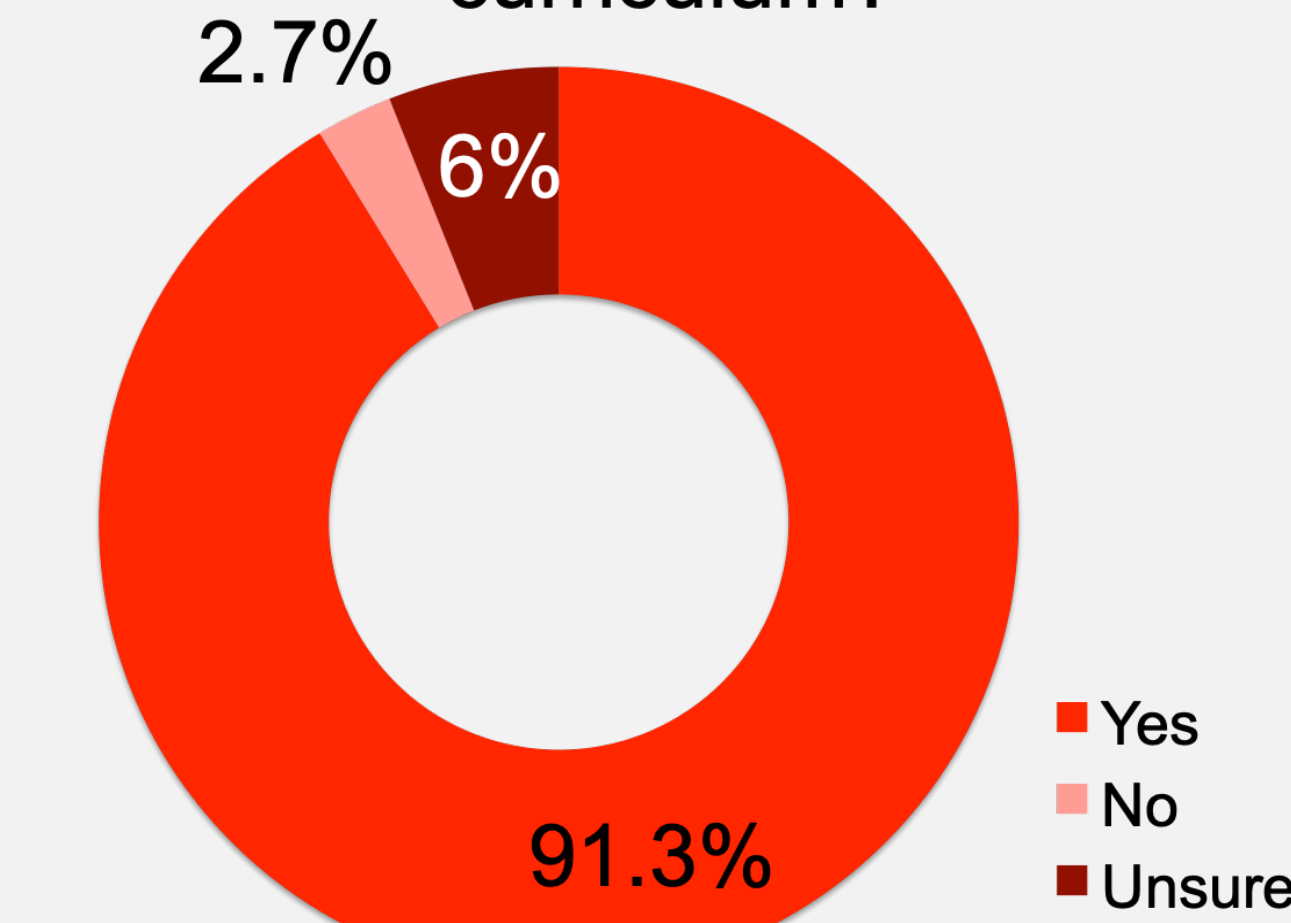
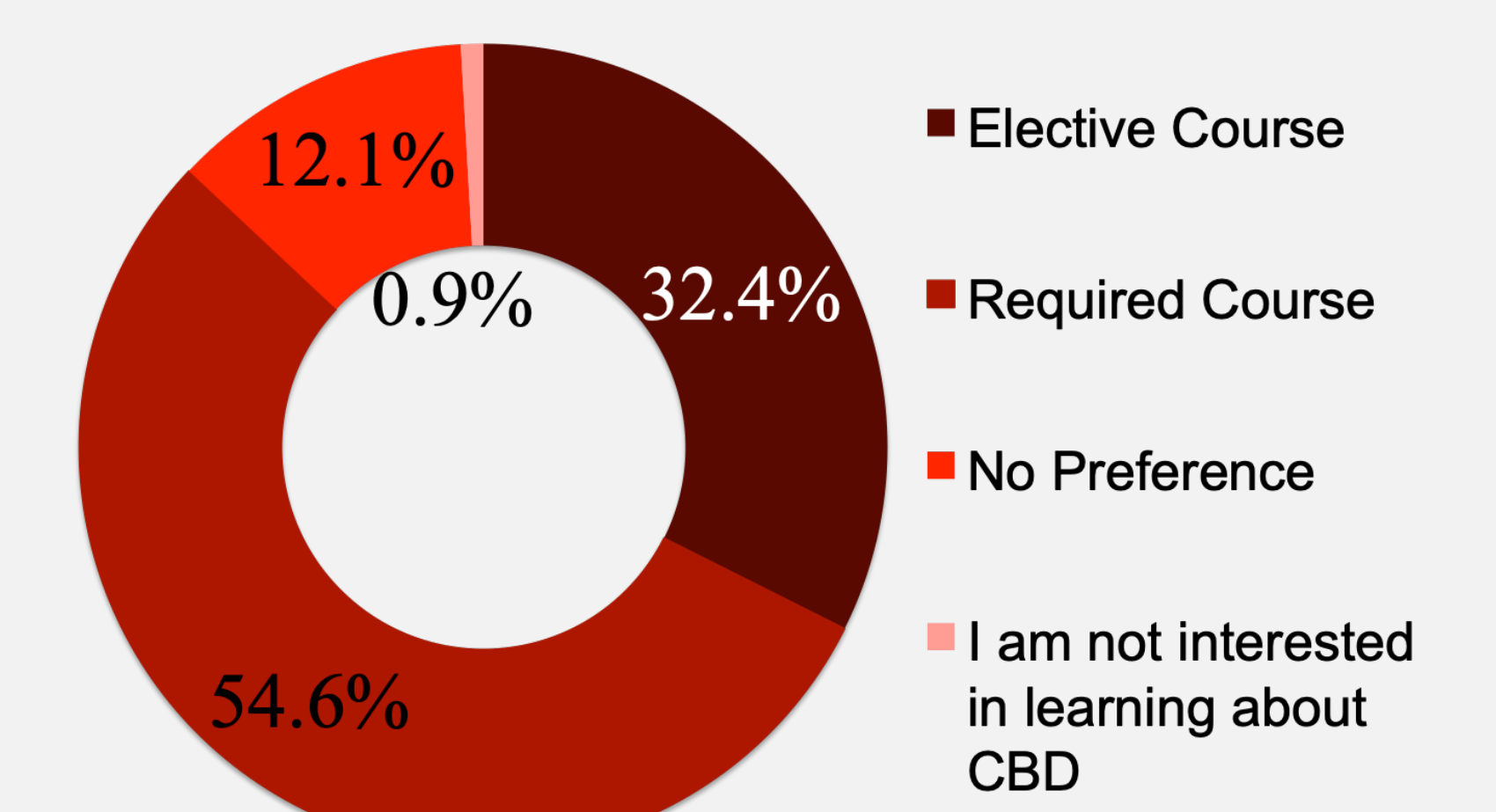


Figure 4: If you had the opportunity to suggest education on CBD be added within pharmacy school curriculum, where would you prefer it?



LIMITATIONS

- The survey was distributed to students from August to October. Due to the Illinois Pharmacists Association (IPhA) annual meeting, held in early October, containing potential learning content about CBD, any student who attended the IPhA meeting and took the survey after the fact may have biased the survey response
- Non-response bias cannot be entirely ruled out

CONCLUSION

- CBD-related educational opportunities are needed and desired by students.
- A majority of respondents felt that they were lacking knowledge about CBD, and didn't feel prepared to assist patients and providers in the selection and use of CBD products.
- Pharmacy schools should consider incorporating material covering state and federal regulations, indications, pharmacotherapy, and safety of CBD-related products into their curriculum.

REFERENCES

- Total CBD consumer sales U.S. 2014-2022 | Statistic. Statista.
- 2020 CBD Laws by State. *CBD Aware Proj.* January 2020.
- Hwang J, Arneson T, St. Peter W. Minnesota Pharmacists and Medical Cannabis: A Survey of Knowledge, Concerns, and Interest Prior to Program Launch.