

# Retention rate in a longitudinal cannabis survey: Lessons for future studies

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## BACKGROUND

- Longitudinal studies have found attrition to surveys up to 30%. The retention rate will typically decrease over time and change according to the survey modality (mail, phone, online, social media).
- Some studies report that incentives, such as \$10 gift cards, increase retention to follow-up. Additionally, cannabis cessation, reported in 16.3% of current or former cannabis users, can be associated with attrition.
- Associations between participant's characteristics with loss to follow-up status remain underreported and poorly understood.

## AIM

To describe retention rates in a cannabis longitudinal study and characterize the population lost to follow-up in terms of socio-demographics, reasons for cannabis use, and cannabis use patterns.

## METHODS

- We analyzed data from the Medical Marijuana and Me study (M3), which included a longitudinal survey to characterize a population of new medical marijuana users in Florida.
- Follow-up methods included mail, email reminders, and phone calls (3 maximum attempts per participant). The study offered a \$20 card plus a \$10-\$20 bonus for completing the follow-up survey within a week.
- We described participant retention rates using the top three reasons for cannabis use.
- Using bivariate analysis, we compared socio-demographics, standardized self-reported measures (Generalized Anxiety Disorder-7 scale; Patient Health Questionnaire Depression scale, and Cannabis Use Disorder Test-Revised: CUDIT-R), and cannabis use patterns between participants completing only the baseline survey and those completing both, the baseline and the 3-month survey.

Table 1 Sociodemographic Characteristics (n=602)

Characteristic	Sample retained		p-value
	Yes (n=363)	No (n=239)	
Age, mean (SD)	41.8 (14.2)	39.9 (15.9)	0.117
Race, n(%)			
White	311 (85.7)	192 (80.3)	0.084
Black	49 (13.5)	37 (15.5)	0.496
Hispanic	41 (11.3)	34 (14.2)	0.287
Other	28 (7.7)	23 (9.6)	0.41
Female, n(%)	238 (65.6)	132 (55.2)	0.011
Education, n(%)			0.004
High School/GED or less	79 (21.8)	85 (35.6)	
Some college or college graduate	227 (62.5)	128 (53.6)	
Graduate degree	57 (15.7)	26 (10.9)	
Currently working, n(%)	218 (60.2)	157 (66.0)	0.155
Private health insurance, n	195 (53.7)	107 (44.8)	0.032

Table 2. Cannabis Use Patterns (n=602)

Characteristic	Sample retained		p-value
	Yes (n=363)	No (n=239)	
<b>Main reason for cannabis use, n(%)</b>			
Anxiety	224 (61.7)	152 (63.3)	0.639
Depression	155 (42.7)	112 (46.9)	0.315
PTSD	117 (32.2)	67 (28.0)	0.274
Sleep	142 (39.1)	80 (33.5)	0.16
Chronic Pain	128 (35.3)	77 (32.2)	0.441
<b>Type of Product, n(%)</b>			
Flower	309 (85.1)	199 (83.3)	0.538
Vaporizer cartridges or vape pen	228 (62.8)	156 (65.3)	0.539
Concentrates (for vaping or smoking)	137 (37.7)	94 (39.3)	0.695
Topicals	65 (17.9)	45 (18.8)	0.775
Oral tinctures	79 (21.8)	52 (21.8)	0.999
Oral concentrates	66 (18.2)	51 (21.3)	0.338
Oral capsules or edibles	237 (65.3)	157 (65.7)	0.919
<b>Cannabis use experience (years of use) , n(%)</b>			
<5 years	65 (17.9)	31 (13.0)	0.103
5-10 years	133 (36.6)	80 (33.5)	
>10 years	165 (45.5)	128 (53.6)	
<b>Cannabis Use Disorder (Modified CUDIT-R) , n(%)</b>			
No risk	157 (62.1)	97 (53.6)	0.003
Medium risk	69 (27.3)	43 (23.8)	
High risk	27 (10.7)	41 (22.7)	
<b>Type of Use, n(%)</b>			
Mostly or completely recreational	16 (6.3)	31 (17.0)	0.001
Equally recreational and medical	86 (34.0)	63 (34.6)	
Mostly or completely medical	151 (59.7)	88 (48.4)	



## RESULTS

- By the third month, 60.3% of the participants remained in the study.
- Female sex, college degree, and health insurance were associated with three-month retention ( $p < 0.05$ ).
- Having no risk for Cannabis Use Disorder (CUDIT-R) and using cannabis mainly for medical purposes were associated with a complete follow-up at 3 months ( $p < 0.005$ ).
- No other mental health or product characteristics were associated with three-month retention.

## CONCLUSIONS

- In the M3 study, some characteristics informed the likelihood of being adherent to the study visits. This information will help researchers adjust sample size calculation and target specific subpopulations to increase study participation and reduce selection bias.
- The results identified a group of participants who should be retained based on individual characteristics.
- Further research will help in understanding adherence to study procedures in cannabis research. For instance, using qualitative designs to assess values and preferences among people using cannabis for recreational purposes.

## ACKNOWLEDGEMENTS

- This study is sponsored by state funding to the Consortium for Medical Marijuana Clinical Outcomes Research.

## SELECTED REFERENCES

- Young, A.F., Powers, J.R. and Bell, S.L., 2006. Attrition in longitudinal studies: who do you lose?. *Australian and New Zealand journal of public health*, 30(4), pp.353-361.
- Scott, C.K., 2004. A replicable model for achieving over 90% follow-up rates in longitudinal studies of substance abusers. *Drug and alcohol dependence*, 74(1), pp.21-36.
- Lucas, P., Boyd, S., Milloy, M.J. and Walsh, Z., 2021. The impact of non-medical cannabis legalization and other exposures on retention in longitudinal cannabis research: a survival analysis of a prospective study of Canadian medical cannabis patients. *Journal of Cannabis Research*, 3, pp.1-14.