



Cannabis Protective Behavioral Strategies: Moderating the Effects of Antecedents on Consequences

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INTRODUCTION

- Research has shown that the use of cannabis protective behavioral strategies (PBS) is related to both less cannabis use and related problems (Bravo et al., 2016a, 2016b; Pedersen et al., 2016)
- Bravo et al. (2017) found cannabis PBS use moderated the effects of sex, specific impulsivity-like traits (premeditation, perseverance, sensation seeking) and cannabis use frequency on negative consequences
- This study examined whether use of cannabis PBS moderates the effects of a wide range of risk factors for cannabis-related negative consequences
- Specifically, we expected a buffering interaction such that the risk associated with a particular risk factor is reduced among those using high level of cannabis PBS
- The selected factors were examined as potential moderators of the effects of either cannabis PBS use on cannabis-related outcomes, or factors that have been examined as potential moderators of the effects of alcohol PBS on alcohol-related outcomes

METHOD

PARTICIPANTS

- 7,307 college students from 10 universities from 10 separate states participated in an online survey
- 2,226 students reported cannabis use, most of whom were female (n = 1526; 68.8%), White (n = 1,679; 75.4%) or Hispanic/Latino (n = 225; 10.1%), and a mean age of 20.28 (median = 19.00; SD = 3.37)

MEASURES

- **Cannabis consumption** was measured in terms of frequency and quantity of cannabis use using the Marijuana Use Grid (MUG; Pearson et al., 2020)
- **Cannabis consequences** were measured using the 21-item version of the Marijuana Consequences Questionnaire (MACQ; Simons, et al., 2012)
- **Cannabis protective behavioral strategies** used by the participants in the last month were measured using the 17-item version of the Protective Behavioral Strategies for Marijuana scale (PBSM; Pedersen et al., 2016)
- Other measures summarized in Table 1

EXAMPLE INTERACTION PLOTS

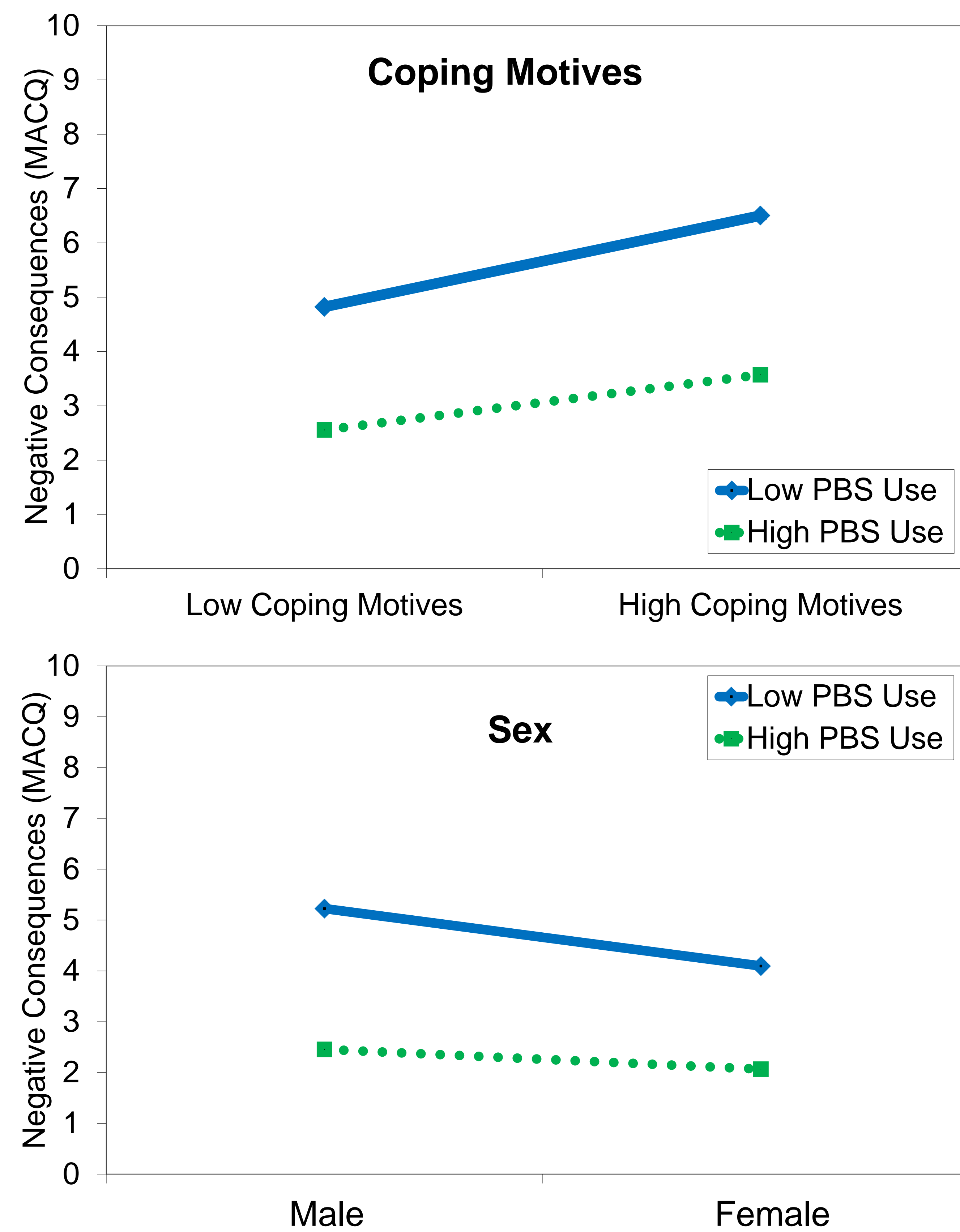


Table 1. Summary of Evidence for Moderating Effects

Antecedent	Interaction	Replication
Sex (0=female, 1=male)	Buffering	Replicated
Cannabis Frequency	Buffering	Replicated
Cannabis Quantity	Buffering	Novel
Age of First Use	None	Replicated
Lack of Premeditation	Buffering	Replicated
Lack Perseverance	None	Not Replicated
Sensation Seeking	None	Not Replicated
Positive Urgency	None	Replicated
Negative Urgency	None	Replicated
Social Motives	Buffering	Not Replicated
Coping Motives	Buffering	Not Replicated
Enhancement Motives	Buffering	Not Replicated
Conformity Motives	Buffering	Not Replicated
Expansion Motives	Buffering	Not Replicated
Social Interaction Anxiety	None	Novel
Fear of Negative Evaluation	Buffering	Novel
DASS Stress	Buffering	Novel
DASS Depression	Buffering	Novel
DASS Anxiety	None	Novel
PTSD Symptoms	None	Novel
CCSM Depression	Buffering	Novel
CCSM Anger	Buffering	Novel
CCSM Mania	Buffering	Novel
CCSM Anxiety	Buffering	Novel
CCSM Somatic Symptoms	Buffering	Novel
CCSM Suicide	None	Novel
CCSM Psychosis	None	Novel
CCSM Sleep	None	Novel
CCSM Memory	None	Novel
CCSM Repetitive	None	Novel
CCSM Dissociation	Buffering	Novel
CCSM Personality Functioning	Buffering	Novel

RESULTS

- Across all models, cannabis PBS had protective effects when controlling for any other antecedent variable
- We examined 32 total interaction effects, and found 19 significant buffering interaction effects (for two examples above)
- Of the 13 interactions found by Bravo et al. (2017), 6 interaction effects replicated (i.e., significant in both samples), 3 non-significant interactions were consistent across study, we failed to find 2 interactions reported by Bravo et al., and we found 5 significant interactions not reported by Bravo et al.
- The consistent pattern of buffering interactions shows that the risk of increased consequences associated with any particular antecedent variable was weaker among individuals using high levels of cannabis PBS

SUMMARY

- Cannabis PBS seems to buffer the risk associated with biological sex, marijuana use, a wide range of negative mental health symptoms, and some impulsivity-like traits
- We did not find any disordinal interactions suggesting that using PBS cannot eliminate or reverse the risk associated with these antecedent variables
- Relatedly, cannabis PBS use appeared to be protective across all individuals
- Additional replication attempts and experimental work (i.e., clinical trials) are needed to develop stronger evidence for whether cannabis PBS can buffer the effects of these risk factors