GENDER DIFFERENCES IN DRINKING TO COPE WITH THE PANDEMIC:

ASSOCIATIONS OF COVID-19-RELATED THREAT AND PSYCHOLOGICAL DISTRESS TO DRINKING BEHAVIORS IN WOMEN VS. MEN

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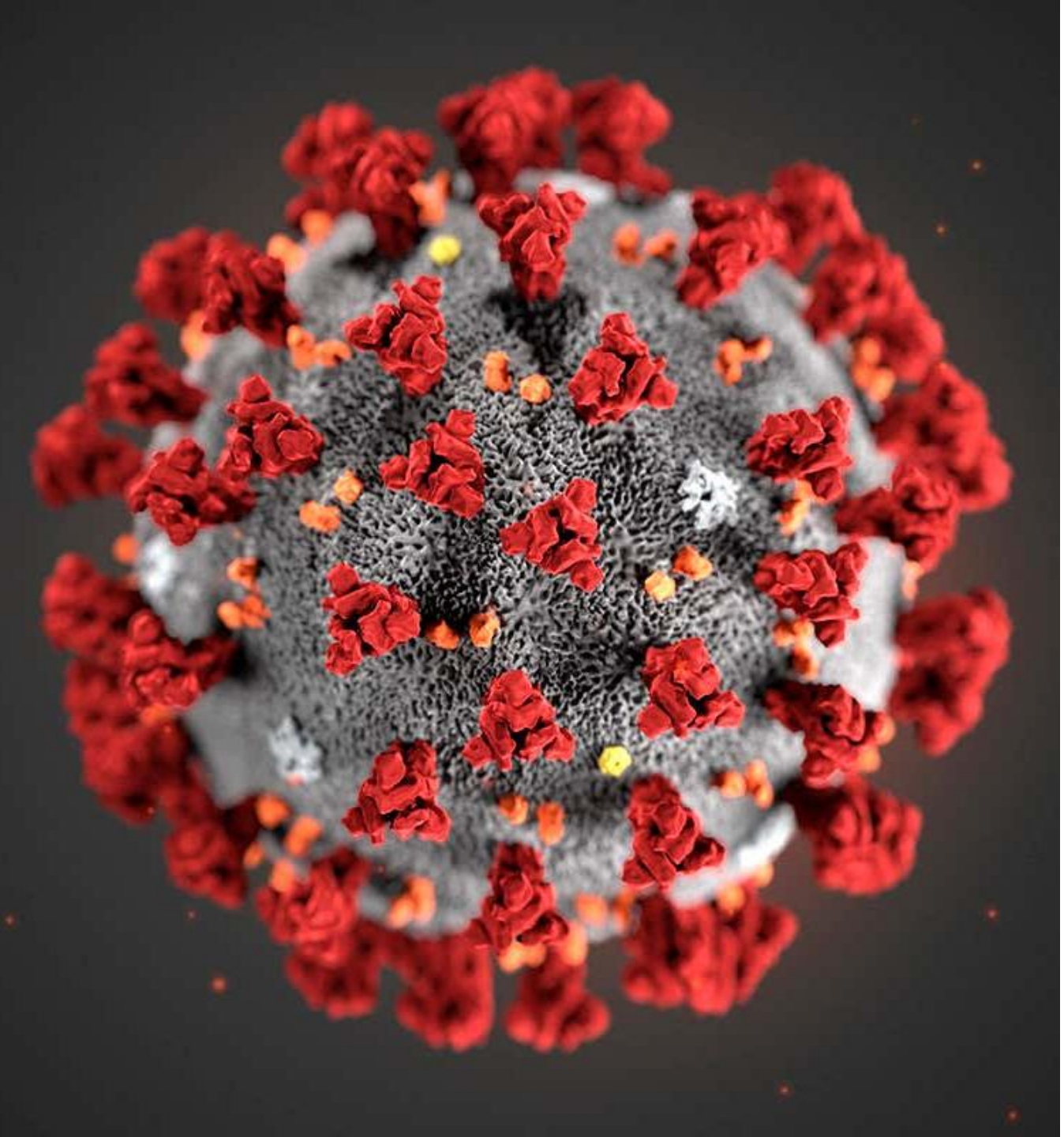


The COVID-19 Pandemic

- Many countries adopted unprecedented restrictive viral containment strategies -- social distancing, quarantine, lockdown – to "flatten the curve"

- ? Effects on mental health/well-being and health behaviors ?

Pandemics and Mental Health

- Studies emerging worldwide on psychological impact of COVID-19 and studies of past pandemics (e.g., Taylor, 2019)
  - Perceptions of threat increase (e.g., fears of contamination)
  - Psychological distress increases (e.g., anxiety, depression)
- Public health disease containment strategies have additional effects
  - Rapid review of 24 studies on the effects of quarantine (Brooks et al., 2020)
  - Quarantine has negative psychological effects that are severe and lasting for some (Brooks et al., 2020)

Pandemics and Alcohol Use

- Lancet article warns increased alcohol use during COVID-19 major public health concern (Clay & Parker, 2020)
- Market research shows alcohol sales increased 55% in U.S. (Bremner, 2020)
- CCSA (2020) Nanos poll study shows Canadians are drinking more
  - 25% of 35-54 year-olds reported increasing their alcohol use during quarantine
  - 44% attribute this increase to stress
- May persist beyond the pandemic for some (SARS; Wu et al., 2009)

Self-Medication Hypothesis

- Khantzian (1997) contends that people use substances like alcohol to self-medicate for psychological distress (to manage painful emotions like anxiety or depression)

- Given these painful emotions are heightened during the uncertainties of a pandemic and associated disease containment strategies, SMH would predict increased drinking during pandemic particularly among those experiencing more psychological distress to pandemic

Gender Differences in Drinking to Cope

- Women experience higher rates of emotional disorders (anxiety, mood, PTSD; see review in Stewart et al, 2009)
- Women experience greater psychological distress to pandemics (Brooks et al., 2020; Taylor, 2019)
- Animal and human studies suggest women more susceptible to stress induced drinking (Peltier et al., 2019)
- Women's drinking more influenced by coping motives than is men's drinking (Kuntsche et al., 2015)

Aims:

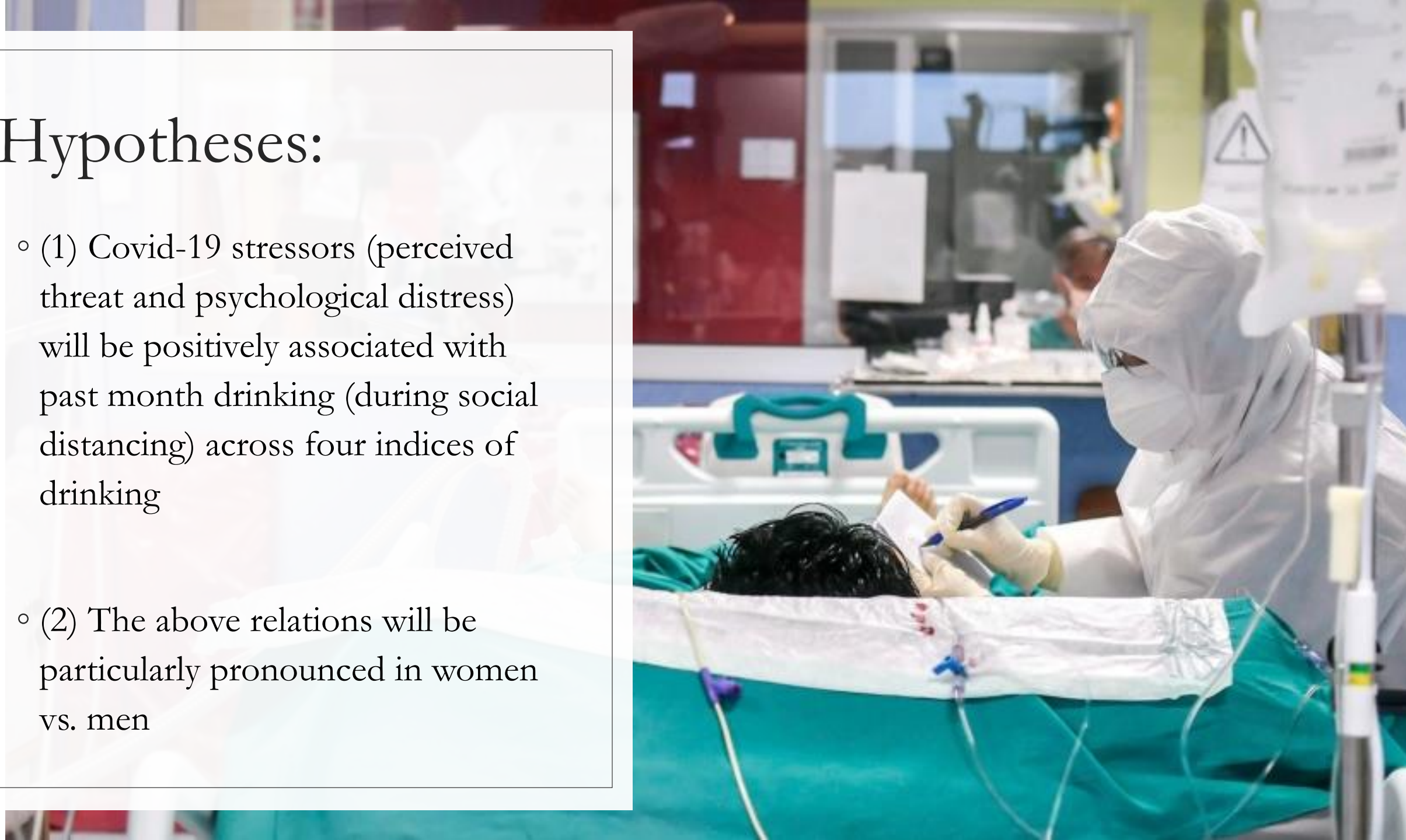
- (1) To test predictions of Self-Medication Hypothesis during pandemic that COVID-19 perceived threat and psychological distress would be associated with greater alcohol use

- (2) To explore gender differences

Hypotheses:

- (1) Covid-19 stressors (perceived threat and psychological distress) will be positively associated with past month drinking (during social distancing) across four indices of drinking

- (2) The above relations will be particularly pronounced in women vs. men



Participants & Procedure

- *N* = 754 adult participants (50% women)
  - American sample
  - Average age = 41.7 years (SD = 10.4)
  - Most married (85.7%)
  - Most White (84.2%)
  - Most Heterosexual (91.8%)
  - About two-thirds had children at home (67.8%)
- Online Qualtrics Panels study between April 17th and 23rd, 2020
  - Quality checks: 2 attention checks, IP address, speeded responses

Measures: COVID-19 Stressors

- (1) Perceived Coronavirus Threat Questionnaire – Short version (Conway et al., 2020).
  - Assessed *perceived threat* due to COVID-19
  - 3 items: e.g., "Thinking about the coronavirus (COVID-19) makes me feel threatened."
- (2) Coronavirus Impacts Questionnaire – Short version, Psychological subscale (Conway et al., 2020).
  - Assessed *psychological distress* due to COVID-19
  - 2 items: e.g., "I have become depressed because of the coronavirus (COVID-19)."
- Both used 1-7 scale (1=*not true of me at all*; 7=*very true of me*).

Principal Components Analysis with Oblique (Oblimin) Rotation of COVID-19 Stressor Items (Conway et al., 2020): Factor Pattern Matrix (N = 754)

COVID-19 Stressor Item (Conway et al., 2020)	Factor 1 – Perceived Threat	Factor 2 – Psychological Distress	Communality
I am afraid of the coronavirus (COVID-19).	**.990**	-.100	.880
I am stressed around other people because I worry I'll catch the coronavirus (COVID-19).	**.906**	.030	.851
Thinking about the coronavirus (COVID-19) makes me feel threatened.	**.832**	.137	.836
The coronavirus (COVID-19) outbreak has impacted my psychological health negatively.	-.002	**.955**	.911
I have become depressed because of the coronavirus (COVID-19).	.018	**.943**	.908
Percent variance explained	69.5	18.2	
Alpha	0.91	0.90	

Note: The two factors inter-correlated at r = .552; Salient loadings indicated in **bold**.

Measures: Past Month Alcohol Use

- *Past month* drinking to capture during pandemic.
- Quantity/Frequency/Peak Index (QF; Dimeff, 1999).
  - Maximum number of drinks during the heaviest recent drinking occasion (i.e., peak drinks): 0 to 25+ (coded as 25)
  - Number of drinks consumed on a typical occasion: 0 to 25+ (coded as 25)
  - Drinking frequency: 0 (no drinking days) to 30 (every day)
- Number of heavy drinking episodes
  - Heavy = 4+ drinks (if a woman) or 5+ drinks (if a man) within ~2 hours: 0 to 8+ (coded as 8).

Table 1

Bivariate Correlations among All Study Variables

	1.	2.	3.	4.	5.	6.	7.
1. Gender							
2. COVID-19-Related Threat	.00						
3. COVID-19 Psychological Distress	.04	.56***					
4. Drinks on Heaviest Occasion	.18***	.11**	.16***				
5. Drinks on Typical Occasion	.17***	.15***	.20***	.65***			
6. Drinking Days (Past Month)	.12***	.17***	.22***	.46***	.47***		
7. Number of Heavy Drinking Episodes	.20***	.26***	.26***	.45***	.54***	.37***	
Mean	.50	4.43	3.46	5.84	3.86	10.33	1.39
SD	.50	1.89	2.01	5.70	4.09	8.94	1.93
Range	0-1	1-7	1-7	0-25	0-25	0-30	0-8

* *Note*. Gender was scored 0=female, 1=male.

Table 2 **a**

Negative Binomial Regression Models Evaluating COVID-Related Threat and Psychological Impact on Alcohol Use

Step	*Predictor*	*b*	*SE(b)*	*Z*	*p*	*RR*	*RR 95% CI*
	Outcome: Peak Number of Drinks on One Occasion						
1	Stay-at-home order	.146	.136	1.07	.283	1.156	.887, 1.509
	Gender	**.352**	**.062**	**5.64**	**<.001**	**1.422**	**1.258, 1.607**
	Age	-.005	.004	-1.34	.179	.995	.988, 1.002
	Relationship length	-.000	.000	-1.22	.223	.999	.999, 1.000
	Sexual minority status	.028	.112	.25	.803	1.028	.826, 1.281
	Children in home	.077	.067	1.14	.253	1.080	.946, 1.233
	COVID-19 threat	.013	.019	.65	.518	1.013	.975, 1.052
	COVID-19 distress	**.064**	**.018**	**3.56**	**<.001**	**1.066**	**1.029, 1.104**
2	COVID-19 threat x Gender	-.054	.039	-1.39	.164	.948	.879, 1.022
	COVID-19 distress × Gender	**-.103**	**.036**	**-2.89**	**.004**	**.902**	**.841, .967**

* *Notes*. RR = Rate Ratio. 95% CI=confidence interval of IRR. Gender was coded 0=female, 1=male. Statistically significant ($p<.05$) predictors are bolded.

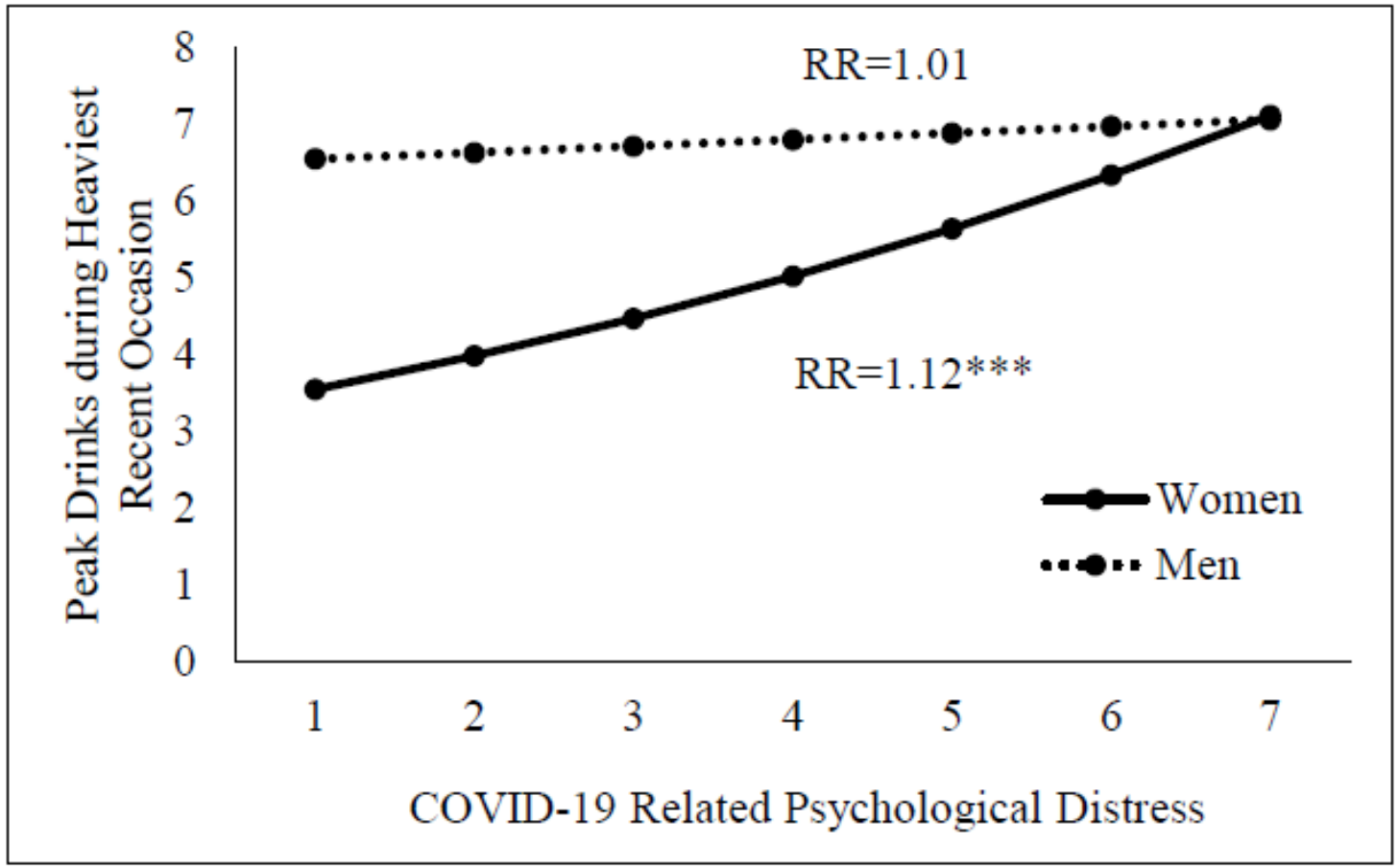


Figure 1. COVID-19 psychological distress associated with peak number of drinks consumed on heaviest recent drinking occasion for women only. RR = Rate ratio. *** $p < .001$

Table 2 **b**

Negative Binomial Regression Models Evaluating COVID-Related Threat and Psychological Impact on Alcohol Use

Step	*Predictor*	*b*	*SE(b)*	*Z*	*p*	*RR*	*RR 95% CI*
	Outcome: Number of Drinks on Typical Occasion						
1	Stay-at-home order	.035	.138	.25	.801	1.036	.789, 1.358
	Gender	**.338**	**.064**	**5.25**	**<.001**	**1.402**	**.236, 1.59**
	Age	.001	.004	.17	.867	1.001	.994, 1.008
	Relationship length	**-.001**	**.000**	**-2.23**	**.026**	**.999**	**.998, 1.000**
	Sexual minority status	.038	.114	.33	.741	1.038	.83, 1.299
	Children in home	**.170**	**.070**	**2.43**	**.015**	**1.185**	**1.034, 1.359**
	COVID-19 threat	.026	.021	1.24	.215	1.026	.985, 1.069
2	**COVID-19 distress**	**.073**	**.019**	**3.90**	**<.001**	**1.076**	**1.037, 1.117**
	COVID threat x Gender	-.021	.041	-.51	.609	.979	.904, 1.061
	COVID-19 distress × Gender	**-.133**	**.037**	**-3.57**	**<.001**	**.876**	**.814, .942**

* *Notes*. RR = Rate Ratio. 95% CI=confidence interval of IRR. Gender was coded 0=female, 1=male. Statistically significant ($p<.05$) predictors are bolded.

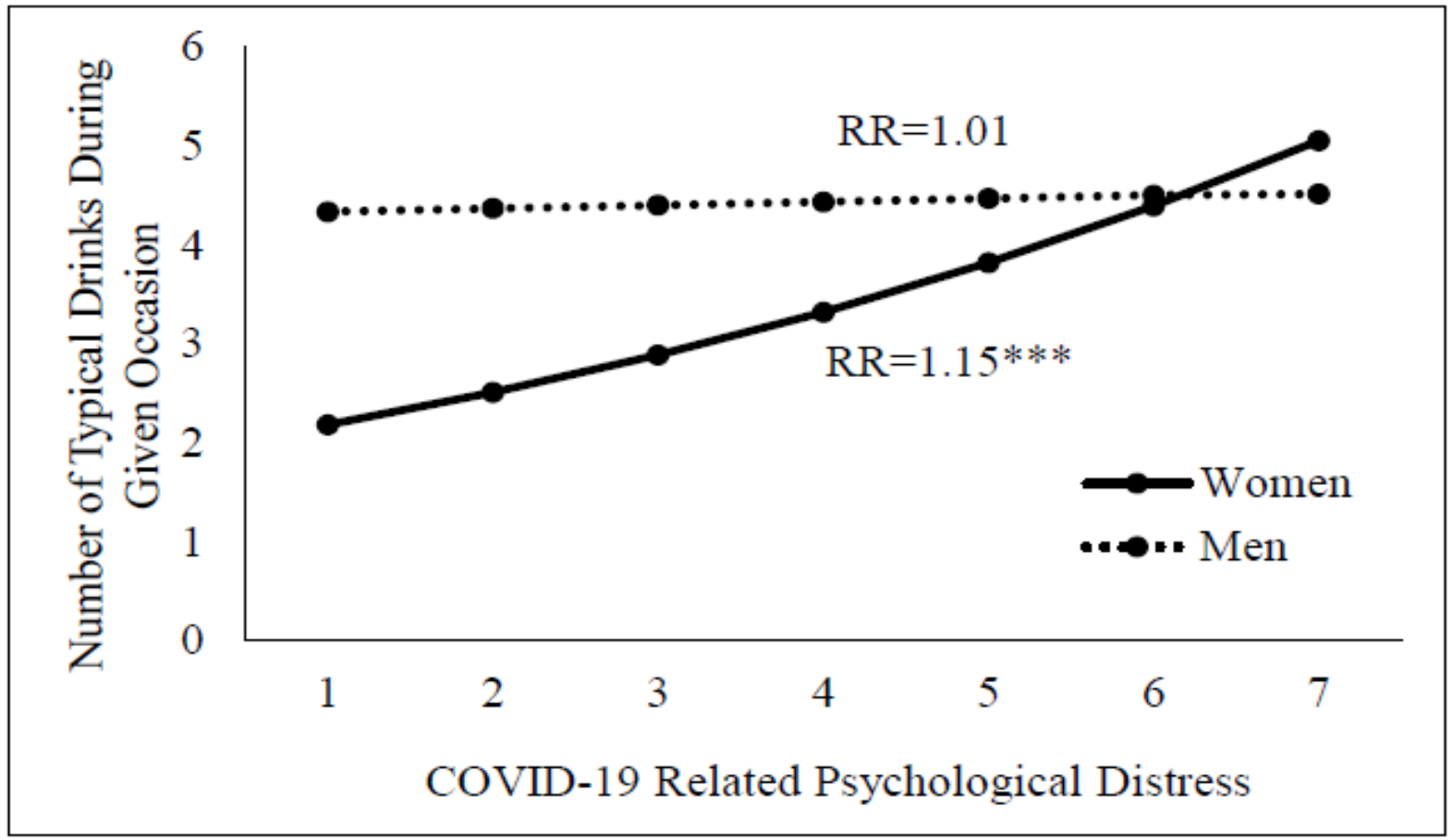


Figure 2. COVID-19 psychological distress associated with typical number of drinks consumed on a given occasion for women only. RR = Rate ratio. *** $p < .001$

Table 2 c

Negative Binomial Regression Models Evaluating COVID-Related Threat and Psychological Impact on Alcohol Use

Step	*Predictor*	*b*	*SE(b)*	*Z*	*p*	*RR*	*RR 95% CI*
		Outcome: Number of Days Consuming Alcohol					
1	Stay-at-home order	.007	.147	.05	.963	1.007	.754, 1.344
	Gender	**.193**	**.069**	**2.82**	**.005**	**1.213**	**1.061, 1.388**
	Age	.007	.004	1.81	.070	1.007	.999, 1.015
	Relationship length	-.001	.000	-1.22	.223	.999	.999, 1.000
	Sexual minority status	.200	.122	1.63	.103	1.220	.961, 1.55
	Children in home	.035	.076	.47	.639	1.036	.894, 1.201
	COVID-19 threat	.023	.023	1.00	.316	1.023	.978, 1.07
	COVID-19 distress	**.073**	**.021**	**3.48**	**<.001**	**1.075**	1.032, 1.12
2	COVID threat x Gender	.016	.046	.35	.728	1.016	.928, 1.113
	COVID-19 distress × Gender	-.041	.042	-.97	.330	.960	.884, 1.042

* *Notes*. RR = Rate Ratio. 95% CI=confidence interval of IRR. Gender was coded 0=female, 1=male. Statistically significant ($p<.05$) predictors are bolded.

Table 2 d

Negative Binomial Regression Models Evaluating COVID-Related Threat and Psychological Impact on Alcohol Use

Step	*Predictor*	*b*	*SE(b)*	*Z*	*p*	*RR*	*RR 95% CI*
	Outcome: Number of Heavy Drinking Episodes						
1	Stay-at-home order	-.059	.215	-.28	.783	.942	.618, 1.437
	Gender	**.465**	**.104**	**4.49**	**<.001**	**1.592**	**1.300, 1.951**
	Age	**-.022**	**.006**	**-3.55**	**<.001**	**.979**	**.967, .99**
	Relationship length	**-.003**	**.001**	**-4.56**	**<.001**	**.997**	**.995, .998**
	Sexual minority status	.078	.177	.658	.658	1.082	.765, 1.53
	Children in home	**.531**	**.117**	**4.54**	**<.001**	**1.700**	**1.352, 2.137**
	COVID-19 threat	**.141**	**.033**	**4.27**	**<.001**	**1.152**	**1.080, 1.229**
	COVID-19 distress	**.061**	**.029**	**1.980**	**.039**	**1.063**	**1.003, 1.126**
2	**COVID threat x Gender**	**-.146**	**.067**	**-2.18**	**.029**	**.864**	**.758, .985**
	COVID-19 distress × Gender	-.060	.058	-1.02	.306	.942	.840, 1.211

* *Notes*. RR = Rate Ratio. 95% CI=confidence interval of IRR. Gender was coded 0=female, 1=male. Statistically significant ($p<.05$) predictors are bolded.

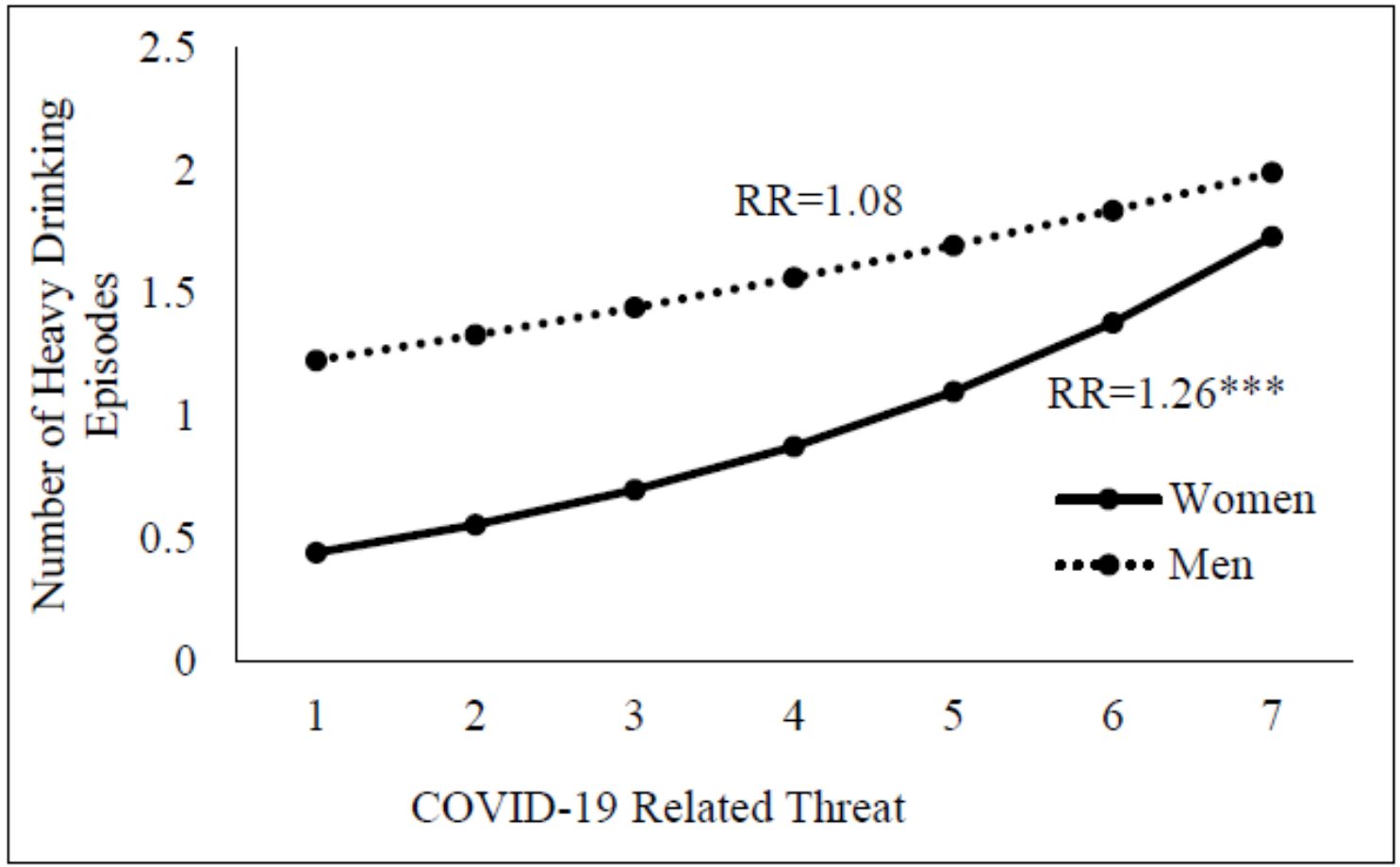


Figure 3. COVID-19 threat associated with number of heavy drinking episodes for women only. RR = Rate ratio. *** $p < .001$

Summary

- Consistent with H1, *psychological distress* from COVID-19 was associated with increased drinking across all four alcohol indices during pandemic
- Partially consistent with H1, *perceived threat* from COVID-19 was also associated with increased HED frequency during pandemic.
- Consistent with H2, these effects were significant for women only for relation of *psychological distress* from COVID-19 to both peak drinks and typical drinks during pandemic, and *perceived threat* due to COVID-19 to HED frequency during pandemic.
- *Children at home* was independently related to typical drinking quantity and HED frequency during pandemic

Interpretation

- Findings are consistent with predictions emanating from the Self-Medication hypothesis (Khantzian, 1997)
  - Seems people are self-medicating primarily to manage psychological distress but may also be using frequent HED to manage perceived threat related to COVID-19

- Fact that women were uniquely likely to increase their drinking at high levels of psychological distress and perceived threat is consistent with the extant literature (Kuntsche et al., 2015; Peltier et al., 2019)
  - Perhaps women are experiencing increased role strain (work-family conflict; Abby et al., 1993) during COVID-19

Clinical Implications

- Continuing monitoring of alcohol use, particularly in women, appears warranted as COVID-19 continues to evolve
- Women in particular in need of preventative intervention for alcohol problems during pandemic
  - Need training in alternative ways to manage psychological distress due to COVID-19
- Further research needed on impact of ***role strain***; could be novel target for intervention in women

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