COLLEGE MENTAL HEALTH AND PSYCHOSOCIAL STRESSOR PROFILES RELATE TO RACE, HIGH-EFFORT COPING, AND SUBSTANCE USE

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Introduction

College students report higher substance use than the general population, which may be related to mental distress. Individuals facing more psychosocial stressors (e.g., racially marginalized students) may experience poorer mental health and greater substance use. High-effort coping (HEC) refers to putting in more effort in response to psychosocial stressors and is most often used by Black individuals. HEC is a known risk factor to physical health outcomes but may be protective against mental distress. Limited research has investigated the effects of HEC on health harming behaviors, such as substance use or how college students utilize HEC. This preliminary examination among college students utilized a latent profile analysis (LPA) using seven indicators reflecting poor mental health (depression, anxiety, stress) and psychosocial stressors (racial discrimination, financial well-being, academic stress, interpersonal issues). Race (Black, White) and HEC were examined as predictors of profile membership. Past 30-day alcohol, cannabis, and tobacco behaviors were examined as outcomes.

Methods

Participants

- College students ages 18-25 years old (M_{age} = 20.4)
- N = 394
- 81.2% female; 48.7% White, 39.8% Black

Materials

LPA Indicators

- **Anxiety**: Generalized Anxiety Disorder (GAD-7; Spitzer et al., 2006); 7 items; sum 0-21
- **Stress**: Perceived Stress Scale–10 (PSS-10; Cohen et al., 1994); 10 items; sum 0-40
- **Depression**: Patient Health Questionnaire–9 (PHQ-9; Kroenke et al., 2001); 9 items; sum 0-27
- **Discrimination**: General Ethnic Discrimination Scale (Landrine et al., 2006); 18 items; sum 18-108
- **Financial Well-being**: InCharge Financial Well-Being/Stress Scale (Prawitz et al., 2006); 8 items; average 1-10
- **Academic Stress**: Effort-Reward Imbalance Questionnaire – Student Version (Wege et al., 2017); 15 items; ratio of effort avg/reward avg
- **Interpersonal Problems**: Positive & Negative Social Exchanges Scale (Negative Subscale; Newsom et al., 2005); 12 items; average 0-4

High-effort Coping

- John Henryism Active Coping Scale (James, 1994); 12 items; sum 0-60)

Alcohol Use – past 30 days

- Typical quantity: Daily Drinking Questionnaire (DDQ; Collins et al., 1984); sum of standard drinks consumed across typical week
- Problems: Brief Young Adult Alcohol Consequences Questionnaire (BYAACQ; Kahler et al., 2005); 24 items; sum 0-24

Cannabis use - past 30 days

- Frequency: Total past 30-day frequency (Cuttler & Spradlin, 2017)
- Problems: Brief Marijuana Consequences Questionnaire (BMACQ; Simons et al., 2012); 21 items; sum 0-21

Tobacco Use – past 30 days

- Cigarette frequency: Total past 30-day use (Ehlke et al., 2024)
- E-cigarette Frequency: Total past 30-day use

Figure 1. Latent Profile Analysis Using Mental Distress and Psychosocial Stressors as Indicators

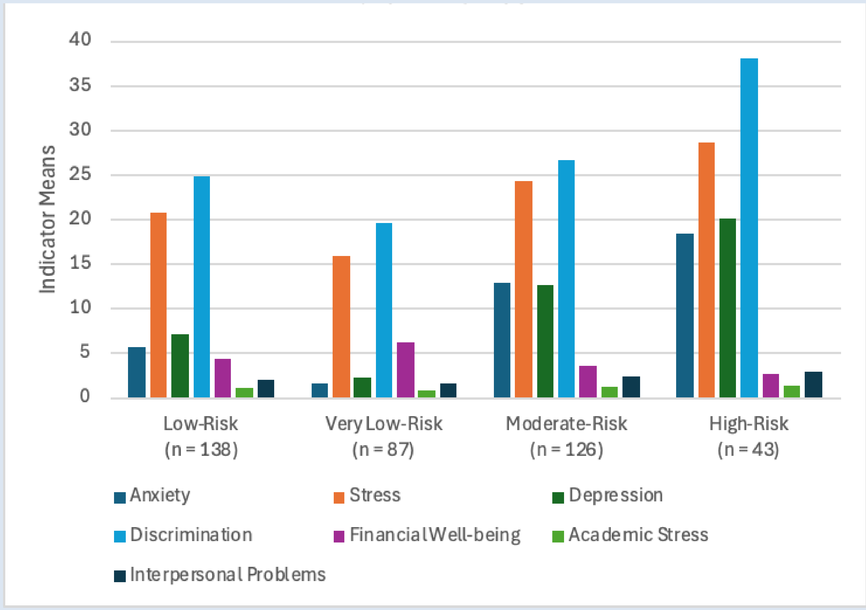

Table 1. Substance Use Mean Differences Across Latent Profiles

	Profile 1	Profile 2	Profile 3	Profile 4	
Outcome Variable	**Low-Risk**	**Very Low-Risk**	**Moderate-Risk**	**Highest-Risk**	**Overall X^2 (p)**
Typical Alcohol quantity (drinks/week)	5.60[a]	2.62[b]	4.25[a]	6.73[a]	**10.31 (.016)**
Alcohol problems	3.79[ac]	0.89[b]	3.40[a]	6.87[c]	**33.46 (<.001)**
Cannabis frequency	21.15[a]	22.90[a]	18.73[a]	24.16[a]	1.88 (.599)
Cannabis problems	2.75[ab]	1.23[a]	4.22[b]	8.18[c]	**19.24 (<.001)**
Cigarette frequency	0.69[a]	1.91[a]	0.08[a]	0.36[a]	5.87 (.118)
E-cigarette frequency	12.01[a]	-2.21[b]	7.68[a]	10.38[a]	**12.96 (.005)**

Note. Substance use outcomes reflect past 30-day use. Bold values indicate significance. Profile means that share the same superscript do not differ significantly (p < .05). Means with different superscripts differ significantly based on pairwise X^2 comparisons. The BCH method/command was used in Mplus.

Procedure

- College students were recruited via campus-wide emails and the university psychology pool
- Participants completed an online baseline survey
- Compensation options included course credit, a $5 gift card, or entering a raffle to win a $50 gift card

Analyses

- LPA using seven indicators in Mplus to identify the ideal number of profiles based on model fit indices
- Used the 3-step method to explore correlates of the profiles: **Predictors:** HEC and race (Black vs White) **Outcomes:** Past 30-day substance use (alcohol, cannabis, tobacco)

Results

- A **four-class solution** was chosen based on model fit indices:
  - **1.) Low-Risk profile (N = 138):**
    - Low on mental distress and psychosocial stressors
    - Low on all substance use outcomes
  - **2.) Very Low-Risk profile (N = 89):**
    - Lowest on mental distress and psychosocial stressors
    - Lowest on all substance use outcomes
  - **3.) Moderate-Risk profile (N = 126):**
    - Moderate mental distress and psychosocial stressors
    - Elevated alcohol and cannabis problems and moderate e-cigarette use
  - **4.) Highest-Risk profile (N = 43):**
    - Highest mental distress and psychosocial stressors
    - Highest on all substance use outcomes
- Race was not associated with any profile membership
- **Higher HEC was significantly linked to membership in the Very low-risk group relative to the Moderate-risk group** (OR = 0.95, 95% CI [0.90, 0.99], p = .025).

Discussion

Results highlight that greater mental distress and psychosocial stressors are risk factors for substance use, and lowering these risk factors may be key to reducing substance use in higher-risk college students. HEC may play a protective role. Limitations include having a small sample size. Results may differ among a substance-user only sample. Using a larger sample, future research should longitudinally examine latent profiles on later substance and how HEC or race moderate these associations.

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Additional Methods Information

Latent Profile Indicator Measure Information

Variable	Measure (Reference)	Score Range (how scored) & Interpretation
Depression	Patient Health Questionnaire–9 (PHQ-9; Kroenke et al., 2001)	0–27 (sum) – higher scores = more depression
Anxiety	Generalized Anxiety Disorder Screener (GAD-7; Spitzer et al., 2006)	0–21 (sum) – higher scores – more anxiety
Stress	Perceived Stress Scale–10 (PSS-10; Cohen et al., 1994)	0–40 (sum) – higher scores = more stress
Racial Discrimination	General Ethnic Discrimination Scale – Past Year Frequency (Landrine et al., 2006)	18–108 (sum) - higher scores – experience more past year discrimination
Financial Well-being	InCharge Financial Well-Being/Stress Scale (Prawitz et al., 2006)	1–10 (average) – higher scores – greater financial well-being (or lower scores = more financial stress)
Academic Environment	Effort-Reward Imbalance Questionnaire – Student Version (Wege et al., 2017)	Effort-Reward Ratio - higher scores = greater imbalance
Interpersonal Problems	Positive and Negative Social Exchanges Scale – Negative Subscale (Newsom et al., 2005)	0–4 (average score) – higher scores = more negative interpersonal issues

Figure 1. Latent Profile Analysis Using Mental Distress and Psychosocial Stressors as Indicators - Bar Graph with Mean Scores

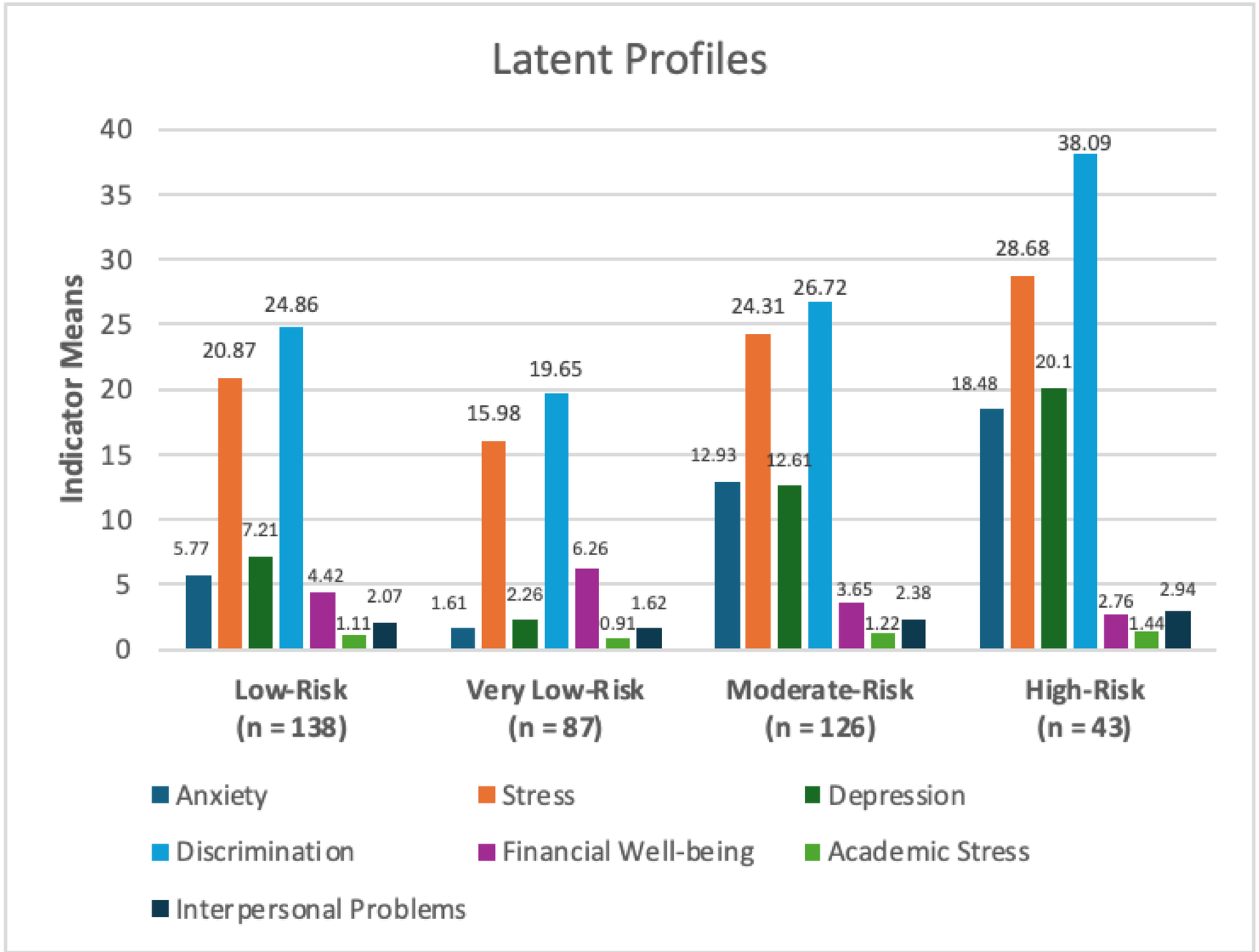
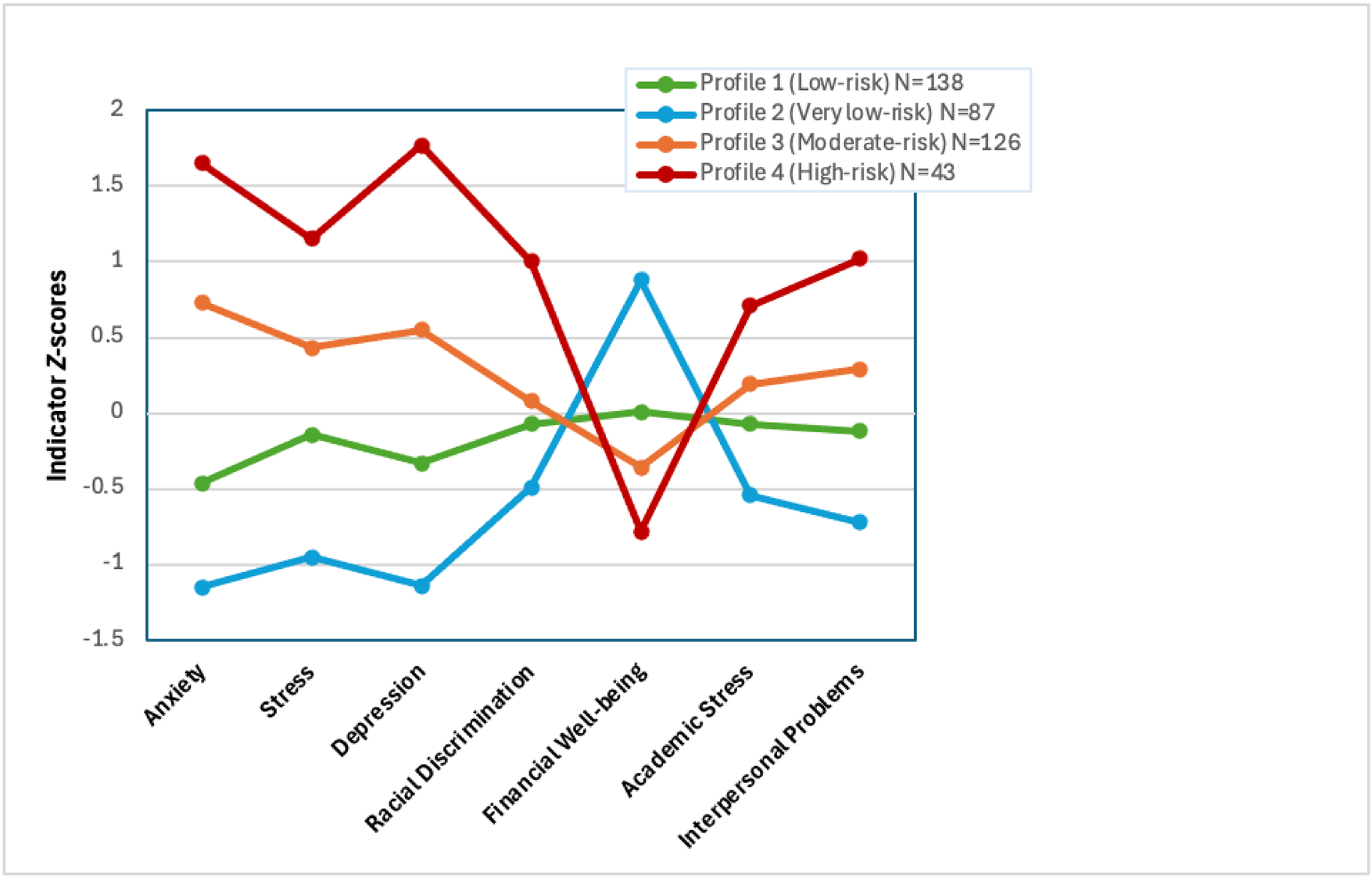


Figure 2. Latent Profile Analysis Using Mental Distress and Psychosocial Stressors as Indicators - Line Chart with Z-scores



Results

Indicator Means Across Profiles Supplementary Table

Latent Profile	Anxiety	Stress	Depression	Discrimination	Financial Well-being	Academic Stress	Interpersonal Problems	N
Low-risk (Profile 1)	5.77	20.87	7.21	24.86	4.42	1.11	2.07	138
Very low-risk (Profile 2)	1.61	15.98	2.26	19.65	6.26	0.91	1.62	87
Moderate-risk (Profile 3)	12.93	24.31	12.61	26.72	3.65	1.22	2.38	126
Highest-risk (Profile 4)	18.48	28.68	20.1	38.09	2.76	1.44	2.94	43

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Note. Substance use outcomes reflect past 30-days. Bold values indicate significance. Profile means sharing the same superscript letter are not significantly different ($p < .05$). Means with different superscripts differ significantly based on pairwise χ^2 comparisons. The BCH approach/command was used in Mplus.

Table 2. Race and HEC Across Latent Profiles

Comparison (Low-Risk as Reference Group)	Predictor	OR	95% CI	*p*
Lowest-Risk vs. Low-Risk	Black	1.28	[0.51, 3.24]	0.601
	White	1.39	[0.57, 3.43]	0.472
	HEC	0.97	[0.92, 1.02]	0.263
Moderate Risk vs. Low-Risk	Black	1.49	[0.64, 3.46]	0.352
	White	1.11	[0.49, 2.55]	0.798
	HEC	**0.95**	**[0.90, 0.99]**	**0.025**
Highest-Risk vs. Low Risk	Black	2.06	[0.52, 8.16]	0.301
	White	1.53	[0.40, 5.89]	0.536
	HEC	0.98	[0.91, 1.06]	0.629

Note. HEC = High-effort coping. Values in bold indicate significance. Black coded as *0 = Not Black, 1 = Black.* White coded as *0 = Not White, 1 = White.* The R3STEP command was used on Mplus.

Introduction References

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