An Examination of HEXACO Personality Dimensions and Gambling Disorder, Alcohol Use Disorder, and Cannabis Use Disorder

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REFERENCES

[1] Dick, D. M., Aliev, F., Latendresse, S. J., Hickman, M., Heron, J., Macleod, J., Joinson, C...Kendler, K. S. (2013). Adolescent alcohol use is predicted by childhood temperament factors before age 5, with mediation through personality and peers. *Alcoholism: Clinical & Experimental Research, 37*(12), 2108-2117.
[2] Costa, P. T., & McCrae, R. R. (1992). Normal personality assessment in clinical practice: The NEO Personality Inventory. *Psychological Assessment, 4*(1), 5-13.
[3] Grekin, E. R., Sher, K. J., & Wood, P. K. (2006). Personality and substance dependence symptoms: Modeling substance-specific traits. Psychology of *Addictive Behaviors, 20*(4), 415-424.
[4] Bagby, R. M., Costa, P. T., McCrae, R. R. Livesley, W. J., Kennedy, S. H., Levitan, R. D...Young, L. T. (1999). Replicating the five factor model of personality in a psychiatric sample. *Personality and Individual Differences, 27*(6), 1135-1139.
[5] Terracciano, A., Löckenhoff, C. E., Crum, R. M., Bienvenu, O. J., & Costa, P. T. (2008). Five factor model personality profiles of drug users. *BMC Psychiatry, 8*(22), 1-10.
[6] Ashton, M. C., Lee, K., Perugini, M., Szarota, P., de Vries, R. E., Di Blas, L...De Raad, B. (2004). A six-factor structure of personality-descriptive adjectives: Solutions from psycholexical studies in seven languages: *Journal of Personality and Social Psychology, 86*(2), 356-366.
[7] Ashton, M. C., Lee, K., & de Vries, R. E. (2014). The HEXACO honesty-humility, agreeableness, and emotionality factors: A review of research and theory. *Personality and Social Psychology Review, 18*(2), 139-152.
[8] Lee, K., & Ashton, M. C. (2004). Psychometric properties of the HEXACO Personality Inventory. *Multivariate Behavioral Research, 39*(2), 329-358.
[9] Hopwood, C. J., Morey, L. C., Skodol, A. E., Sanislow, C. A., Grilo, C. M., Ansell, E. B...Stout, R. L. (2011). Pathological personality traits among patients with absent, current, and remitted substance use disorders. *Addictive Behaviors, 36*(11), 1087-1090.
[10] Saunders, J. B., Aasland, O. G., Babor, T. F., de la Fuente, J. R., & Grant, M. (1993). Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption-II. *Addiction, 88*(6), 791-804.
[11] Legleye, S., Karila, L., Beck, F., & Reynaud, M. (2007). Validation of the CAST, a general population Cannabis Abuse Screening Test. *Journal of Substance Use, 12*(4), 233-242.
[12] Ferris, J., & Wynne, H. (2001). *The Canadian Problem Gambling Index: Final report*. Ottawa, ON: Canadian Centre on Substance Abuse.
[13] Lee, K., & Ashton, M. C. (in press). Psychometric properties of the HEXACO-100. *Assessment*, 1-15.
[14] Beaudoin, C. M., & Cox, B. J. (1999). Characteristics of problem gambling in a Canadian context: A preliminary study using a DSM-IV-based questionnaire. *Canadian Journal of Psychiatry, 44*, 483-487. doi: 10.1177/070674379904400509
[15] Wu, A. M., Lai, M. H., & Tong, K. (2014). Gambling disorder: Estimated prevalence rates and risk factors in Macao. *Psychology of Addictive Behaviors, 28*(4), 1190-1197. doi: 10.1037/a0037603
[16] Carlotta, D., Krueger, R. F., Markon, K. E., Borroni, S., Frera, F., Somma, A...& Fossati, A. (2015). Adaptive and maladaptive personality traits in high-risk gamblers. *Journal of Personality Disorders, 29*(3), 378-392. doi: 10.1521/pedi_2014_28_164
[17] MacLaren, V. V., Best, L. A., Dixon, M. J., & Harrigan, K. A. (2011). Problem gambling and the fve factor model in university students. *Personality and Individual Differences, 50*(3), 335-338. doi: 10.1016/j.paid.2010.01.011
[18] Bagby, R. M., Vachon, D. D., Bulmash, E. L., Toneatto, T., Quilty, L. C., & Costa, P. T. (2007). Pathological gambling and the five-factor model of personality. *Personality and Individual Differences, 43*(4), 873-880. doi: 10.1016/j.paid.2007.02.011
[19] Müller, K. W., Wölfling, K., Dickenhorst, U., Beutel, M. E., Medenwaldt, J., & Koch, A. (2017). Recovery, relapse, or else? Treatment outcomes in gambling disorder from a multicenter follow-up study. European Psychiatry, 43, 28-34. doi: 10.1016/j.eurpsy.2017.01.326
[20] Hopwood, C. J., Morey, L. C., Skodol, A. E., Stout, R. L., Yen, S., Ansell, E. B...& McGlashan, T. H. (2007). Five-factor model personality traits associated with alcohol-related diagnoses in a clinical sample. *Journal of Studies on Alcohol and Drugs, 68*(3), 455-460. doi: 10.15288/jsad.2007.68.455
[21] Hakulinen, C., Elovainio, M., Batty, G. D., Virtanen, M., Kivimaki, M., & Jokela, M. (2015). Personality and alcohol consumption: Pooled analysis of 72,949 adults from eight cohort studies. *Drug and Alcohol Dependence, 151*, 110-114. doi: 10.1016/j.drugalcdep.2015.03.008
[22]Flory, K., Lynam, D., Milich, R., Leukefeld, C., & Clayton, R. (2002). The relations among personality, symptoms of alcohol and marijuana abuse, and symptoms of comorbid psychopathology: Results from a community sample. Experimental and *Clinical Psychopharmacology, 10*(4), 425-434. doi: 10.1037/1064-1297.10.4.425
[23]Mann, K., Lemenager, T., Zois, E., Hoffmann, S., Nakovics, H., Beutel, M...& Fauth-Buhler, M. (2017). Comorbidity, family history and personality traits in pathological gamblers compared with healthy controls. *European Psychiatry, 42*, 120-128. doi: 10.1016/j.eurpsy.2016.12.002

INTRODUCTION

Research indicates that certain dispositional factors may increase the likelihood of engaging in various addictive behaviours, both recreationally as well as at problematic levels[1]. Personality as measured by the Five Factor Model (FFM)[2] has been examined in relation to a range of clinical disorders, including alcohol use disorder (AUD), substance use disorders (SUDs)[3], and gambling disorder (GD)[4]. Results of such studies suggest that traits differ across addictions, which may have implications for both research and practice[5].

Despite widespread adoption of the FFM in the addictions literature, other research using a similar lexical methodology has identified an alternative structure of personality[6], as some aspects of personality are argued to be underrepresented in the FFM[7]. The HEXACO model[8] consists of:

Honesty-humility: sincerity, fairness, greed avoidance, and modesty
Emotionality: fearfulness, anxiety, dependence, and sentimentality
e**X**traversion: social self-esteem, social boldness, sociability, and liveliness
Agreeableness: forgivingness, gentleness, flexibility, and patience
Conscientiousness: organization, diligence, perfectionism, and prudence
Openness to experience: aesthetic appreciation, inquisitiveness, creativity, and unconventionality

While existing research suggests that individuals with various addictions may differ from one another as well as from healthy controls[5, 9], it is unclear whether similar findings will emerge using the HEXACO framework. Moreover, research comparing personality profiles across addictive behaviours has tended to compare those reporting problematic use of licit substances (e.g., alcohol, tobacco) to those who report problematic use of illicit substances (e.g., cocaine)[5]. Thus, the purpose of the present study was to examine HEXACO personality dimensions in individuals with AUD, cannabis use disorder (CUD), GD, and healthy controls (HCs).

METHOD

Participants (N = 149) recruited via Amazon's Mechanical Turk (MTurk)
- 59.1% male, 40.9% female
- M_{age} = 33.46 years (SD = 9.10), range: 21-62 years
- 77.9% Caucasian, 11.4% Asian, 7.4% Latin American, 5.4% Black, 0.7% Arab
- 54.4% single, 32.2% married
- 69.1% post-secondary education, 62.4% employed full-time

Screening Measures
- Alcohol Use Disorders Identification Test (AUDIT)[10]
- Cannabis Abuse Screening Test (CAST)[11]
- Problem Gambling Severity Index (PGSI)[12]

Participant Groups
- HC (n = 37): score of 0-2 on CAST/PGSI, 0-7 on AUDIT
- AUD (n = 49): score of 15+ on AUDIT, 0-2 on CAST/PGSI
- CUD (n = 49): score of 7+ on CAST, 0-2 on PGSI, 0-7 on AUDIT
- GD (n = 14): score of 8+ on PGSI, 0-2 on CAST, 0-7 on AUDIT

Test Measures
- HEXACO-100[13]

Data Analysis: consisted of a one-way MANOVA and post-hoc Scheffé tests

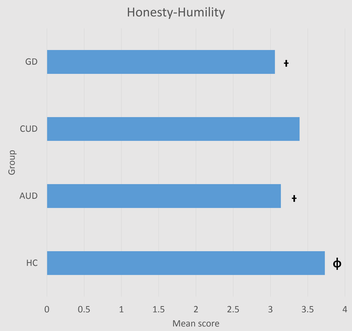

Figure 1. Mean honesty-humility scores for GDs, CUDs, AUDs, and HCs. Different symbols denote significant differences between groups.

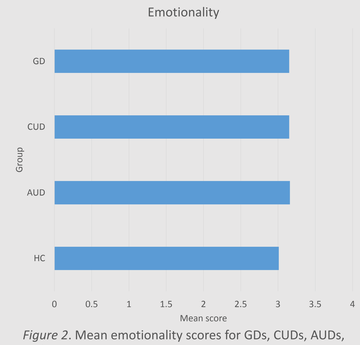

Figure 2. Mean emotionality scores for GDs, CUDs, AUDs, and HCs.

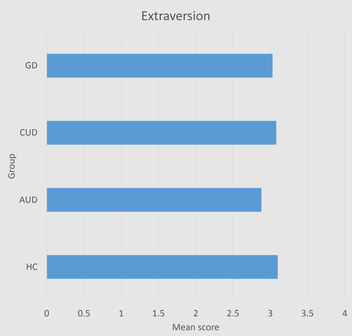

Figure 3. Mean extraversion scores for GDs, CUDs, AUDs, and HCs.

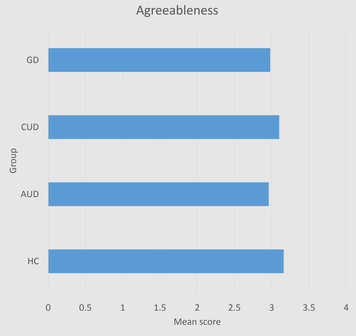

Figure 4. Mean agreeableness scores for GDs, CUDs, AUDs, and HCs.

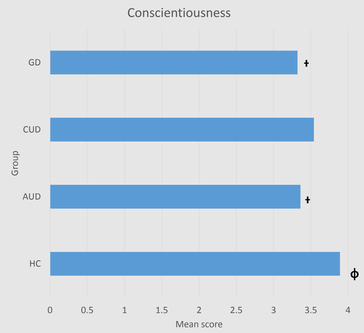

Figure 5. Mean conscientiousness scores for GDs, CUDs, AUDs, and HCs. Different symbols denote significant differences between groups.

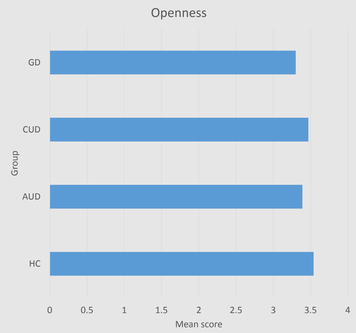

Figure 5. Mean openness to experience scores for GDs, CUDs, AUDs, and HCs.

RESULTS

The omnibus test result trended toward significance, $F(18, 396.47) = 1.57$, $p = .064$, $\Lambda = .82$.

HEXACO personality dimensions in relation to the four groups are presented in Figures 1-6.

Group differences were identified with regard to honesty-humility ($F(3, 145) = 2.92$, $p = .001$) and conscientiousness ($F(3, 145) = 2.27$, $p < .001$).

Post-hoc tests indicated differences between GDs and HCs ($p = .031$) and AUDs and HCs ($p = .003$) on honesty-humility.

Differences were also observed between GDs and HCs ($p = .022$) and between AUDs and HCs ($p = .001$) on conscientiousness.

No significant differences were observed between CUDs and HCs or between AUDs, CUDs, and GDs on any of the six personality dimensions.

DISCUSSION

The HEXACO model of personality may be a useful measure in the field of addictions research.

Results of the present study converged with past research in some aspects…
- GD
  - Deception a frequently-endorsed item included in diagnostic criteria for GD[14]
  - Associated with higher levels of materialism, callousness, manipulativeness, and deceitfulness[15,16]
  - Compared to HCs, GDs tend to score higher on measures of impulsiveness and lower on measures of competence, dutifulness, self-discipline, and deliberation[17,18]
  - Changes in conscientiousness associated with changes in GD symptom severity over time[19]
- AUD
  - AUD diagnosis associated with higher levels of manipulativeness[20]
  - Changes in conscientiousness associated with changes in alcohol consumption over time[21]

…and diverged from past research in others.
- GD
  - Found to be associated with measures of agreeableness (e.g., antagonism, hostility)[16,17]
- AUD
  - Found to be associated with measures of extraversion[22]
- CUD
  - Found to be associated with measures of openness to experience and conscientiousness[22]

Limitations
- Inclusion of 'pure' AUDs, CUDs, and GDs may limit generalizability[23]
- Did not differentiate between medicinal and recreational cannabis use
  - Possible improper categorization of some CUDs
- Study design does not allow for causal inference

Future directions
- Facet-level analysis
- Longitudinal study designs
- Inclusion of comorbid group(s) to enhance generalizability