Personality Processes Related to the Development and Resolution of Alcohol Use Disorders

from RESEARCH to RECOVERY
College Behavioral and Emotional Health

April 18, 2018

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University of Missouri-Columbia
from RESEARCH to RECOVERY

APRIL 17 – 19 2018
Generous NIAAA Support

- R01 AA007231
- R37 AA007231
- R01 AA013987
- R01 AA016392
- K05 AA017242
- P60 AA011998 (PI: Heath)
- R24 AA023487 (PI: Heath)

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- T32 AA013526
- R25 AA023687

No Conflicts to Acknowledge
Main Points of Today’s Talk

Multiple Etiological Pathways → Alcohol Use Disorders

Personality Traits Play an Important Role in Most of these Pathways
- Individual differences in alcohol effects
- Drinking motivation
- Niche seeking/environmental selection

Personality Changes
- Personality change is associated with changes in drinking problems
  - “maturing out” is more than role incompatibility

Personality Might Prove to be an Important Target for Interventions
- Treatment
- Prevention
Model of Alcoholism Vulnerability, Sher (1991)

Alcohol and Stress Response Dampening

EXPERIMENT 1
LOW RISK (MAC)

EXPERIMENT 2
LOW RISK (MAC-So)

HIGH RISK (MAC)

HIGH RISK (MAC-So)

LEGEND
- ALCOHOL
- NO ALCOHOL

COMMENTS
PERIOD 15 = START OF COUNTDOWN
PERIOD 27 = STRESSOR

LEGEND
- ALCOHOL
- NO ALCOHOL

COMMENTS
PERIOD 22 = START OF COUNTDOWN
PERIOD 40 = STRESSOR

Early Speculations: Vulnerability to Alcohol Effects

“...the markedly extroverted personality is very susceptible to the influence of alcohol. A very small dose deprives him of normal self-restraint and control and brings on the symptoms of intoxication, all of which are essentially expressions of diminished cortical control over the lower brain-levels.”

Early Speculations: Vulnerability to Alcohol Effects

[psychopathic personalities] “fantastic and uninviting behavior after drink” “... and sometimes without”

Individual differences in sensitivity to disinhibiting effects of alcohol

Factors associated with *increased aggression* (following provocation) from alcohol

- High levels of:
  - Trait hostility, aggression
- Low levels of:
  - Empathy
  - Executive control


Drunk and Sober Personality: Reports by Self and “Drinking Buddy” Informant


<table>
<thead>
<tr>
<th>Cluster</th>
<th>n</th>
<th>Name</th>
<th>% Male</th>
<th>Sober personality deviations from average</th>
<th>Residual drunk personality deviations from average</th>
<th>ICC</th>
<th>Adjusted mean (SE) of overall consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>153</td>
<td>Hemingway</td>
<td>50%</td>
<td></td>
<td></td>
<td>0.53</td>
<td>6.76 (0.27)ab</td>
</tr>
<tr>
<td>2</td>
<td>54</td>
<td>Mary Poppins</td>
<td>37%</td>
<td>+ Agreeableness</td>
<td>+ Conscientiousness</td>
<td>0.60</td>
<td>5.80 (0.45)a</td>
</tr>
<tr>
<td>3</td>
<td>84</td>
<td>Mr. Hyde</td>
<td>33%</td>
<td></td>
<td>- Agreeableness</td>
<td>0.38</td>
<td>7.36 (0.37)b</td>
</tr>
<tr>
<td>4</td>
<td>73</td>
<td>The Nutty Professor</td>
<td>48%</td>
<td>- Extraversion</td>
<td>+ Extraversion</td>
<td>0.05</td>
<td>6.40 (0.38)ab</td>
</tr>
</tbody>
</table>

Means in the same column that do not share a subscript differ significantly \( p < 0.01 \). Means adjusted for binge drinking frequency and typical quantity of alcohol consumed.
Fig. 1. Flow of experiment from initial contact to end of study participation.
Extraversion Facet Differences in Sober and Alcohol Conditions

OK... so personality has something to do with alcohol effects...

What does personality have to do with alcohol problems ???
Evidence that Personality is Related to Problematic Alcohol Use and Problems

Cross-sectional associations

- Various traits related to the tendency to:
  - Disinhibition
  - Negative affectivity

- Fails to distinguish
  - “prealcoholic”
  - “clinical alcoholic” traits (e.g., Barnes, 1983)

Evidence that Personality is Related to Problematic Alcohol Use and Problems

Prospective associations

- Consistently show future alcohol problems or dependence associated with:
  - disinhibition/impulsivity
  - (to a lesser degree) neuroticism/negative emotionality
- Sometimes show an association with extraversion/positive emotionality

Evidence that Personality is Related to Problematic Alcohol Use

\[ r_A \] Genetic Correlation

\[ r_A \) (Behavioral Undercontrol) = 0.61 \]
\[ r_A \) (Positive Emotionality) = 0.26 \]

Big Five (NEO-FFI) Traits and Common Axis I Disorders: High N: Low E, A, and C

“..little specificity in personality profiles among the disorders (in particular, all conditions were associated with both high neuroticism and low conscientiousness).” (p. 805)
The p Factor: One General Psychopathology Factor in the Structure of Psychiatric Disorders?

Avshalom Caspi¹,²,³,⁴, Renate M. Houts¹, Daniel W. Belsky⁵, Sidra J. Goldman-Mellor⁶, Honalee Harrington¹, Salomon Israel¹, Madeline H. Meier¹, Sandhya Ramrakha⁷, Idan Shalev¹, Richie Poulton⁷, and Terrie E. Moffitt¹,²,³,⁴

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Abstract
Mental disorders traditionally have been viewed as distinct, episodic, and categorical conditions. This view has been challenged by evidence that many disorders are sequentially comorbid, recurrent/chronic, and exist on a continuum. Using the Dunedin Multidisciplinary Health and Development Study, we examined the structure of psychopathology, taking into account dimensionality, persistence, co-occurrence, and sequential comorbidity of mental disorders across 20 years, from adolescence to midlife. Psychiatric disorders were initially explained by three higher-order factors (Internalizing, Externalizing, and Thought Disorder) but explained even better with one General Psychopathology dimension. We have called this dimension the p factor because it conceptually parallels a familiar dimension in psychological science: the g factor of general intelligence. Higher p scores are associated with more life impairment, greater familiality, worse developmental histories, and more compromised early-life brain function. The p factor explains why it is challenging to find causes, consequences, biomarkers, and treatments with specificity to individual mental disorders. Transdiagnostic approaches may improve research.
Personality Can Moderate Affective Responses to Alcohol

Shouldn’t, then, personality be related to what individuals “think” about alcohol effects?
Characteristics of children of alcoholics: Putative risk factors, substance use and abuse, and psychopathology. *Journal of Abnormal Psychology, 100*, 427-448
AUD Prevalence and Chronological Age

A CURIOUSLY STRONG AGE GRADIENT
Past 12-mo Prevalence of DSM-IV Alcohol Use Disorder

Vergés, A., Jackson, K. M., Bucholz, K. K., Grant, J. D., Trull, T. J., & Wood, P. K., & Sher, K. J. (2012). Deconstructing the age-prevalence curve of alcohol dependence: Why 'maturing out' is only a small piece of the puzzle. Journal of Abnormal Psychology, 121, 511-523.
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Why the big decrease in prevalence?

“Maturing out”!

- Assumption of Adult Roles
  - Spouse/Partner
  - Parent
  - Wage earner

- Roles tend to be “incompatible” with a heavy drinking lifestyle
Relationship Transitions and Heavy Drinking - Men

Relationship Transitions and Heavy Drinking - Women

Zia McCabe of the Dandy Warhols

The Transformation of Zia

to
Zia Explains Maturing Out
Is there more to “maturing out” than mere role incompatibility?
Patterns of Mean-Level Change in Personality Traits Across the Life Course: A Meta-Analysis of Longitudinal Studies

Brent W. Roberts and Kate E. Walton
University of Illinois at Urbana–Champaign

Wolfgang Viechtbauer
University of Maastricht

Standard deviations

Age

Conscientiousness

Emotional Stability

Age

Conscientiousness

Emotional Stability
Personality Changes:
What’s the implication for the course of alcohol-related problems?

- Personality traits show normative age-related changes over the course of development.
- During this same period of time, considerable “maturing out” of alcohol problems is also occurring.
  - Assumption of adult roles appears to explain some of this effect.
  - Can personality change also contribute?
Personality Change is Associated with Maturing Out!!

These findings replicate using a Big Five measure (NEO-FFI) first assessed at age 21
- Changes in Neuroticism and Conscientiousness
- Robust to more stringent model specifications

Finding are “above and beyond” role incompatibility

Personality Change is Associated with Maturing Out!!

Are self-reported motives changing along with personality and alcohol problems?

If we see changes in motives…

- Do these relate to changes in personality?
- Do these relate to changes in alcohol problems?
- Can changes in motives be considered a possible mediator of the correlated changes in personality and alcohol problems?
Alcohol Use Motives *ala* Cox and Klinger (1988)

<table>
<thead>
<tr>
<th>Internal</th>
<th>External</th>
</tr>
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<tbody>
<tr>
<td>Positive Reinforcement</td>
<td>Enhancement</td>
</tr>
<tr>
<td></td>
<td>Social</td>
</tr>
<tr>
<td>Negative Reinforcement</td>
<td>Coping</td>
</tr>
<tr>
<td></td>
<td>Conformity</td>
</tr>
</tbody>
</table>

Personality Change is Associated with Change in Motives

As individuals mature they become less impulsive and less neurotic and appear to be less motivated to use alcohol to cope

- Presumably developing more constructive ways to regulate emotions
- Appears to be an important aspect of “maturing out”

The importance of changes in enhancement motivation is less clear

- Could be due to relatively weak measurement of enhancement motives in our study
Thus, “Maturing Out”…

Is not solely due to role incompatibility
Is related to normative personality change

- Association may be mediated by changes in drinking motivation
- Models of “maturing out” or “natural recovery” need to be expanded to recognize these developmental changes in basic trait dispositions
Drinking, Personality, and Environment Selection
Drinking, Personality, and Environment Selection

- Individuals select into different environments, in part, because of personality traits (‘niche seeking’)
- Some of these environments may increase or maintain risk for alcohol problems
Penn State fraternity and 18 of its members are charged in student's death

Security camera footage from the Beta Theta Pi chapter house showed members of the fraternity failing to get Piazza help. (May 5, 2017) (Sign up for our free video newsletter here http://bit.ly/2n6VKPR)

By Associated Press
Ohio State Halts Fraternity Activities Amid Hazing Allegations

By CHRISTINE HAUSER    NOV. 17, 2017

Ohio State University suspended activities at all its fraternities as it investigates allegations of hazing and alcohol abuse. John Minchillo/Associated Press
Their Pledges Die. So Should Fraternities.

By Lisa Wade  May 19, 2017

Wade is an associate professor of sociology at Occidental College and the author of *American Hookup: The New Culture of Sex on Campus.*

In 1863, the third president of Amherst asked his fellow college presidents what they thought of this new thing called a “fraternity.” The overwhelming consensus was alarm. They described fraternities as a “plague” and “un-American.” They “sow dissensions and produce factions,” said one president. “They have led to greater unkindness and ill feeling than almost anything else in college,” said a second. “Nothing but evil results,” said another.

Following a night of heavy drinking at a fraternity at Texas State University, a 20-year-old was found dead. Another 20-year-old died at Florida State University in nearly identical circumstances.
The IMPACTS Study

Designed to study the predictors, course, and consequences of heavy drinking over the college years

Research design consisted of a baseline paper-and-pencil survey at summer welcome (two months before matriculation)

Web-based assessments each semester for nine total semesters

- 88% of all incoming first-time freshman participated at baseline screening \( (n=3719 \text{ out of } N=4226) \)
- 35.9\% \( (n = 1,335) \) participated in all 8 follow-ups
- 60.5\% \( (n = 2,250) \) participated at the final wave
- 90.0\% \( (n = 3,347) \) participated at least 2 waves
Five Plus Drinking Composite among 2,376 continually enrolled full-time students over the first three years of college.
Personality → Environment Selection

Individuals select into fraternities/sororities for traits both:
- strongly related to alcohol seeking
- traits that are incidental to drinking
  - Still puts them in high-risk, drinking environment

Understanding personality-based environment selection requires understanding the “fit” between the trait and the needs the environment will satisfy
What about personality and role selection?
Can alcohol excess or dependence change personality?

- Barne’s concept of “clinical alcoholic personality” versus “prealcoholic personality” traits
- Koob’s model of allostatic derangement of the “anti-reward” system suggests that prolonged heavy substance use can lead to substance-induced personality changes associated with negative affectivity
- So…bidirectional causation seems very plausible
  - Though alcohol-induced changes tend to be relatively transient (with possible if not likely exceptions if early in development)
What Do We Need to Find Out

- What facets of personality traits are most critical in understanding the etiology and course of AUDs - and substance involvement more broadly?
- Are some individuals more “fixed” in their personality structure, less likely to show maturation?
  - Are there critical periods of drug exposure that limit later maturation?
- How does personality change relate to more basic changes in neurodevelopment?
- How do we facilitate personality maturation?
Research Implications

- Subtyping in etiological studies
- Tracking risk developmentally
- Studying personality by situation effects on drinking (ala Giancola)
- Sober personality vs. “drunken personality” (may be clinically useful too)
Clinical Implications

- Treatment that addresses underlying personality dispositions
- Changing intervention targets as a function of predominant personality traits (Pat Conrod: anxiety sensitivity, hopelessness, impulsivity, sensation seeking)
- Treating affective disturbance symptomatology with secondary effects on personality (ala Roberts recent review)
- Tracking depth of therapeutic change and relapse risk
The Nature, Diagnosis, and Treatment of Neuroticism: Back to the Future

David H. Barlow¹, Shannon Sauer-Zavala¹, Jenna R. Carl¹, Jacqueline R. Bullis¹, and Kristen K. Ellard²,³

¹Department of Psychology, Boston University; ²Massachusetts General Hospital, Boston, Massachusetts; and ³Harvard Medical School

Abstract

We highlight the role of neuroticism in the development and course of emotional disorders and make a case for shifting the focus of intervention to this higher-order dimension of personality. Recent decades have seen great emphasis placed on differentiating disorders into Diagnostic and Statistical Manual of Mental Disorders diagnoses; however, evidence has suggested that splitting disorders into such fine categories may be highlighting relatively trivial differences. Emerging research on the latent structure of anxiety and mood disorders has indicated that trait neuroticism, cultivated through genetic, neurobiological, and psychological factors, underscores the development of these disorders. We raise the possibility of a new approach for conceptualizing these disorders—as emotional disorders. From a service-delivery point of view, we explore the possibility that neuroticism may be more malleable than previously thought and may possibly be amenable to direct intervention. The public-health implications of directly treating and even preventing the development of neuroticism would be substantial.
A Systematic Review of Personality Trait Change Through Intervention

Brent W. Roberts  
University of Illinois, Urbana-Champaign, and  
University of Tübingen

Jing Luo and Daniel A. Briley  
University of Illinois, Urbana-Champaign

Philip I. Chow  
University of Virginia

Rong Su  
Purdue University

Patrick L. Hill  
Carleton University

The current meta-analysis investigated the extent to which personality traits changed as a result of intervention, with the primary focus on clinical interventions. We identified 207 studies that had tracked changes in measures of personality traits during interventions, including true experiments and prepost change designs. Interventions were associated with marked changes in personality trait measures over an average time of 24 weeks (e.g., $d = .37$). Additional analyses showed that the increases replicated across experimental and nonexperimental designs, for nonclinical interventions, and persisted in longitudinal follow-ups of samples beyond the course of intervention. Emotional stability was the primary trait domain showing changes as a result of therapy, followed by extraversion. The type of therapy employed was not strongly associated with the amount of change in personality traits. Patients presenting with anxiety disorders changed the most, and patients being treated for substance use changed the least. The relevance of the results for theory and social policy are discussed.

Keywords: personality trait change, clinical psychology, personality change, intervention

Supplemental materials: http://dx.doi.org/10.1037/bul0000088.supp
Preventive Implications (beyond alcohol control policies)

Environmental Design
- Creating environments that:
  - Are incompatible with heavy drinking
  - Meet basic personality-related needs

**Friday Morning Classes**

Effect of earliest Friday class on average number of Thursday drinks by sex.
Iowa Tries To Curb Drinking With Friday Classes

By SARAH J. HOWLAND, CRIMSON STAFF WRITER  January 11, 2008

Students at the University of Iowa might find themselves setting their alarm clocks for early Friday morning as administrators there attempt to curb Thursday-night drinking. The university is offering incentives to departments to schedule classes on Friday mornings after the results of a recent study suggested that undergrads would drink less the night before.

But at Harvard, Thursday night’s revelry appears to remain safe for now. Psychology researchers at the University of Missouri-Columbia found that students who do not have classes on Fridays consume twice as much alcohol on Thursdays as those who do have Friday classes.
Preventive Implications

Prevention

- Early intervention
  - Self-control in childhood relates to a range of adult outcomes. How well can we alter these trajectories?
    - “Opt-out” options
    - “Target hardening”
Summary

Personality relates to multiple pathways for risk for heavy alcohol use, problems and dependence

Pathways appear to include:
- Alcohol sensitivity
- Alcohol motivation
- Environment selection

Personality is **not static**
- Personality changes may be a function of development
  - These changes are associated with risk for problematic alcohol use over the course of development
- Malleability of personality provides opportunities for:
  - “deeper” assessment for tracking course
  - Broader treatment strategies
  - Prevention efforts that
    - Protect those with vulnerable personality phenotypes for early “missteps” (developmental snares)
    - Provide environmental alternatives for personality-based needs
Acknowledgements (among many others)

Tim Trull
Phil Wood
Doug Steinley
Kim Walitzer
Kristie Jackson
Matt Lee
Julia Martinez
Andrew Littlefied
Alvaro Verges
Aesoon Park
Rachel Winograd
Angi Haeny
Stephanie Schroder
Yoanna McDowell
Cassie Boness
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Vergés, A., Jackson, K. M., Bucholz, K. K., Grant, J. D., Trull, T. J., & Wood, P. K., & Sher, K. J. (2012). Deconstructing the age-prevalence curve of alcohol dependence: Why 'maturing out' is only a small piece of the puzzle. *Journal of Abnormal Psychology, 121*, 511-523.
AUD Prevalence Across the Lifespan-past 12 months


![Bar chart showing AUD prevalence across the lifespan](chart.png)
Fig. 1. Plots of differences across age groups in rates of AUD desistance from Mild AUD, Moderate AUD, and Severe AUD. Green lines show model-derived transition-probability estimates with bars showing 1 SE ranges around the estimate. Blue lines show transition probabilities based on simple descriptive cross-tabulations of Wave 1 drinking status by Wave 2 drinking status within age groups.