



2017

Introduction: Special issue on genetic research of alcohol use disorder in diverse racial/ethnic populations

Karen G. Chartier

Virginia Commonwealth University

Michie N. Hesselbrock

University of Connecticut School of Medicine and Dentistry

Victor M. Hesselbrock

University of Connecticut School of Medicine and Dentistry

Follow this and additional works at: https://scholarscompass.vcu.edu/socialwork_pubs

 Part of the [Social Work Commons](#)

© 2017 American Academy of Addiction Psychiatry

Downloaded from

https://scholarscompass.vcu.edu/socialwork_pubs/19

This Article is brought to you for free and open access by the School of Social Work at VCU Scholars Compass. It has been accepted for inclusion in Social Work Publications by an authorized administrator of VCU Scholars Compass. For more information, please contact libcompass@vcu.edu.

Introduction: Special Issue on Genetic Research of Alcohol Use Disorder in Diverse Racial/Ethnic Populations

Karen G. Chartier, PhD, MSW ^{1,2} Michie N. Hesselbrock, PhD,³ Victor M. Hesselbrock, PhD³

¹School of Social Work, Virginia Commonwealth University, Richmond, Virginia

²Department of Psychiatry, Virginia Commonwealth University, Richmond, Virginia

³Department of Psychiatry, University of Connecticut School of Medicine, Farmington, Connecticut

This special issue of *The American Journal on Addictions* is an extension of a workshop held at the Research Society on Alcoholism (2015) highlighting several important issues related to studies of the genetic bases of alcohol use disorder among racially/ethnically diverse populations. While not exhaustive in their coverage, the papers in this special issue focus on three important topics: (1) the importance of considering the social and environmental context in genetic analyses; (2) social and cultural considerations for engaging diverse communities in genetic research; and (3) methodologies related to phenotype development for use with racially/ethnically diverse populations. A brief overview of each paper included in these three sections is presented. The issue concludes with additional considerations for genetic research with racially/ethnically diverse population groups along with a commentary. (*Am J Addict* 2017;26:422–423)

INTRODUCTION

This special issue originated from a roundtable discussion at the 2015 annual meeting of the Research Society on Alcoholism, titled “Perspectives on genetic analysis in diverse populations: Opportunities and challenges.”¹ The goal of the roundtable was to facilitate an examination of ideas and opinions regarding methodological, social, and ethical issues relevant to genetic research on alcohol and other addictive disorders among racial and ethnic minority populations. The roundtable initiated a lively discussion on these topics that warranted further consideration. Following the session Dr. Thomas Kosten, editor of *The American Journal on Addictions*, encouraged us to expand the breadth of topics

presented to provide a more wide-ranging treatment of the issues related to genetic studies involving racial/ethnic minority population groups. This served as the impetus for this issue.

Currently many different racial/ethnic groups are under-represented in genetic studies of alcohol use disorder (AUD). The latest estimate for genome-wide association studies (GWAS), not specific to addiction, is that only 19% are conducted using non-European samples.² This is an increase from 4% in 2009 and is largely explained by an increase in the inclusion of different Asian ancestry samples. Indigenous populations and Latin American and African ancestry groups remain particularly understudied, respectively, in 2016, 0.05%, 0.54%, and 3% of GWAS samples.²

The ten papers in this special issue cover the under-represented population groups of American Indians and Alaskan Natives, Asians, Latinos, and African Americans. These papers are organized around three themes: the importance of incorporating the environment and social context into genetic analyses; social and cultural considerations for engaging diverse communities in genetic research; and methods for data reduction in phenotype development and specialized genetic studies. We introduce each paper under these sections briefly here.

SECTION I: ADDICTIVE BEHAVIORS AND ENVIRONMENTAL INFLUENCES

The first paper in this issue, by Luczak et al.³ reviews the prevalence rates of addictive behaviors and their co-occurrences in U.S. racial/ethnic groups and their implications for genetics research. The next two papers consider the role of environmental factors in association with genetic factors and race/ethnicity. Agrawal et al.⁴ examine the influence of religious involvement on the alcohol use behaviors of African American and White younger adult women. Then Chartier

Received May 15, 2017; accepted May 20, 2017.
Address correspondence to: Karen G. Chartier, PhD, MSW, Virginia Commonwealth University School of Social Work, 1000 Floyd Avenue, P.O. Box 842027, Richmond, VA 23284-2027.
E-mail: kgchartier@vcu.edu

et al.⁵ survey a larger set of environmental influences for African Americans, Asians, Latinos, and American Indians for investigation in gene-environment (G-E) studies.

SECTION II: A FOCUS ON FOUR RACIAL/ETHNIC POPULATION GROUPS

The next four papers focus on under-represented racial/ethnic groups in genetic research on AUD. Each paper reviews issues relevant to a single population. Enoch and Albaugh⁶ describe the alcohol consumption patterns of American Indian and Alaskan Native individuals in relation to potential environmental risk factors for heavy drinking. Matsushita and Higuchi⁷ then describe the use of selected Asian samples to investigate genetic variations of alcohol metabolizing enzymes in relation to AUD to better understand G-E interactions. Martinez et al.⁸ note that the Latino population is diverse along important sociodemographic and genetic factors, and genetic studies may have potential importance for addressing significant alcohol problems in many communities. Dick et al.⁹ discuss the importance of including African Americans in genetic studies because such samples may contain genetic variants that differentially impact the etiology of AUD versus other racial/ethnic groups.

SECTION III: SPECIAL METHODOLOGIES

The last three papers look at specific methods that can be used to improve genetic research with diverse racial/ethnic population groups. Peterson et al.¹⁰ describe the use of an empirical clustering method of genome-wide markers to define ancestral membership, an improvement over self-report methods. Zhang and Gelernter¹¹ provide a literature review regarding potential epigenetic changes in DNA methylation resulting from chronic alcohol consumption. The last paper by Cservenka et al.¹² summarizes existing pharmacogenetics studies of treatments for AUD in patients of European, African, East Asian, and American Indian and Alaskan Native ancestry.

NEXT STEPS

We conclude the special issue by providing a description of the key findings of each of these papers and offer several suggestions and potential next steps.¹³ Scott¹⁴ also provides an important commentary on the current state of the science, pointing to several cultural and political issues relevant to the planning and conduct of genetic studies. It has been an exciting opportunity to put together this issue. We are thankful for and

appreciate the effort and work on the part of both the authors and the journal editors that has resulted in this special issue.

This work was supported by the National Institute on Alcohol Abuse and Alcoholism of the National Institutes of Health (K.C. K01AA021145; V.H. P60AA003510; and V.H., M.H. U10AA008401).

Declaration of Interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this paper.

REFERENCES

1. Chartier KG, Hesselbrock M, Hesselbrock V. (Roundtable) perspectives on genetic analysis in diverse populations: Opportunities and challenges. *Alcohol Clin Exp Res.* 2015;39:7A.
2. Popejoy AB, Fullerton SM. Genomics is failing on diversity. *Nature.* 2016;538:161–164.
3. Luczak SE, Khoddam R, Yu S, et al. Review: Prevalence and co-occurrence of addictions in US ethnic/racial groups: Implications for genetic research. *Am J Addict.* 2017;26:424–436.
4. Agrawal A, Grant JD, Haber JR, et al. Differences between White and Black young women in the relationship between religious service attendance and alcohol involvement. *Am J Addict.* 2017;26:437–445.
5. Chartier KG, Karriker-Jaffe KJ, Cummings CR, et al. Review: Environmental influences on alcohol use: Informing research on the joint effects of genes and the environment in diverse U.S. populations. *Am J Addict.* 2017;26:446–460.
6. Enoch MA, Albaugh BJ. Review: Genetic and environmental risk factors for alcohol use disorders in American Indians and Alaskan Natives. *Am J Addict.* 2017;26:461–468.
7. Matsushita S, Higuchi S. Review: Use of Asian samples in genetic research of alcohol use disorders: Genetic variation of alcohol metabolizing enzymes and the effects of acetaldehyde. *Am J Addict.* 2017;26:469–476.
8. Martinez P, Cummings C, Karriker-Jaffe KJ, et al. Learning from latino voices: Focus groups' insights on participation in genetic research. *Am J Addict.* 2017;26:477–485.
9. Dick DM, Barr P, Guy M, et al. Review: Genetic research on alcohol use outcomes in African American populations: A review of the literature, associated challenges, and implications. *Am J Addict.* 2017;26:486–493.
10. Peterson RE, Edwards AC, Bacanu S, et al. The utility of empirically assigning ancestry groups in cross-population genetic studies of addiction. *Am J Addict.* 2017;26:494–501.
11. Zhang H, Gelernter J. Review: DNA methylation and alcohol use disorders: Progress and challenges. *Am J Addict.* 2017;26:502–515.
12. Cservenka A, Yardley MM, Ray LA. Review: Pharmacogenetics of alcoholism treatment: Implications of ethnic diversity. *Am J Addict.* 2017;26:516–525.
13. Chartier KG, Hesselbrock M, Hesselbrock V. Conclusion: Special issue on genetic and alcohol use disorder research with diverse racial/ethnic groups: Key findings and potential next steps. *Am J Addict.* 2017;26:532–537.
14. Scott MS. Commentary: Perspectives on alcohol-related gene and environment interplay in diverse populations. *Am J Addict.* 2017;26:526–531.