The Relationship between Changes in Drinking Over Time and Smoking Status among Light and Intermittent Smokers

Joseph E. Charter, B.S., Kevin M. Gutiérrez, M.A., José A. Cabriales, M.A., Ishmael I. Lopez, Ivan Torres B.A., & Theodore V. Cooper, Ph.D.
The University of Texas at El Paso

Abstract
Individuals who use alcohol have been found to be more likely to smoke cigarettes (Substance Abuse and Mental Health Services Administration (SAMHSA), 2011). For example, substance users are more likely to be cigarette smokers at a higher rate, and when they smoke, they are more likely to drink at higher rates (Substance Abuse and Mental Health Services Administration, 2011). Given these associations, the relationship between changes in smoking behavior over time and smoking cessation-related outcomes is of interest to public health professionals. The present aim of this study was to examine whether changes in drinking were associated with a concomitant reduction in smoking status in a sample of light and intermittent smokers.

Introduction
Tobacco is the leading cause of preventable death in the United States (Centers for Disease Control and Prevention [CDC], 2011). Over 50% of Americans report being alcohol users, and over 11% have driven while under the influence of alcohol in the past year (Substance Abuse and Mental Health Services Administration [SAMHSA], 2011). Additionally, individuals who use alcohol have been found to be more likely to smoke cigarettes (SAMHSA, 2011).

Aims and Hypotheses
The purpose of this study was to assess the relationships between smoking and drinking over time. It was predicted that decreased smoking rates would be associated with decreased drinking status at a 3-month follow-up.

Methods
Procedure and Participants
Three hundred and seventy-six community light and intermittent smokers participated in a study that examined the efficacy of a brief smoking intervention in light and intermittent smokers. The current data was collected through two different sequential grant cycles. Participants were recruited from community health clinics and at a local university. Participants were randomized to participate in either an immediate treatment condition or a delayed (3 month follow-up) treatment condition. Participants completed the informed consent process and a self-report survey both at baseline and at a 3-month follow-up. The current study examined a subsample of 213 participants who completed both baseline and 3 month follow-up assessment. See Table 1 for descriptive statistics.

Results
The overall regression model was significant, as well as each of the steps (step 1 $F=248, p<.001; step 2 $F=268, p<.001). In step 1, only smoking status at baseline was significantly related ($p=.478, p<.001) with smoking status at follow-up. In step 2, an interaction for the covariates, change in smoking status (at baseline subtracted from 3 month follow-up status) was also included.

Discussion
Consistent with past research (Rodriguez-Esquiel, Cooper, Blow, & Rehor, 2009), and with the hypothesis, a significant relationship between smoking and drinking was found such that lower smoking status was associated with decreased drinking status. Additionally, overall participants reduced both in smoking and drinking levels regardless of intervention condition (immediate vs. delay intervention) at 3 month follow-up. It may be that those individuals who decide to quit smoking may have a general increase in healthy behavior. It could also be that smokers have an easier time reducing and/or quitting smoking when they are able to reduce and/or stop drinking, which for many smokers could be a strong trigger to reduce.

Given the results of this study, smoking cessation programs may benefit from including intervention components that also aim to reduce alcohol use. For example, the inclusion of trigger management components specific to alcohol and cigarettes may be particularly effective in light and intermittent smokers since their smoking behavior is often linked to mental and psychosocial factors.

Limitations of this study include the use of self-report measures, a short follow-up period (3 months), and the potential lack of generalizability to other ethnocultural and higher smoking and drinking groups. Future studies should examine if this reciprocal relationship is observed in other groups, over longer periods of time. Further, focused paired intervention efforts should assess concomitant changes over time.

Acknowledgements
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References

Table 1: Descriptive Characteristics

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<th>Female</th>
<th>Mean</th>
<th>SD</th>
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<td>20.7</td>
<td>21.1</td>
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<td>Smoking at baseline</td>
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<td>.477</td>
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<td>Treatment condition</td>
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<td>.083</td>
<td>.745</td>
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<tr>
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<td>.008</td>
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<td>.018</td>
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<td>.227</td>
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Table 2: Linear Regression predicting smoking status at 3 month follow-up

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<tr>
<th>Beta</th>
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<th>t</th>
<th>p</th>
<th>95% Confidence interval</th>
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<td>.018</td>
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Figure 1: Smoking Status
Figure 2: Drinking Status