Topical Trends in Tobacco and Alcohol Articles Published in Three Dental Journals, 1980-2010

James Alan Neff, PhD, MPH; John C. Gunsolley, DDS, MS; Sabha Mahmoud Alshatrat, MSDH

Abstract: The aim of this study was to conduct a review of articles about tobacco or alcohol published from 1980 to 2010 in the Journal of the American Dental Association (JADA), Journal of Dental Education (JDE), and Journal of Public Health Dentistry (JPHD) in an attempt to identify trends by decade in topics relevant to oral health consequences, oral cancer linkages, and cessation counseling. NVivo qualitative analysis software was used to code abstracts using the keywords “tobacco” or “alcohol.” The search identified 269 articles: tobacco=211 (78%), alcohol=58 (22%). This number represented 2.4% of the total articles published in these journals for the specified years. While the percentage of tobacco-related articles increased over this period (with highs in the 1990s of 4.1% in the JDE and 9% in the JPHD), the percentage of alcohol articles reached only 1% for JADA and 3.3% for the JPHD in the 2000s. The number of tobacco-related articles addressing oral health effects, oral cancer linkages, and cessation counseling increased in the 1990s. Although there were modest increases in the number of articles about alcohol-related oral health effects and oral cancer linkages (particularly in the JPHD in the 2000s), only two articles (in JADA in the 2000s) addressed alcohol cessation counseling. This study concluded that tobacco and alcohol have received limited, though increasing, attention in these three major journals between 1980 and 2010, with alcohol receiving less attention than tobacco. These results suggest a need for more published studies on tobacco and alcohol interventions in dental and allied dental education to prepare students to contribute to this aspect of their patients’ health.

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ver the past few decades, increasing attention has been paid to the role of the dental profession with regard to tobacco cessation and the status of tobacco cessation in dental curricula. Three of the major dental associations have issued policy statements against tobacco use, with recommendations to bolster practitioner education with regard to tobacco cessation. At the same time, considerable effort has been directed toward the development of tobacco cessation interventions, which, while they have generally been shown to be effective, have not been universally adopted.

However, with recent research demonstrating that the combined contribution of tobacco and alcohol to risk of head and neck cancer (Population Attributable Risk [PAR]=35%) is slightly higher than that of tobacco alone (PAR=33%), it seems odd that the possibility of dental practice-based screening and intervention for heavy drinking has only recently been discussed. While tobacco cessation initiatives such as the American Dental Association (ADA)’s endorsement of the Public Health Service’s 5 As and the American Dental Hygienists’ Association (ADHA)’s Ask, Advise, and Refer program have been promoted in dental practice, highly similar screening and brief intervention (SBI) approaches for heavy drinkers that have proven effective in both emergency department and primary care settings have not been examined in dental practice.

To clarify the relative amount of attention paid to tobacco and alcohol in the dental literature, the aim of our study was to determine trends between 1980 and 2010 in articles regarding tobacco and alcohol appearing in three major U.S. dental journals, purposely...
selected to reflect different readerships: the *Journal of the American Dental Association* (JADA; dental practitioners), *Journal of Dental Education* (JDE; dental educators), and the *Journal of Public Health Dentistry* (JPHD; dental public health researchers). We examined the content of tobacco and alcohol articles over these three decades to assess trends in the percentage of relevant articles and specific themes over time. Of particular interest were trends with regard to counseling and cessation for tobacco and alcohol. Specifically, we sought to identify the following: the overall percentage of articles in these journals related to tobacco and alcohol; trends over time in the percentage of articles addressing alcohol and tobacco; and trends over time in dominant themes involving tobacco and alcohol—with a particular interest in articles regarding oral health implications, oral cancer linkages, and counseling and cessation. The overall goal of this topical review is to help assess possible curriculum needs in dental and dental hygiene education as well as future prospects for dental practice-based preventive interventions for tobacco and alcohol.

**Methods**

As the study involved literature review only, human subjects research was not involved, and no Institutional Review Board approval was required. To explore publication trends, an electronic search was conducted of archived JADA, JDE, and JPHD abstracts on the journal websites from 1980 through 2010. Full abstracts were not available for all journals earlier, and we felt that a review beginning in 1980 would provide a good overview of trends over three decades. The review was conducted with NVivo 10, a qualitative analysis software package designed to conduct content analyses, analyze word frequencies, and identify themes. Files for abstracts available in the JADA, JDE, and JPHD archives from January 1980 through December 2010 were imported into NVivo, coded for decade of publication (1980s, 1990s, 2000s), and searched (both titles and abstracts) for the terms “alcohol” or “tobacco” or similar terms (e.g., a search for “tobacco” would also pick up “smoking,” “smoker,” “smokeless”; a search for “alcohol” would also pick up “alcoholism,” “alcohols,” “drinker,” or “drinking”). The search included abstracts of articles, case reports, and news reports citing empirical research; editorials, letters to the editor, and historical and biographical notes were excluded.

Abstracts identified by the NVivo search as containing “tobacco,” “alcohol,” or similar terms were searched for frequent word combinations suggesting themes. Five such themes were identified that applied to either tobacco or alcohol: 1) miscellaneous biochemical articles (e.g., such issues as sugar content of different tobaccos or alcohol content of different mouthwashes); 2) epidemiology of tobacco or alcohol; 3) clinical practice implications of tobacco or alcohol; 4) general oral health effects of tobacco or alcohol; 5) specific linkages of tobacco or alcohol with oral cancer; and 6) screening or cessation counseling for tobacco or alcohol. Two additional themes that were identified were specific to either tobacco (smokeless tobacco) or alcohol (fetal alcohol syndrome). If an abstract was codable into more than one category, it was assigned to the category with the greatest preventive implications. Thus, if an article discussed oral cancer consequences of smoking and also recommended cessation intervention, it was coded as “cessation”; or if an article discussed alcohol epidemiology and also discussed oral health implications of alcohol use, it was coded in the latter thematic category.

Coding was done by two independent raters. Initial interrater agreement was high (86%) overall and for the individual journals: 83% for JADA, 93% for JDE, and 86% for JPHD. In the event of disagreement, the two coders discussed their concerns until consensus was reached.

After coding, descriptive analyses were conducted to characterize the overall percentage of articles in each journal dealing with tobacco or alcohol as well as trends by decade for themes for tobacco and alcohol. Of primary interest were trends by decade but also the consistency of trends across journals.

**Results**

Table 1 provides detailed results of the literature search and coding process. Figure 1 graphically depicts the overall breakdown by journal and decade for tobacco and alcohol. There were dramatic differences in the total number of articles in each journal: 7,543 for JADA, 2,783 for the JDE, and 968 for the JPHD. These differences underscore the need to compare percentages of total articles by journal when making comparisons.

Over the 30-year period, articles addressing either tobacco or alcohol represented less than 2% (130/7,543) of total JADA articles, compared to
### Table 1. Articles about tobacco and alcohol published in *Journal of the American Dental Association* (JADA), *Journal of Dental Education* (JDE), and *Journal of Public Health Dentistry* (JPHD), by number and percentage of total articles by decade

<table>
<thead>
<tr>
<th>Articles</th>
<th>JADA</th>
<th>JDE</th>
<th>JPHD</th>
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<tbody>
<tr>
<td><strong>Total articles in journal</strong></td>
<td>2,685</td>
<td>2,394</td>
<td>2,464</td>
</tr>
<tr>
<td><strong>Tobacco articles: total</strong></td>
<td>0.67% (18)</td>
<td>1.5% (36)</td>
<td>1.4% (35)</td>
</tr>
<tr>
<td>Smokeless tobacco</td>
<td>0.26% (7)</td>
<td>0.37% (9)</td>
<td>0</td>
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<tr>
<td>Biochemical</td>
<td>0.15% (4)</td>
<td>0.04% (1)</td>
<td>0</td>
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<tr>
<td>Clinical practice implications</td>
<td>0.04% (1)</td>
<td>0</td>
<td>0.12% (3)</td>
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<tr>
<td>Epidemiology</td>
<td>0</td>
<td>0.12% (3)</td>
<td>0</td>
</tr>
<tr>
<td>Oral health consequences</td>
<td>0.07% (2)</td>
<td>0.25% (6)</td>
<td>0.4% (10)</td>
</tr>
<tr>
<td>Oral cancer linkage</td>
<td>0.11% (3)</td>
<td>0.08% (2)</td>
<td>0.32% (8)</td>
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<tr>
<td>Cessation counseling</td>
<td>0.04% (1)</td>
<td>0.63% (15)</td>
<td>0.56% (15)</td>
</tr>
<tr>
<td><strong>Alcohol articles: total</strong></td>
<td>0.34% (9)</td>
<td>0.3% (7)</td>
<td>1.0% (25)</td>
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<tr>
<td>Fetal alcohol syndrome</td>
<td>0.07% (2)</td>
<td>0</td>
<td>0.12% (1)</td>
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<td>0.02% (5)</td>
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<td>0.04% (1)</td>
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<td>Epidemiology</td>
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<td>0.17% (4)</td>
<td>0.36% (9)</td>
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<td>0</td>
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<td>0.32% (8)</td>
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<tr>
<td>Cessation counseling</td>
<td>0</td>
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<td>0.08% (2)</td>
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<tr>
<td>Total articles in journal</td>
<td>2,685</td>
<td>2,394</td>
<td>2,464</td>
<td>868</td>
<td>808</td>
<td>1,107</td>
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<td>422</td>
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<td>0.11% (1)</td>
<td>0.99% (8)</td>
<td>4.1% (46)</td>
<td>1.4% (3)</td>
<td>6.4% (21)</td>
<td>9.0% (38)</td>
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<td>Smokeless tobacco</td>
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<td>0</td>
<td>0.09% (1)</td>
<td>0.9% (2)</td>
<td>2.1% (7)</td>
<td>0.2% (1)</td>
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<tr>
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<td>0.45% (5)</td>
<td>0</td>
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<td>1.8% (6)</td>
<td>5.7% (24)</td>
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<td>Oral cancer linkage</td>
<td>0</td>
<td>0</td>
<td>0.27% (3)</td>
<td>0</td>
<td>0.3% (1)</td>
<td>1.18% (5)</td>
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<tr>
<td>Cessation counseling</td>
<td>0</td>
<td>0</td>
<td>0.11% (1)</td>
<td>0.12% (1)</td>
<td>0.27% (3)</td>
<td>0</td>
<td>0.9% (3)</td>
<td>3.3% (14)</td>
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<tr>
<td>Alcohol articles: total</td>
<td>0.11% (1)</td>
<td>0.12% (1)</td>
<td>0.27% (3)</td>
<td>0</td>
<td>0</td>
<td>0.04% (1)</td>
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<tr>
<td>Fetal alcohol syndrome</td>
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<td>0</td>
<td>0</td>
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<tr>
<td>Biochemical</td>
<td>0.19% (5)</td>
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<td>0.02% (5)</td>
<td>0</td>
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<td>Clinical practice implications</td>
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slightly over 2% (60/2,783) of JDE articles and 8% (79/968) of JPHD articles. The largest percentage of articles about tobacco or alcohol was in the JPHD, followed by the JDE, with the smallest percentage in JADA. More of the included articles were about tobacco than alcohol in all three journals: JADA tobacco=1.2%, alcohol=0.5%; JDE tobacco=1.97%, alcohol=0.18%; and JPHD tobacco=6.4%, alcohol=1.76%. Overall, alcohol has consistently received less attention than tobacco over the decades.

**Dominant Themes**

Trends were identified with regard to dominant tobacco and alcohol themes. The numbers of articles on which these percentages are calculated appear in Table 1. Trends in other themes not highlighted here generally followed no clear pattern. These themes represented the majority of cases for each journal (67% for JADA, 85% for the JDE, and 81% for the JPHD). Trends involving tobacco are shown in Figure 3. Of the eight themes identified, only those dealing with oral health effects, oral cancer linkages, and cessation counseling are shown. Results for each theme are as follows.

**General oral health effects of tobacco.** The general trend was for increasing percentages of articles regarding oral health effects of tobacco over the 30-year period, although the magnitude of such increases varied by journal. Thus, for JADA, the percentage of tobacco articles remained below 1%, with 0.07% (2) in the 1980s increasing to 0.25% (6) in the 1990s and 0.40 (10) in the 2000s. For the JPHD, increases were more pronounced, with increases from none in the 1980s to 1.8% (6) in the 1990s to 5.7% (24) in the 2000s.

**Oral cancer linkages with tobacco.** This general trend also reflected increasing percentages of
in the 1980s, but increases to 0.3% (1) in the 1990s and 1.18% (5) in the 2000s.

Tobacco cessation counseling. For JADA, percentages remained below 1%, with slight increases from 0.11% (3) in the 1980s and 0.08% (2) in the 1990s to 0.32% (8) in the 2000s. For the JDE, there were no articles regarding oral cancer linkages of tobacco until the 2000s (0.27%, 3). For the JPHD, there were no articles regarding oral cancer linkages in the 1980s, but increases to 0.3% (1) in the 1990s and 1.18% (5) in the 2000s.

Figure 2. Percentage of articles about tobacco and alcohol by journal and decade, 1980-2010

Figure 3. Percentage of articles about tobacco on three themes, by journal and decade, 1980-2010
observed for the JDE, with increases from 0.11% (1) in the 1980s to 0.87% (7) in the 1990s to 2.89% (32) in the 2000s. For the JPHD, the largest increases occurred in the 1990s, with increases from 0.46% (1) in the 1980s to 1.5% (5) in the 1990s, remaining at 1.2% (5) in the 2000s.

**General oral health effects of alcohol.** As observed for tobacco, a general trend is that percentages of articles related to oral health effects of alcohol increased over time, although results varied by journal. For JADA, percentages remained below 1%, increasing from 0.04% (1) in the 1980s to 0.17% (4) in the 1990s to 0.36% (9) in the 2000s. For the JDE, the percentage of articles related to oral health effects of alcohol was 0.11% (1) in the 1980s with no additional articles on this topic in the 1990s or 2000s. For the JPHD, the percentages increased from none in the 1980s to 0.6% (2) in the 1990s to 2.1% (9) in the 2000s. The JPHD thus showed the largest increase in articles regarding oral health effects of alcohol.

**Oral cancer linkages with alcohol.** Roughtly similar increases over time were observed with regard to articles noting oral cancer linkages with alcohol. For JADA, percentages remained below 1%, with percentages increasing from no articles in the 1980s to 0.08% (2) in the 1990s to 0.32% (8) in the 2000s. For the JDE, the percentages of articles regarding oral cancer linkages with alcohol increased from none in the 1980s and 1990s to 0.18% (2) in the 2000s. For the JPHD, there were no articles regarding oral cancer linkages with alcohol in the 1980s, with increases to 0.3% (1) in the 1990s and 1.2% (5) in the 2000s.

**Alcohol cessation counseling.** In contrast to the other findings, there was a striking absence of articles regarding alcohol cessation counseling. For both the JDE and the JPHD, there were no articles related to this topic between 1980 and 2010. For JADA, alcohol cessation counseling in dental practice was not discussed until the 2000s (0.08% of articles for the decade), but this percentage involved only two articles during that period.

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**Discussion**

This review found that tobacco and alcohol have received little attention in the three major dental journals studied, representing only 2.4% of total articles published between 1980 and 2010. Of the articles addressing either substance, tobacco has received significantly more attention (78% of combined articles). Temporal trends vary somewhat by journal although there appear to be general increases in the number of articles regarding tobacco across these decades, reaching highs in the 1990s of 4.1% in the JDE and 9% in the JPHD. In contrast, although there was some increase in the number of alcohol articles, the percentages reached only 1% for JADA and 3.3% for the JPHD in the 2000s.

Trends in the dominant themes regarding alcohol and tobacco differed as well, with further variability by journal. For tobacco, articles related to oral health effects, oral cancer linkages, and cessation counseling generally increased during the 1990s and 2000s. The most dramatic increases were found in the JPHD, with the the percentage of articles addressing oral health effects of tobacco reaching a high of 5.7% in the 2000s. Cessation counseling showed a slightly different pattern, however, with the greatest increases found in the JDE in the 2000s, reaching a high of approximately 3%, and increases in the JPHD being smaller, reaching over 1% in both the 1990s and 2000s. For alcohol, while there were some increases with regard to oral health effects and oral cancer linkages (particularly for the JPHD in the 2000s), there were only two articles dealing with alcohol counseling or cessation, both of them appearing in JADA in the mid-2000s. One of these articles addressed dental practitioners’ readiness to offer tobacco and alcohol counseling, and the other concerned the willingness of dental patients to accept alcohol counseling as part of dental practice.

Aside from a general lack of attention to alcohol during this period, what emerges from these trends is an apparent time lag with regard to tobacco and alcohol. While Cruz et al. were the first to suggest alcohol counseling in dental practice in 2005, Christen had raised that point 20 years earlier with regard to tobacco, presenting evidence of dentists’ willingness to help patients quit smoking. Similarly, readiness and actual use of tobacco cessation practices among dental professionals were addressed in the late 1980s and the 1990s. Further, while discussions of alcohol have begun to consider the appropriateness, readiness, and barriers to adoption of alcohol interventions in dentistry, the tobacco cessation literature has gone far beyond such preliminary discussions, with the development and evaluation of tobacco cessation interventions dating back to the 1990s. Efforts to develop brief interventions for alcohol are only beginning to emerge.
While our topical review of these journals through 2010 shows limited attention to alcohol issues—particularly alcohol SBI—more recent articles suggest possible growing interest in alcohol. A 2013 JADA article examined current practices, attitudes, and barriers regarding substance abuse screening and intervention among 143 dentists in a large research network. Those researchers reported that screening (asking about) tobacco, alcohol, and illicit substance use varied (78% for tobacco, 44% for alcohol, and 33% for illicit substances), although counseling or referral were less common (63% for tobacco, 29% for alcohol, and 25% for illicit substances). They noted several barriers to screening and intervention, most commonly lack of knowledge/training, referral resources, and time, but they concluded that the potential for dental practice-based screening and intervention for alcohol and other drugs should be further explored.

Additionally, three recent articles in the British Dental Journal reflect considerable interest in brief interventions for both tobacco and alcohol in the United Kingdom. Dyer and Robinson examined research evidence regarding the effectiveness of dental providers in seven health promotion activities including tobacco cessation and alcohol counseling. They found some evidence to support the effectiveness of dental practice-based tobacco cessation, but they found no studies attempting alcohol interventions in dental practice. These researchers emphasized the great potential for health promotion in dental practice. McAuley et al. described British Dental Association and governmental policy initiatives dating back to 2000 promoting dental practice-based interventions for both tobacco and alcohol and reviewed the evidence base for brief alcohol SBI approaches in primary dental care. A companion article that examined the prevalence and correlates of provision of alcohol-related advice (or counseling) by general dental practitioners in Scotland reported that advice giving was rare (17% of practitioners) and identified attitudinal and other factors related to intention to provide advice. That study concluded that dental practice-based alcohol interventions should be promoted and suggested using their results as a foundation for intervention development.

Limitations of this study should be noted. First, our intent was not to conduct a detailed, systematic review of the literature, providing in-depth attention to specific articles or statistical analyses. Rather, we wanted to collect enough data to support a brief over-view of attention being given to alcohol and tobacco in three selected journals. Second, in focusing only on general topics addressed by specific articles, we acknowledge that this review did not consider the depth to which topics were addressed. Our review thus does not account for the contrast between the tobacco cessation literature, which has evolved to the point of developing and evaluating specific intervention programs for use in dental education and practice, perhaps motivated by the argument that oral cancer prevention is key to the dentist’s role, and the lower level of development of studies on alcohol cessation counseling in dentistry. Third, our review focused on only three journals in dentistry, rather than involving a broader search of the dental literature. This strategy was intentional, in order to assess those journals most likely to have an interest in prevention-related issues—although the missions of the journals may have also affected the results since the JDE focuses on education while JADA and the JPHD are more practice-oriented. The volume of articles also varied greatly among these journals, with the JPHD publishing the smallest number overall, but this variation should not have biased our descriptive analyses as we focused on the percentage of articles in each journal.

A final possible limitation of the study is that it can be argued that our findings do not prove any relationship between current dental and dental hygiene curriculum content and the paucity of articles regarding alcohol and alcohol cessation counseling in these journals. However, a recent study regarding practitioner knowledge, attitudes, and practices concerning alcohol counseling emphasized the need for practitioner training in that area, specifically noting the need to cover it in dental and dental hygiene curricula. Neff et al. reported that 75% of dentists (n=164) and dental hygienists (n=93) in their web survey felt they were not aware of best strategies to help patients reduce heavy drinking. A survey of 210 dentists in a large dental practice research network found that the most commonly reported barrier (81%) to addressing alcohol in dental practice was lack of knowledge. Finally, Shepherd et al. found that the best predictor of intention to provide alcohol advice was self-efficacy or confidence in the practitioner’s ability to intervene with a patient’s alcohol use. While not conclusive, such studies are consistent with the notion that if lack of training in alcohol cessation counseling is a barrier to adoption of such practices, then strengthening related content.
Conclusion

Our review of publication trends in these journals may indicate that tobacco cessation counseling has evolved much further and faster in dental practice and education than alcohol cessation counseling. However, with recent articles on alcohol during the several years, there is some suggestion that interest in brief screening and interventions for alcohol may be growing. If we acknowledge that the multiplicative effect of alcohol and tobacco plays as large a role in oral cancer etiology as tobacco alone and if oral cancer prevention is part of oral health care, then perhaps dental education should focus more on training practitioners to address both tobacco and alcohol. Fundamental to any developments in these areas will be further integration of content regarding tobacco and alcohol intervention approaches into dental and dental hygiene curricula.

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Disclosure

The authors have no financial, economic, or professional interests that have influenced the design, execution, or presentation of this work.

REFERENCES