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Short Communication

Association between marital status and cigarette smoking: Variation by race and ethnicity

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ABSTRACT

It is unclear whether health risk behaviors differ by nuanced marital statuses and race/ethnicity. We examined the association between detailed marital status and current cigarette smoking among U.S. adults by race/ethnicity. Data were from four Health Information National Trends (HINTS) study cycles collected in 2011–2017 with a nationally representative sample of adults 30 years and older (n = 11,889). Current cigarette smoking prevalence was compared across detailed marital statuses (married, cohabiting, divorced, widowed, separated, single/never married) by race/ethnicity. Adults who had the highest prevalence of cigarette smoking were non-Hispanic Black cohabitors (36.2%), separated non-Hispanic White adults (35.3%), and single/never married Hispanic adults (28.2%). It is noteworthy that widowed adults had lower cigarette smoking prevalence than those who were divorced or separated across races/ethnicities. Taken together, this study demonstrates how cigarette smoking prevalence varies by intersection of marital status and race/ethnicity. Ensuring the equitable implementation of a comprehensive best-practice tobacco prevention and control program that includes prevention and treatment is important to reduce the burden of cigarette smoking in these populations.

1. Introduction

Intimate relationships, such as marriage, have been shown to have a substantial influence on one's health behaviors (Umberson et al., 2011). The 2015 National Health Interview Survey showed that the prevalence of current cigarette smoking was 13.1%, 16.6%, and 20.0% among adults who are married/living with partners, single, and divorced/separated/widowed, respectively (Phillips et al., 2017). Married adults benefit from receiving spousal support and coping resources that are unique to the marriage union (Liu and Reczek, 2012). Conversely, individuals who do not have spousal support are more likely to experience social isolation or disconnection, which has been identified as a major risk factor for detrimental health behaviors (Cornwell and Waite, 2009).

Research suggests that the form and function of cohabitation is similar to that of marriage (Musick and Bumpass, 2012). Yet, cohabitors have been found to have poorer physical and mental health outcomes and higher mortality rates than marrieds (Liu and Reczek, 2012; Carr and Springer, 2010). Researchers have found that the marital relationship provides access to increased economic, social, and psychological resources (e.g., spousal support and the adaptation of healthier lifestyle habits) that promote overall well-being and lower mortality rates (Liu and Reczek, 2012; Engberg et al., 2012). Previous studies examining differences of health behaviors by other marital statuses have yielded mixed results. For instance, increased risk of mortality among divorced, widowed, separated, and single/never married adults is well-documented (Carr and Springer, 2010). Researchers have also found divorce and widowhood to be associated with increased physical activity, relative to married controls (Engberg et al., 2012). Similarly, the transition from singlehood to marriage and cohabitation has been associated with a reduction in fitness and decreased physical activity (Engberg et al., 2012). These health-related outcome inconsistences challenge the suggested protective influence of marriage on health behaviors.

Concurrently, cigarette smoking is known to differentially impact racial/ethnic minorities in the U.S. (Jamal et al., 2018). The prevalence of cigarette smoking among Black (16.5%) and White (16.6%) adults are substantially higher than that of Hispanic (10.7%) adults (Jamal et al., 2018). Despite having similar cigarette smoking prevalence rates, Black smokers have a higher smoking-related mortality rate than their

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Table 1
Percentages of current cigarette smoking status among U.S. Adults (aged 30 and over) by race and ethnicity, 2011–2017 HINTS 4 cycles 1, 2, and 4 and HINTS 5 cycle 1 surveys (n = 11,889).

	Total	Current cigarette smoking status by race and ethnicity					
		Non-Hispanic White (n = 7643)		Non-Hispanic Black (n = 1841)		Hispanic (n = 2405)	
	%	%	% smoking	%	% smoking	%	% smoking
			16.7%		19.4%		16.3%
Marital status							
Married	60.9%	64.2%	11.0%	39.8%	11.8%	58.9%	12.0%
Cohabiting	3.3%	3.3%	30.3%	2.0%	36.2%	3.9%	23.9%
Divorced	10.1%	10.6%	25.5%	11.1%	23.4%	9.4%	21.7%
Widowed	6.9%	6.9%	12.3%	5.4%	13.3%	8.0%	12.7%
Separated	1.7%	1.0%	35.3%	3.7%	32.4%	3.2%	22.3%
Single/never married	17.2%	14.0%	33.7%	38.0%	25.1%	16.6%	28.2%
Age (years)[a]	52.9 (0.1)	53.9 (0.1)	48.3 (0.6)	49.3 (0.5)	47.1 (1.2)	52.5 (0.4)	49.5 (1.1)
Gender							
Female	51.4%	50.6%	15.5%	58.6%	16.9%	50.8%	14.1%
Male	48.6%	49.4%	17.6%	41.4%	23.3%	49.2%	18.7%
Education							
> High school	34.1%	35.9%	7.5%	34.0%	12.3%	20.7%	9.8%
≤High school	65.9%	64.1%	21.9%	66.0%	23.1%	79.3%	18.0%

[a] Refers to the mean age of individuals in racial/ethnic group; values in parentheses represent standard error of the mean.

White counterparts (U.S. Department of Health and Human Services, 2014). Black and Hispanic smokers also experience lower rates of successful smoking cessation than White smokers, despite lower cigarette consumption by Blacks and lighter, intermittent smoking by Hispanics (Trinidad et al., 2009). Understanding the heterogeneity in cigarette smoking by marital status and race/ethnicity may to guide intervention efforts to reduce tobacco use disparities.

It is unclear if health risk behaviors differ between marrieds and cohabitors, and between those who are divorced, separated, and widowed. Previous studies tended to combine married and living with partners into a single category, and divorced, separated, and widowed as a single category,(Phillips et al., 2017) which may mask the heterogeneity in health risk behaviors across detailed martial statuses and result in missed opportunities for targeted interventions. Furthermore, little is known about whether the relationship between these marital statuses and cigarette smoking varies by race/ethnicity. To overcome these limitations in the literature, the current study examines the association between detailed marital status (married, cohabiting, divorced, widowed, separated, single/never married) and current cigarette smoking among U.S. non-Hispanic White, non-Hispanic Black, and Hispanic adults.

2. Methods

2.1. Study sample

We used the Health Information National Trends Survey 4 (HINTS 4) Study Cycles 1, 2 and 4 and Survey 5 (HINTS 5) Cycle 1 conducted during 2011–2012, 2012–2013, 2014, and 2017, respectively (National Cancer Institute, 2018). Multiple survey cycles were pooled to increase sample size; HINTS 4 Cycle 3 was not included because it lacked measures of psychological distress. The HINTS Study administers nationally representative surveys targeting adults aged 18 years or older in the civilian non-institutionalized population of the U.S. (Nelson et al., 2004). We limited the sample to adults 30 years and older who self-reported as non-Hispanic White, non-Hispanic Black, and Hispanic (n = 11,889). Adults aged 18 years to 29 years were excluded due to the small number of current smokers in some marital status categories. Furthermore, sample sizes for other racial/ethnicity groups were also too small for statistical analysis. This study was determined by the National Institutes of Health Office of Health Subjects Research Protection to be exempted from a review by an Institutional Review Board.

2.2. Measures

Respondents answered the question “What is your marital status?” by choosing from one of the following options: married, living as married (cohabiting), divorced, widowed, separated, and single/never been married. Other socio-demographic variables included and controlled in this analysis were age (continuous variable in years), gender, and education (> high school diploma vs. ≤high school diploma). Current cigarette smoking was defined as reporting now smoking at least on “some days” and having smoked at least 100 cigarettes in a lifetime (Jamal et al., 2018).

2.3. Statistical analysis

Analyses incorporated multi-cycle sampling weights using the methods introduced by Greenberg (2016). Multivariate logistic regressions were conducted to examine the relationship between marital status and current smoking stratified by race/ethnicity, controlling for socio-economic covariates. All reported analyses were conducted in SAS® version 9.4 (SAS Institute; Cary, NC).

3. Results

Table 1 presents cigarette smoking prevalence by marital status among each race/ethnic group. Among non-Hispanic Whites, separated adults had the highest cigarette smoking prevalence (35.3%), and those who reported marital statuses other than married were more likely to report current cigarette smoking than marrieds (AOR = 1.95–3.84; 95% CI = 1.22,7.99; Table 2). Among non-Hispanic Blacks, cohabitors had the highest cigarette smoking prevalence (36.2%), and those who reported marital statuses other than married, except for widowed (13.3%), were more likely to report current cigarette smoking than marrieds (AOR = 2.60–3.61; 95% CI = 1.24–9.99). Among Hispanics, single/never married adults had the highest prevalence of current cigarette smoking (28.2%), and those who were cohabiting (23.9%), separated (22.3%), and divorced (21.7%) were likely to report higher rates of current cigarette smoking than marrieds (AOR = 2.19–2.68; 95% CI = 0.92–7.75).

Table 2
Adjusted odds ratios (AOR) for current cigarette smoking status among U.S. adults (aged 30 and over) by race and ethnicity, 2011–2017 HINTS 4 cycles 1,2, and 4 and HINTS 5 cycle 1 surveys (n = 11,889).

	Predicting current cigarette smoking			
	Overall	Non-Hispanic White	Non-Hispanic Black	Hispanic
	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)
Marital status				
Married	Reference	Reference	Reference	Reference
Cohabiting	1.86 (1.38, 2.52)	2.84 (1.77, 4.54)	3.61 (1.30, 9.99)	2.19 (0.92, 5.19)
Divorced	1.52 (1.30, 1.78)	2.78 (2.14, 3.61)	2.48 (1.24, 4.94)	2.27 (1.16, 4.43)
Widowed	1.28 (1.06, 1.58)	1.95 (1.22, 3.11)	1.56 (0.61, 4.02)	1.46 (0.69, 3.07)
Separated	1.76 (1.25, 2.47)	3.84 (1.85, 7.99)	3.52 (1.56, 7.93)	2.68 (0.93, 7.75)
Single/never married	1.56 (1.24, 1.97)	3.36 (2.27, 4.97)	2.60 (1.29, 5.25)	2.57 (1.33, 4.94)
Age (years)	0.99 (0.99, 0.99)	0.97 (0.96, 0.97)	0.99 (0.96, 1.01)	0.99 (0.97, 1.00)
Gender				
Female	Reference	Reference	Reference	Reference
Male	1.34 (1.19, 1.50)	1.10 (0.89, 1.36)	1.65 (0.96, 2.82)	1.46 (0.93, 2.30)
Education				
> high school	Reference	Reference	Reference	Reference
≤ high school	1.28 (1.13, 1.45)	3.87 (3.03, 4.95)	2.12 (1.18, 3.78)	3.15 (1.85, 5.37)

4. Discussion

This is the first U.S. national study to examine the association between detailed marital status and current cigarette smoking by race and ethnicity. A particularly noteworthy observation is that among non-Hispanic Whites and non-Hispanic Blacks, cohabitors have higher prevalence of current cigarette smoking compared to their married counterparts, despite that these two marital statuses were combined into a single group in previous research. Cohabitors are more likely than marrieds to report difficulty in resolving conflict within the relationship, insecurity about how their partners feel about them, and disagreement with their partners' value system (Hsueh et al., 2009). These may in turn generate psychological distress, which is often a precursor and trigger to cigarette smoking as a coping mechanism (Clancy et al., 2013). We preliminarily tested this hypothesis using the sum score of the four measures of psychological distress in HINTS (National Cancer Institute, n.d.). This exploratory analysis showed that cohabitors had higher levels of psychological distress than marrieds (mean psychological distress scores were 2.9 and 1.7, respectively).

Psychological distress may also explain, in part, the potential heterogeneity in the association between marital status and current cigarette smoking by race/ethnicity. Among cohabitors, non-Hispanic Black adults had higher levels of psychological distress than their Hispanic and non-Hispanic White counterparts (mean psychological distress scores were 3.5, 3.0, and 2.7, respectively). A potential reason for this relationship is that cohabitors tend to be of lower socioeconomic status than marrieds and, therefore, are more likely to experience increased depression, stress and anxiety due to financial strain (Hsueh et al., 2009). Poverty has been found to play an essential role in the decision to marry across races and ethnicities (Umberson and Montez, 2010). Uniquely, non-Hispanic Black men are more likely to engage in cohabitation with no intention to marry their partner to increase resources and reportedly lack self-efficacy to provide financially for their families (Chambers and Kravitz, 2011). Furthermore, non-Hispanic Black women may view many non-Hispanic Black men as poor prospects for long-term, committed relationships because of their low earning potential (Chambers and Kravitz, 2011). Additional sources of psychological distress that are experienced more by non-Hispanic Black adults than those from other racial and ethnic groups include discrimination and individual/institutional racism – all of which have an adverse impact on health and personal relationships (Williams and Sternthal, 2010).

Interestingly, among non-Hispanic Black and Hispanic adults, we found the prevalence of cigarette smoking did not differ between those who were married and widowed. Similarly, among non-Hispanic White adults, the prevalence of cigarette smoking among widowed adults was comparable to that of those who were married. Furthermore, widowed adults in our study also had the most comparable levels of psychological distress to those who were married (mean psychological distress scores were 2.1 and 1.7, respectively). One potential explanation for these findings is that widowed and married adults have been found to have similar exposure and emotional reactivity to stressors when excluding spousal arguments (Hahn et al., 2013).

Across all three racial and ethnic groups, the prevalence of cigarette smoking among those who were widowed was lower than those who were divorced or separated. Yet, prior research often combined widowed with divorced and separated (Phillips et al., 2017). A divorce or marital separation can cause a substantial amount of psychological distress,(Carr and Springer, 2010) which often results in cigarette smoking as a mode of coping (Clancy et al., 2013). Widowed adults in our study appear to cope with stressors differently than divorced and separated adults, as they reported lower levels of psychological distress (mean psychological distress scores were 2.1, 2.5, and 3.1, respectively). These findings indicate a need to separate widowed adults from those who are divorced or separated in future research. Furthermore, the prevalence of cigarette smoking among separated non-Hispanic White and non-Hispanic Black adults is higher than that of those who were divorced and of the same racial/ethnic group. Moreover, among separated adults, non-Hispanic Whites reported substantially lower psychological distress than non-Hispanic Blacks (mean psychological distress scores were 2.3 and 3.7, respectively). This finding suggests that cigarette smoking among separated non-Hispanic White adults may not be in response to distress, which warrants further investigation in future research.

Single/never married adults had the highest prevalence of cigarette smoking among Hispanics and the second highest prevalence among non-Hispanic Whites. Research suggests that singlehood is associated with loneliness and dissatisfaction with one's relationships (Carr and Springer, 2010). Moreover, single/never married adults in our study had higher levels of psychological distress than those who were divorced (mean psychological distress scores were 2.7 and 2.5, respectively). Thus, it appears that the single non-Hispanic White and Hispanic adults in our study may have smoked cigarettes to cope with negative feelings associated with social isolation or disconnection, which has been identified as a major risk factor for detrimental health behaviors (Cornwell and Waite, 2009; Clancy et al., 2013).

4.1. Limitations

This study is not without limitations. First, the sample sizes for cohabitors and separated adults were small in comparison to the married reference group, resulting in limited statistical power. Second, other racial/ethnic populations were not included given the numbers of cohabitors and separated adults in each group were too small for statistical analysis. We did not combine the other racial/ethnic populations (e.g., non-Hispanic Asian, non-Hispanic American Indian or Alaska Native, Pacific Islander, non-Hispanic Native Hawaiian or other Pacific Islander) into one "other" group since they are heterogeneous groups with potentially varying characteristics of cigarette smoking behavior. While increased overall sample size in surveillance studies could be a solution, this may be very costly and infeasibly. Thus, future studies that oversample cohabitors and separated adults and minority populations are needed to further examine the prevalence of health risk behaviors across detailed martial statuses and races/ethnicities. Third, adults aged 18 years to 29 years were excluded due to the sample's small number of current smokers in some marital status categories, which limits the generalizability of our findings to this age group. Other tobacco products (e.g., hookah, electronic cigarettes, cigars, etc.) were excluded from the study for the same reason. Fourth, we were not able to test gender specific effects of marital status due to the small sample size. Fifth, we did not include income in the model because of its correlation with education, which was included in the analysis. Finally, due to the current study's cross-sectional nature, no causal inferences can be drawn.

5. Conclusions

Our study adds to a growing literature suggesting that there are distinct differences in the form and function between the nuanced marital statuses. We found that heterogeneity in prevalence of cigarette smoking by detailed marital status and race/ethnicity. These findings may inform an alternate method for future surveillance aimed at capturing at-risk adults in these groups. Ensuring the equitable implementation of a comprehensive best-practice tobacco prevention and control program that includes prevention and treatment is important to reduce the burden of cigarette smoking in these populations (Centers for Disease Control and Prevention, 2014). Furthermore, cohabiting, divorced, and separated adults may benefit from receiving preventive services aimed at providing healthy coping strategies for stress related to marriage and romantic relationships.

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Conflict of interest

The authors declare that there are no conflicts of interest.

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