

Discrimination and Tobacco/Nicotine Use Among Latinx Adults

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Introduction

Everyday discrimination is defined as a range of unjust or prejudicial events or experiences that occur in daily life that appear to be expected or within the scope of average life (Molina et al., 2016). These events or experiences act as forms of mistreatment towards disadvantaged or marginalized groups. Relevant literature indicates that experiences of discrimination are linked to less than advantageous outcomes, such as nicotine use. Studies have documented the relationship between experiences of discrimination and nicotine/tobacco use products. For example, research conducted by Rogers et al. (2018) examined significant associations between experiences of stress and discrimination and nicotine product use across multiple ethnicities, including Latinx. However, research conducted by Kendzor et al. (2013) emphasized the potential susceptibility of smoking within the Latinx community by examining the strong relationships between smoking dependence and discrimination across multiple ethnic groups. Kendzor et al. (2013) found that those who identified as Latinx reported stronger relationships than their racial counterparts within the sample, which can be concerning as the Latinx community is the second largest ethnic population in the U.S (U.S. Census Bureau, 2024). In addition, the four leading causes of death within the U.S Latinx community include cancer, heart disease, stroke, and diabetes, which are significantly impacted by first and second-hand smoking (CDC, 2024). Further intensifying the impact of discrimination on the Latinx community, related research also points to the impact of discrimination on stress experienced by Latinx individuals (Busse et al., 2017). Potential ill-health outcomes within the Latinx community were supported by results indicating higher levels of stress due to frequent experiences of discrimination among Latinx individuals compared to their non-Latinx counterparts. Similar to the potential relationships between discrimination and tobacco/nicotine

product usage, the potential effects of discrimination on stress are also of concern. Rogers et al. (2020) discussed these concerns within their research by expressing the increased risk of nicotine/tobacco use through stress, which may also lead to tobacco/nicotine-related health outcomes. Considering the influence of discrimination and stress on tobacco/nicotine use among college students who identified as Latinx, it is critical to examine this among a growing segment of the population (i.e., young Latinx adults). The present study will examine how everyday discrimination (EDS) affects harmful coping mechanisms, such as tobacco abuse, through stress among Latinx college-age students.

Discrimination and Tobacco/Nicotine Use Among Latinx Adults

Each individual experiences a unique set of stressors and, as a means of coping, turns to using tobacco and nicotine products. Moreover, a prominent stressor experienced by a number of minority groups is discrimination. As a result, numerous studies showcase a possible relationship between tobacco usage as a means to cope with the stressors of discrimination among minority groups. For example, research conducted by Vinci et al. (2021) examined the effects that perceived discrimination may have on Mexican Americans' ability to quit smoking. Researchers recruited Spanish-speaking Mexican-Americans attempting to reduce or stop frequent smoking. Participants' real-time experiences of discrimination were measured. Results indicated that 22% of participants experienced at least one discriminatory event during the study, with an average of 8 instances of discrimination reported in total. In addition, results indicated that perceived discrimination was found to be significantly associated with smoking urge, negative affect, and smoking lapse. Specifically, discrimination adversely impacts health-related behavior in minority groups such as Latinx.

The research conducted by Vinci et al. (2021) reflects the results of prior research examining the similar effects discrimination has on tobacco and nicotine usage. Kendzor et al. (2014) examined EDS, discrimination that occurs day-to-day, and its impact on nicotine dependence in African American, Latino, and White smokers. Participants answered multiple questionnaires to investigate cigarette and smoking dependence and experiences of everyday discrimination.

Results indicated that 79% of participants experienced some form of discrimination, with more frequent reports from the Latinx and African American sub-samples. Measurements of

discrimination were positively associated with cigarettes smoked per day, with Latinx individuals scoring stronger relationships between discrimination and smoking motivations and dependence than other racial groups within the sample. Researchers discussed the results, expressing interest in the correlational strength between discrimination and smoking dependence among Latinx individuals not present in other racial groups within the sample. Additionally, researchers discussed the relationship between discrimination and smoking dependence and possible causes for the relationship. Stating that the stress associated with discrimination may elicit someone's dependency on tobacco due to the utilization of tobacco as a coping mechanism.

Stress and Tobacco/Nicotine Use Among Latinx Adults

Multiple factors can motivate someone to smoke after they have passed the initiation stage of using nicotine and tobacco products. Research by Jarvis (2004) explains that these motivators include social cues and situations, physical and environmental cues, and coping responses to emotional stimuli. Cues of interest include exposure to stressful events within one's daily life, which can include everyday difficulties such as financial and social stress, or extreme atypical events resulting in great feelings of stress.

Utilizing nicotine or tobacco products as a means to cope with stressful events can occur through a vast array of emotional stimuli or situations. For example, research conducted by Liu et al. (2024) examined the effects of social support on cigarette smoking mediated by depression among LGBTQ+ college students in China. A correlational analysis from Liu et al.'s (2024) research indicated that participants with higher scores of depression, anxiety, and stress were more likely to smoke cigarettes. These results are reflected in other research. For example, research conducted by Do et al. (2024) and Lavalley et al. (2021) investigated the possible correlational relationship between scores of depression, anxiety, and stress and nicotine and

tobacco use. Both researchers reflected similar findings, with Lavallee et al. (2021) finding positive correlations of smoking and those who experience significant levels of panic, anxiety, and depression among German and Chinese students in a five-year study. Additionally, (Do et al., 2024) found positive correlations of e-cigarette use in a cross-sectional analysis within a year-long cohort. Liu et al. (2024) and Lavallee et al. (2021) argue that the correlation between psychological distress and tobacco use showcases the coping mechanism of smoking in response to negative situations for those who smoke. Although Do et al. (2024) do not emphasize the same point, researchers emphasize the possibilities that certain subgroups may be at greater risk of nicotine use due to the demographic differences found within their research.

Other racial and minority groups utilize smoking as a means to cope with stress as well. For example, research conducted by Loury and Kulbok (2007) examined correlates of tobacco and alcohol use among Mexican immigrants within rural North Carolina. To do this, researchers examined participants' acculturation to their environment and experiences of stress unique to their cultural background. Results indicated that 11% of the variation in the use of smoking tobacco had significant interactions with stress induced by immigration stress, migratory status, marital stress, and occupational stress. To explain these results, Loury and Kulbok (2007) speculate that social influence, including exposure, may also contribute to drug usage within minority groups. In addition, Loury and Kulbok's (2007) arguments reflect Liu et al.'s (2024), in which both researchers believe that stressors may incite the usage of drugs such as tobacco as a means to cope, especially within young adults and minority groups.

Discrimination and Stress Among Latinx Adults

Discrimination and its association with stress have also been documented within the Latinx community. For example, research conducted by Torres et al. (2012) examined the

possible roles stress, specifically acculturative stress, has in the relationship between discrimination and psychological distress within the Latinx population. To do so, researchers recruited participants who all identified as Latinx and measured participants' experiences of racism, level of acculturation, and stress. Results from this research indicated that scores of perceived discrimination significantly predicted levels of acculturative stress, and researchers discussed the possible reasons behind these findings. According to researchers, the link between acculturative stress and discrimination may be due to similarities in perceptual cognition. Due to these similarities, an overlap in the assessment of discrimination and acculturative stress may occur, despite both constructs differing causally.

Other research reflects the notion that discrimination and stress may share qualities that enable an overlap in measurements. For example, research conducted by Molina et al. (2013) used a multiple-group path analysis to examine the role of discrimination on self-reported physical health among Latinx individuals in the United States. Although Molina et al.'s (2013) study focused on the mediation and indirect effects of multiple variables, a significant interaction was found between discrimination and stress. Researchers shared similar thoughts to Torres et al. (2012), explaining the interaction between stress and discrimination, stating that perceived discrimination may be a form of chronic stress that results in significant interactions. Additional research conducted by Rogers et al. (2018) and Kendzor et al. (2014) recognized the shared qualities of discrimination and stress, operationalizing discrimination as a stressor that significantly influences the level of stress Latinx individuals may experience. These operationalizations were eventually supported by the research results, which found significant interactions between discrimination and stress.

Stress as a Mediator of Discrimination and Nicotine & Tobacco Usage

There is support emphasizing the relationship between discrimination, stress, and tobacco usage. Explorations into this relationship examine the dynamic between these three constructs even further by discussing the potential mediating relationship stress may have on discrimination and tobacco usage. For example, research conducted by Molina et al. (2013) examined the mediation of psychological distress and subjective social status on discrimination and self-rated physical health within multiple Latinx groups. Results indicated that both psychological distress and subjective social status mediate the relationship between discrimination and self-rated physical health. Specifically, psychological distress fully mediated the relationship between discrimination and self-rated physical health for Cuban women, Mexican women and men, and other Latinx women. Additionally, subjective social status mediated the relationship between discrimination and self-rated physical health for Puerto Rican men. Researchers discuss the implications of the results, emphasizing the role of discrimination as an indirect stressor that may contribute to a form of stress, which, when combined, can affect health outcomes.

Additional research, such as Torres et al. (2012), continued to explore the possible mediating relationship that forms of stress may have on discrimination and adverse health outcomes. Results from their research examining acculturative stress as a mediator between discrimination and psychological distress supported a mediating relationship. Researchers discussed these results, stating that stress mediating the relationship between discrimination and psychological distress was found to be more prevalent in Latinx individuals compared to other racial groups.

Recent research continues to support stress as a mediator between discrimination and adverse health outcomes. For example, research conducted by Ponciano et al. (2023) examined acculturative stress and its influences on the relationship between discrimination and depressive

symptoms among Latinx female college students. To do this, researchers recruited 748 students across multiple campuses and reported on acculturative stress and depressive symptoms...

Results from Ponciano et al.'s (2023) research revealed that acculturative stress significantly mediated the relationship between discrimination and depression. Researchers discussed their findings, specifically, that their results are consistent with previous research results showcasing stress as a significant mediator between discrimination and adverse health outcomes such as psychological distress and depression.

At this time, no research has been found examining stress as a mediator between discrimination and adverse behavior, rather than outcomes, within Latinx students. Therefore, this current study aims to continue examining stress as a mediator between discrimination and tobacco and nicotine usage within Latinx students. As previous research has shown, stress can act as a mediator for adverse health outcomes, especially within minority communities. Additionally, discrimination can act as a significant determinant for stress and risky behavior such as smoking. Therefore, this current study hypothesizes a significant mediation effect of discrimination on nicotine and tobacco usage through Hispanic stress.

METHOD AND MATERIALS

Participants and Procedures

The study consisted of 348 Latinx participants, 243 of whom identified as women, 85 as men, 4 as non-binary, 1 as self-described, and 15 as unreported. On average, participants were aged as young adults ($M = 19.93$, $SD = 2.37$). Participants were recruited via flyers distributed at a comprehensive university and community college in Central California. In total, 65 participants were recruited from the community college, 46 non-psychology majors were recruited from the University, and 237 declared psychology majors were recruited from the University. Three hundred and thirty-six participants reported being born in the U.S, and 12 reported being born in Mexico. Regarding parental immigration status, 127 of the participants' fathers and 142 mothers were reported to have been born in the U.S. Additionally, 176 fathers and 163 mothers were reported to have been born in Mexico, three fathers and five mothers were reported to have been born in El Salvador, one father and one mother were reported to have been born in Nicaragua, and eight fathers and seven mothers were reported to have been born in another location. Lastly, the birthplaces of 16 fathers and 14 mothers were reported as unknown.

Participants completed the survey using the online survey tool Qualtrics. Participants first read and completed a consent form that informed them about the study's contents and purpose. After completion of the survey, community college participants received a \$20 Amazon gift card awarded via student email and university students received one research credit.

Materials

Hispanic Stress Inventory 2 - Short Scale

The Hispanic Stress Inventory 2-Short (HSI2-S) scale is the third iteration of the Hispanic Stress Inventory. The HSI2-S (Hernández-Torres et al., 2024) consists of six subscales:

immigration related stress, consisting of nine items; occupation and economic stress, consisting of 10 items; discrimination stress, consisting of four items; marital acculturation gap stress, consisting of three items; language related stress, consisting of two items; and pre-migration stress, consisting of two items. The current study modified the HSI2-S ($\alpha = .92$) to exclude the marital acculturation gap stress, and pre-migration stress subscales. Participants rated the magnitude of stress experienced by rating HSI2-S items on a 7-point Likert scale (1 meaning not at all worried or tense to 6 meaning extremely worried or anxious, or 7 meaning never experienced). Items included: “I feared the consequences of deportation.” “Because I am Hispanic/Latino, it has been hard to get a promotion,” and “Because of language barriers, I could not communicate with others.” The seventh point was re-coded as zero to indicate participants had not experienced the stressor present in HSI2-S.

Discrimination scale

The discrimination subscale used in the HSI2-S was scored independently of the HSI2-S to calculate a discrimination score ($\alpha = .87$). Participants rated the magnitude of discrimination experienced by rating items on a 7-point Likert scale (1 meaning not at all worried or tense to 6 meaning extremely worried or anxious, or 7 meaning never experienced). Items included: “I have been discriminated against.” The seventh point was re-coded as zero to indicate participants had not experienced the statement present in the discrimination subscale.

Tobacco and Nicotine Usage

Utilizing a response scale indicating vaping, tobacco, and cannabis consumption patterns (McKenzie, 2021), participants were asked to indicate how many days they had used chewing tobacco, snuff, dip, cigars, cigarillos, little cigars, cigarettes, E-cigarettes, nicotine pouches, oral nicotine products, hookah, heated tobacco products, or self-rolled cigarettes within the last 30

days. Scores were coded to indicate how many products were used within the 30-day time period (0 meaning zero products were used in the last 30 days to 13 meaning 13 products were used in the last 30 days).

RESULTS

One hundred and fifty-nine participants were excluded from the final data analysis due to incompleteness of either the discrimination HSI2-S, or tobacco and nicotine use scale. The mean scores from responses to the discrimination and HSI2-S scales were used to determine a participant's level of concern about discriminatory events and life events that may contribute to acculturative stress.

Correlation Results

Correlational analysis was conducted to examine possible correlations between HSI2-S scores, discrimination scores, tobacco and nicotine use scores, and demographic information such as age, parental immigration status, participant immigration status, and gender. As shown in Table 2, the results indicate a moderate, positive correlation between participant HSI2-S and discrimination scores ($r = .62, p < .001$), and a low positive correlation between HSI2-S scores and U.S.-born participants ($r = .2, p < .001$). Additionally, results indicated a low, positive correlation between discrimination scores and age ($r = .17, p = .02$). Furthermore, results indicated a low, positive correlation between tobacco and nicotine use with age ($r = .25, p < .001$), and a low, negative correlation between tobacco and nicotine use with participants identifying as female ($r = -.14, p = .014$), participants with immigrant dads ($r = -.12, p = .03$), and participants with immigrant mothers ($r = -.12, p = .02$).

Table 1

Correlational Analysis of Acculturative Stress, Discrimination, Tobacco and Nicotine Use, Age, Female gender Identification, Father Immigration Status, Mother Immigration Status, and Participant Birthplace.

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
1.HSI2-S	299	1.08	.71	-	.62***	-.04	.08	.01	-.01	.05	.2***
2.Discrimination	299	1.49	1.17	-	-	.06	.17*	.11	-.003	.07	-.02
3.Tob/Nic	348	.833	1.15	-	-	-	.25***	-.14*	-.12*	-.12*	-.05
4.Age	209	19.93	2.37	-	-	-	-	-.06	-.02	-.09	-.08
5.Female	333	.74	.44	-	-	-	-	-	.007	.002	.005
6.Immigration status (dad)	332	.57	.50	-	-	-	-	-	-	.61***	.10
7.Immigration status (mom)	332	.53	.50	-	-	-	-	-	-	-	.2***
8. Birthplace	-	-	-	-	-	-	-	-	-	-	-

Note. * $p < .05$. *** $p < .001$. Tob/Nic refers to tobacco and nicotine products used within the last 30 days of reporting.

The purpose of this study was to determine the indirect effect of discrimination on tobacco and nicotine usage through acculturative stress. A mediation analysis was conducted to examine the indirect effects of discrimination on tobacco and nicotine use through acculturative stress. As shown in Table 1, Results indicate there is no indirect effect of discrimination ($\beta = .10$, $SE = .08$, $p = .19$), nor direct effect of discrimination ($\beta = -.04$, $SE = .047$, 95% CI $[-.13, .06]$). Rather, discrimination scores significantly predicted HSI2-S scores ($\beta = .35$, $SE = .035$, $p < .001$), indicating that experiences of discrimination were associated with increased feelings of reported stress. Additionally, demographic influencers such as age ($\beta = .14$, $SE = .03$, $p = .0001$)

and identifying as female ($\beta = -.46$, $SE = .17$, $p = .009$) predicted tobacco and nicotine usage, indicating that age and those who identify as female may be more likely to utilize tobacco and nicotine products.

Table 2

Mediator Analysis: Indirect Effect of Discrimination on Tobacco and Nicotine Usage Through Acculturative Stress

Effect	Estimate	SE	95% CI		p
			LL	UL	
Constant	.005	1.42	-2.8	2.8	.99
Discrimination	.10	.08	-.05	.25	.19
HSI2-S	-.11	.13	-.38	.15	.41
Age	.14	.03	.07	.21	.0001
Female	-.46	.17	-.80	-.12	.009

Note. HSI2-S refers to the Hispanic Stress Inventory 2 -Short Version. 95% CI refers to the 95% confidence interval. *LL* refers to the lower level of the confidence interval. *UL* refers to the upper level of the confidence interval.

Zero-Inflated Poisson Regression

A Zero-inflation Poisson regression was conducted to examine possible influencers of tobacco and nicotine usage among discrimination and HSI2-S scores; the results are indicated in Table 3. Approximately 50 percent ($N = 173$) of Tobacco and nicotine usage responses contained no response. The overall model fit was significant, $\chi^2 (77) = 117.42$, $p < .002$. Tobacco and nicotine usage were found to be significant predictors of discrimination ($\chi^2 (297) = 2.06$, $p = .039$) and acculturative stress scores ($\chi^2 (297) = 2.07$, $p = .038$). Results suggest that those who have experienced discrimination or stress were more likely to have used one or more tobacco or nicotine products within the last 30 days.

Table 3

Zero-Inflation Count and Model Coefficients From Poisson Regression Predicting Tobacco and Nicotine Usage.

	Count Model Coefficients			
	Estimate	Standard Error	Z Value	Significance
Intercept	.16	.14	1.12	.26
HSI	-.26	.12	-2.01	.04
Discrimination	.14	.07	2.06	.04

	Zero-Inflation Model Coefficients			
	Estimate	Standard Error	Z Value	Significance
Intercept	-1.37	.36	-3.81	<.001

Note. *** indicates probability value lower than .001.

DISCUSSION

The purpose of the study was to examine the indirect effects of discrimination on tobacco and nicotine use through acculturative stress. Results indicated that there were no indirect effects of discrimination. However, a direct effect of discrimination on acculturative stress was found, revealing that discrimination may contribute to feelings of stress.

A correlational analysis was conducted to examine possible relationships between HSI2-S scores, discrimination scores, tobacco and nicotine use scores, and demographic information such as age, parental immigration status, participant immigration status, and gender. Results revealed that acculturative stress scores were significantly correlated with experiences of discrimination and birthplace origin; that is, those who scored high on acculturative stress also experienced frequent discrimination and were U.S.-born. Other correlational relationships were found, for example, tobacco and nicotine use were associated with parental immigration status, age, and those who identified as female. Meaning, those who reported multiple tobacco and nicotine product use were more likely to come from immigrant parents, be older in age, and identify as female.

A zero-inflated Poisson regression was conducted to account for the large number of zeros, or ‘zero products used’, responses in the tobacco and nicotine scale. Results indicated that those who experienced discrimination or acculturative stress were more likely to have used tobacco or nicotine products within the last 30 days of reporting.

Although the current study did not find research examining the mediating relationship between discrimination and tobacco and nicotine use through acculturative stress, the research used as the foundation for this study shares contradictory findings. For example, research conducted by Kendzor et al. (2014) found a possible direct effect of Everyday discrimination on

nicotine dependence utilizing linear regression. Additionally, multiple researchers have linked direct effects between stress and tobacco use. For example, Do et al. (2024) and Lavallee et al. (2021) both found a possible link between stress and smoking e-cigarettes or cigarettes, which was not reflected in this study's results.

Limitations

Despite the conflicting results, discrimination and acculturative stress were still found to affect tobacco and nicotine use through the Zero-inflation Poisson regression, which may reveal some insights as to why there was no indirect effect of discrimination found. For example, a Zero-inflation Poisson regression was necessary to conduct due to the high amount of responses stating zero tobacco or nicotine products were used within the last 30 days of reporting, which may reflect the sample's tendency to avoid tobacco or nicotine products altogether. Suppose the majority of participants do not utilize tobacco or nicotine. In that case, the sample may not be the best representative when attempting to examine influencers of tobacco and nicotine use, as there may not be enough information on tobacco and nicotine users. Additionally, prior research has examined the mediating relationship between discrimination, stress, and psychological distress, finding a significant indirect effect of discrimination. This current study did not consider accounting for a comprehensive measure to examine psychological distress. Perhaps, by neglecting a possibly important mediator, psychological distress, this current study failed to capture a complete pathway through which discrimination may indirectly affect tobacco and nicotine use.

Future Directions

To further the possible indirect effects of discrimination on tobacco and nicotine use, future research may benefit from utilizing a serial mediation model and utilizing psychological

distress as a second mediator alongside acculturative stress. Furthermore, future research may benefit from focusing specifically on Latinx individuals who smoke, as doing so may yield a more in-depth understanding of how discrimination directly and indirectly affects those who smoke.

Conclusion

Despite no indirect effect of discrimination being found, there is important information found from this current study that supports the emphasis on mental health in the Latinx community. For example, those who experience discrimination and acculturative stress are more likely to use tobacco or nicotine products more frequently, which can negatively affect physical health. Given that over half of college students experience stress (Asif et al. 2020), coupled with the frequent discrimination the Latinx community experiences (CDC, 2025), Latinx college students may be more susceptible to adverse health outcomes. Therefore, the information found from this research may be beneficial in understanding how discrimination and stress can lead to less advantageous coping mechanisms, such as smoking. This can then assist in emphasizing the importance of students' cultural and mental well-being to reduce adverse health outcomes caused by disadvantageous coping mechanisms such as smoking.

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