

African American Girls' Smoking Habits and Day-to-Day Experiences With Racial Discrimination

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- **Background:** Although it is recognized that African Americans experience racial discrimination, relatively little research has explored the health implications of this experience. Few studies have examined the relationship between racial discrimination and specific health risks.
- **Objectives:** To examine the relationship between smoking habits and perceptions of racial discrimination among African American adolescent girls and to identify and test potential psychological mechanisms through which racial discrimination may operate to increase smoking among this group.
- **Methods:** A sample of 105 African American adolescent girls (mean age 15.45 years) derived from a larger cross-sectional research project comprised the sample. Univariate analyses were conducted to provide descriptive data on the participants of the study, including information about their use of licit and illicit substances. Bivariate correlational analyses were conducted to evaluate the relationship between perceptions of discrimination and smoking habits. The ability of stress to mediate the relationship between discrimination and smoking was examined by using standard analytical procedures for testing mediation models as outlined by Baron and Kenny (1986).
- **Results:** The sample (93%) reported experiencing discrimination and racial discrimination was highly correlated with cigarette smoking ($r = .35, p > .001$). Removing the effects of stress significantly reduced the relationship between racial discrimination and smoking ($r = .17, p < .05$), indicating that racial discrimination is related to smoking because of its stressful nature.
- **Conclusion:** Perceptions of racial discrimination are related to the smoking habits of African American adolescent girls.
- **Key Words:** adolescents • African American • smoking • discrimination

Over the past several years, scholars (Clark, Anderson, Clark, & Williams, 1999; Kessler, Mickelson, & Williams, 1999; Williams, 1996; Williams Yu, Jackson, & Anderson, 1997) have emphasized the ramifications that racial discrimination likely has on African Americans' mental and physical health. Most African Americans (over 60%) perceive that they have been discriminated against in the past three years (Broman, Mavaddat, & Hsu, 2000). African Americans report that racial discrimination is a major stressor in their lives (Priest, 1991). Few studies (Kessler et al., 1999; Williams et al., 1997) have addressed the health implications of racial discrimination and an even smaller number (Landrine & Klonoff, 2000) have systematically examined the relationship between racial discrimination and specific health risks (e.g., substance abuse or smoking).

This study is part of a larger, cross-sectional research project (Guthrie, 1995). The specific purpose of this secondary analysis is to (a) empirically test an ethnic and gender-specific substance prevention conceptual framework (Guthrie & Low, 2000), (b) expand the work of Landrine and Klonoff (2000) that pertains to racial discrimination and health risks, and (c) examine the relationship between perceptions of racial discrimination and smoking habits among African American adolescent girls. The specific aim

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of this investigation was to examine the relationship between discrimination and smoking and whether daily hassles mediate this relationship.

Unlike their European American counterparts, African American adolescent girls' smoking rates continue to increase with age through adulthood, leading to what has been termed either a "cross-over effect" or "catch-up" effect at approximately age 25. At approximately this age, the total percentage of African American smokers, and African American women particularly, equals their European American counterparts (U.S. Department of Health & Human Service, 1998; Centers for Disease Control, 1998). In some subpopulations of African Americans, the percentage of smokers exceeds that of comparable White subpopulations. From 1991 to 1997 there was a striking 80% increase in the rate of cigarette smoking among African American high school students compared to 25% and 34% for Whites and Hispanics, respectively. The odds of smoking and the associated negative health outcomes are particularly great past the age of 25 years for African American women (Moolchan, Berlin, Robinson, & Cadet, 2000). African American women generally have higher prevalence rates of smoking and lower rates of quitting than their European counterparts (Ahijevych, Gillespie, Demirci, & Jagadeesh, 1996). As a result, African American women have higher mortality and morbidity rates for smoking-related diseases such as lung cancer, hypertension, low infant birth weight, and infant mortality, than women from other ethnic groups, except for Alaskan Natives (American Cancer Society, 1997; Moolchan et al., 2000). Therefore, it becomes crucial to identify factors that possibly contribute to African American females' initiation of smoking during adolescence.

Conceptual Framework

Guthrie and Low's (2000) conceptual framework posits that broad societal factors like the "isms" (e.g., racism, sexism, and ageism), ethnicity, social class, and environment intersect to influence gender socialization that in turn is a pathway to self-efficacy and substance use and nonuse. The research described here focuses on the influence of racial discrimination and daily hassles on the smoking habits of African American girls.

Discrimination and Health

Several authors (Essed, 1995; Williams, 1996) have found that individuals' descriptions of being discriminated against incorporate important elements of stressful situations that have the potential to adversely affect mental health. Williams (1996) argued that stressful life experiences associated with race can adversely affect the health of minority populations generally, and African Americans

particularly, in at least two ways. First, stress is not randomly distributed in the population, but the type and quantities of stress individuals are exposed to are related to social structure, social status, and social roles. For example, there are higher levels of stress associated with occupying lower social status positions than with occupying higher social status positions. Because a disproportionate number of African Americans occupy lower social status, they tend to experience more stress than European Americans. Therefore, African Americans are more likely to experience specific racial biases that may negatively affect their health (Williams et al., 1997).

Several researchers (Broman, et al., 2000; Clark et al., 1999; Krieger & Sydney, 1996; Williams & Williams-Morris, 2000) examined the relationship between perceptions of racism and health outcomes. Their results supported the hypothesized relationships. For example, Manuck et al. (1990) found a relationship between perceived discrimination—a chronic stressor—and hypertension. Similarly, Krieger (1990) examined the effect of racial discrimination on blood pressure. Her findings suggested that African American women ages 45 years and older who reported experiences of discrimination were four times more likely to have hypertension than their European American counterparts. Krieger and Sidney (1996) also found that African American working class women had markedly higher resting blood pressure levels than their European American counterparts. Still others (Armstead et al., 1989; Broman et al., 2000) have reported numerous mental health-related stress responses (i.e., anger, paranoia, helplessness-hopelessness, frustration, fear, feelings of distress) to perceptions of discrimination. Experiences of discrimination also have been linked to low self-esteem and low life satisfaction (Utsey, Ponterotto, Reynolds, & Cancelli, 2000).

One limitation associated with the previously mentioned studies is the use of a single-item measure to assess racial discrimination, which makes the results harder to interpret. In order to address this limitation, some researchers have used a multiple item scale to measure day-to-day discrimination. Williams et al. (1997) and Kessler et al. (1999) used such a scale that resulted in a strong and significant relationship between day-to-day racial discrimination and mental health.

Despite the attention to the physical and mental effects of racial discrimination on health, few studies have addressed whether experiences of racial discrimination are linked to substance use such as cigarette use. Exceptions are studies by Landrine and Klonoff (2000), Klonoff and Landrine (1996), and Landrine, Richardson, Klonoff, and Flay (1994), which found that African Americans who experienced racial discrimination were more likely to smoke and have high blood pressure than their counterparts who had not experienced racial discrimination. Recently, Landrine and Klonoff (2000) reported that

***African American
adolescent girls' smoking
rates continue to increase
with age***

African American smokers acknowledged greater lifetime racial discrimination and that they experienced discrimination as more subjectively stressful than did their non-smoking cohorts.

In spite of little empirical evidence supporting a link between racial discrimination and substance use, several theoretical connections suggest relationships between the two. For example, Geronimus (1992) and King (1997) have posited that higher smoking rates among all African Americans and African American women in particular, result in part from overt and covert experiences of racial discrimination. Other theorists have argued that discrimination leads to an increase in psychosocial stress which, in turn, leads to the use of cigarettes or other substances to mask or abate personal anxiety, social tensions, and other related pressures (Lacey, Manfredi, Balch, Warnecke, Allen, & Edwards, 1993; Romano, Bloom, & Syme, 1991). Given that the use of substances is often considered to be an avoidant coping strategy (Lester, Nebel, & Baum, 1994), it is worth noting that African American women tend to use avoidance as a common means of coping with discrimination (Krieger & Sydney, 1996; Utsey et al., 2000).

Further substantiating the argument that stress is the mechanism through which discrimination negatively affects substance use, Romano et al. (1991) found that African Americans who reported higher levels of daily hassles were more likely to smoke than those who reported fewer daily hassles. African American women with poor social networks also were more likely to smoke when compared to counterparts who reported optimal networks that tend to ameliorate the effects of stress. Romana et al. (1991) concluded that daily stress such as daily hassles tend to contribute to smoking among urban African Americans, particularly when a strong social network does not buffer daily hassles.

Current Study

The purpose of the current investigation was to examine the relationship between perceptions of racial discrimination and substance use. Identifying the stressful nature of racial discrimination for African Americans (Priest, 1991) and the use of avoidance coping among African American women to deal with discrimination (Krieger & Sydney, 1996; Utsey et al., 2000), lead to the prediction of a positive relationship between perceptions of being racially discriminated against and smoking. An additional hypothesis was made regarding the psychological mechanisms through which discrimination leads to an increase in cigarette use. Based on previous research reporting relationships between experiences of discrimination and stress (Kessler et al., 1999; Williams et al., 1997), we predicted that the possible stressful psychological ramifications of discrimination would be responsible for the association between discrimination and smoking. Thus, we expected that the relationship between discrimination and smoking would become nonexistent or significantly decrease when these stressful psychological mechanisms were controlled for in the regression equations.

Methods

Sample: This study is part of a larger, cross-sectional research project titled "Female Adolescent Substance Experience Study" (FASES) funded by the National Institute of Drug Abuse (Guthrie, 1995). Prior to data collection, human subject approval was obtained through a university's Internal Review Board. A nonrandom network sampling technique was used to collect data on 178 adolescent girls between the ages of 11 and 19 years. Potential participants were recruited using fliers and posters placed in various community-based agencies (e.g., teen centers, churches, teen health clubs). During the initial screening, the teen's permission to contact the teen's legal guardian/parent was obtained. After initial verbal assent was obtained, the signed consent forms were returned prior to conducting interviews. The face-to-face interviews lasted approximately 1.5 hours. Participants who described themselves as having an African American ethnic background and who were not pregnant ($n = 105$)* were included in the analyses reported here.

Instruments: Data for the FASES study were collected with a paper and pencil self-report, Likert-type questionnaire that included measures pertaining to participants' physical and psychological health, substance use, sexual activities, self perceptions, ethnic identity, familial and peer relationships, and perceptions of neighborhoods. In addition to the standardized questions, several open-ended questions were included in the questionnaire. The measures used for this study are described below.

Perception of Discrimination The Everyday Discrimination Scale measures routine and relatively minor experiences of unfair treatment. The scale's stem asks participants: "Over the last year, in your day-to-day life, how often have any of the following things happened to you." There are nine response items that follow the stem and are intended to capture the frequency of certain experiences in day-to-day lives of participants: (a) being treated with less courtesy than others; (b) being treated with less respect than others; (c) receiving poorer service than others in restaurants or stores; (d) people acting as if you are not smart; (e) others feeling they are better than you; (f) others being afraid of you; (g) others thinking you are dishonest; (h) being called names or insulted; and (i) being threatened or harassed (Essed, 1995; Williams et al., 1997). If the respondent answered "yes" to any of the responses, she was asked what her perception was associated with this treatment. Perceived experiences of discrimination were included in the analyses only if the participant indicated that she believed that her race or color of her skin was the reason for the discrimination. Williams et al. (1997) have reported high internal consistency ($\alpha = .88$) for this scale; however, in our overall sample, the alpha was .73, and for this subsample reported here, the internal consistency was .54. The scale represents simple frequency counts of a number

*Thirty pregnant African American girls were not included in the analyses because of the possibility African American teenage girls who were pregnant likely had different experiences of being discriminated against than African American teenage girls who were not pregnant.

of experiences, that is, the items do not necessarily provide indicators of the same underlying construct, but are counts of distinct experiences. Therefore, a low internal reliability may not reflect a poor scale construct.

Smoking The Monitoring the Future Survey includes a standard self-report measure of cigarette use. Over 20 years of prior research supports its validity (Johnston & O'Malley, 1985). In addition, cigarette use was measured using two single-item questions adapted from the Monitoring the Future Survey (Johnston & O'Malley, 1985): (a) Have you ever smoked a cigarette? and (b) If yes, how old were you when you smoked your first cigarette?

Daily Hassles The number of daily hassles was measured with the Daily Hassles for Adolescents Inventory (DHAI) (Dubois, Felner, & Meares, 1994; Rowlison & Felner, 1988), which is a 26-item self-report inventory of day-to-day concerns of children and adolescents (e.g., fights with brothers or sisters or conflicts with teachers). The DHAI is specifically designed for adolescents, but was patterned after the original DHAI commonly used for adults (Kanner, Coyne, Schafer, & Lazarus, 1981). Respondents are asked to rate on a four-point scale (1 = not at all a hassle to 4 = a very big hassle) the extent to which each item was a hassle during the past week. The DHAI provides a cumulative index of the overall number of daily life hassles, as well as a count of the number of hassles that pertain to four distinct domains within the adolescent's life-academic/school (e.g., "trying to get good grades"), social/peer (e.g., "not being part of the popular group"), family/economic (e.g., "having to take care of younger brothers/sisters"), and personal safety/health (e.g., "getting beaten up"). Previous studies have demonstrated that the Daily Hassles for Adolescents Inventory has good construct validity, as evidenced by its significant relationship to adjustment measures (Rowlison & Felner, 1988) and psychological distress (Dubois et al., 1994). Rowlison and Felner (1988) have reported high internal consistency ($\alpha = .95$) for the scale. Only the cumulative index of hassles was used in this study and was created by summing all items. The internal consistency for this cumulative score was .82.

Data Analysis: Univariate analyses were conducted to provide descriptive data, including information about smoking and the use of licit and illicit substances. Second, bivariate, correlational analyses were conducted to test the relationship between perceptions of discrimination and smoking habits. Finally, stress as a mediator in the relationship between discrimination and smoking was examined using standard analytical procedures for testing mediation models, as outlined by Baron and Kenny (1986). According to this model testing approach, the stress variable should be significantly related to both the independent (i.e., discrimination) and dependent (i.e., smoking) variables and eliminate or significantly decrease the relationship between the independent and dependent variables when its effects on the dependent variable are first removed. Since the dependent variable contained two categories (ever smoked versus never smoked), binary logistic regressions were used. In the first regression equation, discrimination was regressed on smoking status. In the second regression equation,

TABLE 1. Demographic Characteristics

Characteristics	n	%
Age (N = 105)		
11-13	16	15.2
14-15	37	35.2
16-17	37	35.2
18-19	15	14.4
Primary means of support (N = 105)		
Parents	89	84.7
Other relatives or boyfriend	7	6.7
Self	8	7.6
Public assistance	1	1.0
Dependent upon someone receiving public assist (N=105)		
Yes	39	37.1
No	66	62.9
Perceived social class (N = 105)		
Lower	8	7.6
Middle	74	70.5
Upper	19	18.1
Other	4	3.8
Perceived income comparison (N = 105)		
More money than other teens their age	19	18.3
Same amount of money as other teens their age	69	65.4
Less money as other teens their age	17	16.3
Religious preference (N = 105)		
Protestant	74	70.5
Catholic	8	7.6
Other	2	1.9
No preference	21	20.0
Number of places lived in the last year (N=101)		
Lived in the same place	75	72.0
Moved once	17	16.2
Moved more than once	9	8.6
Mother figure in home (N = 105)		
Yes	76	72.4
No	29	27.6
Father figure in home (N = 105)		
Yes	30	28.6
No	75	71.4

hassles were regressed on smoking status (step 1), followed by hassles and discrimination regressed on smoking status (step 2). The beta and odds ratio for daily hassles was taken from the first step to avoid contamination of these statistics from multicollinearity. The beta and odds ratio for discrimination (when the effects of hassles was removed) was taken from the second step of the equation. If hassles mediated the relationship between discrimination and smoking status, the beta for the relationship between discrimination and smoking should be significantly reduced from the first equation (in which the effect of hassles on smoking status has not been removed) to the second equation (in which the effect of hassles on smoking status has been removed).

Results

The age of the sample ranged from 11 to 19 years and averaged 15.45 years of age ($SD = 1.80$). Participants primarily lived in female single-headed families, and perceived themselves as middle class (Table 1). However, 37.1% ($n = 39$) of this sample reported receiving some form of public assistance, suggesting that their actual social class was lower than their perceived social class. Generally speaking, there was low substance use reported among the sample (Table 2). Fifty-six percent ($n = 59$) of the sample had never smoked, 40% ($n = 42$) had never drunk hard alcohol, 75% ($n = 79$) had never smoked marijuana, and an overwhelming majority of the sample had never tried amphetamines, barbiturates, tranquilizers, psychedelics, inhalants, or heroin. Experiences of discrimination, however, were more common. Fifty-two percent ($n = 55$) of the sample reported that they had experienced at least one type of racial discrimination (Table 3). The most common form of discrimination reported by the sample was feeling that they received poorer service than other people at restaurants or stores ($n = 28$, 27%) and feeling that they were treated with less courtesy than other people ($n = 27$, 26%). On average, the participants reported 1.53 ($SD = 2.05$) experiences of racial discrimination and scored an average of 14.59 ($SD = 6.14$).

Bivariate correlations among discrimination, smoking, and daily hassles are presented in Table 4. As predicted, there was a significant positive relationship between perceptions of discrimination and smoking ($r = .29$, $p < .001$). Stress (mediator variable) was significantly related to discrimination, the independent variable ($r = .24$, $p > .01$), and smoking, the dependent variable ($r = .29$, $p > .01$).

In order to examine the relationship between discrimination and smoking and the extent to which daily hassles mediated this relationship, two logistic regression equations were examined (Table 5). The first equation, in which smoking status was regressed on discrimination, was significant (Wald = 7.60, $p < .01$) and the odds ratio for this equation indicated that a one point increase in discrimination was associated with a 37% greater likelihood of smoking. In the second equation, smoking status was regressed on daily hassles (step 1) and daily hassles and discrimination (step 2). Daily hassles was significantly related to smoking status (Wald = 9.14, $p < .01$) and the odds

TABLE 2. Frequency and Percentage of Sample Reporting Using Substances

Substance	Frequency	%
Cigarettes		
Never	59	22
Once/twice	22	21
Sometimes, but not regularly	14	13
Regularly in past, but quit	2	2
Regular now	8	8
Alcohol		
No	42	40
Just a sip or two	35	33
Occasionally	25	24
Regularly	3	3
Marijuana		
Never	79	75
Once/twice	9	9
Three to 10 times	9	9
More than 10 times	8	7
Crack or cocaine		
Never	105	100
Amphetamines		
Never	105	100
Barbiturates		
Never	105	100
Tranquilizers		
Never	105	100
Psychedelics		
Never	104	99
1-2 times	1	1
Vapors or inhalants (sniffed or breathed)		
Never	102	98
1-2 times	2	2
Heroin or opium		
Never	105	100

ratio for this equation indicated that a one point increase in daily hassles was associated with an 8% greater likelihood of smoking. The discrimination variable was added to the equation (step 2) and was significantly related to smoking (Wald = 5.09, $p < .01$). Although the relationship between discrimination and smoking was still significant in the second equation, the relationship between these variables was smaller than in the first equation that did not

TABLE 3. Number and Percentage of Sample Reporting Discrimination Experiences

Experience	Number	%
You received poorer service than other people at restaurants or stores.	28	27
You were treated with less courtesy than other people.	27	26
People act as if they are better than you are.	14	13
You are called names or insulted.	11	10
You were treated with less respect than other people.	9	9
People act as if they think you are dishonest.	7	7
People act as if they think you are not smart.	7	7
You are threatened or harassed.	3	3

include the daily hassle variable. The odds ratio for discrimination in this equation indicated that a one point increase in discrimination was associated with a 31% greater likelihood of smoking.

These findings indicate that discrimination was highly related to the smoking habits of African American girls. A one point increase in the discrimination variable was associated with a 37% greater likelihood of smoking. Moreover, these findings indicate that daily hassles mediated the relationship between discrimination and smoking in that the likelihood of smoking decreased to 31% for each one point increase in discrimination when daily hassles was included in the equation. It is important to note, however, that the relationship between smoking and discrimination was not completely eliminated when the daily hassles variable was included in the equation. Thus, despite the fact that daily hassles mediated the relationship between these variables, this model does not account for all factors that mediate the relationship between discrimination and smoking.

Discussion

The purpose of this study was to examine whether perceived racial discrimination was related to the smoking habits among African American adolescent girls, and if so, to determine whether daily hassles mediated the relationship between discrimination and smoking. Analyses revealed three key findings. First, more than half of the sample reported experiencing racial discrimination ($n = 55, 52\%$). The most common form of racial discrimination

was feeling that they received poorer service than other people at restaurants or stores ($n = 28, 27\%$) and feeling that they were treated with less courtesy than other people ($n = 27, 26\%$). These findings along with the fact most participants reported 1.53 ($SD = 2.05$) experiences of racial discriminations provide support for previous research with African American adults (Broman et al., 2000; Priest, 1991). Further, these data lend credence to this study's finding that perceptions of racial discrimination also are common among African American adolescents.

Second, perceptions of everyday discrimination were strongly associated with the smoking habits among African American adolescent girls, indicating that not only do African American adolescent girls perceive high levels of discrimination, but also that discrimination has negative implications for their health behaviors. Because of the profound health implications of smoking for African American women (American Cancer Society, 1997), future studies should explore the influence of racial discrimination on the lives of African American females. Moreover, it is critical that such studies begin to address the association between discrimination and smoking, and how this association evolves as African American adolescent girls transition into adulthood.

Finally, the relationship between discrimination and smoking was partially explained by the daily hassles that racial discrimination causes in the day-to-day lives of adolescent girls. The association between discrimination and smoking was significantly reduced when the effects of stress were first removed from the equation. This finding

TABLE 4. Bivariate Correlations Among Discrimination, Smoking, and Daily Hassles

	Perceptions of Discrimination	Ever Smoke	Daily Hassles
Perceptions of discrimination	1.0		
Ever smoke	0.35*	1.0	
Daily hassles	0.42*	0.31*	1.0

Note. * $p < .001$.

TABLE 5. Summary of Logistic Regression Analyses Predicting Smoking Status

Variable	β	SE	Odds Ratio	Wald Statistic
Equation 1				
Discrimination	.32	.11	1.37	7.60**
Equation 2, Step 1				
Daily hassles	.11	.04	1.12	9.14**
Equation 2, Step 2				
Daily hassles	.09	.04	1.10	6.57**
Discrimination	.27	.12	1.31	5.09*

Note. SE = standard error.
* $p < .05$; ** $p < .01$.

supports the proposition by various authors (Kessler et al., 1999; Williams et al., 1997) that perceiving oneself to be discriminated against incorporates elements of stressful situations that are known to adversely affect mental health. It is important to note, however, that daily hassles only accounted for a portion of the relationship between perceived racial discrimination and smoking, and that the relationship between discrimination and smoking was still significant when the effects of stress were removed. Thus, other factors in addition to stress appear to mediate the relationship between discrimination and smoking. For example other researchers have linked discrimination to increased levels of depression (Dion, Dion, & Wan-Ping Pak, 1992; Kessler et al., 1999) and decreased levels of self-efficacy (Dion et al., 1992), suggesting that future research also should examine whether these psychological mechanisms play a role in the association between discrimination and smoking.

The findings from this study provide initial support for the premise that race-related stress, as well as general daily hassles, is related to smoking among African American adolescent girls. The findings expand Landrine & Klonoff's (2000) work to African American adolescent girls and thus lend initial insight into how smoking and daily hassles, particularly racial discrimination, impacts African American adolescent girls' mental and physical health. Although the results from this preliminary study cannot be generalized to the population at large, the findings should be used to guide future studies with African American adolescent girl populations.

The present study has several limitations. First, the findings cannot be generalized because the convenience sample was small and nonrandom. In order to substantiate the findings, studies using a population-based sampling are needed. Second, only a gross measure of smoking experiences (i.e., ever smoked versus never smoked) was used in the analysis. This variable did not indicate the amount of

smoking and it was slightly incongruent temporally with the hassles variable. Lastly, the study examined one profile of stress (daily hassles) and did not examine whether stress was related to frequency of smoking or the level of addiction. According to Turner, Wheaton, and Lloyd (1995), daily hassles is one profile of stress, however, there are several other dimensions (e.g., chronic stress, traumatic and life events) that should be considered in the future. Research that explores these relationships could provide a more complete understanding of the relevance of stress, specifically daily hassles on the smoking patterns of African American adolescent girls.

The present study provides valuable base line information regarding the role of discrimination in substance use of African American adolescent girls. The study indicates that perceptions of discrimination have profound implications for the health of African American adolescent girls. Future studies may delineate the association between discrimination, health behaviors, and health outcomes. ▀

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