A Three-Generational Study of Risk Factors for Childhood Externalizing Behavior among African Americans and Puerto Ricans

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ABSTRACT *This is the first prospective study to examine the precursors of child externalizing behavior across three generations of African Americans and Puerto Ricans. Participants comprised a community cohort of male and female African Americans and Puerto Ricans (N=366, $\bar{X}$ age=29.4 years), who are part of an ongoing study of drug use and problem behaviors, and who had a child. Data were collected at four time waves, spanning the participants' adolescence to adulthood. Questionnaires were initially self-administered in schools in East Harlem, NY, USA (time 1). Subsequently, structured interviews were conducted by trained interviewers (times 2 and 3), and self-administered via mail (time 4). The independent variables consisted of the participants' prospective reports of their (a) relationships with their parents during adolescence, (b) depressive mood and drug use (adolescence to adulthood), (c) relationship with their oldest child between the ages of 6–13, and (d) perceptions of neighborhood crime and deterioration (in adulthood). The dependent variable was externalizing behavior in the participant's oldest child ($\bar{X}$ age=9.6 years; SD=2.0). Structural equation modeling showed that the parent–child relationship during participants' adolescence was linked with the participants' depressive mood and drug use which, in turn, were associated with the participants' relationship with their own child, as well as with neighborhood crime and deterioration when participants were adults. The participants' depressive mood, and relationship with their own child, as well as neighborhood crime and deterioration, each had a direct pathway to externalizing behavior in the participant's child. Findings suggest that intervention programs and public policy should address parental attributes, neighborhood factors, and, especially, parenting skills, to reduce risk factors for the intergenerational transmission of externalizing behavior.*

KEYWORDS *Intergenerational risk behavior, Child externalizing behavior, Parental drug use, Parent-child relationship, Depressive mood, Neighborhood*

INTRODUCTION

Research suggests that risk factors for psychological problems, such as externalizing behavior, may be transmitted across generations.^{1,2} Relatively little is known,

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however, about the mechanisms involved in the intergenerational transmission of emotional and behavioral problems,^{1,3} and few studies have examined these risk factors among urban U.S. racial/ethnic minority populations. A better understanding of how risk factors are transmitted from one generation to the next is crucial to the development of programs and policies that seek to disrupt recurring cycles of maladaptive behaviors within families and their adverse consequences.^{4,5} The present prospective study, therefore, examined the precursors of child externalizing behavior across three generations of urban African Americans and Puerto Ricans. Specifically, we assessed the interrelationships of generation 1 (G1) and generation 2 (G2) parenting behaviors, G2 depressive mood, G2 illicit drug use, and G2 perceptions of neighborhood crime and deterioration, with respect to externalizing behavior in the third generation (G3) child.

Our conceptual model is based on the empirical literature, as well as on family interactional theory (FIT).⁶ FIT is a multi-dimensional approach which postulates that child outcomes, such as externalizing behaviors, are influenced by factors from several domains (e.g., personality, family, and environment), operating within a mediational framework. According to FIT, social modeling, parent-child attachment, and the child's identification with conventional parental values and behaviors as a result of this attachment, facilitate the child's own conventionality and emotional control. In addition, FIT posits that residence in a socially cohesive and safe neighborhood promotes prosocial behavior, such as less aggression, both directly and as a mediator of other domains of influence.

The Parent-Child Relationship

Consistent with FIT, the findings of multi-generational studies have shown that parenting behaviors are an important mechanism in the intergenerational transmission of psychopathology.⁵ The literature is somewhat inconsistent, however, regarding the ways in which parenting behaviors are transmitted across generations.⁷ Some research (e.g.,⁸) has supported a social learning perspective by which the offspring reenact with their own children the parenting techniques of their parents. Other investigations have shown a mediational effect in which parenting behaviors influence the characteristics and intrapersonal functioning of the individual, which in turn affect their parenting behaviors.¹ Still other studies have found that both mechanisms link parenting behaviors across generations. Smith and Farrington,⁷ for instance, showed that authoritarian parenting was linked across generations both directly and through G2 personality characteristics. In contrast to the majority of multi-generational research, the present study examines racial/ethnic minority mothers and fathers, several aspects of the parent-child relationship, and positive aspects of parenting, which have been found to be protective against offspring externalizing behaviors.⁹

Depressive Mood

A considerable body of research, which focuses on mothers, has examined the impact of parental depression and depressed mood on the child. Findings have shown that the children of depressed parents are at risk for impaired functioning,¹⁰ as well as both internalizing¹⁰ and externalizing symptoms and disorders.^{11,12} The detrimental effects of parental depressive symptomatology on the child are thought to operate both through role modeling (e.g., the child imitates parental emotional dysregulation) as well as by undermining effective parenting skills (e.g., hostile or withdrawn parenting).¹¹ In addition, depressive symptomatology has been linked

with residence in impoverished, violent, and disordered neighborhoods, although the directionality of this association has not been clearly established.¹³

Illegal Drug Use

Several studies have shown that parental drug use is related to both impaired parenting abilities and poorer child outcomes,^{6,14} including externalizing problems.^{15,16} Parental drug use may establish a model of deviant behavior for the child or weaken the parent–child attachment relationship.⁶ For example, Riggs et al.¹⁴ found that G1 marijuana use in emerging adulthood predicted later impulsivity in the G2 child, both directly and via the mediation of G1 parenting practices. Furthermore, illicit drug users may be more likely to reside in deteriorated neighborhoods where there is conspicuous drug use and access to drugs.¹⁷

Neighborhood Crime and Deterioration

Deteriorating neighborhoods, in which violence, gangs and drug-related activity are pervasive, have been linked with child and adolescent psychosocial problems; especially, externalizing behaviors.^{18,19} Externalizing behaviors among children in these neighborhoods may be “adaptive” reactions to the perception of a hostile and stressful environment,²⁰ the role-modeling of normative neighborhood behavior,²¹ or due to the absence of collective efficacy, wherein neighborhood adults share and uphold prosocial values.^{22–24} In addition, individuals who experience symptoms of intra-personal distress, such as depressive mood or drug use, may selectively move into or remain in more deteriorated neighborhoods with elevated rates of criminal activity.¹³

The Child’s Externalizing Behavior

Externalizing problems during childhood have been associated with numerous poor outcomes which may be manifest from adolescence to adulthood, e.g., substance use,^{25,26} anti-social behavior,⁷ psychopathology,²⁷ sexual risk-taking,²⁸ academic failure,^{5,29} and employment problems.³⁰ Consequently, from a clinical and public policy perspective, it is important to understand the precursors of child externalizing behavior, and why this behavior may recur across generations within the same family.

The conceptual model for the present study, shown in Figure 1, hypothesized the following pathways from the independent variables (i.e., the G1–G2 and G2–G3 parent–child relationships, G2 depressive mood, G2 illegal drug use, and G2 perceptions of neighborhood crime and deterioration) to externalizing behavior in the G3 child (see Figure 1):

1. The G1 parents’ relationship with the G2 participants during adolescence is linked with (a) the G2 participants’ depressive mood, and (b) the G2 participants’ illegal drug use (both from late adolescence to young adulthood), as well as (c) the G2 participants’ relationship with the G3 oldest child;
2. The G2 participants’ depressive mood is related to the G2 participants’ parenting of the G3 child, and neighborhood crime and deterioration;
3. The G2 participants’ illegal drug use is associated with inattentive G2 parenting of the G3 child, as well as G2 perceptions of neighborhood crime and deterioration;
4. There are direct pathways from (a) the G2–G3 relationship, (b) G2 depressive mood, and (c) neighborhood crime and deterioration, to externalizing behaviors in the G3 child.

FIGURE 1. Hypothesized structural equation model of the G1–G2 parent–child relationship (T1), G2 depressive mood (T1–T4), G2 illegal drug use (T1–T4), the G2–G3 parent–child relationship (T4), neighborhood crime and deterioration (T4), and the G3 child’s externalizing behavior (T4).

Our study uses prospective data collected at four points in time over a 16-year period. It is the first three-generational examination of externalizing behavior among a cohort of urban African Americans and Puerto Ricans.

METHOD

The sample consisted of male and female self-identified African American and Puerto Rican adults ($N=366$; $\bar{X}$ age=29.4 years), who had a least one child between the ages of 6 and 13 years old. The parents (G2) are participants in an ongoing four-wave longitudinal study of substance use among racial/ethnic minority groups in New York City (see Marcus et al.³¹ for a more detailed description of the sample). At time 1 (T1, 1990), students in grades 7–10 ($N=1,332$; $\bar{X}$ age=14, $SD=1.3$) were recruited from schools serving the East Harlem area of New York City. Participating adolescents were given follow-up interviews at $\bar{X}$ ages 19 (T2, $SD=1.5$), 24 (T3, $SD=1.3$), and 29 (T4, $SD=1.7$) years. Of the 838 students assessed at T4, 79% provided data at all four time points, while 21% provided data at three of the four time points. We conducted several chi-square and t tests to analyze the attrition from T1 to T4. We compared the 838 adults for whom we had data at T4 with those who did not participate at T4. The attrition rate was significantly higher for males than for females ($\chi^2(1)=28.9, p<0.001$), and for Puerto Ricans compared with African Americans ($\chi^2(1)=6.9, p<0.01$). The results showed no significant differences on the T1 psychosocial variables (e.g., mother/father–child communication, $t=0.7$; non-conflictual relationship with mother, $t=1.2$; child’s identification with the mother, $t=0.3$; depressive mood, $t=0.47$; and illegal drug use, $t=1.2$).

For the present analysis, we selected 336 respondents from the ongoing longitudinal study who participated at T4, and who indicated at T4 that they had at least one child between the ages of 6–13. If a participant indicated having more than one child in this age range, the eldest child was selected. The demographic characteristics of the sample for the present analysis are shown in Table 1. The study was approved by the Institutional Review Boards of the New York University School

TABLE 1 Sample characteristics (N=366)

$\bar{X}$ age	
Participants (G2):	
Time 1 (T1)	14 years (SD=1.3)
Time 2 (T2)	19 years (SD=1.5)
Time 3 (T3)	24 years (SD=1.3)
Time 4 (T4)	29 years (SD=1.7)
Child (G3):	
Time 4 (T4)	9.6 years (S.D.=2.0)
Gender	
Participants (G2):	
Male	31%
Child (G3):	
Male	51%
Ethnicity (G2)	
African American	53% (N=193)
Puerto Rican	47% (N=173)
Educational status (G2) (T4)	
Attended or finished college	34%
Obtained a business or technical school degree	7%
Completed high school	32%
Did not finish high school	26%
Other	1%
Occupational Status (G2) (T4)	
Professionals or store owners	9%
Clerical or sales positions	39%
Skilled labor	8%
Semi-skilled workers or less	26%
Unemployed	16%
Other	2%
Marital Status (G2) (T4)	
Married and living together	25%
Married but separated	4%
Cohabiting	29%
Living alone	42%

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Procedure

At T1, data were collected in school classrooms under the supervision of the research team. Participants both listened to and read the questions, via personal tape players and printed questionnaires, respectively, and then marked their answers on the questionnaires. At T2 and T3, data were collected via individual structured interviews, conducted in person and in private by trained interviewers. (At T3, some participants who lived far from New York City were interviewed by phone due to budgetary constraints.) The interviewer read each question out loud and circled the answer provided by the participant. Each participant was given a copy of the questionnaire to follow along. T4 interviews were mailed to and self-administered by participants. After a complete description of the study

had been provided to the participants, informed assent (T1 and T2) and informed consent (T3 and T4) were obtained, as was HIPAA authorization (beginning in April 2002). Parental consent was also obtained for participants who were under age 18 (T1 and T2). A Certificate of Confidentiality was obtained for the study from the National Institute on Drug Abuse of the National Institutes of Health.

Measures

The five independent variables were based on the G2 participants' prospective reports, and consisted of: (1) the G1 parents' relationships with G2 participants during adolescence (T1); (2) G2 depressive mood (mean standardized scores T1–T4); (3) G2 illegal drug use (mean standardized scores T1–T4); (4) the G2 relationships with their own children (G3) when the child was $\bar{X}$ age 9.6 years (T4); and (5) G2 perceptions of neighborhood crime and deterioration (T4). These measures have been found to be valid and reliable predictors of child outcomes, including externalizing behavior.^{6,15,18,22,32,33} We chose to evaluate the G2 participant's depressive mood and drug use at several time waves as research suggests that past, as well as current, parental depressive symptoms or parental drug use can have an adverse impact on the child.^{34,35}

The dependent variable was a nine-item scale which assessed the G3 child's externalizing behaviors, as reported by the G2 parent at T4. Parent participants were asked how well each of the following behaviors described their child: (a) argues a lot, (b) is cruel, bullies, or is mean to others, (c) is disobedient at home, (d) is disobedient at school, (e) does not seem to feel guilty about misbehaving, (f) gets in many fights, (g) lies or cheats, (h) screams a lot, and (i) teases a lot. The responses for these items were "Not true" (0), "Somewhat or sometimes true" (1), and "Very true or often true" (2). The Cronbach's alpha for the child externalizing behavior scale was 0.78, and satisfactory. The scales used in the present analysis, as well as the number of items comprising each scale, sample items, and Cronbach's alphas, are listed in Table 2.

Analytic Plan

Latent variable structural equation models were employed to examine the empirical credibility of the proposed processes of our hypothesized model. There were no missing data for the dependent variable (i.e., the G3 child's externalizing behavior at T4). We used the SAS MI procedure to deal with missing data (e.g., G2 depressive mood at T3) on a variable-by-variable basis. The SAS MI procedure calculates the maximum likelihood estimates of the missing values, i.e., full information maximum likelihood, on a variable-by-variable basis. In order to account for the influences of the G3 child's age and gender on the measurement and structural models, we used partial covariance matrices as the input matrices, as suggested by Newcomb and Bentler. These matrices were created by statistically partialing out the effects of the factors noted above (youths' age and gender) on each of the original manifest variables. This strategy allows for statistical control of the effects of the variables without hypothesizing exactly where they influence the model, thus affording a more generalizable model. The correlations among the variables derived from the partial covariance matrices are available from the authors upon request.

Maximum likelihood estimates of the model coefficients, as discussed below, were obtained using LISREL 8.³⁶ To account for the non-normal distribution of the model variables, we used the Satorra–Bentler scaled statistic (S-B χ^2)³⁷ as the test statistic for model evaluation, as recommended by Hu et al. (1992).³⁸ We also report three additional fit indices for the model: (a) the LISREL goodness of fit index (GFI), (b) the

TABLE 2 Psychosocial scales, number of items, sample items, and Cronbach's alphas

Scale	Number of items	Sample item	Cronbach's alpha
Time 1			
Parent-child relationship (G1/G2)	14		
Mother/father-child communication ³⁹		How pleasant are conversations with your mother/father?	N/A
Non-conflictual relationship with mother/father ⁴⁰		Sometimes you do not obey your mother/father unless s/he keeps after you.	0.77/0.82
Child's identification with mother/father ⁶		How much would you like to be the kind of person your mother/father is?	0.80/0.85
Time 1-4			
Depressive mood (G2) (modified version of the Hopkins symptom checklist) ⁴¹	8	You sometimes feel hopeless about the future.	0.80
Illegal drug use time 1-4 (G2) (original)	3-9 ^a	In the past year, how often have you used marijuana?	N/A
Time 4			
Parent-child relationship (G2-G3)	20		
Affection ³⁹		You frequently tell your child that s/he makes you happy.	0.86
Child-centeredness ³⁹		You give your child a lot of care and attention.	0.83
Child's identification with parent ⁶		How much does your child admire or look up to you?	0.73
Non-conflictual relationship ⁴⁰		Your child often doesn't do what you want him/her to do.	0.82
Discipline ⁴²		You scream at your child if s/he does something you do not like.	0.78
Neighborhood crime and deterioration (G2) ^{43,44}	5	There are people in my neighborhood who sell drugs.	0.89
Dependent variable			
Child externalizing behavior (G3) ⁴⁵	9	Your child is cruel, bullies, or is mean to others.	0.78

^aNumber of items varied across time waves

root mean square error of approximation (RMSEA), and (c) Bentler’s comparative fit index (CFI).

RESULTS

G2 participants in the present study ($N=366$) consisted of African American mothers ($N=134$) and fathers ($N=59$), as well as Puerto Rican mothers ($N=117$) and fathers ($N=56$) of a child between the ages of 6–13 years. The mean score of the dependent variable, the G3 child’s externalizing behavior as reported by the G2 parent at T4, was 2.3 ($SD=2.8$).

Using LISREL 8, we tested the measurement model as well as the structural model. All factor loadings were significant ($p<0.01$). The findings showed that the indicator variables were satisfactory measures of the latent constructs. The Satorra–Bentler chi-square ($df=66$) was 234.52. The following fit indices were obtained: GFI = 0.91, RMSEA = 0.084, and Bentler’s CFI = 0.87. These results reflect a satisfactory model fit. For the structural model, standardized parameter estimates, as well as associated t statistics for the sample, are presented in Figure 2.

Summarized below are the ten statistically significant pathways to the G3 child’s externalizing behavior at T4 ($\alpha\leq0.05$; two-tailed test), demonstrated by Figure 2.

- 1. The G1–G2 parent–child relationship (reported at T1) was associated with (a) G2 depressive mood (T1–T4) as well as with (b) G2 illegal drug use (T1–

GFI=0.91; RMSEA=0.084; Bentler’s CFI=0.87

Note: GFI=goodness of fit index; RMSEA=root mean square error of approximation, and CFI=Bentler’s comparative fit index. Ellipses represent latent variables, and rectangles represent manifest variables. G3 child’s age and gender were controlled for.

FIGURE 2. Structural equation model of the G1–G2 parent–child relationship (T1), G2 depressive mood (T1–T4), G2 illegal drug use (T1–T4), the G2–G3 parent–child relationship (T4), neighborhood crime and deterioration (T4), and the G3 child’s externalizing behavior (T4).

- T4). There was also a direct pathway between the G1–G2 relationship and the G3 child's externalizing behavior;
2. G2 depressive mood (T1–T4) was related to the G2–G3 relationship, and neighborhood crime and deterioration;
 3. G2 illegal drug use (T1–T4) was linked with the G2–G3 parent–child relationship, and with neighborhood crime and deterioration;
 4. There were direct pathways from (a) the G2–G3 parent–child relationship, (b) G2 depressive mood, and (c) neighborhood crime and deterioration, to the G3 child's externalizing behavior.

DISCUSSION

Prior research has shown that risk factors for problem behaviors may be transmitted across generations, and predict adverse outcomes among the G3 children.^{1,7} Our study builds on this literature by examining these effects in a racial/ethnic minority sample, by the inclusion of males and females in each generation, and by the assessment of both internalizing and externalizing problems across generations. In addition, to our knowledge, this is the first three-generational study to demonstrate a direct pathway from neighborhood factors to G3 problem behavior. The findings suggest that a complex interplay of social, behavioral, psychological, and neighborhood factors are involved in the intergenerational transmission of risk factors for child externalizing behavior. The importance of the parent–child relationship to these processes is also highlighted.

The Parent–Child Relationship

Our results showed that ineffective parenting techniques are a potent mechanism in the intergenerational transmission of both internalizing and externalizing psychological problems, i.e., G1 ineffective parenting abilities were associated with G2 depressive mood and G2 illicit drug use, and both G1 and G2 ineffective parenting independently predicted G3 externalizing behavior. The association of a weak parent–child relationship with child externalizing behavior is supported by both FIT and attachment theory.^{6,46} According to these paradigms, children who feel close to and supported by their parents are more likely to internalize parental values, identify and cooperate with their parents, and exert greater emotional control.^{6,22,46} In addition, externalizing behavior in the child may serve to temporarily engage a withdrawn or uninvolved parent.⁴⁶

Of note is that the link between G1–G2 and G2–G3 parenting behaviors was not direct but mediated by G2 depressive mood and G2 illicit drug use, despite comparable measures of parenting in both generations. The implication of this finding is that parenting behaviors are transmitted across generations by their effect on personality characteristics and behavior. These results are supported by some prior investigations,^{1,3} and are partially consistent with multi-generational studies which found that parenting techniques were both directly and indirectly linked across generations.

The direct pathway from the G1–G2 parent–child relationship to externalizing behavior in the G3 child may imply a replication of problem behavior across generations,^{1,7} possibly including a genetic component,⁴⁷ which affects both the parenting abilities of the G1 grandparent, as well as G3 externalizing behavior. Alternatively, this direct pathway may connote that many G1 grandparents in our

study resided or frequently interacted with their G3 grandchildren, and that an unsupportive G1–G3 relationship (e.g., coercive discipline) affected G3 externalizing problems.⁴⁸

Depressive Mood

Our results also showed a potent association of G2 parental depressive mood and G3 externalizing behavior, which consisted of both direct and indirect pathways. The child's externalizing problems suggest the modeling of anger and irritability associated with parental depressed mood (direct effect), as well as a reaction to hostile or withdrawn parenting behaviors (indirect effect).^{35,49} Furthermore, while most prior intergenerational research has examined the recurrence of a specific outcome across generations (e.g., anti-social behavior), our findings extend the literature on parental depression by demonstrating the non-specific transmission of risk factors within a three-generational design; that is, G2 parental depressive mood (an internalizing problem) predicted G3 externalizing behavior.

Illegal Drug Use

Also consistent with previous studies (e.g.,¹⁴), our findings showed that G2 participants who reported a less warm and supportive relationship with their G1 parents during adolescence were more likely to engage in illegal drug use. Furthermore, G2 parental drug use was indirectly linked with G3 externalizing problems through the mediation of both the G2–G3 relationship as well as neighborhood crime and deterioration. The association of parental drug use and offspring emotional and behavioral problems is supported by prior research, e.g.,^{6,50} Bailey et al. (2009)³² demonstrated that G1 substance use was linked with G2 externalizing problems, which in turn predicted G2 substance use and, ultimately, G3 externalizing behavior.

Neighborhood Crime and Deterioration

Prior investigations have shown that aspects of the neighborhood environment, and especially the prevalence of violence and illicit drugs, are related to externalizing behaviors in the child (e.g.,^{21,32}). Colder et al. (2000),³³ for instance, found that the perception of neighborhood danger was linked with aggressive behavior in fifth graders. Furthermore, in our obtained model, neighborhood crime and deterioration partially mediated the associations of both G2 parental depressed mood and G2 parental drug use with externalizing behavior in the G3 child.

The Child's Externalizing Behavior

Previous research has shown that risk factors may be transmitted across generations, and ultimately predict adverse child outcomes in the G3 child.^{3,7} Our findings extend this paradigm, and show that risk factors from several domains (e.g., parental depressed mood, neighborhood crime and deterioration) predicted the G3 child's externalizing problems. Overall, these results suggest that children may respond to unsupportive and hostile social and environmental conditions through behavioral undercontrol. Furthermore, since childhood externalizing behaviors predict numerous intra- and interpersonal problems into adulthood, including poor parenting abilities,^{4,5} our results imply that those children with more externalizing behavior are at risk for perpetuating the transmission of inter- and intrapersonal problems across generations.¹

Limitations

There are some limitations to our findings. First, the variation in data collection methodology across time waves may have created reporting bias. However, we expect that our findings would have been even stronger had the same method been used at each time wave. Second, we did not use a multi-informant design, and responses may reflect informant bias, e.g., participants who experienced depressive mood may be more likely to perceive and report a negative relationship with their parents as well as problem behavior in their children.⁵¹ Third, our neighborhood crime and deterioration variables were based upon participant perception of aspects of the neighborhood. Future studies might include objective neighborhood measures (e.g.,⁵²). Fourth, we did not examine the effect of the marital relationship on the G2 participant, their parenting behavior, or externalizing behavior in the G3 child. Fifth, we did not control for gestational factors (e.g., maternal smoking) or obstetric complications, both of which have been linked to childhood externalizing behavior.⁵³

CONCLUSIONS

Nonetheless, the present three-generational study is the first to examine multiple domains of influence, including neighborhood factors, on child externalizing problems among urban African Americans and Puerto Ricans. The effects of neighborhood crime and deterioration, shown in our model, should alert clinicians that aggressive behaviors may occur among young patients who have been exposed to violence. Intervention programs, therefore, need to take into account the broader social and environmental context of the child. Our model also suggests that the parent-child relationship is a crucial mechanism in the intergenerational transmission of problem behavior, and that, furthermore, parenting behaviors may be linked across generations through their impact on the child. The clinical implications of the findings highlight the importance of enhancing parental skills and psychological adjustment in order to disrupt the intergenerational transmission of risk factors for child externalizing behavior.

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