World Journal of Advanced Research and Reviews
eISSN: 2581-9615 CODEN (USA): WJARAI
Cross Ref DOI: 10.30574/wjarr
Journal homepage: https://wjarr.com/

(RESEARCH ARTICLE)

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HIV/AIDS Stigma, Discrimination and its Impact on Treatment Adherence

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World Journal of Advanced Research and Reviews, 2020, 08(02), 451-460

Publication history: Received on 19 October 2020; revised on 26 November 2020; accepted on 29 November 2020

Article DOI: https://doi.org/10.30574/wjarr.2020.8.2.0454

Abstract

Background: Despite advancements in HIV care, stigma and discrimination remain major barriers to treatment adherence across sub-Saharan Africa. In Nigeria, these factors continue to undermine the success of antiretroviral therapy (ART) programs. This study assessed the prevalence of stigma and discrimination and their impact on treatment adherence among people living with HIV (PLHIV) in Zaria, Nigeria.

Methods: A descriptive cross-sectional study was conducted among 250 PLHIV receiving ART at public healthcare facilities in Zaria, Nigeria. Data were collected using a structured, pretested questionnaire and analyzed using SPSS version 27. Descriptive statistics summarized respondents' characteristics, while Chi-square tests determined associations between stigma, adherence, and socio-demographic variables at a 5% significance level.

Results: Among the 250 respondents, 65.4% were female. The majority (81.2%) were married and 45.2% had tertiary education. Overall, 37.2% reported experiencing HIV-related stigma or discrimination. Stigma was significantly associated with age ($p = 0.018$), sex ($p = 0.018$), marital status ($p = 0.039$), educational level ($p = 0.038$), occupation ($p = 0.046$), family size ($p = 0.023$), and duration on ART ($p = 0.001$). Participants who experienced stigma demonstrated markedly poorer adherence (24.7%) compared to those without stigma (5.1%) ($p < 0.001$).

Conclusion: HIV-related stigma and discrimination remain substantial barriers to optimal ART adherence in Zaria. Reducing stigma through targeted health education, family involvement, and psychosocial interventions is essential for improving adherence and quality of life among PLHIV.

Keywords: HIV stigma; Discrimination; Antiretroviral therapy; Treatment adherence; Nigeria

1. Introduction

Human Immunodeficiency Virus (HIV) infection and Acquired Immunodeficiency Syndrome (AIDS) remain major global health concerns, with sub-Saharan Africa bearing a disproportionate share of the burden (Amuche *et al.,* 2017). In 2017, over 36.9 million people across the globe with HIV/AIDS (Girum *et al.,* 2018). Sub-Saharan Africa accounted for 60% of the world's HIV infections, two-thirds among women (Awofala & Ogundele, 2018; Kwenti, 2018).

In 2011, Nigeria was estimated to have about 3.2 million people living with HIV (PLHIV), ranking it as the country with the second-largest HIV burden globally (Bashorun *et al.,* 2014). National trends in HIV prevalence revealed a rise from 1.8% in 1991 to 5.8% in 2001, followed by a decline to 3% by 2014 (FMoH, 2005). Despite this progress, approximately 56,681 HIV-positive births and 192,000 AIDS-related deaths were recorded in 2010. The epidemic demonstrates

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marked geographic and demographic variation, with prevalence ranging from 0.9% in Zamfara State to 15.4% in Benue State (Odimegwu *et al.,* 2018).

Epidemiological data show that HIV infection rates are higher among women (Odimegwu *et al.,* 2017), who also experience greater levels of stigma and discrimination compared to men (Paudel & Baral, 2015). Regional disparities are also evident, with the North-Central zone reporting 5.8% prevalence, the North-West 1.9%, and the southern regions recording 4.9% in both the South-South and South-East, and 2.4% in the South-West. These patterns highlight the complex social and regional dynamics influencing the spread and burden of HIV across Nigeria (FMoH, 2005).

Despite progress in scaling up antiretroviral therapy (ART) and public health interventions, stigma and discrimination continue to undermine prevention, treatment, and retention in care. These psychosocial barriers have emerged as some of the most persistent challenges to achieving the global 95-95-95 targets for HIV control (Okoror *et al.,* 2013).

HIV-related stigma and discrimination are multifaceted phenomena that manifest at individual, interpersonal, community, and institutional levels (Chambers *et al.,* 2015). Stigma encompasses negative attitudes, labeling, and stereotyping of individuals living with HIV, while discrimination involves acts of exclusion, denial of rights, or unequal treatment based on serostatus (Akomah, 2013). In Nigeria, despite increasing awareness and improved access to ART, people living with HIV (PLHIV) still face stigma within families, workplaces, religious settings, and even healthcare environments. Such experiences often lead to concealment of HIV status, reduced clinic attendance, and poor adherence to treatment regimens (Monjok *et al.,* 2009). Many individuals living with HIV still struggle with negative social attitudes, rejection, and discrimination that threaten adherence and retention in care (Sekoni *et al.,* 2012).

In Nigeria, various studies have documented that HIV-related stigma leads to delayed testing, poor disclosure of HIV status, treatment interruptions, and poor adherence to ART (Mbonu *et al.,* 2009). Individuals who fear judgment or rejection from family, community members, or healthcare workers may resort to secrecy, avoid clinic visits, or skip medication doses to conceal their condition. Over time, such behaviors contribute to viral rebound, drug resistance, opportunistic infections, and increased mortality (Tsega *et al.,* 2015).

In northern Nigeria, particularly in Zaria, the challenge of stigma is amplified by strong sociocultural and religious norms. Misconceptions that associate HIV infection with promiscuity, immorality, or divine punishment reinforce discriminatory attitudes in homes, workplaces, and even healthcare settings (Dahlui *et al.,* 2015). Although the Nigerian National Agency for the Control of AIDS (NACA) and other stakeholders have initiated anti-stigma campaigns (Odimegwu *et al.,* 2018), empirical evidence on how stigma and discrimination specifically affect adherence behaviors in Zaria remains scarce. The few existing studies are limited to southern or urban centers (Sekoni *et al.,* 2012; Okoror *et al.,* 2013; Omosanya *et al.,* 2014), leaving a significant gap in understanding how community perceptions, cultural beliefs, and health system factors interact to influence ART adherence in northern Nigeria.

Addressing this gap is critical for achieving the UNAIDS 95-95-95 goals, which depend not only on ART availability but also on consistent patient adherence and retention. This study, therefore, seeks to investigate the impact of HIV-related stigma and discrimination on treatment adherence among people living with HIV in Zaria, Nigeria. Findings from this research will inform stigma-reduction programs, and culturally appropriate adherence strategies to improve the quality of life and treatment outcomes for people living with HIV in this region. The findings will provide evidence to guide healthcare providers, policymakers, and community stakeholders in developing stigma-reduction strategies and adherence support programs tailored to local sociocultural realities.

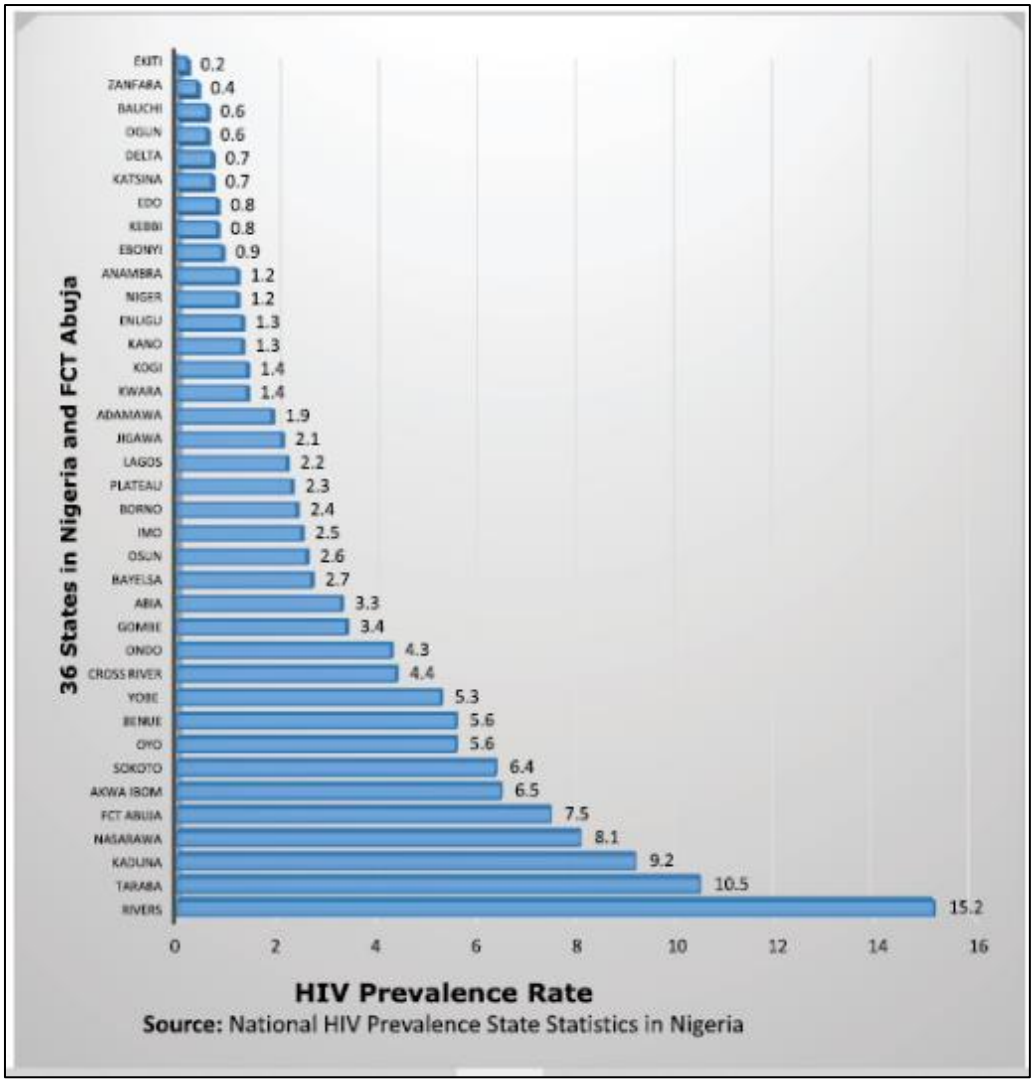

Figure 1 Nigeria HIV prevalence rate by state (National Agency for the Control of AIDS, 2015)

Specific Objectives

- To assess the level of perceived HIV-related stigma and discrimination among people living with HIV in the study area.
- To determine the level of adherence to antiretroviral therapy (ART) among people living with HIV in the study area.
- To determine the relationship between socio-demographic characteristics and stigma in the study area.
- To examine the relationship between HIV-related stigma/discrimination and treatment adherence in the study area.

2. Methodology

2.1. Study Design

A descriptive cross-sectional study (quantitative) was carried out to assess the domains of stigma experienced by people living with HIV and AIDS in Zaria, Kaduna state, Nigeria.

2.2. Population

The population centered on diagnosed outpatients from public healthcare facilities in Tudun-wada ward of Zaria LGA, Kaduna, Nigeria. As shown in Figure 1, the rationale for the choice of the population based on the 2015 HIV/AIDS prevalence state statistics recorded 9.2% for Kaduna State (National Agency for the Control of AIDS, 2015). Also, the

population covers aged 18 years and above who voluntarily signed the informed consent to participate in the study. The healthcare facilities include Gambo Sawaba Gen. Hosp. Zaria, PHC Tudun-Wada, and H/C Dandutse.

2.3. Sample and Sample Size

The calculated sample size was 250. Samples were selected through the purposive sampling technique (Grove, 2013) from the selected hospitals. The purposive sampling technique was adopted because it allows the preselection of participants based on relevant criteria and characteristics to answer research questions in a particular area of interest. HIV stigma/discrimination and treatment adherence are these preselected research areas.

2.4. Data Collection

A structured, pre-tested, interviewer-administered questionnaire was used for collecting data. The contents were grouped as sections (A) Socio-demographic Information, (B) Medication Adherence Assessment, (C) Stigma/Discrimination Assessment.

2.5. Data Analysis

Data entry and analysis was done using SPSS version 27. Frequency tables were generated for the category variables. Summary statistics were used for numerical variables. A Chi-square statistical test was used to test the level of significance at a *p*-value of 0.05.

3. Result

Table 1 presents the socio-demographic characteristics of the 250 respondents living with HIV in Zaria. The data show that the majority of respondents (31.2%) were aged between 35 and 44 years, followed by those aged 45 to 54 years (24.8%). Only a small proportion (4%) were within the 15–24-year age bracket, indicating that HIV infection in this study population is most common among middle-aged adults. The majority of the respondents were female (64.4%) Most respondents were married (81.2%), which suggests that many infections may occur within stable relationships or through spousal transmission. Educational attainment was relatively high, with 41.2% having completed secondary education and 45.2% holding tertiary qualifications. In terms of occupation, the largest groups were traders (35.2%) and civil servants (33.6%), suggesting that the participants largely belonged to the working population. The majority of respondents were Muslims (57.6%), consistent with the dominant religion in Zaria. Furthermore, most participants (72.8%) had been on antiretroviral therapy (ART) for between three months and two years.

Table 1 Socio-demographic characteristics of respondents

Variables	Frequency (n=250)	Percentage (%)
Age group		
15 to 24	10	4.0
25 to 34	55	22.0
35 to 44	78	31.2
45 to 54	62	24.8
>55	45	18.0
Sex		
Female	161	64.4
Male	89	35.6
Marital status		
Single	20	8.0
Married	203	81.2
Divorced	7	2.8
Separated	7	2.8
Widowed	13	5.2
Educational Level		

No formal education	5	2
Primary	29	11.6
Secondary	103	41.2
Tertiary	113	45.2
Family size		
2 to 4	82	32.8
>5	168	67.2
Occupation		
Student	2	0.8
Civil servant	84	33.6
Trading	88	35.2
Farming	12	4.8
Contractor	5	2.0
Artisan	42	16.8
Others	17	6.8
Religion		
Christianity	106	42.4
Islam	144	57.6
ARV usage duration		
3 months to 2 years	182	72.8
2 years to 6 years	68	27.2

Abbreviations: ARV, antiretroviral'

Table 2 explores medication adherence in relation to stigma and discrimination among respondents. The findings show that 87.6% of respondents demonstrated good adherence to ART, while 12.4% reported poor adherence. Despite this, 37.2% of respondents reported experiencing stigma and discrimination, while 62.8% did not.

Table 2 Medication adherence and stigma/discrimination amongst respondents

Variables	**Frequency (n=250)**	**Percentage (%)**
Self-reported medication adherence		
Good (>95%)	219	87.6
Poor (<95%)	31	12.4
Stigmatization and discrimination summated scores		
No perceived S&D	157	62.8
Experienced S&D	93	37.2

Abbreviations: S&D, stigma and discrimination

The analysis in Table 3 reveals that several socio-demographic factors were significantly associated with experiences of HIV-related stigma and discrimination. Younger respondents (particularly those aged 15–34 years) reported higher levels of stigma compared to older adults ($p = 0.018$). Gender was also significant ($p = 0.018$), with females experiencing greater stigma than males. Marital status was associated with stigma ($p = 0.039$), as single, separated, and widowed respondents were more likely to experience discrimination than their married counterparts.

Educational level ($p = 0.038$) and occupation ($p = 0.046$) also showed significant associations, indicating that respondents with lower education or informal occupations were more vulnerable to stigma. Larger family size correlated with higher stigma exposure ($p = 0.023$), possibly due to increased risk of disclosure within extended households. The duration of ART use ($p = 0.001$) was highly significant, those newly initiated on ART and those on long-

term therapy reported greater stigma, reflecting both early adjustment challenges and social fatigue over time. Religion was not significantly associated with stigma (p = 0.634).

Table 3 Association between Socio-Demographic Characteristics and Experience of Stigma/Discrimination among Respondents (n = 250)

Variable	Stigma = Yes (n, %)	Stigma = No (n, %)	χ^2 (df)	p-value
Age (years)				
15–24	6 (60.0%)	4 (40.0%)	11.84 (4)	0.018*
25–34	20 (36.4%)	35 (63.6%)		
35–44	34 (43.6%)	44 (56.4%)		
45–54	20 (32.3%)	42 (67.7%)		
55+	13 (28.9%)	32 (71.1%)		
Sex				
Male	25 (28.1%)	64 (71.9%)	5.63 (1)	0.018*
Female	68 (42.2%)	93 (57.8%)		
Marital Status				
Single	11 (55.0%)	9 (45.0%)	10.06 (4)	0.039*
Married	69 (34.0%)	134 (66.0%)		
Divorced	3 (42.9%)	4 (57.1%)		
Separated	4 (57.1%)	3 (42.9%)		
Widowed	6 (46.2%)	7 (53.8%)		
Educational Level				
None	3 (60.0%)	2 (40.0%)	8.42 (3)	0.038*
Primary	15 (51.7%)	14 (48.3%)		
Secondary	38 (36.9%)	65 (63.1%)		
Tertiary	37 (32.7%)	76 (67.3%)		
Family Size				
2–4 members	23 (28.0%)	59 (72.0%)	5.17 (1)	0.023*
≥5 members	70 (41.7%)	98 (58.3%)		
Occupation				
Student	1 (50.0%)	1 (50.0%)	9.68 (6)	0.046*
Civil servant	26 (31.0%)	58 (69.0%)		
Trader	41 (46.6%)	47 (53.4%)		
Farmer	5 (41.7%)	7 (58.3%)		
Contractor	2 (40.0%)	3 (60.0%)		
Artisan	13 (31.0%)	29 (69.0%)		
Others	5 (29.4%)	12 (70.6%)		
Religion				
Christianity	38 (35.8%)	68 (64.2%)	0.23 (1)	0.634

Islam	55 (38.2%)	89 (61.8%)		
Duration on ART				
3 months–2 years	60 (33.0%)	122 (67.0%)	10.24 (1)	0.001*
2–6 years	33 (48.5%)	35 (51.5%)		

Note: $p < 0.05$ indicates statistical significance.

Table 4 presents the relationship between HIV-related stigma/discrimination and adherence to antiretroviral therapy among respondents. Among those who reported experiencing stigma and discrimination, 75.3% demonstrated good adherence, while 24.7% had poor adherence. In contrast, among respondents who did not experience stigma, 94.9% had good adherence and only 5.1% had poor adherence.

The Chi-square test result ($\chi^2 = 20.86$, $p < 0.001$) indicates a statistically significant association between stigma/discrimination and ART adherence. This implies that individuals who experienced stigma were substantially more likely to exhibit poor medication adherence compared to those who did not.

Table 4 Association between Stigma/Discrimination and Medication Adherence among Respondents (n = 250)

Stigma/Discrimination	Good Adherence	Poor Adherence	Total
Yes (n = 93)	70 (75.3%)	23 (24.7%)	93 (100%)
No (n = 157)	149 (94.9%)	8 (5.1%)	157 (100%)
Total (n = 250)	219 (87.6%)	31 (12.4%)	250 (100%)

$\chi^2 = 20.86$, $p < 0.001$

4. Discussion

This study explored the influence of stigma and discrimination on adherence to antiretroviral therapy (ART) among people living with HIV (PLHIV) in Zaria, Nigeria. The findings revealed that while most participants reported good adherence to ART, a considerable proportion still experienced stigma and discrimination, both of which were significantly associated with reduced adherence levels. Socio-demographic characteristics such as age, sex, marital status, educational level, occupation, and treatment duration were also found to be significant predictors of stigma exposure.

The socio-demographic distribution of respondents showed that most participants were female, middle-aged, and married, consistent with national HIV trends that demonstrate a higher prevalence among women in Nigeria. Previous studies have documented the feminization of the HIV epidemic in sub-Saharan Africa, attributing this to biological vulnerability and socio-cultural inequalities that limit women's power to negotiate safe sexual practices (Awofala & Ogundele, 2018; UNAIDS, 2019). The predominance of married participants suggests that infections often occur within stable relationships, as documented by Olagbuji *et al.* (2011), who reported that non-disclosure of HIV status and marital transmission remain key drivers of new infections in Nigeria.

Despite the overall good adherence rate (87.6%), about 37.2% of respondents experienced stigma or discrimination. The Chi-square analysis revealed a significant relationship between stigma and adherence ($p < 0.001$), showing that those who experienced stigma were more likely to have poor adherence. This finding aligns with the work of Sekoni *et al.* (2012) and Saki *et al.* (2015), who noted that stigma is a major psychosocial barrier to ART adherence in resource-limited settings. Fear of being recognized as HIV positive often leads patients to skip doses, avoid clinics, or hide their medications, contributing to treatment interruptions and poor viral suppression (Omosanya *et al.,* 2014).

Age was significantly associated with stigma, with younger participants (15–34 years) reporting higher levels of discrimination. Younger people often struggle with peer acceptance and identity issues, making them more susceptible to the emotional burden of stigma. Similar patterns were reported by Mbonu *et al.* (2009), who found that younger PLHIV in Nigeria experience more social exclusion and emotional distress compared to older adults. Conversely, older patients tend to show greater coping capacity and stability in adherence due to stronger family ties and more positive health-seeking behaviors (Ghidei *et al.,* 2013).

The study also found that women reported higher levels of stigma than men. This agrees with previous findings by Asiedu and Myers-Bowman (2014) & Geary *et al.* (2014), who described how gender dynamics amplify HIV stigma, particularly for women who are often blamed for introducing infection into families. Women's economic dependence and fear of marital abandonment increase their vulnerability to social judgment and treatment nonadherence.

Marital status also influenced stigma experiences. Unmarried, divorced, and widowed participants faced more discrimination compared to those married, echoing findings by Okoror *et al.* (2013), who emphasized that marital support acts as a protective factor against stigma. Family structure showed a similar trend, as those in larger households were more prone to stigma, possibly due to greater chances of unintended disclosure within extended families. These results underscore the importance of confidentiality and family education in HIV care programs.

Educational attainment and occupation significantly affected stigma exposure, with lower-educated and informally employed respondents facing greater discrimination. This is consistent with the result of Sekoni *et al.* (2012), which highlighted that individuals with limited education and unstable income are less likely to access accurate information or challenge stigmatizing beliefs. In contrast, formal employment and higher education often provide exposure to workplace policies, peer education, and social support networks that reduce stigma.

Duration on ART was another significant factor, with newly initiated patients and those on therapy for extended periods (>2 years) reporting higher levels of stigma. Newly diagnosed patients often experience initial psychological distress, while long-term patients may face "labeling fatigue" within communities where consistent clinic visits reveal their status (Katz *et al.,* 2013). Religion, however, showed no significant association with stigma, suggesting that discriminatory attitudes persist across faiths.

Despite widespread awareness campaigns, the persistence of stigma and discrimination reflects enduring cultural misconceptions linking HIV to immorality, promiscuity, or divine punishment. As Campbell *et al.* (2007) argued, structural and community-level interventions, rather than information campaigns alone, are required to dismantle deeply embedded stigma. In the context of Zaria, where religious and cultural norms strongly shape social behavior, engaging community leaders, faith-based organizations, and peer educators is crucial for reframing perceptions about HIV.

Overall, the findings reaffirm that stigma and discrimination remain major barriers to sustained ART adherence despite the medical availability of treatment. Reducing stigma requires a comprehensive, multi-sectoral approach that integrates health education, family engagement, and psychosocial support. Strengthening nurse-led interventions and empowering PLHIV through community support networks are essential to achieving sustained adherence and improving quality of life for people living with HIV in Zaria and beyond.

5. Conclusion

This study revealed that HIV-related stigma and discrimination continue to hinder optimal adherence to antiretroviral therapy among people living with HIV in Zaria, Nigeria. Nearly two-fifths of respondents experienced stigma, significantly influencing treatment adherence. Factors such as age, sex, education, occupation, and duration on ART were associated with stigma, reflecting persistent social and structural inequalities.

The findings reaffirm that HIV management extends beyond biomedical interventions to include psychosocial and community-level dimensions. Reducing stigma and discrimination requires comprehensive, multi-layered approaches including combining health education, family and peer support, and culturally sensitive counselling. Strengthening stigma-reduction interventions within HIV programs, promoting public awareness campaigns, and integrating psychosocial support into ART clinics are essential steps toward improving treatment adherence and achieving long-term viral suppression. Sustained collaboration among healthcare providers, policymakers, and community leaders will be key to transforming societal attitudes and ensuring equitable HIV care for all.

Compliance with ethical standards

Disclosure of conflict of interest

No Conflict of Interest

Statement of informed consent

No conflict of interest to be disclosed.

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