



Racial Disparities in Cancer Screening Among Women with Chronic Joint Pain

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Abstract

Chronic pain related disorders and breast and cervical cancer are more prevalent among African-American women compared with non-Hispanic White women. However, few studies address how racial differences in the context of comorbidity may compound these disparities. This study used secondary analysis of the National Health Interview Survey (NHIS) to assess racial differences in breast and cervical cancer screening and patient education among adult women with chronic joint pain conditions. Statistical analyses included chi-square and independent samples t-tests. African-American women compared with non-Hispanic White women were less likely to receive a pap smear or mammogram within the last two years and receive patient education ($p < 0.01$). Due to competing demands, women with chronic joint pain may not receive preventive services. The results of this study can be used to formulate interventions and evaluate approaches to reduce racial disparities in outpatient service delivery in terms of continuity and scope of care.

Keywords

African American women; Breast – Cancer; Cancer – Prevention; Cervix uteri – Cancer; Chronic pain in women; Discrimination in medical care

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ABSTRACT

Chronic pain related disorders and breast and cervical cancer are more prevalent among African-American women compared with non-Hispanic White women. However, few studies address how racial differences in the context of comorbidity may compound these disparities. This study used secondary analysis of the National Health Interview Survey (NHIS) to assess racial differences in breast and cervical cancer screening and patient education among adult women with chronic joint pain conditions. Statistical analyses included chi-square and independent samples t-tests. African-American women compared with non-Hispanic White women were less likely to receive a pap smear or mammogram within the last two years and receive patient education ($p < 0.01$). Due to competing demands, women with chronic joint pain may not receive preventive services. The results of this study can be used to formulate interventions and evaluate approaches to reduce racial disparities in outpatient service delivery in terms of continuity and scope of care.

INTRODUCTION

Disparities in Cancer Screening

Regular breast and cervical cancer screening identifies cancers early, decreasing cancer related morbidity and mortality (ACS, 2007; USDHHS, 2000; Eddy, 1989). However, rates of cancer screening are suboptimal, particularly among minority and underserved populations (Finney, Tumiel-Berhalter, Fox, & Jaen, 2006; Gorin & Heck, 2005; Han, Wells, & Primas, 2003; Stoddard, et al., 1998). For example, poor women with lower educational levels are less likely to receive mammograms and Papanicolaou (Pap) tests compared to women of higher socioeconomic status (Crane, Kaplan, Bastani, & Scrimshaw, 1996; Davis, et al., 1996; Selvin & Brett, 2003). While many studies attribute disparities to socioeconomic status (Lees, Wortley, & Coughlin, 2005; O'Malley, Forrest, Feng, & Mandelblatt, 2005), others have demonstrated that cancer screening and follow-up treatment rates are disproportionate by race, even in groups of similar socioeconomic status (Gilligan, Wang, Levin, Kantoff, & Avorn, 2004; Paskett, et al., 2004). Such trends may contribute to adverse cancer outcomes in minority

groups (McCarthy, et al., 1998). Although breast cancer deaths have decreased among White women, African American women continue to have higher breast and cervical cancer mortality rates (ACS, 2003). Competing demands in the primary care setting (Jaen, Stange, & Nutting, 1994) and barriers to health care delivery such as poor patient physician communication (Crane, et al., 1996; Davis, et al., 1996; Dolan, et al., 2001; MacDowell, Nitz-Weiss, & Short, 2000; Martin, et al., 2005; Stoddard, et al., 1998) may contribute to challenges in preventive health care. This may be particularly true among individuals with complex chronic disease. The few studies available that address the use of cancer screening among patients with chronic diseases suggest that screening is suboptimal in these groups (Fontana, Baumann, Helberg, & Love, 1997; Kiefe, Funkhouser, Fouad, & May, 1998; Lipscombe, Hux, & Booth, 2005; Melkus, Maillet, Novak, Womack, & Hatch-Clein, 2002).

Screening in the Presence of Chronic Joint Pain

Patients suffering from chronic pain are at increased risk for the effects of fragmentation of care due to the potential for multiple providers. Although difficult to define, fragmentation can be characterized by lack of continuity of care, lack of communication between health care providers, and lack of coordinated care (Carlson & Blustein, 2003; Jerant, von Friederichs-Fitzwater, & Moore, 2005). One such effect may be the oversight of important preventive services, such as cancer screening. Competing demands may cause physicians to prioritize acute needs over preventive health care (Jaen, et al., 1994). Analysis of 1996 and 1997 National Ambulatory Medical Care Surveys (NAMCS) data on visits to family, general practice, internal medicine, and pediatric physicians showed that preventive services and counseling were 24% provided less frequently in visits that were also more likely to be associated with pain management (CDC, 1998; CDC, 2007).

Another example of the potential effect of care fragmentation on delivery of preventive services to chronic pain patients is breast cancer screening in systemic lupus erythematosus (SLE). SLE is an autoimmune disease characterized by chronic joint pain (Grossman & Kalunian, 2002; Hopkinson, Doherty, & Powell, 1994). Evidence of an association between SLE and malignancy has accumulated over the past several years (S. Bernatsky, et al., 2005; S. Bernatsky, Clarke, & Ramsey-Goldman, 2002; Bjornadal, Lofstrom, Yin, Lundberg, & Ekbom, 2002; Mellemkjaer, et al., 1997; Ramsey-Goldman & Clarke, 2001; Ramsey-Goldman, et al., 1998). An increased risk of breast cancer has been reported in at least one SLE cohort study (Bjornadal, et al., 2002), although this is not a uniform finding across all SLE cohorts (S. Bernatsky, et al., 2005). The literature also suggests that regular breast cancer screening is suboptimal among lupus patients, adding to the complexity of determining overall cancer risk (S. R. Bernatsky, et al., 2006). Additionally, evidence suggests that cancers in SLE may be diagnosed at later stages than in the general population indicating a need for increased cancer screening (S. Bernatsky, et al., 2004).

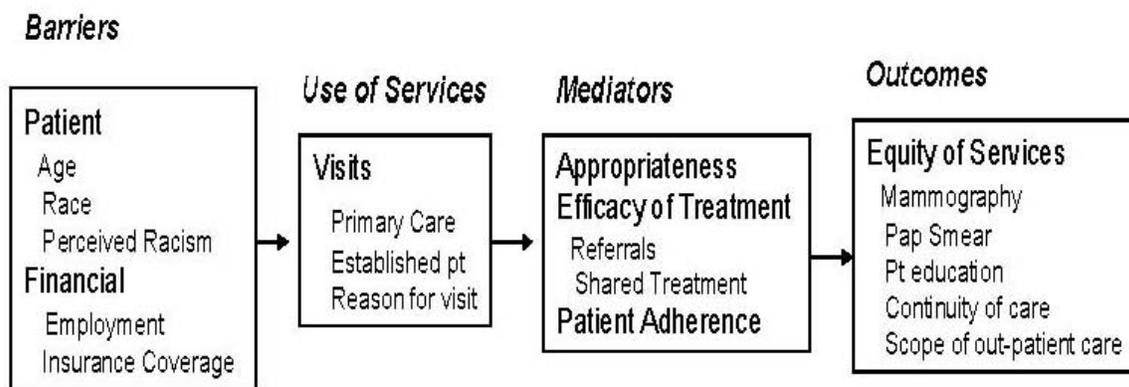
Current studies have not addressed the potential disparities in preventive services received that may be critical for African American women who are at higher risk for SLE, poorer breast cancer outcomes, and other chronic diseases (Brandon, Mullis, Jonnalagadda, & Hughes, 2005; Fessel, 1974; Matthews, et al., 2005; Rus & Hochberg, 2002). Although studies have demonstrated fragmentation of health care delivery among women with chronic joint pain (Blyth, March, Brnabic, & Cousins, 2004; Elliott, Smith, & Hannaford, 2004), few have addressed the impact of health disparities in access to care and use of preventive services, and very little literature is available reporting the use of preventive cancer screening among women with autoimmune disease. The purpose of this study was to explore differences in health care access, cancer screening, and patient education among African American and non-Hispanic White women with chronic joint pain.

METHODS

Conceptual Model

This study serves to evaluate racial differences in access to care, patient education, and preventive screening in women diagnosed with chronic joint pain. The Institute of Medicine published a model that shows the impact of health care services on outcomes (IOM, 1993). Specifically, the model suggests that structural, personal, and financial barriers to health care impact the use of services (visits and procedures). Once services are accessed there are mediating factors that contribute to effective care including appropriateness of care, efficiency of treatment, quality of providers, and patient adherence ultimately impacting health outcomes (health status and equity of service). We have adapted that model for this study. This study will explore personal and financial barriers to care. Mediators to be addressed in this study include the appropriateness of care, efficacy of treatment such as shared treatment and referrals. Health outcomes to be assessed in this study are the use of preventive cancer screening and the use of patient education.

Figure 1. Adapted from the IOM Access Monitoring Project



Overview

This study used secondary data analyses of the National Health Interview Survey (NHIS) to assess the racial/ethnic differences in access to health care, cancer screening and patient education related to cancer lifestyle risk factors among adult women with chronic joint pain conditions (ICD 710- 729: arthritis, rheumatoid arthritis, lupus, or fibromyalgia). Differences in access to health care services between African American and non-Hispanic White women with chronic joint pain were observed 67 in an effort to present a comprehensive picture of the receipt of health care for patients with chronic joint pain.

Dataset

The National Health Interview Survey (NHIS) is conducted annually by the National Center for Health Statistics. This study analyzed the 2005 data set to compare differences in self reported age and employment status, access to care, preventive screening and patient education between African American and Non-Hispanic White women with chronic joint pain. The NHIS uses cluster sampling techniques to represent a diverse selection of representatives throughout the United States. The survey includes household, family, adult and children sections with various modules that are added based on respondent answers. Data collected includes demographics, access to care, risk factors, use

of preventive screening services, and disease prevalence. This analysis was limited to women 18 years of age and older with a physician diagnosis related to chronic joint pain (ICD-9: 274, 710, 714, 715, 729) in any of the three field for physician diagnosis. ICD-9 codes correspond to self-report of having been diagnosed by a health care provider with arthritis, rheumatoid arthritis, lupus, fibromyalgia, or gout. This analysis assessed differences in demographics, access to care, preventive screening practices, and patient education received from providers between African American and non-Hispanic White women. From the NHIS datasets, a total of 4,626 records were extracted. Of the 4,626 women who satisfied inclusion criteria, 3,932 (85%) were non-Hispanic White and 694 (15%) were African American.

Variables

Age was assessed as a continuous variable and employment status as a dichotomous variable. Categorical variables regarding access to care included insurance status (none/self pay; private; Medicare/Medicaid), usual place for regular and preventive care (none, clinic or health center, hospital emergency room, hospital out 89 -patient), and use of the emergency room in the past 12 months (none, 1, 2-3, more than 3). Barriers to care were assessed as dichotomous variables and included trouble getting through on the telephone, trouble getting an appointment, wait time at a visit, hours available for an appointment, and transportation to a visit. Dichotomous variables assessing problems with obtaining prescriptions, mental health care, eyeglasses, or dental care due to cost were also assessed. Access to mental health, optometrists, podiatrists, chiropractors, physical therapists, allied health professionals, OB/GYN, specialists, generalists, and Family Medicine were assessed as dichotomous variables, as well as use of home health care in the past 12 months. Preventive screening for skin, cervical, and breast were assessed. Specifically, patient self-report of time since last screening was reported categorically (none, 1 year ago or less, more than 1 year ago but not more than 2 years ago, more than 2 years ago but 3 years ago or less, more than 3 years ago but 5 years ago or less, and over 5 years ago) and reason for exam was reported categorically (part of a routine exam, because of a problem, other). Reason for not having a Pap or mammogram in the past 3 years (because a doctor didn't order it or because they don't have a doctor) and whether a doctor recommended a screening in the past 12 months were reported as dichotomous variables. Values for patient education variables were limited to those who had seen a doctor in the past 12 months. Whether a provider made exercise recommendations, asked about tobacco and advised to quit smoking were reported as dichotomous variables.

Statistical analysis

Bivariate relationships between race/ethnicity (African-American compared with non-Hispanic White) and the series of dichotomous treatment and access outcomes of interest were examined. All analyses included adjustments to account for the underestimation of standard error due to the sampling methodology. Bivariate analysis included chi-square analysis for categorical and dichotomous variables. Independent samples t-tests were used to assess differences in continuous variables. Statistical significance was determined at $\alpha=0.05$. Since the n was large for both racial groups, the effect was also evaluated for practical relevance. An effect size of 5 percent was used to determine practical relevance.

RESULTS

Study Participants

Table 1 shows that of the 4,626 women with chronic joint pain in the 2005 NHIS data set, 694 (15%) were African American and 3,932 (84%) were non-Hispanic White. The average age of African American women was 58 (SD=3.18) years, while the average age of non-Hispanic White women was 62 (SD=2.46) years. Although not statistically significant, non-Hispanic White women reported being currently employed more often than African American women ($p=0.10$).

Among women with chronic joint pain, African American women compared with non-Hispanic White women were less likely to have insurance coverage ($p<0.01$). 12.25% of African-American women with chronic joint pain have no insurance coverage compared to 7.07% of non-Hispanic White women. Among women with chronic joint pain who were insured, African American women compared with non-Hispanic White women were less likely to have private health insurance and more likely to have Medicaid ($p<0.01$).

Healthcare Access

Among women with chronic joint pain, African American women compared with non-Hispanic White women were less likely to have one place to receive healthcare ($p=0.02$). African-American women with chronic joint pain had significantly more emergency room visits in the past year compared with non-Hispanic White women ($p<0.01$). Additionally, African American women compared with non-Hispanic White women were more likely to have received home care ($p=0.04$), although the corresponding 134 percent differences are very small.

Although not statistically significant, African American women compared with non-Hispanic White women identified making appointments and lack of transportation as barriers to receiving healthcare ($p=0.25$ and $p=0.06$, respectively) more often. Conversely, non-Hispanic White women compared with African American women identified the telephone, wait time, and office hours as barriers to receiving healthcare ($p=0.18$, $p=0.32$, and $p=0.07$, respectively) more often. African American women compared with non-Hispanic White women were less likely to be able to afford prescriptions, eyeglasses, or dental care ($p<0.01$, $p<0.01$, and $p=0.05$, respectively).

Overall, African American women with chronic joint pain had less access to health professionals compared with their non-Hispanic White counterparts ($p<0.01$). African American women were significantly less likely to have access to mental health specialists, optometrists, chiropractors, allied health specialists, and family health practitioners compared to non-Hispanic White women ($p<0.01$), but significantly more access to OB/GYN specialists ($p=0.01$) when compared with non-Hispanic White women.

Screening

Table 2 shows that, among women with chronic joint pain, African American women compared with non-Hispanic White women were less likely to have ever had a doctor examine their skin for signs of cancer ($p<0.01$). Additionally, African American women were more likely to have their skin checked as part of a routine exam ($p=0.05$).

Table 1. General Characteristics of Non-Hispanic White and African American Women 18 years of age and older with chronic joint pain (arthritis, rheumatoid arthritis, lupus, fibromyalgia, or gout), 2005 NHIS Data Set (N= 4,626)

Variable	Non-Hispanic White N=3,932 n (%)	African American N=694 n (%)	P Value
Demographics			
Age, mean	61.58 (2.46)	58.43 (3.18)	
No Insurance Coverage	2.78 (7.07)	85 (12.25)	0.002
Medicaid	390 (9.92)	165 (23.78)	<0.001
Private	2,517 (64.01)	287 (41.35)	<0.001
Currently Employed	1,414 (35.96)	242 (34.87)	0.100
Access to care			
One place for care	3,682 (93.64)	636 (91.64)	0.020
No ER visits in past year	2,744 (69.79)	407 (58.65)	<0.001
Home care	259 (6.59)	47 (6.77)	0.040
Barriers			
Telephone	137 (3.99)	22 (3.17)	0.183
Making appointment	293 (7.45)	55 (7.93)	0.245
Wait time	289 (7.35)	49 (7.05)	0.322
Office hours	179 (4.55)	21 (3.03)	0.070
Lack of transportation	169 (4.30)	37 (5.33)	0.063
Can't afford			
Prescriptions	543 (13.81)	145 (20.89)	<0.001
Eyeglasses	432 (10.99)	114 (16.43)	<0.001
Dental Care	645 (16.40)	135 (19.45)	0.050
Access to health professionals			
Mental health	410 (10.43)	48 (6.92)	0.006
Optometrist	2,161 (54.96)	335 (48.27)	0.002
Chiropractor	543 (13.81)	27 (3.89)	<0.001
Physical therapist	706 (17.96)	118 (17.00)	0.083
Allied health	919 (23.37)	119 (17.15)	<0.001
OB/Gyn	1,205 (30.65)	245 (35.30)	0.009
Family Medicine	1,859 (54.01)	221 (37.14)	<0.001

Table 2. Screening Characteristics of Non-Hispanic White and African American Women 18 years of age and older with chronic joint pain (arthritis, rheumatoid arthritis, lupus, fibromyalgia, or gout), 2005 NHIS Data Set (N= 4,626)

Variable	Non-Hispanic White N=3,932 n (%)	African American N=694 n (%)	P Value
Screening			
Ever had skin checked for cancer	933 (23.73)	86 (12.39)	<0.001
Skin exam part of routine exam	546 (58.52)	64 (74.42)	0.049
Ever had Pap Smear	3,557 (90.46)	612 (88.18)	0.143
Most Recent Pap Smear more than 5 years ago	688 (44.47)	92 (35.25)	0.005
Most important reason for not getting Pap Smear in past 3 years			
No reason	282 (25.43)	64 (34.18)	0.027
Did not know needed	110 (9.92)	19 (12.03)	
Doctor did not order	176 (15.87)	18 (11.39)	
Procrastinated	47 (4.24)	10 (6.33)	
Too expensive	47 (4.24)	9 (5.70)	
Too painful	28 (2.52)	4 (2.53)	
Dr recommended Pap Smear in past 12 months	1,874 (55.72)	329 (52.14)	0.110
Ever had Mammogram	3,096 (81.39)	504 (75.22)	0.007
Mammogram part of routine exam	2,813 (90.86)	475 (94.25)	0.029
Most recent Mammogram less than 1 year ago	187 (17.43)	44 (24.04)	0.207
Most important reason for not getting Mammogram in past 3 years			
No reason	382 (31.34)	89 (38.36)	0.146
Didn't know necessary	105 (8.61)	30 (12.93)	
Haven't had problems	83 (6.81)	17 (15.95)	
Too young	46 (3.77)	10 (4.31)	
Dr recommended Mammogram in past 12 months	2,080 (59.86)	318 (51.79)	0.004
Patient Education			
Exercise recommendation	1,477 (39.13)	278 (41.49)	0.003
Dr asked about tobacco	1,417 (37.23)	259 (39.06)	0.175
Dr advised to quit smoking	465 (70.24)	84 (69.42)	0.854

Although not statistically significant, African-American women with chronic joint pain were less likely to have ever had a pap smear compared with non-Hispanic White women ($p=0.14$). However, significantly more African American women reported their most recent pap smear to be more than five years ago ($p<0.01$). Significantly more African American women compared with non-Hispanic White women did not have a reason for not getting a pap test in the past three years ($p=0.03$). Other reasons reported more often by African American women for not getting a pap smear within the past three years were that they did not realize that a pap smear was needed, a doctor did not order one, procrastination, they felt it was too expensive, or they felt it was too painful. Although not statistically significant, African American women compared with non-Hispanic White women were less likely to have a doctor recommend a pap smear in the past 12 months ($p=0.11$).

African-American women with chronic joint pain were significantly less likely to have ever had a mammogram compared with non-Hispanic White women ($p=0.01$). Significantly more African American women with chronic joint pain reported that their mammograms were associated with a routine exam compared to non-Hispanic White women ($p=0.03$). Other reasons reported more often by African American women for not getting a mammogram within the past three years were that they did not know it was necessary, they hadn't had any problems, or they felt they were too young. Significantly less African American women compared with non-Hispanic White women had a doctor recommend a mammogram in the past 12 months ($p<0.01$).

Patient Education

Among women with chronic joint pain, African American women compared with non-Hispanic White women were more likely to have a doctor recommend exercise ($p<0.01$) and ask them about tobacco use ($p=0.18$). However, African American women were less likely to have a doctor advise them to quit smoking ($p=0.85$).

DISCUSSION

Summary

This study used a secondary data source to evaluate racial differences in health care from a patient perspective and demonstrated that self-reported access to health care by women with chronic joint pain differed between African American and non-Hispanic White women, specifically with regard to breast and cervical cancer screening and patient education. Among women with chronic joint pain, African American women compared with non-Hispanic White women were less likely to: be insured, have a regular source of care, receive a pap smear or mammogram within the last two years, have access to health professionals, or receive patient education.

Our findings support previous research showing that racial/ethnic differences in screening patterns exist. However, observed disparities among women with chronic joint pain were less than the general population. While other studies have demonstrated screening rates that were from 10% to three times lower in Black women compared to White women (Finney, et al., 2006; Han, et al., 2003; Lees, et al., 2005; McCarthy, et al., 1998; O'Malley, et al., 2005), differences in screening rates between Black and White women in the present study ranged from 2 to 11%. Similarly, Black women in the present study were approximately 5% less likely to be insured, while Black women in the general population are generally 9% less likely to be insured compared with White women (ACS, 2007; Ward, et al., 2008). Additionally, in other studies barriers to screening were more common for minority women compared with White women (Han, et al., 2003; Paskett, et al., 2004). In the present study, barriers to accessing health care were similar between racial/ethnic groups. Other studies have shown that Medicaid coverage is associated with increased use of health care services (Selvin & Brett, 2003), which may explain increased self-reported access to OB/GYN specialists among African

American women in the present study, since they were also more likely to have Medicaid compared with non-Hispanic White women. However, while African American women were less likely to have ever had their skin checked for cancer in the present study, more of their reported skin exams were part of a routine exam when compared with those reported by non-Hispanic White women, which still demonstrates that African American women were less likely to receive additional referrals, outside of their regular standard of care, for preventive services. Observed disparities may have been less because all women in the present study are more likely to be in the health care system and access health care in similar ways due to their homogeneous disease status.

Public Health Relevance

This study is unique in that it focuses on women with chronic joint pain. Women with chronic joint pain are complex patients that often see multiple providers to treat signs and symptoms of their disease. Due to competing demands, these women may not receive preventive services such as cancer screening or patient education encouraging a healthy lifestyle, and it is important to understand whether race further compounds such situations. Several studies have shown that having a regular source of care is predictive of cancer screening (Augustson, Vadaparampil, Paltoo, Kidd, & O'Malley, 2003; Cummings, Whetstone, Shende, & Weismiller, 2000; Rao, Graubard, Breen, & Gastwirth, 2004; Seltzer & Glassman, 2002; Selvin & Brett, 2003). This study's findings were consistent with other investigations that have demonstrated racial disparities with regard to health care access and screening. One study showed that among women attending inner-city primary care health centers, patterns of screening differed among non-Hispanic White, African American, and Hispanic women (Finney, et al., 2006). Paskett and colleagues (2004) surveyed 897 White, African American, and Native American women residing in rural North Carolina and found that barriers to receiving cancer screening tests were more common for minority women compared with White women of comparable income level (Paskett, et al., 2004).

CONCLUSION

The current study fills a gap in current literature by assessing the use of preventive cancer screening (i.e., Pap smear and mammography) among women with chronic joint pain, which encompasses complex autoimmune diseases. This study determined that racial disparities do exist in access to care and use of services among women with chronic joint pain. The literature suggests that co-morbidity impacts use of Pap and mammography, but few studies have examined racial disparities in cancer screening among patients with chronic disease. Studying cancer screening among groups with complex chronic disease such as autoimmune diseases may provide insight into continuing disparities in cancer-related mortality, which remains higher in African American women compared to non-Hispanic White women.

FUTURE DIRECTIONS

Public health agencies, health professionals, and independent researchers have agreed that one of the most promising strategies to eliminate racial disparities in cancer survival is to improve early cancer detection through routine mammography, Pap tests, and colorectal cancer screening (ACS, 2003). The results of this study can be used to formulate interventions and evaluate approaches to reduce racial/ethnic disparities in outpatient service delivery in terms of continuity and scope of care and breast and cervical cancer screening. This study's findings can also be used as preliminary data to support community-based participatory research (CBPR) approaches to identify the prevalence of cancer screening in patients with lupus and other autoimmune diseases, determine the impacts of barriers to health care delivery on maintaining a regular screening regimen in this population, and develop interventions to better coordinate preventive and acute health care delivery for patients with complex chronic disease with a focus on health disparities among African American women.

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