

Pleased to be Pregnant? Positive Pregnancy Attitudes among Sexually Active Adolescent Females in the United States



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ABSTRACT

Study Objective: To identify factors associated with a positive pregnancy attitude among sexually active US teen females.

Design: Secondary database analysis of the National Survey of Family Growth.

Participants: Adolescent females 15-19 years old.

Setting: Nationally representative sample.

Methods: Bivariate and multivariable analyses were performed of the 2002 and 2006-08 cycles to examine whether sociodemographic factors, contraceptive history, sexual education and behavior history, medical services history, and family and sexual attitudes were associated with a positive pregnancy attitude among sexually active teen females.

Results: Among the 975 sexually active US adolescent females surveyed, 15% reported a positive pregnancy attitude. Compared with adolescent females with a negative pregnancy attitude, those females with a positive pregnancy attitude were significantly ($P < .05$) more likely to have public insurance (43% vs 20%), to be poor (33% vs 10%), to have reached menarche at an earlier age (12 years old vs 13 years old), ever have HIV tested (35% vs 23%), but less likely to have ever been forced to have sex (1% vs 10%). In multivariable analyses, Latino race/ethnicity was associated with triple the odds, and African-American double the odds, of a positive pregnancy attitude. Older age of menarche and higher family income were associated with reduced odds of a positive pregnancy attitude.

Conclusions: One in 7 sexually active US adolescent females had a positive pregnancy attitude. Minority race/ethnicity was associated with greater odds of a positive pregnancy attitude, whereas older age of menarche and a higher family income were associated with lower odds of a positive pregnancy attitude. Assessing pregnancy attitudes for these groups of adolescent females might prove useful to decrease adolescent pregnancy rates.

Key Words: Adolescent pregnancy, Risk factors, Attitudes, Secondary database analysis

Introduction

The adolescent birth rate in the United States (US) has recently declined.¹ Nevertheless, compared with other industrialized countries, the US continues to have the highest adolescent birth rate.² Research has identified factors associated with females' pregnancy intentions toward a current or previous pregnancy, examining wantedness, timing, planning, and happiness.³ There has been limited research, however, on pregnancy attitudes regarding a future pregnancy among adolescents.⁴ Having a casual sexual partner in the last 6 months, using condoms inconsistently, not using hormonal contraception, not using contraception at last sexual activity, having an older partner, and reporting having limited options other than dating the current partner were associated with a positive pregnancy desire among urban African-American sexually active adolescents.⁵ A prospective study of sexually active adolescent females in 1 urban area demonstrated that age, age at sexual debut, and involvement in a current relationship of <6 months duration were

associated with a positive pregnancy desire.⁶ Another study of urban African-American and Latino young adults found that relationship duration, cohabitation, and higher frequency of sexual activity were associated with being pleased with a future pregnancy with a current partner.⁷ A positive attitude of the boyfriends' regarding pregnancy was associated with pregnancy desire in white and Latino adolescent females in a clinic-based study.⁸ A national representative study found young adult Latinas had higher odds of being more pleased with a pregnancy, compared with whites,⁹ whereas another study using the same database found that having friends who experienced an unplanned pregnancy and believing pregnancy is a blessing were associated with being pleased with an unplanned pregnancy among Latinos.^{10,11} Two other nationally representative studies demonstrated that age, race/ethnicity, parents with lower education attainment, living with 1 parent, having a prior pregnancy, not currently dating, and lack of discussion of sexual health topics with parents were associated with positive pregnancy attitudes among adolescent females.^{11,12}

No study, however, has examined factors in 4 different domains (sociodemographics, sexual behavior and education, use of medical services, and family and sexual attitudes) that might be associated with pregnancy attitudes in adolescent females. By identifying factors associated with a positive pregnancy attitude in adolescent females, it may be

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possible to distinguish those who are at high and low risk for pregnancy, and then to focus pregnancy-prevention efforts accordingly. The study aim, therefore, was to examine whether factors in 4 different domains were associated with positive pregnancy attitudes among sexually active US adolescent females.

Methods

Data Source

The nationally representative National Survey of Family Growth (NSFG) surveys US individuals 15–44 years old. Data are collected on sexual behaviors, education, and history; relationships, including marriage and divorce; adoption and childcare; and family and sexual attitudes.¹³ In the 2002 and 2006–2010 cycles of the NSFG, 2,271 and 4,662 in-person interviews, respectively, were conducted with adolescent females and males 15–19 years old.^{13–16} Adolescents 15–17 years old required parental consent to participate in the NSFG.^{16–17} College students were considered to be part of the household, and if selected to participate in the NSFG, were interviewed at their college, or at their parents' home during summer or holiday breaks.^{15,18} The adolescent response rate for the 2002 NSFG was 81%, and for the 2006–2010 NSFG, 77%.^{13,17}

In-person screening interviews were conducted by the NSFG to determine if an individual 15–44 years old resided in the household, and to randomly select an individual to participate in the NSFG.^{16,17} Trained female interviewers conducted the in-person interviews, which consisted of a computer-assisted personal interviewing section and an audio computer-assisted self-interview section.^{16,17} NSFG questionnaires and interviews were available in English or Spanish.^{16,17} The use of NSFG sample weights provides estimates which generalize to the entire non-institutionalized US population of individuals 15–19 years old.^{15,18}

Definitions and Variables

The primary outcome—pregnancy attitude—was assessed by using the NSFG survey item, “If you got pregnant now, how would you feel? Would you be very upset, a little upset, a little pleased, or very pleased?” The response of “would not care” could be chosen, if the respondent insisted. Given that the purpose of the study was to examine factors associated with a positive pregnancy attitude, “very pleased” and “a little pleased” responses were classified as a positive pregnancy attitude, and “a little upset” and “very upset” responses were classified as a negative pregnancy attitude. A sensitivity analysis revealed that classifying “would not care” as either a positive or negative pregnancy attitude did not change the bivariate or multivariable results, and so “would not care” was classified as a positive pregnancy attitude in final analyses. Pregnancy wantedness, pregnancy timing, happiness about a pregnancy, and intent on becoming pregnant were asked only of women who were or had been pregnant in the NSFG, and therefore could not be measured in our study sample.

Adolescents who ever had vaginal sexual intercourse with a male were considered sexually active. Race/ethnicity was assessed via self-identification and those adolescents identifying themselves as Asian/Pacific Islander or American Indian/Alaska Native were combined into the “other” category, due to small sample sizes. If an adolescent was uninsured for part, but not all, of the past 12 months, she was considered sporadically uninsured. According to the NSFG, an adolescent was considered to have lived away from home if prior to 18 years old, she left home to serve in the Armed Forces, attend college, or take up residence in any other circumstance where adult caregivers were not present home. The time spent at a boarding school, an institution, a group home, or a jail was not considered as living away from home. A usual source of care was defined as a source of healthcare where the adolescent went for well-child care and sick visits. The conceptual framework for identifying potential variables that might be associated with pregnancy attitudes was the social ecological theory, in which factors from multiple levels (individual, peer/partner, family, etc.) can directly and indirectly affect human behavior.¹⁹ For certain missing variables that are used frequently in analysis, the NSFG used regression imputation.^{15,18}

Analyses

NSFG data from the 2 cycles were pooled for analysis. All sexually active females 15–19 years old were included in the sample, except those adolescent females that were parenting or pregnant. PROC SURVEY procedures in SAS 9.1 were used for bivariate analysis to adjust for the complex NSFG sampling design and to produce weighted estimates (SAS Software, Release 9.1, SAS Institute, Cary, NC). For sexually active females 15–19 years old, factors in the 4 domains (socio-demographics, sexual behavior and education, use of medical services, and family and sexual attitudes) were examined. Sociodemographic characteristics were compared for adolescents with a positive versus negative pregnancy attitude, followed by bivariate analyses to examine potential associations of sexual behaviors and education, medical services, and family and sexual attitudes with pregnancy attitudes. The chi-square test was used for categorical variables, and the t-test was used for continuous variables.

To examine adjusted associations of factors in the above 4 domains with a positive pregnancy attitude, 2-step multivariable analyses were performed. First, all variables in bivariate analyses were entered into logistic regression analyses. Then, only significant variables from the first logistic regression were forced into the final regression analyses. Variables such as family income, parental education, type of residence, and mother's employment were checked for collinearity before being entered into multivariable analyses.

Results

Sample

The sample was 975 sexually active US females 15–19 years old who were never pregnant or were not parents. The mean age of the adolescent females in the sample was

Table 1
Selected Sociodemographic Characteristics of Sexually Active US Adolescent Females

Characteristic	Weighted Mean (\pm SE) or Proportion (%) (n = 975)
Age, y	17.5 (0.1)
Race/ethnicity	
White*	66.9
African-American	16.4
Latino	11.8
Other [†]	4.8
US born	95.1
Type of insurance in last 12 months (%)	
Uninsured	4.4
Private insurance	71.5
Public insurance	24.1
Family income	
< 100% poverty level	12.8
100%–199% poverty level	8.7
200%–299% poverty level	30.4
300%–399% poverty level	28.2
> 400% poverty level	20.0
Always lived with parents [‡]	63.9
Age of menarche, y \pm SE	12.4 \pm 0.06
Highest school grade attended	
9 th	7.7
10 th	10.7
11 th	19.0
12 th	29.2
At least some college	33.4
Ever suspended	31

* Non-Latino.

[†] Including Asian/Pacific Islander, American Indian/Alaskan Native, and multiracial; individual analyses for these groups were not done due to small sample sizes and unstable estimates.[‡] The adolescent has always lived with her biological/adopted parents since birth or adoption.

17 years old. African-American and Latino adolescent accounted for 15% and 10% of the study population (Table 1). Close to one-quarter of adolescents were publicly insured. Only about one-tenth of adolescents were poor. Over one-third of adolescents attended at least some college.

Bivariate Associations with Pregnancy Attitudes

A total of 975 interviews were conducted with sexually active females 15–19 years old; 15% reported a positive pregnancy attitude. Response frequencies for the question “If you got pregnant now, how would you feel?” were: 5% would be very pleased, 10% would be a little pleased, 0.4% would not care, 29% would be a little upset, and 55% would be very upset. Approximately 0.6% of responses were “unknown” or missing.

Adolescent females with a positive pregnancy attitude were more likely to be of a minority race/ethnicity, to have ever worked full-time, to have public insurance or be uninsured at the time of the study, to be poor or lower income, and were sporadically insured in the past 12 months (Table 2, A). Higher proportions of adolescent females with a positive pregnancy attitude did not have a male parental figure at home when the adolescent female was 14 years old, and were more likely to be born outside the US and have an older age of menarche.

Adolescent females with a positive pregnancy attitude were more likely to have unmarried biological parents and a father who did not attend college (Table 2, B). Mothers' of adolescent females with a positive pregnancy attitude were

Table 2A
Bivariate Analysis of Association of Adolescent Characteristics with Pregnancy Attitudes among Sexually Active US Adolescent Females 15–19 Years Old

Characteristic	Weighted Mean (\pm SE) or Proportion (%)		P
	Positive Pregnancy Attitude (PA) (n = 139)	Negative Pregnancy Attitude (PA) (n = 836)	
Race/ethnicity			<.01
White	43.8	70.3	
African-American	26.1	15.0	
Latino	21.5	10.4	
Other	8.6	4.3	
Ever worked full-time for > 6 months	16.5	8.0	<.01
Type of insurance in last 12 months			<.01
Uninsured	5.9	4.0	
Public insurance	42.8	20.1	
Private insurance	49.8	71.2	
Unknown	1.5	4.7	
Family income			<.01
< 100% poverty threshold	32.7	9.6	
100%–199% poverty threshold	14.9	7.7	
200%–299% poverty threshold	26.3	31.0	
300%–399% poverty threshold	15.3	30.3	
> 400% poverty threshold	10.8	21.4	
Sporadic insurance coverage	21.0	13.2	.02
Male parent or parent-figure in home at 14 years old			.04
Biological father	12.4	28.1	
Step father	27.1	27.8	
No father figure	43.9	30.8	
Other father figure	16.6	13.4	
US born	91.1	95.7	<.05
Age of menarche (years)	11.9 (\pm 0.2)	12.5 (\pm 0.1)	<.05
Age (years)	17.5 (\pm 0.02)	17.5 (\pm 0.01)	.10
Female parent or parent-figure in home at 14 years old			.11
Biological mother	89.3	83.5	
Other mother figure	10.4	13.2	
No mother figure	0.3	3.3	
Ever lived away from home	15.6	9.8	.13
Has always lived with parents	55.4	65.0	.15
Importance of religion			.17
Very important	45.3	34.7	
Somewhat important	47.2	55.2	
Not important	7.5	10.1	
Ever suspended from school	41	29	.19
Highest school grade attended			.24
\leq 9 th grade	12.9	7.0	
10 th	11.3	10.6	
11 th	17.2	19.3	
12 th	31.1	28.9	
At least some college	27.6	34.2	
Frequency of current religious services attendance			.58
> once weekly	20.8	24.1	
\geq once monthly	38.3	33.5	
> several times a year	22.2	26.2	
> rarely or never	18.9	16.2	

more likely to not be a high-school graduate and have their first child at < 18 years old. Adolescent females with a positive pregnancy attitude were more likely to have parents who rent their home.

Lower proportions of adolescent females with a positive pregnancy attitude were forced to have sex (Table 3, A). The mean age of sexual debut was lower for adolescent females with a positive pregnancy attitude.

Adolescent females with a positive pregnancy attitude were less likely to be diagnosed with genital warts, but more likely to ever have been tested for HIV (Table 3, B).

Table 2B

Bivariate Analysis of Association of Parental Characteristics with Pregnancy Attitudes among Sexually Active US Adolescent Females 15–19 Years Old

Characteristic	Weighted Mean (±SD) or Proportion (%)		P
	Positive PA	Negative PA	
Biological parents married	58.3	76.4	<.01
Father's highest educational attainment			<.01
Not a high-school graduate	28.6	9.1	
High-school graduate or GED*	40.0	38.0	
Some college	12.0	23.9	
Bachelor's degree or higher	19.3	29.0	
Mother's highest educational attainment			.01
Not a high-school graduate	20.6	11.1	
High-school graduate or GED*	37.4	31.4	
Some college	28.8	32.7	
Bachelor's degree or higher	13.2	24.8	
Mother's age at first child			.01
< 18 years old	22.7	11.5	
18–19 years old	15.8	17.8	
20–24 years old	40.6	36.1	
25–29 years old	10.2	23.5	
≥ 30 years old	10.6	11.1	
Type of residence			.03
Parents own	55.1	66.6	
Parents rent	44.9	33.4	
Mother's employment status			.06
Full-time	61.3	61.7	
Part-time	17.4	18.5	
Full-time and part-time	7.3	2.4	
Not working	14.0	17.4	
Number of children born to mother			.80
1	12.1	10.1	
2	35.2	37.5	
≥3	52.7	52.3	

* GED = general equivalency degree.

Lower proportions of adolescent females with a positive pregnancy attitude had a usual source of medical care.

Lower proportions of adolescent females with a positive pregnancy attitude agreed that a working mother's relationship with her children was similar to a non-working mother's relationship and that it is important for a man to spend a lot of time with his family (Table 3, C). Adolescent females were more likely to report being almost certain to feel less physical pleasure with a condom, and to agree that a man should work and a woman should take care of the home. No significant associations were found for any other variables in the different domains.

Multivariable Analysis

Latino adolescent females had triple the odds and African-American adolescent females had double the odds of a positive pregnancy attitude (Table 4). A higher annual combined income of the adolescent females' family and older age of menarche were associated with lower odds of a positive pregnancy attitude.

Discussion

In this study, 15% of sexually active US adolescent females were found to have a positive pregnancy attitude. A 2003 prospective nationally representative study demonstrated

Table 3A

Bivariate Analysis of the Association of Sexual Behavior and Sexual Education History Characteristics with Pregnancy Attitudes among Sexually Active US Adolescent Females 15–19 Years Old

Characteristic	Weighted Mean (±SE) or Proportion (%)		P
	Positive PA	Negative PA	
Sexual behavior history			
Forced to have vaginal sex	1.2	10.0	<.01
Age of sexual debut (years)	15.4 (±0.2)	16.1 (±0.2)	<.05
Condom used with last sex	78.8	69.8	.13
Number of male sexual partners in last 12 mths	2.5 (±0.8)	1.7 (±0.1)	.14
Number of lifetime male sexual partners	4.3 (±0.9)	4.3 (±1.3)	.99
Age of first male sexual partner (years)	18.7 (±0.4)	18.2 (0±.2)	.98
Sexual education history			
Formal instruction about STI	91.1	96.2	.06
Grade at first STI education			.07
≤6 th grade	23.0	15.0	
7 th –9 th grade	57.6	74.9	
≥10 th grade	19.4	10.1	
Sexual education topics discussed with parents	87.8	92.5	.14
Instruction on how to say no to sex prior to sexual debut	89.4	78.0	.24
Instruction about STI prior to sexual debut	82.6	68.9	.26
Instruction about birth control prior to sexual debut	66.1	72.4	.39
Virginity pledge	9.8	7.9	.57
Grade at first contraceptive education			.57
≤6 th grade	20.9	18.8	
7 th –9 th grade	60.8	66.4	
≥10 th grade	18.4	14.8	
Received formal contraceptive education	75.0	77.5	.64
Received formal education on how to say no to sex	90.2	89.2	.73
Grade of first education on how to say no to sex			.86
≤6 th grade	38.2	38.7	
7 th –9 th grade	53.8	55.0	
≥10 th grade	8.0	6.3	

that up to 30% of never-married adolescent females 15–19 years old had positive pregnancy attitudes.¹¹ Our study focused on sexually active adolescents, which are at higher risk for pregnancy. Pregnancy attitudes in adolescent females are important, given that positive pregnancy attitudes have been associated with a subsequent pregnancy.^{3,6,11} It may prove useful to identify sexually active adolescent females with positive pregnancy attitudes, so that healthcare providers can focus and tailor pregnancy-prevention and family-planning counseling. There is evidence suggesting that positive healthcare provider communication is associated with preventing rapid repeat pregnancy in teen mothers.²⁰ Studies are needed to determine if counseling can change positive pregnancy attitudes among sexually active adolescent females.

African-American and Latino sexually active adolescent females had higher odds of having a positive pregnancy attitude, consistent with other studies.^{9,11,12} These studies either used data over 20 years old, examined a limited number of variables, or only examined young adults.^{9,11,12} Our findings are consistent with the higher adolescent pregnancy and birth rates among African-Americans and Latinos adolescent females.^{1,21} Minority adolescent females may have different views toward adolescent pregnancy. In 1 qualitative study, African-American adolescents in a Pacific

Table 3B

Bivariate Analysis of the Association of Family Planning and Medical Services with Pregnancy Attitudes among Sexually Active US Adolescent Females 15–19 Years Old.

Characteristic	Weighted Mean (\pm SE) or Proportion (%)		P
	Positive PA	Negative PA	
Family planning and medical services			
Diagnosed with genital warts	0.2	3.1	<.01
Ever tested for HIV	35.4	22.6	.01
Usual source of medical care	82.1	91.8	.02
Ever used withdrawal method	43.3	52.9	.09
Diagnosed with gonorrhea in past 12 mths	8.7	17.9	.11
Diagnosed with chlamydia in past 12 mths	28.8	51.9	.19
Treated for STI in last 12 mths	9.1	5.2	.27
Ever used Depo-Provera	13.7	12.0	.60
Ever used oral contraceptive pill	50.9	53.4	.68
Ever used emergency contraception	10.7	9.6	.79

Northwest city reported that becoming an adolescent mother had a high level of acceptance in their community.²² Maintenance of traditional gender roles, norms regarding adolescent motherhood in Latino countries, and low occupational expectations may play a role in positive pregnancy attitudes for some Latino adolescent females.^{23,24} Furthermore, a nationally representative study demonstrated that African-American and Latino adolescent females were less likely to be embarrassed by an adolescent pregnancy, compared with whites.²⁵ A greater understanding of racial/ethnic disparities in adolescent females' pregnancy attitudes may be useful in informing pregnancy-prevention programs and family-planning counseling.

Table 3C

Bivariate Analysis of the Association of Family/Sexual Attitudes with Pregnancy Attitudes Among Sexually Active US Adolescent Females 15–19 Years Old

Characteristic	Weighted Mean (\pm SE) or Proportion (%)		P
	Positive PA	Negative PA	
Family/sexual attitudes			
Agree that working mother's relationship with her children similar to non-working mother's relationship	77.6	87.4	.01
Agree that is important for man to spend a lot of time with family	49.9	63.7	.01
Feel less physical pleasure with condom			.02
No chance	36.3	33.8	
A little chance	24.6	35.4	
50–50 chance	25.3	17.8	
A pretty good chance	7.2	10.3	
Almost certain chance	6.7	2.8	
Agree that man should work and the woman should take care of home	30.6	21.1	<.05
Feel comfortable talking with partner about condom use			.10
No chance	59.8	67.0	
A little chance	18.3	17.7	
50–50 chance	8.6	7.8	
A pretty good chance	5.7	4.9	
Almost certain chance	7.6	2.7	
Any sexual act between consenting adults is acceptable	79.1	84.1	.19
Acceptable for unmarried 16 year-olds to have sex	42.2	46.1	.48
Acceptable for unmarried female to have children	80.1	77.6	.59
Agree a young couple should not live together unless married	21.2	22.3	.80

Table 4

Multivariable Analysis of Factors Associated with a Positive Pregnancy Attitude among Sexually Active US Adolescent Females 15–19 Years Old

Characteristic	Odds Ratio (95% CI) of a Positive Pregnancy Attitude
Latino*	3.1 (1.9, 5.1)
African-American*	1.9 (1.03, 3.4)
Annual combined family income	0.6 (0.5, 0.8)
Age of menarche	0.8 (0.7, 0.98)

* Compared with whites.

A lower annual combined family income was associated with a positive pregnancy attitude. This finding is consistent with prior research demonstrating that poverty is associated with adolescent pregnancy.²⁶ The “opportunity costs” hypotheses suggests that some adolescent females of lower socioeconomic status may foresee limited educational or occupational opportunities and success, so these adolescents may believe that they have little to lose if engaged in activities that can lead to pregnancy and parenthood.²⁴ Exploring the role that poverty plays in pregnancy attitudes may lead to pregnancy-prevention interventions specifically targeted to low-income adolescent females.

An older age of menarche was associated with lower odds of having a positive pregnancy attitude. This finding complements work indicating an association of an earlier age of menarche with pregnancy.²⁷ Several hypotheses, including the role of sex hormones; differences in physical, emotional, and intellectual development; and the period of time between menarche and sexual debut have been advanced to account for the association of age of menarche with pregnancy.²⁷ Future research exploring age of menarche and pregnancy attitudes may clarify this association.

Certain study limitations should be noted. The NSFG is a cross-sectional survey; therefore, items which ask about past events, such as age of menarche or age of sexual debut, may be subject to recall bias, but the data provided by the 15–19-year-old females are likely accurate, given that the survey items focused on recent experiences.¹³ Individuals with limited English proficiency who spoke a primary language other than Spanish were excluded from the NSFG. Potential selection bias exists, given that adolescents required parental consent to participate in the NSFG. Respondents may have selected, in their opinion, the more socially desirable response, so the prevalence of a positive pregnancy attitude in sexually active adolescent females may actually be lower or higher. Only a single item was used to assess sexually active adolescent females' pregnancy attitudes, although this is consistent with previous work.^{5,12,28} Although the literature suggests that relationship characteristics are associated with pregnancy attitudes, the study focus was to examine pregnancy attitudes in all sexually active adolescent females who were not pregnant or parenting, not just adolescent females who were currently in heterosexual relationships. The NSFG also did not examine pregnancy desire.

There are several study strengths. This is the first study, to our knowledge, to use a nationally representative study to examine associations in 4 domains with a positive

pregnancy attitude in sexually active adolescent females. Additionally, adolescents who are and who are not enrolled in school are included in the NSFG, given that the NSFG is a household, not a school-based, survey.

Conclusion

The study findings have several research, clinical practice, and policy implications. The study findings suggest that it might prove useful for healthcare providers to ask sexually active adolescent females about their pregnancy attitudes, especially those who are poor or minorities. Studies, including our own, have identified racial/ethnic disparities in positive pregnancy attitudes, but reasons for these racial/ethnic differences need to be characterized. Those adolescent females with positive pregnancy attitudes may particularly benefit from pregnancy-prevention and family-planning counseling. Finally, focusing pregnancy-prevention and family-planning resources on adolescent females at highest likelihood for positive pregnancy attitudes has the potential to decrease adolescent birth rates, especially among poor and minority adolescents.

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