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Age at Sexual Assault and Posttraumatic Stress Disorder in Females Residents of Virginia

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Master of Public Health Research Project

Age at Sexual Assault and Posttraumatic Stress Disorder in Female Residents of Virginia

By

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Master of Public Health Program
MPH Research Project: EPID 691

Virginia Commonwealth University
Richmond, Virginia

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Submission Statement
Master of Public Health Research Project

This MPH Research Project report is submitted in partial fulfillment of the requirements for a Master of Public Health degree from Virginia Commonwealth University's School of Medicine. I agree that this research project report be made available for circulation in accordance with the program's policies and regulations pertaining to documents of this type. I also understand that I must receive approval from my Faculty Advisor in order to copy from or publish this document, or submit to a funding agency. I understand that any copying from or publication of this document for potential financial gain is not allowed unless permission is granted by my Faculty Advisor or (in the absence of my Faculty Advisor) the Director of the MPH Program.

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Master of Public Health
Research Project Agreement Form
Department of Epidemiology and Community Health

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Number of semester hours (3-6):3 Semester: Summer Year2005

Please complete the following outline. **Do not exceed 2 pages (A-H).**

A. PROJECT TITLE:
Age at Sexual Assault and Post Traumatic Stress Disorder in Female Resident in Virginia.

B. PURPOSE (state hypothesis/research question):
Do under-age female assault (SA) victims suffer more from post traumatic stress disorder (PTSD) compared to adult women?

C. SPECIFIC OBJECTIVES (list major aims of the study):
1. To examine the prevalence of PTSD among female sexual assault victims.
2. To determine the relationship between age at first sexual assault and PTSD after controlling for confounding factors.

D. DESCRIPTION OF METHODS

D.1. Identify source(s) of data (eg, existing data set, data collection plans, etc):
A telephone survey conducted in Virginia from November 2002 through February 2003.

D.2. State the type of study design (eg, cross-sectional, cohort, case-control, intervention, etc):
This was a cross sectional study conducted using a random digit dialing (RDD) telephone interview.

D.3. Describe the study population and sample size:
Study participants include 1,769 female residents of Virginia of which 489 women were victims of sexual assault. All women who have been victims of sexual assault will be included for this study.

D.4. List variables to be included (If a qualitative study, describe types of information to be collected)

Outcome variable: A composite variable will be created from a list of questions regarding moods, emotions and physical signs and symptoms of PTSD.
Main independent variable: Age at first sexual assault which will be dichotomized as <18 and 18 years and old.
Covariates or other predictors: Race, education, income, and marital status, treatment for sexual assault and drug use, perpetrators characteristics, use of weapons, injury, report to police, and perceived health status.

D.5. Describe methods to be used for data analysis (If a qualitative study, describe general approach to compiling the information collected)
Descriptive analysis will be conducted and proportions will be calculated to determine the prevalence of PTSD. Mean age of SA will be compared between females with and without PTSD and t-test and p-value will be calculated. Crude analysis will be conducted to examine the relationship between PTSD and predictor variable. Multiple logistic regression will be conducted to determine the magnitude of association between PTSD and age at first SA after controlling for the confounding factors.

E. ANTICIPATED RESULTS:
It is anticipated that females victimized at a younger age will most likely suffer from PTSD.

F. SIGNIFICANCE OF PROJECT TO PUBLIC HEALTH:
Sexual assault represents a serious public health problem with deleterious consequences for society. Nationally, a woman is sexually assaulted every two to three minutes, and one out of every three women experiences some form of sexual assault in her lifetime. One child in four will be sexually assaulted before his or her 18th birth day and approximately 75% will be girls. Several studies have examined the mental health consequences of sexual victimization. However, no studies examined the role of age at first victimization on PTSD. This study will assist health care providers and public health professionals understand the impact of SA.

G. IRB Status:

1) Do you plan to collect data through direct intervention or interaction with human subjects? ___yes __X__no

2) Will you have access to any existing identifiable private information? ___yes ___X_no

If you answered "no" to both of the questions above, IRB review is not required.
If you answered "yes" to either one of these questions, your proposed study must be reviewed by the VCU Institutional Review Board (IRB). Please contact Dr. Turf or Dr. Buzzard for assistance with this procedure.

Please indicate your IRB status:
___ to be submitted (targeted date_____)
___ submitted (date of submission _____; VCU IRB # _____)
___ IRB exempt review approved (date_____)

___ IRB expedited review approved (date_____)
___ IRB approval not required

H. PROPOSED SCHEDULE: Start Date: _____Anticipated End Date:_____

I. INDICATE WHICH OF THE FOLLOWING AREAS OF PUBLIC HEALTH KNOWLEDGE WILL BE DEMONSTRATED:

1. Biostatistics – collection, storage, retrieval, analysis and interpretation of health data; design and analysis of health-related surveys and experiments; and concepts and practice of statistical data analysis. X___yes ___no (if yes, briefly describe):

2. Epidemiology – distributions and determinants of disease, disabilities and death in human populations; the characteristics and dynamics of human populations; and the natural history of disease and the biologic basis of health. _X__yes ___no (if yes, briefly describe):

3. Environmental Health Sciences – environmental factors including biological, physical and chemical factors which affect the health of a community. ___yes _X_ no (if yes, briefly describe):

4. Health Services Administration – planning, organization, administration, management, evaluation and policy analysis of health programs. ___yes _X__no (if yes, briefly describe):

5. Social/Behavioral Sciences – concepts and methods of social and behavioral sciences relevant to the identification and the solution of public health problems. __X_yes ___no (if yes, briefly describe):

PTSD is a mental health problem which requires understanding of behavioral health. Literature searches and analysis for this study will require knowledge in behavioral sciences.

Referencews

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Dedication

This work is dedicated with love to my wife Rasha for her patience, encouragement, and support. Also dedicated to my son Ibrahim, my daughters Zainab and Yousra who add joy and meaning to life.

It is also dedicated with profound respect to Dr. Cheryl Almateen for her wonderful and limitless support and encouragement.

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Acknowledgment

I would like to acknowledge with sincere appreciation Dr. Saba, Masho who applied her time, effort, and knowledge generously, and played a significant role in bringing this task to exist in its present form.

I express my particular gratitude to Professor Talham, Adera, who built a good epidemiology base for me in preparation for this research project.

Special thanks to all my professors and the faculty members who provided me with a broad public health, community, and preventive medicine knowledge, which helped me in completing this work.

I would like to extend my heart felt thanks with appreciation to Dr. Donald E. Yeatts, Miss Terry Yeatts, Dr. Jameson G. Buston, and all Commonwealth Clinic staff, with whom I did my community service.

I extend my thanks to Carel Erickson and all M10E Cardiology floor for their support and flexibility.

Abstract

Background

Post Traumatic Stress Disorder (PTSD) is a psychiatric debilitating condition that can occur in individuals who experience extremely stressful or traumatic life events. Sexual assault is considered as one of the most traumatic stressor in life. Although few studies investigated the association between history of sexual assault and PTSD, no studies have examined the impact of age at sexual assault on PTSD.

Method

A cross-sectional telephone survey was conducted among adult female residents of Virginia from November 2002 to February 2003. A total of 1,769 women aged 18 and older were interviewed using a random digit dialing method. Detailed screening questionnaire was utilized to ascertain the occurrence of sexual assault, age at sexual assault and PTSD. The DSM-IV diagnostic criteria were used to define PTSD.

Result

The prevalence of PTSD among women with no history of sexual assault, those victimized before the age of 18 and 18 and above was 8.1%, 35.3%, and 30.2% respectively. Multivariate logistic regression model showed an increase risk of PTSD among women assaulted at a younger age. Compared to women with no history of sexual assault, women who were victimized before their 18^{th} birthday were 2.8 times more likely to suffer from PTSD [OR=2.78 (95% CI=1.87-4.23)]. The risk of PTSD among women victimized as adults was 2.6 times higher compared to women with no history of sexual assault [OR=2.59 (95%CI =1.43-4.70)].

Conclusion

This study provided important information on the association between PTSD and age at sexual assault. The risk of PTSD is relatively higher among those assaulted before the age of 18. The adverse effect of sexual assault as a risk for PTSD in addition to other negative health problems is a major public health concern. Primary prevention strategies should be in place to detect sexual assault victims and prevent the occurrence of PTSD.

Introduction

Sexual assault is a serious public health problem. In the United States 20 to 30 women are sexually assaulted every one hour.[1,2,3] Approximately 30% of women experiences some form of sexual assaults in their lifetime and, approximately 24 percent of children will be sexually assaulted before their 18th birthday; about 74 percent will be girls.[1,2] According to the Children Bureau of the US Department of health and human services (DHHS), approximately 903,000 cases of child maltreatment were substantiated in the United States in 2002.[3,4]

Sexual assault affects all sectors of society and has many psychiatric implications.

In study of sexually and physically abuse boys and girls age 7-13, Post Traumatic Stress Disorder (PTSD) was only the fourth most common diagnosis, following separation anxiety, oppositional defiant, and conduct disorder.[3] PTSD is a psychiatric debilitating condition that can occur in individuals who experience extremely stressful or traumatic life events. It is characterized by upsetting memories or thoughts of ordeal, blunting of emotions, increased arousal, and sometimes severe personality changes. It can affect people of all ages. As the individual struggles to cope with life after the event, ordinary situations reminiscent of the trauma often trigger frightening and vivid memories. Among the most troubling symptoms of PTSD are flashbacks, which can be triggered by sounds, smells, feelings, or images. During the flashback, the person relives the traumatic event and may completely lose touch with reality, suffering through the trauma for minutes or hours at a time, believing that it is actually happening all over again.[1,2,3]

To diagnose PTSD, DSM-IV (American Psychiatric Association) focuses on both the objective characteristics of the event (i.e. a traumatic event is defined as involving "actual or threatened death or serious injury, or threat to the physical integrity of self or others") and the subjective

response of the person exposed to the trauma ("fear, helplessness, or horror"). A number of studies have investigated PTSD in individuals exposed to rape seem to have a strong relation to the subsequent development of PTSD[1] [2].

Hezler et al, and Davidson et al, both using DSM-III criteria and the Diagnostic interview schedule (DIS) to assess PTSD, reported life time prevalence rates of 1.0 and 1.3 percent respectively. According to the National Survey Psychiatric Epidemiology study on the prevalence of violent events and PTSD in the Mexican population .2.3 percent of women and 0.49 percent of men present PTSD. Rape, harassment, kidnapping, and sexual abuse were the events most associated with PTSD[3].

The European Study of the Epidemiology of Mental Disorders (ESEMD) project recently reported considerably lower life time PTSD prevalence rate (0.9 percent for men and 2.9 percent for women, over all 1.9 percent). German study found life time PTSD prevalence rate of 1 percent for men and 2.2 for women in 14-24 years old[4].

Studies in the general population with randomly selected subjects are relatively scarce, with only half dozen published, the majority reporting prevalence rates in the United States, and none has studied PTSD as one of the commonest mental health outcome in relation to age at sexual assault. This study was designed to assess the mental health outcome of sexual assaults, focusing in PTSD, with comparison between underage and adult women victims.

Methods

A cross-sectional survey was conducted using a random digit dialing (RDD) sample selection method from November 2002 through February 2003. A total of 1,769 female adult 18 years and older residents of Virginia were surveyed. The instrument for this study was adopted from a survey completed in Washington state and two national studies; National Women's Study (NWS) and the National Violence against Women Survey (NVAWS). The questionnaire was programmed in Computer Assisted Study Execution System (CASES) using the Computer Assisted Telephone Interviewing (CATI) system.

Survey respondents were asked about their history of sexual assault, the type of assault, consequences of the assault and perception of community responses to sexual assault.

Sexual assault was defined as (yes response to any of the following questions): forced to have vaginal sex, oral sex, and anal sex, forced sex with objects, attempted rape and sex when the victim was unable to give consent due to heavy alcohol consumption or being under the influence of illicit drugs. Child rape or molestation (less than 18 years old). All survey respondents were interviewed about moods, emotions and overall behavioral well-being. A questionnaire was used in diagnosing PTSD that has been validated against the DSM-IV scale (American Psychiatric Association). The questionnaire also contains socio-demographic variables: race and ethnicity, age, marital status, educational level, spiritual and religious belief and income.

Victims of sexual assault were asked about: Health seeking practices after being victimized, weapon used, weather the victim talked to a close one, counselor, therapist or other professional to get help and support. Victims also were asked about the consequences of sexual assault such as sexually transmitted disease or pregnancy.

PTSD was defined using the following criteria:

Criteria (A): The person has been exposed to a traumatic event in which both of the following events present;

a) The person experienced an event that involved actual or threatened death or serious injury, or threat to the physical integrity of self or others

b) The person's response involves intense fear, helplessness, or horror.

Criteria (B): The traumatic event is persistently re-experienced in one (or more) of the following ways for more than 1 month;

a) Recurrent or intrusive distressing recollections of the event including images, thoughts or perceptions.

b) Recurrent distressing dreams of the event.

c) Acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusion, hallucination, and dissociative flashback episodes).

d) Intense psychological distress at exposure to internal or external cues that resemble an aspect of the traumatic event.

Criteria (C): Persistent avoidance of stimuli associated with the trauma as indicated by three or more of the following for more than one month.

a) Effort to avoid thoughts, feeling, or conversations associated with the trauma.

b) Effort to avoid activities, places, or people that arouse recollections of the trauma.

c) Inability to recall an important aspect of the trauma.

d) Markedly diminished interest or participation in significant activities.

e) Feeling of detachment or estrangement from others.

f) Restricted range of affect (e.g. unable to have loving feeling).

g) Sense of a force shortened future (e.g. does not expect to have a career, marriage, children, or normal life span).

Criteria (D): persistent symptoms of increased arousal, as indicated by two or more of the following more than one month.

a) Irritability or outbursts of anger.

b) Difficulty concentrating.

c) Hypervigilance.

d) Exaggerated startle response

Data Analysis:

Univariate, bivariate and multivariate analyses were done to examine the data using SPSS 11.0 for window software. Proportions were calculated to estimate prevalence To determine the magnitude of association between PTSD and age at victimization odd ratio and 95 percent confidence intervals were calculated. Multiple logistic regression was conducted to control for the effect of confounders.

Result

The average age of the study population was 46.2 (SE 0.38). Socio-demographic characteristics of the study are described in table 1. Three quarter (75.4 percent) were white, and over 44 percent were between 30 and 50 years old. High school graduate were 43 percent, and married group were approximately 64 percent. Those with income between (24,000 -49,999) represented 31 percent of the study population. Approximately 17 percent of the study population had PTSD. Over one-fourth, 27.6 had a history of sexual assault, of which 78 percent were under 18 years of age.

Figure 1 show the prevalence of PTSD by age at sexual assault. The prevalence of PTSD was relatively higher among those assaulted before the age of 18 (35.3%) followed by those assaulted at the age of 18 or over (30.2%). The prevalence of PTSD among women who were never sexually victimized was 8.1%.

Initial analysis between PTSD and sexual assault showed a statistically significant association. Women who had a history of sexual assault were six times more likely to develop PTSD compared to women who were never sexually victimized [OR=5.94, 95%CI=4.50-7.84] (Table 2). Table 3 show the crude odds ratio (OR) and 95% CI between PTSD and selected covariates. The crude analysis demonstrated a statistically significant association between PTSD and education, marital status, income, knowledge of the offender, threat used at the incident, reported incident and help seeking behaviors. A statistically significant association was also observed between PTD and age at sexual assault. Compared to women who have never been sexually assaulted those who were assaulted before they reach their 18 birthday and those assaulted at age 18 or more were 2.8 and 2.6 times more likely to report PTSD respectively. Sexually assaulted females with less than high school education were 2.31 times more likely to get PTSD in

comparison to postgraduate. The never married group who were sexually assaulted are 2.19 times more likely to get PTSD compared to married groups. Those with low income < 25,000 were 1.72 times more likely to develop PTSD compared to 75,000 and more.

No statistically significant associations were found between PTSD and age at interview, race, and perceived health status.

Controlling for marital status, education, income, perceived health status, knowledge of offender, threat use during the incident and help seeking behaviors, there was a statistically significant association between PTSD and age at sexual assault. Compared to women with no history of sexual assault, those who had been assaulted before the age of 18 and at or after the age of 18 were 2.8 and 2.6 times more likely to report PTSD [OR=2.79, 95%CI= 1.86-4.16] and [OR=2.59, 95%CI=1.43-4.70]. Compared to women who were married those who were divorced, separated or widowed were 2 times more likely to report PTSD [OR=2.01, 95%CI= 1.31-3.06]. Women with less than high school education were also 2.3 times more likely to report PTSD compared to women with postgraduate education [OR=2.28, 95%CI=1.13-4.61]. Compared to women with excellent perceived health status, those who perceive their health status as fair or poor were 5 times more likely to report PTSD [OR=4.95, 95%CI=2.10-11.67]. Those who knew the offender and have been threatened at the incident were also 2.5 and 2.1 more likely to report PTSD. Women who reported talking to counselor were 2.3 times more likely to report PTSD [OR=2.36, 95%CI=1.47-3.79].

Discussion

In this study we found PTSD is associated with sexual assault, the association increases with the decreasing years of age (the younger the age the higher the prevalence of PTSD).

Our finding also agrees with previous studies (The study done in Dallas Texsas among veterans) which was done comparing three categories of sexual assault groups (Military, Civilian, and children).The study found that military victims of sexual assault were 9 times more likely to develop PTSD compared those without sexual assault. In the second group they found sexually assaulted children were 5 times more likely to get PTSD compared to children without history of sexual assault, and in the third group sexually assaulted civilian were 7 times more likely to develop PTSD in comparison to those without history of sexual assault.

The impact of childhood sexual assault on PTSD is particularly disturbing and is a major public health issue, because children do not have the coping skills to deal with such traumatic event, the consequences could be more grave. Children also may be highly likely not to inform adults the victimization and may tend to blame themselves for the incident.

Among the strength of this study were the representative sample population and the telephone methodology. This study has some limitations. The cross-sectional design required us to rely on women's ability to recall violent experiences, as well as the age at which they occurred. Furthermore, most events occurred when victims were minors, which may contribute to a recall bias.

The prevalence rates actually underrepresented due to the perceived or real social stigmatization of sexual assault. Another limitation is using ever question to determine PTSD in response to sexual assault, because we could not know which occurred first, the sexual assault or the PTSD.

Conclusion

In conclusion this study found an association between sexual assault and PTSD.

The study also showed that PTSD is more prevalent in sexually assaulted under-age female in comparison to adult. Our finding provided evidence that primary and secondary prevention of PTSD in sexually assault females is urgently needed, especially within under-age females. More collaboration work is needed to prevent sexual assault, and more studies are needed to examine the risk factors, consequences, support system, and attitudes toward sexual assault and PTSD, and to help in creating more interventions and preventive programs.

TABLES AND FIGURES

Figure 1: Prevalence of PTSD

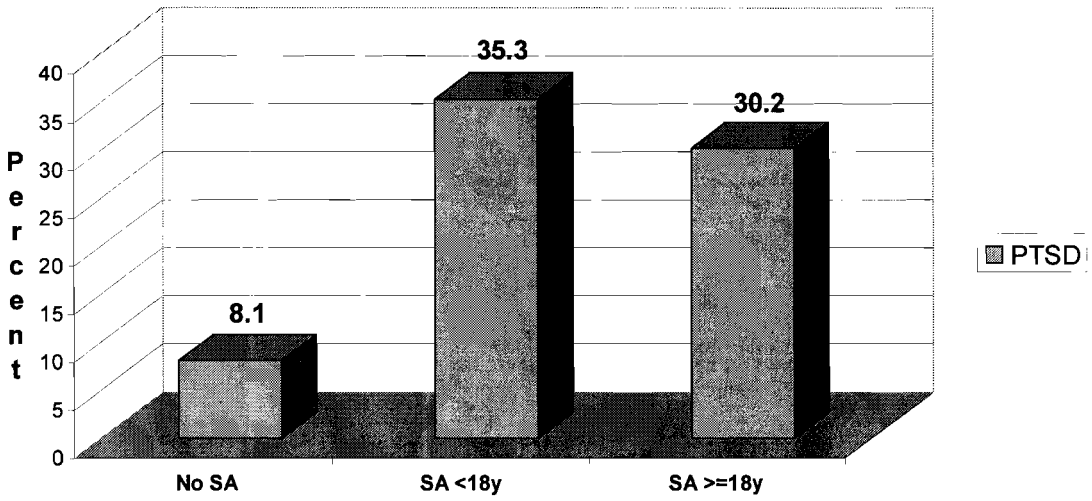

Table 1. Socio-demographic characteristics of the study population

Characteristics	Number	%
Age		
18 To 24	136	7.8
25 To 29	137	7.8
30 To 39	376	21.5
40 To 49	409	23.4
50 To 59	328	18.8
60 To 69	192	11.0
70 To 79	130	7.4
80 +	38	2.2
White	1310	75.4
Black	313	18.0
Others	115	6.6
Education		
Valid< High school	166	9.4
High school	759	43.0
College graduate	587	33.3
Post-graduate	252	14.3
Marital status		
Married	1127	63.9
Never married	280	15.9
Others	356	20.2
Income		
>25,000	304	21.1
25,000 To 49,999	454	31.5
50,000 To 74,999	275	19.1
75 +	410	28.4
Over all health		
Excellent	347	19.7
Very good	655	37.2
Good	530	30.1
Fair	177	10.0
Threat	142	8.0
Police report	59	3.3
Talk to hot line	15	.8
Talk to counselor	166	9.4
Sexual Assault		27.6
PTSD		17

Table 2. Association between PTSD and sexual assault.

Characteristics	PTSD	OR	95% CI
Sexual assault	202	5.94	4.50- 7.84
No-SA	96	1.0	

Table 3. Crude OR and 95% CI of PTSD in sexually assaulted females resident of Virginia.

Variable	Crude OR	95% CI
Race		
White	1.0	
Black	1.29	0.94-1.76
Others	1.23	0.76-2.01
Education		
<High school	2.31	1.41-3.78
High school	1.28	0.86-1.92
College graduate	1.09	0.72-1.67
Post graduate	1.0	
Marital status		
Married	1.0	
Never married	2.19	1.59-3.02
Div/Sep/Wid	1.75	1.29-2.38
Income		
<25,000	1.72	1.62-2.54
25,000-49,999	1.68	1.18-2.40
50,000-74,999	1.02	0.66-1.59
75,000+	1.0	
Offender known	2.69	1.17-6.19
Threat	6.82	4.76-9.75
Reported to police	3.09	1.79-5.32
Talk to hot line	14.06	4.45-44.45
Talk to counselor	6.27	4.48-8.77
Perceived health status		
Excellent	1.0	
Very good	1.09	0.80-1.47
Good	0.96	0.65-1.40
Fair	1.15	0.74-1.77
Poor	1.04	0.58-1.88
Age at SA		
No- SA	1.0	
<18	2.79	1.86-4.16
18 and older	2.59	1.43-4.70

Table 4. Adjusted logistic regression

Characteristics	OR	95% CI
Marital status		
Married	1.0	
Never married	1.42	0.92-2.19
Div/Sep/Wid	2.01	1.31-3.06
Education		
<High school	2.28	1.13-4.61
High school	1.01	0.61-1.67
College	0.95	0.58-1.56
Postgraduate	1.0	
Income		
<25,000	0.72	0.42-1.25
25,000-49,999	1.23	0.80-1.89
50,000-74,999	0.82	0.49-1.36
75,000+	1.0	
Perceived health status		
Excellent	1.12	0.68-1.82
Very good	1.64	0.99-2.69
Good	4.29	2.39-7.69
Fair	4.95	2.10-11.67
Know offender	2.52	1.21-5.22
Threat	2.14	1.36-3.35
Police report	0.43	0.21-0.89
Talk to counselor	2.36	1.47-3.79
Talk to hot line	2.91	0.79-10.76
Age of sexual assault		
No sexual assault	1.0	
<18	2.43	1.47-4.04
18 and older	2.15	1.12-4.49

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