Revista Brasileira de Psiquiatria. 2017;39:21–27
Associação Brasileira de Psiquiatria
doi:10.1590/1516-4446-2015-1806

ORIGINAL ARTICLE

Association between perceived social support and anxiety in pregnant adolescents

Patrícia J. Peter,[1] Christian L. de Mola,[2] Mariana B. de Matos,[1] Fábio M. Coelho,[1] Karen A. Pinheiro,[1] Ricardo A. da Silva,[1] Rochele D. Castelli,[1] Ricardo T. Pinheiro,[1] Luciana A. Quevedo[1]

[1]*Programa de Pós-Graduação em Saúde e Comportamento, Universidade Católica de Pelotas, Pelotas, RS, Brazil.* [2]*Programa de Pós-Graduação em Epidemiologia, Universidade Federal de Pelotas, Pelotas, RS, Brazil.*

Objective: To evaluate the association between perceived social support and anxiety disorders in pregnant adolescents.
Methods: We conducted a cross-sectional study with a sample of 871 pregnant women aged 10 to 19 years who received prenatal care in the national public health care system in the urban area of Pelotas, state of Rio Grande do Sul, southern Brazil. We assessed perceived social support and anxiety disorders using the Medical Outcomes Study Social Support Survey and the Mini International Neuropsychiatric Interview. A self-report questionnaire was used to obtain sociodemographic information.
Results: The prevalence of any anxiety disorder was 13.6%. Pregnant adolescents with an anxiety disorder reported less perceived social support in all domains (affectionate, emotional, tangible, informational, and positive social interaction). Older teenagers reported lower perceived support in the emotional, informational, and positive social interaction domains, whereas those with low socioeconomic status reported lower perceived social support in the material domain. Women who did not live with a partner had less perceived social support in the affectionate and positive social interaction domains.
Conclusion: Perceived social support seems to be a protective factor against anxiety disorders in pregnant adolescents, with a positive effect on mental health.

Keywords: Pregnancy; adolescents; social support; anxiety disorder

Introduction

Pregnancy is associated with a variety of changes, ranging from biological alterations to changes in physical appearance and psychological disturbances. Such changes may have a special impact on teenagers, affecting behavior, attitudes, and decision-making; teenagers are usually not prepared to undertake the psychological, social, and economic responsibilities that come with motherhood. In addition, the instability of conjugal relationships might contribute to the onset of emotional and affective disorders, often exacerbated by the family's reaction to the pregnancy.[1]

Teenage pregnancy is considered a social problem involving both the teenager and the family. Very often, the pregnant teenager is judged by the family; also, the pregnancy may be initially denied, increasing some pregnancy risks.[2] The lack of family support contributes to the risk of psychiatric disorders during pregnancy, especially anxiety disorders, the most common psychiatric disturbance in females of reproductive age.[3-5]

Correspondence: Luciana de Avila Quevedo, Universidade Católica de Pelotas, Programa de Pós-Graduação em Saúde e Comportamento, Rua Gonçalves Chaves, 377, 411 C, CEP 96015-560, Pelotas, RS, Brazil.
E-mail: lu.quevedo@bol.com.br
Submitted Sep 01 2015, accepted Feb 17 2016.

Social support, especially from the family, is very important for the maintenance of mental health, increasing an individual's capacity of coping with stressful situations. In the case of mothers, social support facilitates an adequate behavior towards the child.[6] Some authors refer that emotional or practical support from the family and/or friends in the form of affection, companionship, assistance, and information, makes individuals feel loved, valued, and secure. However, it is important to distinguish between perceived and received social support: the first refers to what the individual perceives as available when needed, and the second refers to what is actually given and received at any given time.[7] Studies have found that perceived social support, rather than received support, is what influences individual attitudes, decreasing dysfunctional behaviors.[7-9]

Various concepts have been used to define social support. Some authors define social support as a set of factors encompassing counseling, positive interactions, guidance, confidence, sense of belonging, information, and assistance,[10] while others define it as the support provided by trusted and reliable people.[11] In the present study, the evaluation of social support is based on five domains: tangible support – having access to practical resources and material help; affectionate support – interacting with people who physically demonstrate their love and affection; positive social interaction – interacting

with people with whom you relax and have fun; emotional support – ability of social network to meet individual needs in relation to emotional problems; and informational support – interacting with people who advise, inform, and guide.[12] Regardless of the differences, authors emphasize the importance of social support for the well-being of women during pregnancy, as it provides a sense of control over the situation and greater satisfaction with life, and also contributes to low levels of depression and anxiety.[13,14]

A recent study has found that anxiety and depressive disorders prior to pregnancy, as well as low social support, were important predictors of post-partum anxiety.[15] However, studies linking the different types of social support with anxiety disorders in pregnant adolescents are scarce.

The present study aims to assess the association between perceived social support and anxiety disorders in a sample of pregnant adolescents in the city of Pelotas, state of Rio Grande do Sul, southern Brazil.

Methods

Study design and sample

A randomized clinical trial (RCT) was carried out with a sample of pregnant teenagers aged 10 to 19 years receiving prenatal care in the national public health system in the urban area of Pelotas. Pelotas is a medium-sized city with about 330,000 inhabitants. Between October 2009 and March 2011, participants were invited to participate in the study during visits to 47 primary health care units and three public obstetric clinics across the city. We excluded pregnant teenagers who showed an inability to answer and/or understand the instruments and did not live in the urban area. In the present nested cross-sectional study, information from all 871 pregnant individuals included in the original RCT was evaluated regarding the presence of anxiety disorders and perceived social support.

Measures and variables

To evaluate perceived social support, we used a validated Brazilian Portuguese version of the Medical Outcomes Study (MOS) Social Support Survey[12] to obtain scores regarding five dimensions of social support: tangible support, affectionate support, emotional support, informational support, and positive social interaction. The survey contains 19 questions in which 0 means that social support is available none of the time and 4 indicates that social support is available always. A higher score indicates more social support.

We used a Brazilian Portuguese validated version of the Mini International Neuropsychiatric Interview, a short structured interview with adequate validity and reliability, to diagnose the following anxiety disorders: panic disorder, social phobia, post-traumatic stress disorder (PTSD), obsessive compulsive disorder (OCD), and generalized anxiety disorder (GAD).[16] We considered an individual as a positive case of anxiety if he or she had at least one of the evaluated anxiety disorders.

We used a self-report questionnaire to obtain sociodemographic data, including age, education, and socioeconomic and marital status. We assessed socioeconomic class using Brazilian Market Research Association (ABEP) criteria.[17] This classification is based on the accumulation of material wealth. Subjects are categorized into five classes, from A (highest socioeconomic status) to E. Information on parity, gestational risk and planned pregnancy, and tobacco use was also collected.

Analysis

The *t* test and analysis of variance (ANOVA) were used to compare the mean score obtained in each MOS Social Support Survey domain by different groups of exposure. Variables with $p \leqslant 0.20$ were analyzed using multivariate linear regression. Data were analyzed with SPSS version 22.0. GPower 3.1 was used to calculate effect size.

Ethics

The present study was approved by the Ethics Committee at Universidade Católica de Pelotas (protocol 2007/95). Informed consent was obtained from all participants or their parents.

Results

The sample consisted of 871 pregnant women. The prevalence of any anxiety disorder was 13.6%. Mean age was 17.3 (standard deviation [SD] = 1.6) years; 61.5% were classified as socioeconomic class C, 42.9% had between 5 and 7 years of schooling, 62.8% lived with a partner, 78.7% were primiparous, 72.4% did not plan the pregnancy, 17.7% had at least one gestational risk factor, and 19.1% were smokers (Table 1).

Bivariate analysis showed that pregnant adolescents with an anxiety disorder, those with pregnancy risks, and those who smoked had a lower mean perceived social support score in all domains. Similarly, those with fewer years of schooling presented a lower mean perceived social support score in all except the emotional domain. In addition, those in socioeconomic class D and E and who did not live with a partner had a lower mean perceived social support in the tangible and affectionate domains respectively. Pregnant women aged 18-19 years presented a lower mean perceived social support score in the emotional and informational domains. Non-primiparous women had a lower mean perceived social support score in the affectionate, emotional, and informational domains.

Table 2 describes the prevalence of each anxiety disorder and the mean perceived social support score obtained for each dimension in relation to anxiety disorders. The most prevalent anxiety disorder was GAD (8.7%), followed by social phobia (4.8%), OCD (3.7%), PTSD (2.4%) and panic disorder (2.1%). Women with social phobia, OCD, or GAD had a lower score in all social

Table 1 Demographic, socioeconomic, behavioral, and gestational characteristics of pregnant adolescents and perceived social support, Pelotas, state of Rio Grande do Sul, Brazil, 2009-2011

		Tangible				Affectionate				Emotional				Informational				Positive social interaction			
Independent variable	n (%)	Mean (SD)	p-value	f/t	d	Mean (SD)	p-value	f/t	d	Mean (SD)	p-value	f/t	d	Mean (SD)	p-value	f/t	d	Mean (SD)	p-value	f/t	d
Age (years)			0.327	3.05			0.328	2.89			0.015	14.53	0.16		0.042	9.25	0.14		0.109	4.92	
< 17	425 (4.8)	18.6 (2.5)				14.3 (1.7)				18.3 (2.7)				18.4 (2.7)				18.3 (2.8)			
18-19	446 (51.2)	18.4 (2.7)				14.2 (1.8)				17.8 (3.3)				18.0 (3.1)				18.0 (3.1)			
Socioeconomic class			0.002	6.04	0.14		0.131	2.03			0.420	0.86			0.473	0.74			0.147	1.92	
A+B	40 (4.7)	19.4 (1.6)				14.5 (1.2)				18.4 (2.5)				18.4 (2.3)				18.5 (2.4)			
C	523 (61.5)	18.7 (2.5)				14.4 (1.6)				18.2 (3.1)				18.3 (3.0)				18.3 (2.9)			
D+E	287 (33.8)	18.1 (3.1)				14.1 (2.0)				17.9 (3.2)				18.1 (3.0)				17.9 (3.2)			
Education (years)			0.015	3.49	0.11		0.031	2.97	0.13		0.054	2.56			0.044	2.71	0.10		0.008	3.98	0.14
< 5	143 (16.4)	18.1 (3.1)				14.1 (1.9)				17.8 (3.1)				18.1 (3.1)				17.9 (2.9)			
Between 5 and 7	373 (42.9)	18.5 (2.7)				14.1 (2.0)				17.9 (3.5)				18.0 (3.3)				17.9 (3.3)			
Between 8 and 10	277 (31.8)	18.8 (2.5)				14.4 (1.5)				18.2 (2.7)				18.4 (2.5)				18.4 (2.8)			
11 or more	77 (8.9)	19.1 (2.1)				14.7 (0.8)				18.9 (2.2)				18.9 (2.1)				19.2 (1.8)			
Lives with partner			0.496	0.28			0.023	12.09	0.11		0.994	0.13			0.927	0.26			0.143	7.36	
No	324 (37.2)	18.6 (2.7)				14.1 (1.9)				18.1 (3.1)				18.2 (3.0)				18.0 (3.2)			
Yes	546 (62.8)	18.5 (2.6)				14.3 (1.6)				18.1 (3.1)				18.2 (2.9)				18.3 (2.8)			
Primiparity			0.060	8.03			⩽ 0.001	35.42	0.31		⩽ 0.001	16.81	0.30		⩽ 0.001	18.03	0.29		⩽ 0.001	12.24	0.29
No	183 (21.3)	18.1 (3.1)				13.8 (2.2)				17.3 (3.6)				17.5 (3.4)				17.5 (3.3)			
Yes	677 (78.7)	18.7 (2.5)				14.4 (1.6)				18.3 (2.9)				18.4 (2.8)				18.4 (2.9)			
Planned pregnancy			0.313	2.20			0.072	8.75			0.184	2.08			0.123	5.85			0.074	5.01	
No	631 (72.4)	18.5 (2.7)				14.2 (1.8)				18.0 (2.7)				18.2 (3.1)				18.1 (3.1)			
Yes	240 (27.6)	18.7 (2.5)				14.5 (1.5)				18.3 (2.7)				18.5 (2.7)				18.5 (2.8)			
Gestational risk			0.008	6.30	0.22		⩽ 0.001	30.10	0.31		⩽ 0.001	13.84	0.34		0.005	7.15	0.23		0.001	11.77	0.31
No	711 (82.3)	18.6 (2.6)				14.4 (1.6)				18.3 (2.9)				18.4 (2.9)				18.4 (2.9)			
Yes	153 (17.7)	18.0 (2.9)				13.8 (2.2)				17.2 (3.6)				17.6 (3.4)				17.4 (3.5)			
Smoking			⩽ 0.001	44.32	0.29		0.001	30.97	0.25		0.034	11.66	0.18		0.004	26.71	0.22		0.017	7.31	0.19
No	705 (80.9)	18.7 (2.4)				14.4 (1.6)				18.2 (2.9)				18.4 (2.7)				18.3 (2.9)			
Yes	166 (19.1)	17.8 (3.6)				13.9 (2.2)				17.6 (3.6)				17.7 (3.7)				17.7 (3.4)			
Anxiety disorder			⩽ 0.001	34.70	0.52		⩽ 0.001	74.78	0.60		⩽ 0.001	51.43	0.78		⩽ 0.001	32.71	0.69		⩽ 0.001	41.59	0.80
No	751 (88.4)	18.7 (2.4)				14.4 (1.5)				18.4 (2.7)				18.5 (2.6)				18.5 (2.6)			
Yes	118 (13.6)	17.1 (3.6)				13.2 (2.4)				15.7 (4.1)				16.3 (3.7)				15.9 (3.8)			
Total	871 (100.0)	18.5 (2.6)				14.2 (1.7)				18.1 (3.1)				18.2 (2.9)				18.2 (3.0)			

SD = standard deviation.

Table 2 Dimensions of social support associated with anxiety disorders in a sample of pregnant adolescents, Pelotas, state of Rio Grande do Sul, Brazil, 2009-2011

		Tangible				Affectionate				Emotional				Informational				Positive social interaction			
Independent variable	n (%)	Mean (SD)	p-value	f/t	d	Mean (SD)	p-value	f/t	d	Mean (SD)	p-value	f/t	d	Mean (SD)	p-value	f/t	d	Mean (SD)	p-value	f/t	d
Panic disorder			0.380	2.06			0.159	1.56			0.142	4.78			0.242	0.003			0.048	1.330	0.55
No	851 (97.9)	18.5 (2.7)				14.3 (1.8)				18.1 (3.1)				18.3 (2.9)				18.2 (2.9)			
Yes	18 (2.1)	18.9 (1.6)				13.7 (1.8)				17.0 (3.7)				17.5 (2.7)				16.5 (3.3)			
Social phobia			0.014	1.94	0.41		⩽ 0.001	16.04	0.49		⩽ 0.001	8.543	0.55		⩽ 0.001	4.958	0.51		⩽ 0.001	5.563	0.69
No	827 (95.2)	18.6 (2.6)				14.3 (1.7)				18.2 (3.0)				18.3 (2.9)				18.3 (2.9)			
Yes	42 (4.8)	17.5 (2.8)				13.3 (2.3)				16.3 (3.9)				16.6 (3.7)				16.0 (3.7)			
PTSD			0.158	0.02			0.278	6.39			0.096	2.082			0.017	0.739	0.59		0.041	0.479	0.48
No	848 (97.6)	18.6 (2.7)				14.3 (1.7)				18.1 (3.9)				18.3 (2.9)				18.2 (2.9)			
Yes	21 (2.4)	17.8 (2.5)				13.7 (2.4)				16.8 (3.4)				16.5 (3.2)				16.7 (3.3)			
OCD			0.033	3.28	0.45		0.001	16.54	0.49		0.001	8.965	0.53		0.002	4.707	0.48		0.001	12.489	0.49
No	837 (96.3)	18.6 (2.6)				14.3 (1.7)				18.2 (3.0)				18.3 (2.9)				18.3 (2.9)			
Yes	32 (3.7)	17.3 (3.1)				13.2 (2.7)				16.2 (4.4)				16.6 (4.1)				16.5 (4.3)			
GAD			⩽ 0.001	36.38	0.58		⩽ 0.001	66.19	0.63		⩽ 0.001	34.007	0.85		⩽ 0.001	22.969	0.71		⩽ 0.001	29.148	0.88
No	793 (91.3)	18.7 (2.5)				14.4 (1.6)				18.3 (2.9)				18.4 (2.8)				18.5 (2.8)			
Yes	76 (8.7)	16.8 (3.9)				13.0 (2.7)				15.5 (4.2)				16.0 (3.9)				15.5 (3.9)			

GAD = generalized anxiety disorder; OCD = obsessive compulsive disorder; PTSD = post-traumatic stress disorder; SD = standard deviation.

support domains. Those with PTSD or panic disorder had a lower score in the positive interaction domain only.

Table 3 shows that all variables associated with a lower social support score in bivariate analyses were still important predictors of perceived social support in adjusted models. Most importantly, having any anxiety disorder reduced the mean perceived social support score by 1.5 for tangible support, 1.1 for affectionate support, 2.4 for emotional support, 2.1 for informational support, and 2.4 for positive social interaction.

Discussion

The aim of this study was to assess the association between anxiety disorders and perceived social support in a sample of pregnant adolescents. The results after adjusting for confounding variables demonstrated that pregnant teenagers with any anxiety disorder had a worse perception of social support in all the evaluated domains as compared to those without anxiety disorders. We found a moderate association between anxiety disorders and affectionate, emotional, tangible, and informational domains; and a strong association with the positive social interaction domain. Some authors suggest that anxiety disorders interfere with quality of life and with interpersonal, professional, and social performance, and that individuals who are satisfied with family and social interactions (stronger social support) are more satisfied with life and less anxious.[18,19]

In addition to what the literature shows, our results indicate that among the anxiety disorders we analyzed, GAD is the most strongly associated with the emotional and positive social interaction domains. It is known that GAD impairs social interaction,[20] which explains why individuals with this disorder tend to be lonely and to not feel the need to communicate.[21] However, it is possible that individuals with GAD are so involved with their own concerns that they end up not acknowledging the support received.

Despite the fact that anxiety symptoms are frequent during pregnancy, no studies so far have had investigated their association with social support in pregnant adolescents. The literature shows associations between anxiety symptomatology, anxiety traits, and social support in pregnant women of different ages, but not in adolescents specifically.[1,22,23] It is known that the role of social support at different life stages is important to minimize stress that occurs in the presence of psychosocial and physiological changes, such as occurs during pregnancy. It has long been established that social support can prevent different illnesses.[24]

We found that older teenagers perceived to have less social support in the emotional, informational, and positive social interaction domains. The literature has shown that adult pregnant women receive more social support than do pregnant teenagers.[25,26] However, a recently published study examining the effects of social support on Canadian women during and after pregnancy found that teenage mothers received more social support from the family during pregnancy than adult mothers.[27] The authors argue that because teenagers present more difficulties to connect with their peers, the family may end up providing more support. Despite the weak association, we can consider that older mothers have more experience in life, so that their family would not provide the same amount of support demanded by younger women.

A study in Mexico found that a higher household income predicts greater perception of support.[28] Similarly, we found that adolescents with lower educational level were those who reported less social support in almost all domains. A study has shown an association between early motherhood and low educational attainment, with high school dropout rates when pregnancy occurs.[29] It has been hypothesized that some teenage girls, notably in the poorest socioeconomic classes, may seek pregnancy as a way to improve their status, as if that were the only possible role for them in society.[30] For these women, pregnancy in adolescence might be a viable and valued project in a context devoid of options or choices for other life projects. Schooling is one of the main protective factors against early pregnancy, which means that more years of study translate into fewer early pregnancies.[31]

We also found that pregnant women who did not live with a partner reported less social support in the affectionate and positive social interaction domains. Social support received before and during pregnancy, mainly offered by a partner, seems to be decisive for the mental well-being of pregnant women.[32] Studies show that the absence or lack of support from a companion was more frequent among single teenage mothers or those who did not live with a partner.[25,26] In the United States, a study with pregnant women found that married women had more support than those unmarried and that partner support and marital stability are important factors for health and well-being.[33] Partner support is an important protective factor throughout pregnancy and conception and our study corroborates these findings.

Non-primiparous teenagers perceived less support in the affectionate, emotional, informational, and positive social interaction domains. Primiparous teenagers demand more support, especially to face the challenges of motherhood and to overcome the difficulties imposed by changes, doubts, anxiety feelings, and fears, which can be minimized by having a social support network. In addition, pregnant teenagers who did not plan the pregnancy reported less social support (informational domain). It is known that adequate guidance for young women can prevent pregnancy.[34] The absence of dialogue, acceptance, and understanding make young women vulnerable, with several undesirable consequences, including an early and unwanted pregnancy.[35] In addition, pregnancy imposes risks to adolescents, who are still physically and psychologically immature, increasing the risk of gestational complications, lack of prenatal care, and absence of social support networks.[36] An environment surrounded by aggressions, fear, and poor communication, with lack of affection, assistance, and guidance can lead to pregnancy complications, whereas a supportive environment during pregnancy decreases pregnancy risks.[31]

We also found that pregnant teenagers who used tobacco reported less social support in the affectionate and material domains. A longitudinal study in Australia showed that tobacco use during pregnancy was significantly higher among women who had financial problems, low social support, and who were victims of violence.[37]

Table 3 Adjusted analysis of social support domains in pregnant adolescents, Pelotas, state of Rio Grande do Sul, Brazil, 2009-2011

Independent variables	Material β (95%CI)	p-value	Affectionate β (95%CI)	p-value	Emotional β (95%CI)	p-value	Informational β (95%CI)	p-value	Positive social interaction β (95%CI)	p-value
Age (18-19 years)					-0.7 (-1.2 to -0.3)	0.001	-0.6 (-1.0 to -0.2)	0.005	-0.6 (-1.0 to -0.1)	0.011
Socioeconomic class (D + E)	-0.5 (-0.1 to -0.8)	0.006								
Education (< 5 years)	-0.3 (-0.1 to -0.5)	0.004	-0.2 (-0.1 to -0.3)	0.016	-0.4 (-0.2 to -0.7)	0.001	-0.4 (-0.2 to -0.7)	0.001	-0.4 (-0.2 to -0.7)	0.001
Living without partner			-0.3 (-0.1 to -0.5)	0.008					-0.5 (-0.1 to -0.9)	0.038
Non-primiparous			-0.5 (-0.2 to -0.8)	0.003	-0.7 (-0.1 to -1.2)	0.015	-0.7 (-0.2 to -1.2)	0.005	-0.6 (-0.1 to -1.1)	0.020
Pregnancy not planned							-0.5 (-0.1 to -0.9)	0.031		
Gestational risk	-0.5 (-1.0 to -0.1)	0.034	-0.5 (-0.9 to -0.2)	0.001	-0.8 (-1.4 to -0.3)	0.003	-0..6 (-1.1 to -0.1)	0.034	-0.9 (-1.4 to -0.3)	0.002
Smoking	-0.8 (-1.3 to -0.4)	0.001	-0.3 (-0.7 to -0.1)	0.033						
Anxiety disorder	-1.5 (-2.1 to -1.0)	⩽ 0.001	-1.1 (-1.5 to -0.8)	⩽ 0.001	-2.4 (-3.0 to -1.8)	⩽ 0.001	-2.1 (-2.7 to -1.5)	⩽ 0.001	-2.4 (-3.0 to -1.8)	⩽0.001

95%CI = 95% confidence interval.

Another study conducted with Hispanic pregnant women found that smokers had problems like anxiety, low self-esteem, and low support.[38]

The results of this study should be interpreted in the light of its limitations. First, as in any cross-sectional study, we were not able to evaluate causality. Secondly, we must consider that we did not have a control group of non-teenage pregnant women. However, this study also has some strengths. First, we used a broad sample of pregnant adolescents. Secondly, the use of a validated structured clinical interview to evaluate the psychiatric diagnosis increases the reliability and reproducibility of our results. In addition, our findings have important implications for public health. Considering that anxiety disorders can affect both the mother's health and the offspring, identification of potential risk factors for prenatal anxiety disorders may be helpful for the design of preventive interventions for mothers and infants.

In conclusion, we were able to establish that perceived social support has a positive effect on the mental health of pregnant teenagers, minimizing the possible difficulties of an early pregnancy. This work thus shows that social support must be taken into consideration in the design of adequate health interventions for pregnant teenagers.

Acknowledgements

This work was supported by research grants from Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES), Programa de Apoio a Núcleos de Excelência (PRONEX - CNPq/ Fundação de Amparo è Pesquisa do Estado do Rio Grande do Sul [FAPERGS] - Project IVAPSA).

Disclosure

The authors report no conflicts of interest.

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