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Emotion Regulation as Predictor of Academic Performance in University Students

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Abstract

The current study intended to examine the association between emotion regulation (i.e., cognitive reappraisal and expressive suppression) and academic performance in university students. In this correlational study, a sample of 300 (men=119; women=181) university students (BS and MS programs) in the age range of 18-29 years (*M*=21.45; *SD*=2.14) was selected randomly from a public sector university in Faisalabad city, Pakistan. The Emotion Regulation Questionnaire (Gross & John, 2003) was used to assess emotion regulation whereas the percentages of obtained marks in the last semester/degree program served as the measure of the academic performance of the participants. The results depicted a significant correlation between emotion regulation and academic performance indicating a significant positive association between cognitive reappraisal and academic performance while, a significant negative association between expressive suppression and academic performance in university students. Moreover, cognitive reappraisal and expressive suppression were found to be significant predictors of academic performance. Besides the significant implications of this study highlighting the role of relevant policymakers, university authorities, students' counselors, and mental health professionals, suggestions for future studies are discussed based on the current findings.

Keywords: Academic Performance, Cognitive Reappraisal, Emotion Regulation, Expressive Suppression, Gender, Pakistan, University Students

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Introduction

The success or failure of academic institutions is determined by the performance and accomplishments of their graduates (Ali et al., 2021). Students' academic achievement and graduation rates are important to higher education institutions. Academicians also placed the students' academic achievement on the highest priority. Therefore, in the field of higher education, the investigation of variables influencing the academic achievement of students has gained popularity (Shahzadi & Ahmad, 2011). In the literature, the terms "academic achievement" and "academic performance" are used interchangeably, thus, the construct of academic achievement is operationalized explaining various aspects of academic performance over time. The student's academic performance has a vital impact locally, regionally, nationally, and internationally as a determinant of the socio-cultural growth of the nations.

Nevertheless, academic performance is not only seen as a simple phenomenon of just learning and achieving grades accordingly rather, there are several factors that not only influence the quality of learning but also the

academic achievement of the students. These factors include gender, race, and learning styles of the students (Hanson, 2000; Saeed & Ahmad, 2020).), the temperaments and motivations of the students, socioeconomic factors, support of peers and family (Masud et al., 2019). On the other hand, the initial years of university life are usually accompanied by a range of new and stressful experiences hindering the psychosocial adjustment of the students in the new environment of the university ultimately hampering their academic performance (Daniels, 2017).

Existing literature also suggests some other factors that influence academic performance, which is also connected to enjoyment in college and university students (Flynn & MacLeod, 2015) including attendance, family income, and financial aid (Simmons et al., 2005), minimum health risky attitude in youth (Hawkins, 1997), role and support of friends, siblings, and parents of the students (Bean et al., 2006; Dennis et al., 2005). On the other hand, student favorable results are exemplified by academic performance, which is described as the accomplishment of learning purposes, the development of desirable skills and contentment, perseverance, and college results (York et al., 2015). As far as the evaluation of academic performance is concerned, Cumulative Grade Point Average (CGPA) is found to be the best measure to determine how well the students have achieved what they were expected to achieve (Garton et al., 2000).

Besides the above-mentioned factors influencing academic performance, it also appears to be largely dependent on the ability to control and/or manage one's emotions, known as emotion regulation (Burić et al., 2016). Therefore, recent research is expanding the knowledge that how students use the techniques of emotion regulation and how these strategies affect their results (Burić et al., 2016). Hence, the main purpose that emotion regulation serves is to control and manage a specific cognitive or behavioral response (Koole, 2009). When one's physical and psychological requirements are met in ways that are generally accepted by society and himself/herself, one is in a satisfactory condition of emotional adjustment. Uncontrolled emotional responses, on the other hand, may substantially hamper a young person's ability to exercise their freedom of choice in behavior and decision-making. Students who tend towards being content with their lifestyles, whose cravings and desires are gratified, tend to enjoy life, and have good emotional control. Since students are considered in a transitional phase to grow and to get mature both intellectually and emotionally, therefore, some of them go through an easy transition, to college/university life, others find it difficult, and some even drop out (Holmbeck & Wandrei, 1993).

Contrarily, poor self-management, reactivity, and dysfunctional understanding are the results of maladaptive emotional reactions, and such a "deregulated emotional state" is evidenced in problematic comprehension, responsiveness, and self-control (Mennin et al., 2007). Since a huge range of emotional problems is present in the context of emotion regulation problems (Berking & Wupperman, 2012), therefore, issues with emotion regulation have been discussed in the existing literature concerning a broad range of emotional problems (Khakpoor et al., 2019; Naragon-Gainey et al., 2017). The researchers also highlighted that the problem of controlling emotions is one of the factors contributing to a lack of self-control and self-regulation. In this way, concentrating on managing emotions and placing short-term mood restoration goals ahead of long-term objectives results in the failure of self-regulation (Sirois & Pychyl, 2013; Tice & Bratslavsky, 2000). Furthermore, as various strategies for monitoring and modifying the

mode, level of intensity, time zone, reactivity, and expression used for specified emotion are part and parcel of emotion regulation, specifically when it is related to goal-directed activity, thus, inappropriate emotion regulation is also found to be associated with procrastination which ultimately may cause poor academic performance (Kring, 2010).

On the other hand, emotion management coping strategies may lower the intensity of strong inappropriate emotions to get desired results (Gratz & Roemer, 2004). As a result, individuals can focus on the important traits they have that make them suitable for the position. Reappraisal is frequently used to up-regulate good effects, as well as to both negative and positive influences, or to completely alter a feeling (Gross, 2002). In this way, the process model of emotion regulation (Gross, 1998) illustrates very well the mechanism of connections between emotion regulation and academic performance. Based upon the response-tendency perspective, it suggests that every outcome behavior is a result of managing responses to a previous stressor in a given uncomfortable situation. Therefore, emotion regulation plays a vital role in the motivation, self-regulated learning, and academic performance of students (Ahmed et al., 2013), and several academic-related outcomes are linked to it (Pekrun & Schutz, 2007). Moreover, existing literature on the academic performance of students (Balkis & Duru, 2017) also suggests that besides emotion regulation, there also exist gender differences as girls display better academic performance as compared to boys.

As far as the major components of emotion regulation are concerned, *cognitive reappraisal* is considered a cognitive repair process used to effectively modify the emotional impact by evaluating the meaning of the emotional experience in a particular scenario (Gross & John, 2003). Therefore, it is empirically found that cognitive reappraisal can be used successfully and effectively to lessen the negative effects of life experiences (Yuan et al., 2014) and is linked to better emotional experiences, life satisfaction, optimism, self-esteem, and psychological wellness (Gross, 2014), ultimately predicting better mental health (Hanley et al.,2015). Likewise, it results in improved memory and academic performance (Jamieson et al., 2010).

On the other hand, *expressive suppression* refers to consciously changing one's facial expressions as well as gestures of the body to hide one's true emotions (Dalgleish et al., 2009). Research suggests that expressive suppression negatively affects people's emotions, increases sympathetic and physiological activation, and lowers overall well-being (Srivastava et al., 2009). Therefore, individuals using expressive suppression experience more unfavorable feelings used to manage the challenges of life ineffectively, and have fewer social connections and interpersonal relationships, ultimately raising the likelihood of developing mental illness (Glise et al., 2014). Moreover, when emotions are repressed, a person loses the capacity to alter the circumstances in distressing situations, which increases the likelihood of persistent bad mood (Papageorgiou & Wells, 2009).

Pakistan has a collectivistic culture (Nadeem et al., 2017, 2018) where the authority of parents is valued (Nadeem et al., 2022) and parents used to treat their sons and daughters differently. Boys used to enjoy more autonomy as compared to girls, given by their parents while girls are supposed to be obedient and show conformity to societal and familial norms (Saleem et al., 2017). Moreover, the opinions and decisions of men matter a lot in collectivistic cultures helping them to be socialized more easily than women (Zaman & Ali, 2019). In this scenario, there would be a likelihood of more

cognitive reappraisal observed in boys as compared to girls whereas, girls might be more prone to have expressive suppression as compared to boys in the cultural context of Pakistan.

The role of emotions in education is increasingly being considered very important as research has shown that emotions and feelings have a direct impact on a student's capacity for learning (Pekrun & Perry, 2014). Therefore, it has grabbed the attention of researchers in the last few decades to understand how emotional control affects academic outcomes (Burić et al., 2016). Appropriate emotion regulation supports the working memory and abilities of the students when their academic performance is evaluated. Therefore, it is found that negative emotions have a negative correlation with the CGPA of the students indicating that a high degree of negative emotions predicts poor academic performance (Arsenio & Loria, 2014).

The existing literature has revealed that individuals' capacity to control their emotions helps them reach their cognitive objectives (Phillips & Power, 2007). Thus, negative emotions including fear, wrath, impatience, guilt, and pessimism interfere with students' learning abilities (Fiedler & Beier, 2014). These emotions can be detrimental to students' motivation, development of their working skills, engagement in cognitive processes, maintenance of self-control, and learning process under a variety of conditions resulting in poor academic performance (Rowe & Fitness, 2018). It has further revealed that inappropriate emotion regulation diminishes learners' ability to perceive and process information effectively putting them in a constant struggle to complete their educational tasks (Graziano et al., 2007). As a result, pupils who exhibit negative emotions show poorer academic achievement than other students. However, pupils who can effectively control their negative emotions may reach a high level of academic goals (Arsenio & Loria, 2014).

Therefore, a recent study conducted on students by Akhtar et al. (2020) revealed that the participants who used to employ constructive emotion regulation strategies showed a high level of academic competence whereas, the pupils who were unable to communicate their emotions effectively displayed poor academic performance. Furthermore, Rafidah et al. (2009) found that education-related stress is another determinant of the academic achievement of students and this stress may also be managed through effective emotion regulation depending on how frequently and effectively a student employs emotion regulation strategy to manage that stress. Consequently, the use of an adaptive or maladaptive emotion regulation approach to managing this stress determines the academic results. However, the findings of a study conducted on Malaysian university students by Hafiz (2015) to find out how expressive suppression and cognitive reappraisal affect academic performance, revealed a contradictory picture to the above-cited literature. The results of this study suggested a significant negative association between expressive suppression and CGPA, but not between cognitive reappraisal and CGPA of the students. Moreover, both cognitive reappraisal as well as expressive suppression were not significant predictors of student's academic achievement, according to the regression model.

Rationale of the Study

Besides numerous factors, such as the temperament of the student (Masud et al., 2019), support of friends, siblings, and parents (Bean et al., 2006), and teachers' support (Ali et al., 2021), emotions and emotion regulation found to play a vital role in the motivation, self-regulated learning, and academic performance of students (Ahmed et

al., 2013). However, the existing literature on the issue appears to be inconclusive as some of the researchers (Akhtar et al., 2020) found emotion regulation significantly associated with academic performance while some of them (Hafiz, 2015) found no significant association between these constructs. On the other hand, there is a dearth of local empirical literature investigating the association between emotion regulation and academic performance in university students. Therefore, the current study was planned with the following objectives:

1. To examine the association between emotion regulation and academic performance in university students of Pakistan
2. To determine possible predictors of academic performance in university students

Method

Participants

In this correlational research, a multistage sampling technique was used. First, one public sector university in Faisalabad city, Pakistan was selected randomly. In the second stage, by the criteria of Hair et al. (2010), a sample of 300 students was chosen (50 students from each year of the BS and MS programs) through a stratified random sampling technique where each year of BS (4-year program) and MS (2-year program) served as an independent stratum. In this way, all male and female students enrolled in the said degree programs in the selected university were included in the study whereas, the students enrolled in programs other than these programs at the chosen university as well as students enrolled in other universities were excluded from the current study.

Instruments

The Emotion Regulation Questionnaire *(ERQ)*

Based on the Process Model of Emotion Regulation (Gross, 1998), a 10-item self-report ERQ (Gross & John, 2003) is developed to assess two emotion regulation strategies; (a) an antecedent-focused strategy known as cognitive reappraisal (6 items, e.g., "When I am m faced with a stressful situation, I make myself think about it in a way that helps me stay calm") where a person tries to alter his/her thoughts about a situation to alter the emotions attached with that, (b) and a response-focused strategy known as expressive suppression (4 items, e.g., "I keep my emotions to myself") where a person tries to hide thoughts and emotions with reference to a particular situation. The answers to all questions are scored on a 7-point Likert scale (i.e., 1 = Strongly Disagree; 7 = Strongly Agree). The higher the scores on a given strategy, the greater use of that strategy is indicated. The ERQ is a reliable measure (Preece et al., 2019) representing high internal consistency (α=.90 for Cognitive Reappraisal and α=.76-.80 for Expressive Suppression).

Academic Performance

Academic performance was measured through the percentage of obtained marks in the last semester or last degree (whichever was applicable).

Procedure

First, formal requisite permissions for data collection were taken from the relevant authorities. The participants were selected as per the technique discussed earlier and they were briefed about the aim and nature of this study. Formal written consent was obtained from them with an assurance of maintenance of confidentiality, anonymity, and privacy, along with the right to withdraw at any stage of this study. The participants were then given the study instruments and asked to complete the same. This process took almost 25 to 30 minutes to complete. They were duly thanked for their volunteer participation in the study. The data were analyzed using the Statistical Package for Social Sciences (SPSS v-25).

Results

Table 1

Internal Consistency of the Emotion Regulation Scale and its Sub-scales (N=300)

Measure	No. of Items	*α*
Emotion Regulation Scale	10	.80
Cognitive Reappraisal	6	.70
Expressive Suppression	4	.88

The data given in Table 1 depicts a strong internal consistency of the Emotion Regulation Scale for university students and its sub-scales in the current study sample.

Table 2

Inter-correlations, Means, and Standard Deviations of the Scores on Emotion Regulation Scale (Cognitive Reappraisal, Expressive Suppression) and Academic Performance in University Students (N=300)

Variables	*M*	*SD*	1	2	3
1. CR	26.01	6.95	-		
2. ES	19.56	6.12	-.31**	-	
3. AP	46.38	7.85	.54***	-.63***	-

Note. CR=Cognitive Reappraisal; ES=Expressive Suppression; AP=Academic Performance
***p*<.01, ****p*<.001

Table 2 reveals that cognitive reappraisal is positively correlated whereas, expressive suppression is negatively associated with academic performance. In simple words, with the increase in cognitive reappraisal, the academic performance of university students increases while, with the increase in expressive suppression, their academic performance decreases.

Table 3

Hierarchical Regression Analysis Determining Predictors of Academic Performance in University Students (N= 300)

Predictor		*B*	*SE*	*β*	*t*	*p*
Step 1	(R=.135, ΔR^2 = .001)	53.12	6.15		8.67	.001
	Class	-2.63	1.56	-.15	1.68	.043
	Year	.99	.48	.19	2.06	.041
Step 2	(R=.139, ΔR^2 = -.004)	53.13	6.36		8.35	.001
	Year	.98	.48	.19	2.03	.044
Step 3	(R=.739, ΔR^2 = .532)	21.36	4.69		4.55	.001
	Gender	1.34	.71	.08	1.89	.049
	Class	-2.53	1.07	-.15	2.36	.019
	CR	.46	.05	.41	9.50	.001
	ES	-.64	.05	-.50	12.02	.001

Note. Step 1: F=1.09, df=5; Step 2: F=.81, df=7; Step 3: F=7.51, df=9; Class=BS and MS respectively; Year=1st to 6th year of study; CR=Cognitive Reappraisal ES=Expressive Suppression
***p*<.01, ****p*<.001

Hierarchical regression analysis was run to identify the determinants of academic performance in university students. Participants' personal characteristics including; class, age, gender, and familial characteristics including; family monthly income and family system were added in Step I and II respectively. In Step III, cognitive reappraisal and expressive suppression were entered.

The data displayed in Table 3 reveals that the year of study of the participants was the significant positive predictor whereas, class of participants was found to be a significant negative predictor of academic performance in university students. Moreover, gender (i.e., 1=men & 2=women) and Cognitive Reappraisal are significant positive predictors while Expressive Suppression is a significant negative predictor of academic performance in university students. To sum up these results, students of the BS program are likely to have better academic performance as compared to the students of the MS program however, within these study programs, the academic performance of the students is likely to be enhanced in the later/higher semesters. Moreover, gender (i.e., being women) predicted better academic performance in the students. As far as emotion regulation is concerned, it was found that with an increase in the level of cognitive reappraisal, academic performance also increases whereas, with an increase in expressive suppression, the academic performance of the students is likely to be decreased.

Table 4

Means, Standard Deviations, t, and p Values of Men (n=119) and Women (n=181) on Emotion Regulation (i.e., Cognitive Reappraisal and Expressive Suppression) and Academic Performance (N=300)

Variables	**Gender**	***M***	***SD***	***t***	***p***	***Cohen's d***
Cognitive Reappraisal	Men	27.26	6.45	2.64*	.043	.22
	Women	25.87	6.21			
Expressive Suppression	Men	18.92	6.32	2.73*	.031	.22
	Women	20.26	5.98			
Academic Performance	Men	44.96	5.72	4.03**	.008	.48
	Women	48.02	6.89			

*$p < .05$, **$p < .01$; df=298

The data presented in Table 4 depicts significant gender differences ($p<.05$, $p<.01$) on the variables. Men scored significantly higher on cognitive reappraisal as compared to women whereas, women scored significantly higher on expressive suppression as well as on academic performance than those men.

Table 5

One-way ANOVA of Class Years i.e., 1st Year (n=34), 2nd Year (n=56), 3rd Year (n=48), 4th Year (n=57), 5th Year (n=69), 6th Year (n=36) on Academic Performance (N=300)

Factors	Year		*M*	*SD*	*F*	*p*
Academic Performance	1st year	27.47	5.84		4.77	.017
	2nd year	22.76	6.27			
	3rd year	27.87	7.28			
	4th year	24.59	7.24			
	5th year	27.21	6.95			
	6th year	27.13	6.27			

**p<.05; df* between groups=5; *df* within groups=295; *df* total =299

The data in Table 5 revealed a significant difference between the groups ($p<.01$). Further analysis through Post Hoc Test through Least Square Difference (LSD) showed a structure of 1<2<3<4>5<6 indicating that the academic performance of 2nd year students is better than 1st year, 3rd year students perform better than 2nd year, and likewise, 4th year students' academic performance is better than the 3rd year students. However, the students in the 5th year perform lesser than the 4th year as well as 6th year students.

Discussion

The first objective of the current study was to investigate the association between emotion regulation (cognitive reappraisal and expressive suppression) and academic performance in university students. The results revealed that cognitive reappraisal is positively correlated (r=.54***) whereas, expressive suppression is negatively associated (r=-.63***) with academic performance. These findings are in line with the existing literature (Akhtar et al., 2020; Arsenio & Loria, 2014). Existing literature (Ahmed et al., 2013) has highlighted the importance of emotion regulation having its significant role in the motivation, self-regulated learning, and academic performance of students therefore, academic-related outcomes are found to be significantly linked to emotion regulation (Pekrun & Schutz, 2007). Moreover, as cognitive reappraisal is found to be effectively used to lessen the negative effects of life experiences (Yuan et al., 2014) thus, it has been found to be associated with better emotional experiences, life satisfaction, optimism, self-esteem, and psychological wellness (Gross, 2014), resultantly predicting better mental health (Hanley et al.,2015). Likewise, it results in better memory and academic performance (Jamieson et al., 2010). On the other hand, existing literature suggests that expressive suppression negatively affects people's emotions and lowers overall well-being (Srivastava et al., 2009). Therefore, individuals using expressive suppression experience more unfavorable feelings used to manage the challenges of life ineffectively (Glise et al., 2014; Papageorgiou & Wells, 2009) which may negatively affect the academic performance of the students. Therefore, the results of the current study revealed a significant positive correlation between cognitive reappraisal and academic performance while a significant negative association between expressive suppression and the academic performance of the students.

The second objective of the current study was to determine possible predictors of academic performance in university students. The hierarchical regression analysis revealed that

students of the BS program are likely to have better academic performance as compared to the students of the MS program however, within these study programs, the academic performance of the students is likely to be enhanced in the later/higher semesters. Moreover, gender (i.e., being women) predicted better academic performance in the students. As far as emotion regulation is concerned, it was found that with an increase in the level of cognitive reappraisal, academic performance also increases whereas, with an increase in expressive suppression, the academic performance of the students is likely to be decreased.

Existing literature supports these findings as it has already been found that pupils who exhibit negative emotions show poorer academic achievement than other students whereas, pupils who can effectively control their negative emotions may reach a high level of academic goals (Akhtar et al., 2020; Arsenio & Loria, 2014; Rafidah et al., 2009). Therefore, the results of the current study revealed that with the increase in cognitive reappraisal, the academic performance of university students increases while, with the increase in expressive suppression, their academic performance decreases. Moreover, in the current study, gender (i.e., being women) predicted better academic performance in the students as revealed through regression analysis. These findings are consistent with the prior literature (Balkis & Duru, 2017) which suggests that girls display better academic performance as compared to boys. Likewise, the *t*-test depicted significant gender differences ($p<.05$, $p<.01$) on the variables where men scored significantly higher on cognitive reappraisal as compared to women whereas, women scored significantly higher on expressive suppression as well as on academic performance than those men.

Furthermore, in Pakistani collectivistic culture (Nadeem et al., 2017, 2018) parents not only used to exercise their authority over children (Nadeem et al., 2022) but also used to give more freedom of choice to the sons whereas girls are expected to show obedience and conformity (Saleem et al., 2017; Zaman & Ali, 2019). Therefore, it can safely be asserted that due to these reasons, men scored significantly higher on cognitive reappraisal as compared to women whereas, women scored significantly higher on expressive suppression. However, it is established that expressive suppression is negatively associated with academic performance but interestingly women in the current study, scored higher on expressive suppression as well as on academic performance (at the same time) as compared to men. Thus, there might be some other factors involved in the prediction of the academic performance of women other than expressive suppression which should be explored in future studies as Hanson (2000) has narrated that a multitude of factors may have an impact on students' academic performance. Lastly, analysis of variance in the current study revealed a significant difference between the class groups ($p < .01$) indicating that the academic performance of students tends to increase in the later semesters as compared to the previous semesters. As Daniels (2017) observed that the first years of university life are usually accompanied by an array of new and stressful experiences as compared to the later years therefore, this might be the possible reason behind the better performance of students in higher semesters as compared to students in initial semesters in the current study.

Conclusion

The findings of the current study revealed a significant positive association between cognitive reappraisal and academic performance while, a significant negative association between expressive suppression and academic performance in university students. Moreover, both the emotion

regulation strategies i.e., cognitive reappraisal and expressive suppression were found to be significant predictors of academic performance in university students.

Implications of the Study

The findings of the current study have imperative implications for the consideration of all the concerned stakeholders, teachers, advisers, university administration, and students' counselors. In the framework of developmental and preventive guidance, some students might use different emotion regulation strategies which are related differently to academic performance; thus, they might need help and support in academic settings. The findings of this study also instigate the spread of awareness among students and other stakeholders regarding appropriate emotion regulation which might be directly associated with their studies and its outcome in terms of academic achievement. On the other hand, such awareness would certainly be useful for them to improve their quality of life when dealing with day-to-day stresses and aversive experiences. Therefore, before students feel less successful and less capable based on lower academic success, academic staff, and advisers might recognize this warning signal, assume an active role, and implement requisite strategies collaborating with counseling professionals.

Limitations & Suggestions

- Findings of the current study in terms of correlations and predictions are based on quantitative analyses and should be interpreted accordingly. In the future, exploratory or qualitative research can be more helpful in better understanding the nature of emotion regulation and exploration of other determinants of academic performance in university students.
- A cross-sectional research design was used in the current research. In the future, it is suggested to use a longitudinal research design which may offer other important insights about the study variables at different ages and academic stages.
- Sample of this study comprised one public sector university which may limit the degree of generalization. Since academic burnout may vary with contextual factors, it is therefore suggested that in the future, data should be collected from diverse contexts to generalize the findings with more certainty.

Contribution of Authors

Arif Nadeem: Conceptualization, Methodology, Writing - Reviewing & Editing, Supervision

Faiza Umer: Investigation, Data Curation, Writing- Original draft

Muhammad Jawad Anwar: Formal Analysis, Writing – Original Draft

Conflict of Interest

There is no conflict of interest declared by authors.

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Data Availability Statement

The datasets of the current study are not available publicly due to ethical reasons but are available from the corresponding author [A.N.] upon the reasonable request.

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