The Role of Resilience on Academic Stress Levels Among College Students During the COVID-19 Pandemics

Chilla Zahra Ma'rifati and Edilburga Wulan Saptandari*
Faculty of Psychology, Universitas Gadjah Mada, Yogyakarta; Indonesia
ewulans@ugm.ac.id

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Abstract: During the COVID-19 pandemic all lecture activities were carried out online or mix method. All the assignments and daily activities can be an academic stressor for college students, so resilience is needed for college students in order to deal with it. The purpose of this study was to determine the role of resilience on academic stress level among college students during the COVID-19 pandemic. It was hypothesized that resilience plays a role in academic stress level in college students. This research using quantitative method. This research was conducted using a survey method by distributing online questionnaires. The number of participants consisted of 205 college students who took online learning for at least one semester.

1 INTRODUCTION

The COVID-19 virus which eventually turned into a world pandemic started to enter Indonesia at the end of 2019. The increasing number of cases has led the government to impose PPKM (Pemberlakuan Pembatasan Kegiatan Masyarakat) or Community Activities Restriction Enforcement. Most onsite activities began to be conducted online to keep the community safe. These included activities at educational institutions, including in university.

Higher education is a level of education that has different systems and rules from the previous level of education (Misra & Castillo, 2004). The atmosphere and demands in higher education institutions are different from what are in the K-12 education institutions. One of those changes is the increasing use of technology. The fast-moving changes can be stressful in environments with minimal experience in technology use (Singh et al., 2021). When the COVID-19 Pandemics hit, students were forced to adapt to a new learning environment and atmosphere that was even more challenging. Adaptation of these changes is not easy, which can be one of the causes of stress for students (Bulo & Sanchez, 2014).

During the COVID-19 Pandemics, lecture activities were carried out online. This method is usually interpreted as a learning method that uses media from the internet or intranet (Singh, 2021). It is also commonly referred to as e-learning, All classroom activities such as working on both individual and group works, discussing case study, and having tests were conducted online and there was no in-class on site meeting (Asarta & Schmidt, 2020). A study by Elvis et al. (2022) found that the 5th semester students' level of stress during the online learning period is higher compared to their stress level during the onsite learning.

When things got better and the number of transmission cases declined, the government began to relax the restriction policy. Learning activities too have started to be held partly onsite. Several schools and universities have implemented blended learning which combined online and onsite learning using virtual based technology (Aisyah, 2021). This blended learning consists of two learning methods which are synchronous and asynchronous learning (Ożadowicz, 2020). Synchronous learning requires lecturers and students to meet at the same time and same or different places. Meanwhile, asynchronous learning allows students and lecturers to be at different times and places (Rachmadtullah et al., 2020). There is another method called flipped learning method which combines both synchronous and asynchronous methods. In this method, the material for lecture is already given in advance before a synchronous class begins through an online platform so students can study the materials before they meet their lecturer. This way, synchronous meetings conducted either onsite or online could be used effectively to discuss the materials given before

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(Ożadowicz, 2020). Mixed learning should be able to increase student creativity. However, due to the sudden occurrence of the COVID-19 pandemic, many students still lacked understanding on how to use technology properly. This low technology literacy resulted in bored and tired students which in turn caused stress in students (Handayani & Utami, 2020).

Stress itself happens when the demands from the surrounding environments do not meet someone's ability to respond (Garrett, 1989). Stress during the educational process is usually called academic stress. Academic stress is mental and emotional pressure caused by learning activities on campus (Rachel, 2008). Academic stress does not always carry negative meaning. It can also be positive both psychologically and physically. It all depends on how an individual perceives the challenges and resources he or she has (Nugraheni in Kamila, 2020). The higher the education level is, the higher of stress level it carries. However, if the stress experienced is still in the right portion, it can be someone's motivation to develop (Lin & Chen, 2009).

According to Schafer (in Kamila, 2020), there are psychological and physiological responses that can occur due to stress. Psychological responses can be in the form of emotions, mindsets, and behaviours. Depression anxiety, sadness, anger, fear, frustration, and guilt are some emotions that appear as a response of stress (Kamila, 2020). Meanwhile, a mindset response can be in the form of how an individual perceives stress. Individuals who experience stress will assess what causes the stress and what they need to do when it is out of control. Next, there is a behaviour response. This response is divided into two namely direct behaviour and indirect behaviour. Direct behaviour sometimes refers to compulsive behaviour, where an individual says things that are different from usual and offensive to other people. Individuals who show direct behaviour response can also have a higher sense of irritability, he or she often feels extremely sad. Meanwhile, indirect behaviour might not be seen clearly by other people. Individuals with indirect behaviour as a response to stress can consume illegal drugs, take a lot of caffeine, and seem to have lots of health problems to treat (Nugraheni in Kamila, 2021). Physiological responses can manifest into a loss of appetite, digestive and sleep disturbances, and abnormal heart rate.

Taylor (in Kamila, 2020) also stated that there were several positive responses shown by a person during stress. Other than what is mentioned before, physiological responses can be in the form of disturbances that appear on the heart, skin, and respiratory tract. Meanwhile, cognitive responses can appear as difficulties to concentrate, forgetful mind, reduced ability to accept criticism and suggestion, and difficulties to make decisions. Emotional responses can also appear in the form of fear, anxiety, anger, depression, joy, calmness, patience, embarrassment, rejection. Meanwhile, behavioural responses can appear in the form of sleeping and eating disturbance, and inability to do work properly.

Lubis et al (2021) conducted a study using the faculty of social and political science students from Mulawarman University as their participants during this online learning period. There were 14 students (6.9%) with very high stress levels, 55 students (27%) with high stress levels, 80 students (39.2%) with moderate stress levels, 48 students (21%) with low stress levels, and 11 students (5.4%) with very low stress levels. It shows that students feel stressed during the COVID-19 pandemics.

Regulation regarding restrictions on social activities due to this pandemic also increases high levels of academic stress in college students (Mahapatra & Sharma, 2020). Academic stress can also come from several academic activities, such as many assignments, intense competition among students, and future career (Julika & Setiyawati, 2019). Competition among peers, learning materials, time management for academic and non-academic activities, activities that are related to lectures, academic achievement, exams, and the completion of assignments are other reasons for academic stress (Lin & Chen; Shirom in Nugraheni, 2012). Pressure from parents and also high expectations from lecturers (Bedewy & Gabriel, 2015) add to the list of academic stress causes. Another factor that can cause academic stress is financial problems, unexpectedly low grades, problems appearing when working with strangers, and problems with parents (Bulo & Sanchez, 2014).

According to Mahapatra and Sharma (2021), the use of devices to support online learning can also be one of causes of academic stress. Students from low to middle class families might not be familiar with the devices and a lot of them might not even own a device required for online learning sessions. As a result, students cannot take the online classes well and cannot turn in assignments. Clabaugh et al. (2021) also stated that the condition of inadequate supporting devices such as the availability of computers and internet networks and a less

supportive learning environment at home can be a challenge. This is not to mention the disturbance from another family member and some homework that might not be easily done during online learning.

The more stressors there are, the more someone's effort to solve the problem is. In turn, it will get heavier and more draining both physically and mentally (Misra & Castillo, 2004). A lot of stress can have an effect on the psychological side. It can result in anxiety, stress, and depression (Khan et al., 2013). Academic stress can also lead to bad working performance, bad relationships with others, reduced inner strength, lack of time to do the task, worse working conditions, piled up works, as well as delayed paperwork (Agolla & Ongor, 2009). In addition, academic stress can also cause decreased achievement, hinder work ability as well as interfere with time management (Khan et al., 2013) and also student resilience (Ozsaban et al., 2019). Therefore, self-resilience is needed from students to deal with existing stressor.

Resilience is the result of interaction between individuals and their environment. Someone will predict a positive outcome when in a high-risk situation (Eagland et al in Hartley, 2013). Resilience can also be interpreted as the result of adaptation during life as well as an indication of resilience and strength within for now and also the future (Wilks & Spivey, 2010). According to Connor and Davidson (2003) resilience can be interpreted as a measure of someone's success and ability to deal with adversity stress. Resilience is also something that can be measured and affected by a healthy individual mentality.

Supporting factors are needed to build a strong resilience. Supporting factors can come from internal or external. Internal factors can result from strong self-control when facing a problem in which an individual is not easily ignited by negative emotions. According to Mandleco (2000) internal factors that can affect resilience can be seen from a biological and psychological perspective. From a biological perspective, there are health, genetic predisposition, temperament, and gender. Meanwhile, from the psychological perspective, there are cognitive capacities including intelligence and ways of thinking, the ability to cope, and individual characteristic both intrapersonally and interpersonally. External factor can come from friends. Research from Wilks & Spivey (2010) stated that support from friends can reduce academic stress and also increase resilience. Family is also a source of resilience. Especially the family that have a good communication system and division of tasks and also have a good trust from each other (Walsh in Prime et al., 2020). Khairunnisaa (2021) also said that parents and family can be a source to survive during the covid-19 Pandemics.

The characteristic of someone who has a good resilience according to Connor and Davidson (2003) is being able to see stress as a challenge or opportunity. Someone with good resilience also has a commitment, goals, choices, self-control, confidence in themselves, optimistic attitudes, spiritual belief, sense of humour, attitude to be more active, and sense of patience. The role of other people can also affect someone's resilience. If he has a good resilience, then he will invite support from others and be close to others. That individual can also amplify the effects of stress, past successes, have tolerance for negative effects, and be able adapt to change.

Seeing that there are still many factors that cause academic stress in college students during this COVID-19 pandemic while the resilience is still quite low, there is a gap between the level of academic stress and resilience in college students. Research that discusses academic stress and resilience in college students is very limited. Problems related to this are still not properly resolved. There are still many college students who experience academic stress while attending online or mixed learning, so this research is important to do.

The purpose of this study is to determine the role of resilience to level of college student academic stress during the COVID-19 pandemic. The result of this study is expected to be a reference and also a consideration for students to implementing and increasing resilience in order to reduce academic stress levels. It hypothesizes that resilience plays an important role to academics stress level of college students during the COVID-19 pandemic.

2 METHOD

This research is non-experimental research. It uses a quantitative method. There are two variables in this research, resilience as independent variable and academic stress as dependent variable.

2.1 Participant

The participants are active undergraduate college students aged 18-24 years old who attended the online learning sessions for at least one semester during the COVID-19 pandemic. In this research, there are 305 college students from 45 universities in

Indonesia. The participants have been chosen using the non-probability sampling method. The researcher also used purposive sampling because the characteristic of the participant is determined. The majority of the participants are 21 years old (37.1%). Most of them started their undergraduate program in 2018 (50.7%). From all the participants, there are 152 students (74.1%) that join full online learning.

2.2 Procedure

Data collection was carried out in December 2021 – February 2022 using a questionnaire written in google form. The questionnaire was distributed online through social media. Link to fill out the questionnaire was listed on the poster and also on the broadcast message. Researcher conducted a scale trial first involving 52 participants. After getting the result that the scale was reliable, then it was continued with data collection.

2.3 Resilience

The instrument used to measure resilience is a scale from Connor and Davidson (2003) named Connor and Davidson Resilience Scale (CD-RISC). It has been adapted by Khairunnisaa (2021). This scale has been tested with the result of the Cronbach Alpha coefficient of 0.905. The value indicated that the scale is reliable. Therefore, it can be used as an instrument for data collection. This scale consists of 24 items in the form of a Likert scale indicating strongly disagree to totally agree. All items on this scale are favourable.

Aspects of resilience according to Connor and Davidson (2003) are divided into five. There are personal competences which is about high standards and tenacity, trust in oneself to be able to tolerate the negative effects arisen by giving self-reinforcement, positive acceptance of change and safe feeling, self-control, and spiritual influence.

Table 1. Blueprint of Resilience Scale.

Aspect	Item Number	Total
Personal competence	5, 7, 10, 11, 17, 22, 23, 24	8
Trust in yourself	9, 13, 14, 15, 16, 20, 21	7
Positive acceptance	1, 2, 4, 12	4
Self-control	6, 18, 19	3
Spirituality	3, 8	2
Total		24

2.4 Academic Stress

The instrument used to measure academic stress levels is The Academic Stress Scale by Nugraheni (2012) in Kamila's thesis (2020). This scale has been tested with the result of the Cronbach Alpha coefficient of 0.941. the value indicated that the scale is reliable. As a result, it can be used as an instrument for data collection. This scale consists of 30 items in the form of a Likert scale indicating never to always answers. All items on this scale are favourable.

This scale is in the form of a self-report which refers to the stressor written by Lin and Chen (2009). According to Lin and Chen (2009), there are several causes of academic stress on students. Those causes are from materials and questions from lectures, the demands and expectation from parents that are not in accordance with real situation, academic performance decline, exams preparation, bad scores which result to the need of compulsory courses retake, group assignments, competition between students for academic achievement, time management in order to be able to participate in organizations as well as other social activities, as well as expectations against yourself.

Table 2. Blueprint of Academic Stress Scale.

Academic Activity	Indicator	Total
Lecturer activity	Doing academic activities with peers	6
	Doing academic activities related to learning material	5
	Doing time management between academic and non-academic activities	2
	Doing activities related to academic activities with lecturers	4
Activity related with learning evaluation	Doing activities related to academic achievement	4
	Doing activities related to exams	4
	Doing activities related to task	5
Total		30

2.5 Data Analysis

This research is a quantitative-research that requires statistical analysis for hypothesis testing. Data analysis technique used is simple linier regression to determine the contribution predictive of two variables measured. Regression analysis can also be used to find out the predictive contribution of the independent variable to the dependent variable to do data analysis using SPSS 25 software.

3 RESULT

Table 3 shows the age of the participants in this study. From these data it is known that the majority of participants who took part in this study were 21 years old as many as 76 people (37.1%).

Table 3. Age Range.

Age	Total	Percentage
18	16	7.80
19	17	8.30
20	30	14.60
21	76	37.10
22	55	26.80
23	8	3.90
24	3	1.50

Table 4 shows the generation range of the participants in this study. From these data, it is known that the majority of participants who took part in this study entered the university in 2018 with 104 people (50.7%).

Table 4. Generation Range.

Generation	Total	Percentage
2016	3	1.50
2017	6	2.90
2018	104	50.70
2019	42	20.50
2020	24	11.70
2021	26	12.70

A total of 205 students took part as participants in this study. The majority of the participants were students who were still taking online learning. A total of 152 students (74.10%) have not attended mixed methods learning, it means that they were still attending online learning. Other students as many as 53 students (25.90%) have attended blended learning.

Descriptive analysis was carried out to find out the data as a whole. Result descriptive analysis in this study is shown in the table below:

Table 5. Descriptive Statistics.

Variable	Mean	Min	Max	DS
Resilience	90.92	56	120	12.265
Academic Stress	84.40	30	142	20.206

In order to know the level of academic stress experienced by the participants, it is necessary to do categorization. Categorization was performed using statistical hypothetical tools measure as a reference. Table 6 describes the categorization ranges for academic stress.

Table 6. Categorization of Academic Stress Level

Category	Formula	Result
Low	$X < M - 1\ SD$	$X < 70$
Moderate	$M - 1SD \leq X < M + 1\ SD$	$70 \leq X < 110$
High	$M + 1\ SD \leq X$	$110 \leq X$

Table 7 shows the categorization of academic stress levels experienced by students. From these data, it is known that the majority of the participants, 139 students (67.80%), have a level of academic stress in the moderate category.

Table 7. Result of Academic Stress Level Categorization.

Category	Formula	Result
Low	$X < M - 1\ SD$	$X < 70$
Moderate	$M - 1SD \leq X < M + 1\ SD$	$70 \leq X < 110$
High	$M + 1\ SD \leq X$	$110 \leq X$

To know the level of resilience of the participants, it is necessary to do categorization. Categorization was performed using statistical hypothetical tools measure as a reference. Table 8 describes the categorization ranges for resilience level.

Table 8. Categorization of Resilience Level.

Category	Formula	Result
Low	X < M - 1 SD	X < 56
Moderate	M - 1SD ≤ X < M + 1 SD	56 ≤ X < 88
High	M + 1 SD ≤ X	88 ≤ X

Table 9 shows the categorization of resilience levels experienced by students. From these data, it is known that the majority of participants, 129 students (62.90%) have a level of resilience in high category.

Table 9. Result of Resilience Level.

Category	Frequency	Percentage
Low	0	0
Moderate	76	37.10
High	129	62.90

Before testing the hypothesis, it is necessary to test the classical assumptions. Classic assumption test conducted to ensure that this study is normally distributed and there is no existing heteroscedasticity case. The first classical assumption test is the normality test. This study used the Kolmogorov-Smirnov normality test. Table 10 shows the results of the normality test that p = 0.200 (p>0.05). Tt means that the application data resilience to academic stress is normally distributed.

Table 10. Normality Test

Normality Test	Unstandardized Residual
Statistic Test	0.036
Asymp. Sig. (2-tailed)	0.200

The next classic assumption test is the linearity test to show the relationship between variables in this study. The result of this study shows p = 0.116 (p>0.05) which means that there is a linear relationship between the variables academic stress and resilience. Next is heteroscedasticity test which aims to detect whether there is a heterogeneous variance from the residual value of one observation to the other observation. The result of the heteroscedasticity test showed p = 0.940 (p>0.05) means that there is no symptom of heteroscedasticity.

After testing the classical assumptions, it is continued by a hypothesis test to determine whether there is a role of the independent variable on the dependent variable in this study.

Based on the results of simple linear regression hypothesis testing, there is a significance value of p = 0.000 (p<0.05) which means there is a role or effective contribution of resilience to academic stress. A beta coefficient value of -0.523 is obtained which can be interpreted as resilience has a negative role on academic stress. This can be interpreted as if individuals have high resilience then they will have a low level of academic stress and if you have low resilience, you will have a high level of academic stress. From the value of R2 it can be said that resilience has an effective contribution of 10.1% on the level of academic stress.

Table 11. Additional Analysis

Academic Stress	DS	t	Sig. (2-tailed)
Online Learning	3.230	0.348	0.752
Mix Method Learning	3.455		

To find out the differences in academic stress between students who are still joining online learning until now and attending mixed methods learning, the test was carried out using an independent sample t test and obtained the result of p = 0.752 (p>0.05) which means that there is no significant difference in level of academic stress among students who have not and have already attended the mixed methods learning.

4 DISCUSSION

This research was conducted with the aim of knowing whether there is a role of resilience in the level of college student's academic stress during the COVID-19 pandemics. The result of this study states that there resilience plays an important role in the academic stress level. This is in accordance with the hypothesis of this study that resilience plays a role in academic stress level in college students during COVID-19 pandemics.

The result of this study states that there is a negative contribution between resilience and academic stress. Therefore, it can be interpreted that students who have high resilience will have low levels of academic stress. This research is aligned with previous research carried out by Asy'ari et al. (2019) which states that the quality of school life

and resilience are negatively correlated either simultaneously or partly with academic stress. Students tend to experience academic stress in the medium category if they have a high level of resilience. This can happen because generally students are able to cope with pressure from the university.

The result of this study indicates that the majority of the students experienced moderate levels of academic stress while joining lectures during COVID-19 pandemics. This finding is consistent with the research conducted by Harahap et al. (2020) which shows that the majority of UINSU students experienced moderate academic stress during online learning. Another research by Lubis et al. (2021) also stated that the majority of students experience academic stress in the moderate category. Thus, it can be concluded that the result of this study supports the previous studies which stated that students still experience moderate level of academic stress while participating in learning activities during the COVID-19 pandemics.

Controlling emotions is also one of the needed factors to increase resilience. If an individual is able to control their emotions, they will gain strong resilience (Asy'ari et al., 2019). This research found that the majority of the students have a high level of resilience. It means that those students have a strong faith and resilience in facing the COVID-19 pandemic. It contrasts with the result of research by Aryansah et al. (2020) which found that the average students have a moderate level of resilience. This can happen due to the time when the research was conducted. Another reason why the result is varied is because people's understanding on how to deal with the COVID-19 pandemics changed over time. Knowledge and attitude towards COVID-19 pandemic can direct a person to adapt to the challenges that exist during the pandemics. This is shown in research by Khairunnisaa (2021) which saw a decrease of community concern regarding COVID-19 in September 2020 and July 2021. During the early days of the COVID-19 pandemic, the community still lacked information and knowledge about COVID-19, whereas lately we have more and more understanding about how to deal with it so it doesn't cause excessive anxiety anymore. Someone who has a positive way of thinking will be more able to build resilience (Atmoko et al., 2019). Resilience and positive coping strategies are factors to protect people from onset of depression, anxiety, and stress (Fu et al., 2020). Thus, resilience needs to be built for students to have a sense of optimism and stay calm so they can control emotions and solve the problems properly (Aryansah et al., 2020).

Someone who has a high level of resilience will find it easier to adapt and not be easily shaken when receiving a stressor. The reaction caused by the presence of stressor can be controlled well. Someone who has a high level of resilience is usually easy to socialize, optimistic, energetic, cooperative, highly curious, and full of attention (Sagor in Kwek et al., 2013). According to Zhang et al. (2020) resilience can be a protector when you are in a stressful situation and can also maintain mental health during the COVID-19 pandemic. Resilience can help students to be physically and mentally strong. Cole et al. (2015) found that psychological constructs in the form of ego resilience and mindfulness can buffer the negative effects caused by academic stress on students. In addition, someone with a high level of resilience can see stress as a challenge to strengthen themselves, can know the limits of their own self-control, and can receive support from others. These individuals usually have good relationships, good interpersonal skills, safe and supporting family, good goals individually and in groups, as well as self-efficacy. They are also able to involve past successes, make self-control realistic, have a sense of humour, be patient, tolerate negative effects, easily adapt to change, have a sense of optimism, and have a trust towards God (Astika & Saptoto, 2016).

This study also conducts an analysis of whether there is a difference between the level of academic stress of students who until now are still doing full lectures online as well as students who have already joined the mixed lectures. The result of the analysis shows that there is no significant difference between the two. Therefore, it can be concluded that students can go through the challenges that exist during online learning during the COVID-19 pandemic. According to Tirziu & Vrabie (2015) there are several challenges in the implementation of online lectures such as the support needed to deal with something new and the availability of materials that are adapted to the culture and current circumstances. The way of teaching is different. There might be connection disturbance that might occur disrupting the lecture activities. The response from the community regarding this changing learning system is also a challenge, so the strong self-confidence from students is needed to face the challenges that exist.

Online lectures can also be an academic stressor for students. Students complained about assignments due to limited interaction with their lecturers which

made it difficult to ask questions about their assignments. The due date of various assignments which usually fell at the same time has made students even more stressed. The lack of understanding of the material by students makes it difficult to carry out the assignment (Oktawirawan, 2020). Likewise, with mixed lectures, which also cannot be carried out throughout Indonesia considering that several regions still have high cases of COVID-19, students still found it difficult to understand materials. Mixed lectures, as they still involve online learning, are still difficult for students who have limited internet networks and other infrastructure. There are also problems related to difficulties in adjusting time and the lack of activities that can be done together which can make students stressed (Resubun, 2021). Therefore, it can be said that the online lecture system and the mixed method do not differ much in their execution.

The results of this study indicate that resilience plays an important role in students' academic stress during the COVID-19 pandemic. However, in this study the sample used was still uneven, so the result cannot be generalized in general. In this study, other aspects related to resilience and academic stress are also not discussed in depth. Measurement of academic stress level and resilience in men and women has not been carried out. However, the result of this study can be used as an illustration of the resilience possessed by students and also the level of students' academic stress during the COVID-19 pandemic.

5 CONCLUSION

Based on the results of this study, it can be concluded that resilience plays an important role on student academic stress level during the COVID-19 pandemic. Resilience has a negative contribution to academic stress level. This can be interpreted that the higher resilience a student possesses, the lower their academic stress will be. The level of academic stress experienced by undergraduate students who take full online lectures as well as students who have attended lectures in mixed meetings do not show significant differences. Thus, it means that students are able to face the challenges experienced during online and mixed lectures.

For the future researchers, it is suggested to expand the range of participants and the number of participants so that they can better represent the existing population. Furthermore, future research is expected to further expand the aspects studied, such as involving various aspects related to academic stress and resilience. In addition, measurements can be made regarding the comparison of academic stress levels and also resilience in men and women. During the COVID-19 pandemic, support from friends and family is needed so maintaining good relations with family and friends is important to create strong resilience.

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APPENDIX

Simple Linear Regression Hypothesis Test.

Predictor	R	R^2	F	Sig
Resilience	0.318	0.101	22.797	0.000

Parameter	Unstandardized Beta Coefficient	t	Sig
(Constant)	131.993	13.123	0.000
Resilience	-0.523	-4.775	0.000