



# Resilience and psychological distress in the transition to university: the mediating role of emotion regulation

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## Abstract

Young adults face numerous challenges during their first year of university, which is considered by various researchers to be a time of potential threat and acute stress. These challenges were exacerbated by the COVID-19 pandemic, which has resulted in disruption of old learning and social structures that make it all the more difficult to adapt. The purpose of this study was to understand the relationship between resilience, emotion regulation, and psychological distress during the transition to university. A sample of 417 students (250 females, 60%) aged 18 to 33 years ( $M_{age} = 19.87$ ,  $SD_{age} = 1.47$ ) was recruited at an Italian university using a random sampling method. Paper questionnaires were completed in classrooms. Resilience was assessed with the Resilience Scale, emotion regulation with the Difficulties in Emotion Regulation Scale-18, and psychological distress with the Depression-Anxiety-Stress Scales-21. Results showed that (a) resilience was negatively correlated with difficulties in emotion regulation, depression, anxiety, and stress; (b) difficulties in emotion regulation were positively correlated with depression, anxiety, and stress; and (c) difficulties in emotion regulation significantly mediated the relationship between resilience and psychological distress. These findings shed light on the relationship between resilience and difficulties in emotion regulation during university transfer and call on higher education institutions to take steps to promote successful emotion regulation in first-year students to facilitate a positive transition to university.

**Keywords** University transition · Higher education · Resilience · Emotion regulation · Psychological distress

## Introduction

In many young adults, the transition to higher education is a critical point in their lives and reflects both aspects of potential personal growth as well as major psychological

challenges (Kyndt et al. 2017; Lu 1994; Messerer et al. 2023). This period, especially the first year, is fraught with stress, anxiety, and depression, exacerbated by both the demands of adapting to new academic and social environments and, more recently, the shifts to remote learning due to the Covid-19 pandemic (Al-Ansi 2021; Mastrokouskou & Crawford-Lee 2023). In Italy, approximately 40% of 19-year-olds enroll in university, with a national first-year dropout rate of about 12.2%, increasing to 14.3% in Southern Italy, reflecting variations across different disciplines and regions (Agenzia Nazionale di Valutazione del Sistema Universitario e della Ricerca 2018; Consorzio Interuniversitario AlmaLaurea 2020).

The transition's challenges have been magnified by the pandemic, which has significantly altered the traditional educational experience, thereby increasing stress, isolation, and psychological distress among students (Besser et al. 2022; Kyne & Thompson 2020). Research shows that students at the beginning of their studies are particularly susceptible to these problems, with higher levels of stress

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and psychological difficulties than senior peers (Gale & Parker 2014; Gall et al. 2000; Milienos et al. 2021).

Meta-analyses and systematic reviews further emphasise this point: Ahmed et al. (2023) find that nearly 40% of first-year students report clinically significant levels of anxiety or depression. This is supported by the findings of Sharaievska et al. (2022) who found that the pandemic-induced shift to remote learning and resulting social isolation has led to an increase in stress, anxiety and depressive symptoms in university students.

In this context, it is essential that resilience and emotion regulation are key factors to cope with psychological distress in order to facilitate a more favourable adaptation of university environments. The importance of these factors in encouraging positive responses to stress has been highlighted by a number of studies (Ang et al. 2022; Connor & Davidson 2003). In addition, it has been found that the role of integration memories in this context is to provide a clear meaning for past experiences (Bozzato & Longobardi 2021).

In a meta-analysis by Jia-Yuan et al. (2022), high levels of resilience and effective emotion regulation strategies have been shown to be strongly correlated with reduced psychological distress and better adjustment to university life. In addition, mitigating effects on the adverse impacts of transition to higher education have been highlighted by Erzen and Ozabaci (2023) with regard to social support, coping methods and self-efficacy.

However, resilience and emotion regulation have often been treated as separate concepts in literature, with less attention paid to their interaction during the transition to higher education, (Leary & DeRosier 2012; Sahanowas & Halder 2019; Van Doren et al. 2021). Furthermore, the existing theoretical frameworks on university transition, while extensive, have not fully explored the mediating role of emotion regulation between resilience and psychological distress (Briggs et al. 2012; Ecclestone et al. 2010). The need for a more comprehensive approach to consider the complexity of psychosomatic dynamics in action is further underlined by Mastrokourou et al. 2022, who argue that this gap needs to be closed. This approach would not only enhance our understanding of the transitional experience, but also provide a more effective support and intervention strategy to help students through this critical phase in their lives.

### Resilience and transition to university

The resilience that enables students to deal with the challenges and stresses of this major life change plays an essential role in moving into higher education, serving as a shield. Defined as the capacity to withstand and thrive amidst adversity, resilience has been consistently linked to

improved psychological well-being, academic performance, and adjustment among university students (Connor & Davidson 2003; Luthar et al. 2006; Leary & DeRosier 2012; Sahanowas & Halder 2019; Tusaie & Dyer 2004). Recent research underscores the dynamic nature of resilience, suggesting it as a competence developed through interactions with one's environment and experiences, rather than a fixed trait (Liew et al. 2020). The importance of promoting resilience over the course of life, in particular when it is essential to make important transitions like entering higher education, has been underlined by this perspective. A meta-analysis by Sheldon et al. (2021) supports the negative correlation between resilience and psychological distress in university students and demonstrates the positive impact of resilience on academic outcomes and successful adjustment to university life. Crucial to developing and maintaining resilience during this transitional phase are factors such as maintaining social relationships, self-care, maintaining an optimistic attitude and improving emotion regulation skills (Leary & DeRosier 2012; Lin et al. 2022). In addition, a longitudinal study by Wu et al. (2020) found that resilience significantly predicted positive mental health outcomes and academic performance in first-year students, highlighting its central role in facilitating a smooth and successful adjustment to university.

### Resilience and emotion regulation

Although scholars use the term in a variety of ways, emotion regulation (ER) can be defined as the conscious and unconscious processes individuals use to modulate and control emotional experiences or expressions (Gross 2014). Gratz and Roemer (2004) suggest that successful ER involves four skills: (a) naming and understanding emotions, (b) accepting rather than avoiding emotional reactions, (c) using strategies when upset rather than engaging in impulsive behaviors, and (d) using effective ER strategies in response to current demands. Consequently difficulties in emotion regulation (DER) can be defined as deficits in the application of one or more of these skills (Gratz & Roemer 2004). Many studies report that DER is associated with psychological problems such as depression, anxiety, and stress (Joormann & Stanton 2016).

Although the literature on resilience and ER has a partially independent tradition, researchers document a clear link between the two (Kay 2016). Because stress is an emotional experience, an individual's ability to manage their emotions can be considered a critical factor in resilience. A recent study in the area of emotion regulation with college students suggests that the use of effective emotion regulation strategies (i.e., cognitive reappraisal) promotes resilience (Thomas & Zolkoski 2020). On the other hand,

several studies have found a negative relationship between resilience and psychological distress in college students (Wu et al. 2020). Based on this literature review, we hypothesized in the present study that there might be a relationship between resilience, DER, depression, anxiety, and stress (Hypothesis 1). In addition, resilience might be negatively correlated with DER, depression, anxiety, and stress (Hypothesis 2).

Individuals with high levels of DER may be more exposed to stressful events, such as transferring to college. Some research supports this notion, showing that a lack of ER predicts maladaptive, impulsive behavior in college students. Zahniser and Conley's (2018) study of 1,130 young adults transitioning to college highlights the importance of ER as a protective factor against stress. Therefore, it is reasonable to assume that DER is positively correlated with stress (Hypothesis 3).

### Psychological distress

Psychological distress is a condition characterised by the presence of three factors: (a) depression, which assesses a lack of incentive, low self-esteem, and dysphoria; (b) anxiety, which refers to somatic and subjective symptoms as well as acute anxiety reactions; (c) stress, which assesses irritability, impatience, tension, and prolonged arousal (Bottesi et al. 2015). Research indicates potentially alarming levels of self-reported psychological distress among university students, with higher rates of depression among undergraduate students than the general population and peak rates of depression or anxiety exceeding 35% among health professions students (Brenneisen Mayer et al. 2016). It has been extensively documented in the literature that early trauma (i.e., physical, emotional, and sexual abuse, caregiver neglect, and family dysfunction in the early years of life) and psychosocial vulnerability (i.e., stable personality traits and social contexts that predispose individuals to be more or less vulnerable to depression) play a critical role in the development of mental health and behavioural problems. On the other hand, personal and social resources (e.g., resilience, emotion regulation, and social support)

may positively influence responses to traumatic events toward more favourable mental health development (Troy & Mauss 2011). One construct that has received increasing attention in the scientific community is posttraumatic growth, which is the positive outcome of psychological engagement following an adverse event (Tedeschi et al. 2018). Some authors found that posttraumatic growth was predicted by moderate levels of depression in a sample of university students, indicating that a moderate depressed state and associated distress may promote the drive to overcome the psychological consequences of the traumatic event (Bianchini et al. 2017). In recent years, the lockdown and restrictions due to the Covid 19 pandemic have increased the psychological difficulties of university students, especially for first-year students who are in a period of social change in their lives (Fruehwirth et al. 2021). Based on the above literature review, it is plausible that DER mediates the relationship between resilience and psychological distress in the context of university transfer (Hypothesis 4). In other words, resilient individuals still experience negative emotions during university transfer (Leary & DeRosier 2012), but if they possess a maladaptive pattern of ER, this can easily lead to higher levels of psychological distress (Troy & Mauss 2011).

### Conceptual framework and hypotheses of the study

In view of the literature review, we have proposed a conceptual framework (see Fig. 1) to describe interrelationships among resilience, DER and psychological distress throughout one's transition to university. In this framework, resilience is hypothesized to have a direct negative effect on psychological distress (depression, anxiety, and stress) and an indirect effect through its negative association with DER. DER, in turn, is hypothesized to have a direct positive effect on psychological distress. The proposed framework assumes that students with higher levels of resilience have a better ability to regulate their emotions, thereby mitigating the effects of transition stress on their psychological well-being. Conversely, students with lower resilience and

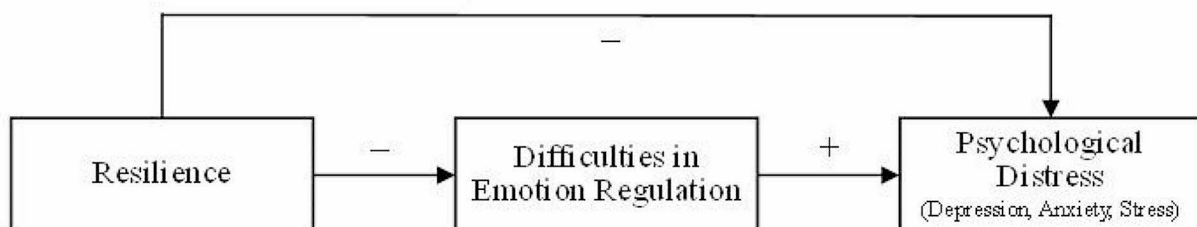


Fig. 1 Conceptual framework

difficulties in ER are more susceptible to psychological distress during this transition.

Based on the conceptual framework and the literature review, we propose the following hypotheses:

- H1: There is a significant relationship between resilience, DER, depression, anxiety, and stress.  
 H2: Resilience is negatively correlated with DER, depression, anxiety, and stress.  
 H3: DER is positively correlated with depression, anxiety, and stress.  
 H4: DER mediates the relationship between resilience and psychological distress (depression, anxiety, and stress).

The first hypothesis (H1) proposes that the key variables of resilience, DER, depression, anxiety, and stress are significantly interrelated. This hypothesis is based on the extensive literature documenting the associations between these constructs. For instance, previous studies have found negative relationships between resilience and psychological distress (Bacchi & Licinio 2017), as well as between resilience and DER (Kay 2016). Additionally, DER has been positively linked to depression, anxiety, and stress (Aldao et al. 2010; Joormann & Stanton 2016).

The second hypothesis (H2) posits that resilience is negatively correlated with DER, depression, anxiety, and stress. This hypothesis is grounded in the theoretical understanding of resilience as a protective factor against psychological distress and emotion regulation difficulties (Leary & DeRosier 2012; Thomas & Zolkoski 2020). Resilient individuals are better equipped to cope with adversity and regulate their emotions effectively, thereby reducing the risk of experiencing psychological distress.

The third hypothesis (H3) states that DER is positively correlated with depression, anxiety, and stress. This hypothesis is supported by numerous studies that have documented the strong associations between emotion regulation deficits and various forms of psychological distress, including depression, anxiety, and stress (Joormann & Stanton 2016; Zahniser & Conley 2018).

The fourth hypothesis (H4) proposes that DER mediates the relationship between resilience and psychological distress (depression, anxiety, and stress). This hypothesis is based on the theoretical notion that resilient individuals still experience negative emotions during stressful transitions, but their ability to regulate emotions effectively can prevent the development of psychological distress (Leary & DeRosier 2012; Troy & Mauss 2011). Conversely, individuals with lower resilience and difficulties in emotion regulation are more vulnerable to experiencing psychological distress during such transitions.

In summary, the transition to university can be a time of heightened stress and vulnerability to psychological

distress, particularly in the context of the COVID-19 pandemic. Resilience and effective ER have been identified as protective factors, but the interplay between these constructs and their impact on psychological distress during this transition warrants further investigation. The proposed conceptual framework and hypotheses aim to shed light on these relationships and contribute to a better understanding of the factors influencing the well-being of first-year university students.

The aim of this study was to investigate the mediating role of DER in the link between resilience and psychological distress (anxiety, depression, and stress) in a group of Italian first-year university students. Through the current study, we sought to test the four research hypotheses mentioned above.

## Method

### Participants

At a university in northern Italy, a total of 423 first-year students from different disciplines were recruited by random sampling. Five students who completed less than half of the questions in the questionnaire were excluded from the analysis. The final sample consisted of 417 students (250 females; 60%) aged 18 to 33 years ( $M_{age} = 19.87$ ,  $SD_{age} = 1.47$ ). The top three majors were elementary education ( $n = 79$ ; 18.9%), computer science ( $n = 70$ ; 16.8%) and biological science ( $n = 54$ ; 12.9%). Most students were full-time ( $n = 393$ , 94.2%). For detailed demographic information, please see Table 1.

### Instruments

#### Resilience scale

The original 25-item resilience scale (RS) was developed by Wagnild and Young (1993). In the current study, the Italian version of the scale RS revised by Girtler et al. (2010) with 24 items was used to measure participants' resilience. Students rated the extent to which they agreed or disagreed with each item (e.g., "When I'm in a difficult situation, I can usually find my way out of it") on a five-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). The sum of the scores on all items was calculated as the final score, with a higher score reflecting a higher level of resilience. For the present sample, the reliability of the RS was good, with a Cronbach's alpha of 0.86.

**Table 1** Participants' demographic information

	Frequency	Percentage
<b>Gender</b>		
female	250	60.0%
male	167	40.0%
<b>Age</b>		
18	1	0.2%
19	209	50.1%
20	132	31.7%
21	45	10.8%
22	14	3.4%
23	3	0.7%
24	7	1.7%
25	3	0.7%
29	1	0.2%
31	1	0.2%
33	1	0.2%
<b>Majors</b>		
elementary education	79	18.9%
computer science	70	16.8%
SUISM <sup>A</sup>	67	16.1%
natural science	57	13.7%
biological science	54	12.9%
languages	41	9.8%
DAMS <sup>B</sup>	25	6.0%
enonomics	24	5.8%

Note. <sup>A</sup>SUISM Struttura Universitaria di Igiene e Scienze Motorie (University School of Hygiene and Sport Sciences). <sup>B</sup>DAMS Discipline delle Arti, della Musica e dello Spettacolo (Faculty of Music, Performing Arts, Cinema And New Media)

### Difficulties in Emotion Regulation Scale-18 items

The original 36-item Difficulty in Emotion Regulation Scale (DERS) was developed by Gratz and Roemer (2004). In the current study, the revised 18-item version (Victor & Klonsky 2016) was used to measure students' difficulties in ER. Participants were required to rate the frequency of behaviours described in each item (e.g., "When I am upset, I have difficulty controlling my behaviors") on a five-point Likert scale (1 = *almost never*, 5 = *almost always*). The final score was the sum of all the items, with higher scores reflecting more difficulties in ER. For the current sample, the reliability of the DERS-18 was good (Cronbach's alpha = 0.88).

### Depression Anxiety Stress Scales-21

The Italian version of the Depression Anxiety Stress Scales-21 (Bottesi et al. 2015) was used to measure the students' psychological distress (i.e., depression, anxiety, and stress). This scale consists of three subscales: (a) depression (7 items, e.g., "I felt that I had nothing to look forward to"); (b) anxiety (7 items, e.g., "I was worried about situations in which I might panic and make a fool of myself"); and

(c) stress (7 items, e.g., "I found it difficult to relax"). The participants were required to rate the extent to which the items were in line with their actual situation on a five-point Likert scale (1 = *did not apply to me at all*, 5 = *applied very much to me*). The sum of all the ratings was calculated as the final score for each subscale, with a higher score reflecting more serious psychological distress. For the current sample, the reliability was good:  $\alpha_{\text{depression}} = 0.90$ ,  $\alpha_{\text{anxiety}} = 0.87$ , and  $\alpha_{\text{stress}} = 0.89$ .

### Procedure

The ethical regulations of the University Ethics Committee and the Italian Association of Psychology were followed (IRB approval number: 195,868). Data were collected by trained research assistants. After obtaining permission from the professors, who were contacted through the authors' personal networks, the research assistants went to the classrooms and distributed the questionnaire in paper form. All participants were asked to sign an informed consent form before beginning the questionnaire, which was completed in the classroom before or at the end of a lecture. Participation in this survey was voluntary and not rewarded. Students could withdraw at any time if they felt uncomfortable with the questions. It took approximately 10–15 min to complete the questionnaires for the scales used in this study. During this time, the research assistant remained in the classroom to answer questions about the survey or the items.

### Data analysis

Data analysis was performed using SPSS 22.0 and Mplus 8.3. First, descriptive statistics and Pearson's correlation were calculated to examine bidirectional relationships between variables. Then, path analysis with multiple dependencies was performed to confirm the direct relationships without a mediator between resilience and psychological distress. Third, the potential mediator (i.e., DER) was added to the model, and the bootstrap method was applied to further examine the mediating effects. The bias-corrected bootstrap samples (5000 samples) extracted from the original sample with replacement were used to calculate the 95% confidence intervals (CI) of all mediating effects. If the 95% CI did not include zero, indirect effects were present. To maximize sample size and increase statistical power, the maximum likelihood method with complete information (Muthén & Muthén 1998–2017) was used to handle missing data (less than 1.9%).

## Results

### Descriptive statistics and correlation analysis

The means and standard deviations of the variables studied and the bivariate correlations are shown in Table 2. All key variables were significantly correlated with each other. In particular, resilience was negatively related to difficulty in ER ( $r = -.42, p < .001$ ), depression ( $r = -.43, p < .001$ ), anxiety ( $r = -.32, p < .001$ ), and stress ( $r = -.28, p < .001$ ). Difficulties in ER were positively correlated with all three dimensions of psychological distress: depression ( $r = .63, p < .001$ ), anxiety ( $r = .58, p < .001$ ), and stress ( $r = .63, p < .001$ ). In addition, the subdimensions of psychological distress were also highly correlated with each other.

### Testing for the direct effect of resilience on psychological distress

Figure 1 illustrates the regression coefficients of the linear model with multiple dependent variables to examine the direct relationships between resilience and psychological distress. Students with higher resilience tend to have lower levels of depression ( $\beta = -0.42, p < .001$ ), anxiety ( $\beta = -0.33, p < .001$ ), and stress ( $\beta = -0.29, p < .001$ ), which indicated that resilience was a protective factor for psychological distress.

### Testing for mediating effects

To further explore the mediating role of ER in the model shown in Fig. 1, DER was added. As shown in Fig. 2, both the first and the second parts of the indirect paths were significant: first, resilience negatively predicted DER ( $\beta = -0.42, p < .001$ ), which in turn further positively predicted depression ( $\beta = 0.55, p < .001$ ). Zero was not included in the 95% CI obtained by adopting the bootstrap method (95% CI  $-0.29, -0.18$ ). Therefore, DER was a significant

mediator in the relationship between resilience and depression (estimated indirect effect =  $-0.23$ ) (Fig. 3, Table 3).

Second, anxiety was positively predicted by DER ( $\beta = 0.54, p < .001$ ). The 95% CI did not include zero (95% CI  $-0.29, -0.17$ ), suggesting that resilience exerted a significant influence on anxiety via the mediating effect of DER (estimated indirect effect =  $-0.23$ ).

Third, DER positively predicted stress ( $\beta = 0.62, p < .001$ ). The estimated indirect effect of DER on the relationship between resilience and stress was  $-0.26$ , and zero was excluded from the 95% CI (95% CI  $-0.32, -0.20$ ), indicating a significant indirect effect of DER. DER was therefore a significant mediator in the relationship between resilience and psychological distress in university students.

## Discussion

The aim of this study was to investigate the mediating role of DER in the relationship between resilience and psychological distress (depression, anxiety, and stress) in a sample of Italian first-year university students.

### Correlation between the study variables

The first hypothesis states that there is a relationship between resilience, DER, depression, anxiety, and stress. Analysis revealed that all key variables in the study were highly significantly correlated with each other, supporting the first hypothesis. Such correlations were expected and are consistent with previous studies that found that higher levels of resilience are associated with lower levels of stress (Bacchi & Licinio 2017) and that ER deficits play a role in many forms of psychosocial stress (Aldao et al. 2010). In addition, the use of effective emotion regulation strategies (i.e., cognitive reappraisal) has already been linked to resilience (Thomas & Zolkoski 2020).

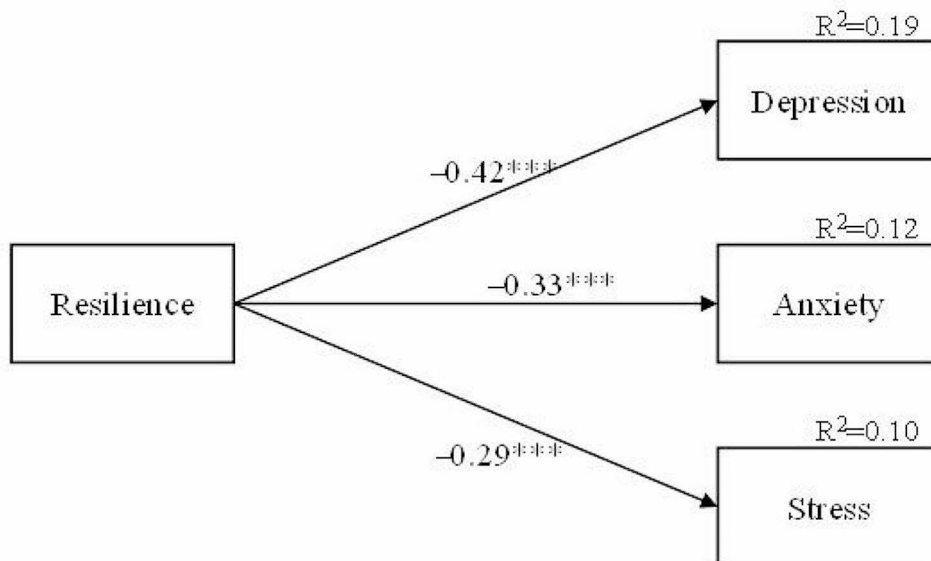
**Table 2** Means, standard deviations, and Pearson correlations of the variables ( $N = 417$ )

Variables	1	2	3	4	5	6	7
1. Gender	—						
2. Age	0.06	—					
3. Resilience	-0.01	0.04	—				
4. DER	0.01	-0.04	-0.42***	—			
5. Depression	0.10	0.01	-0.43***	0.63***	—		
6. Anxiety	-0.08	0.02	-0.32***	0.58***	0.67***	—	
7. Stress	-0.06	0.04	-0.28***	0.63***	0.69***	0.70***	—
<i>M</i>	0.40	19.87	90.37	43.33	14.26	13.41	18.14
<i>SD</i>	0.49	1.47	11.68	12.59	6.70	6.52	7.03

Note: Gender: 0 = female, 1 = male

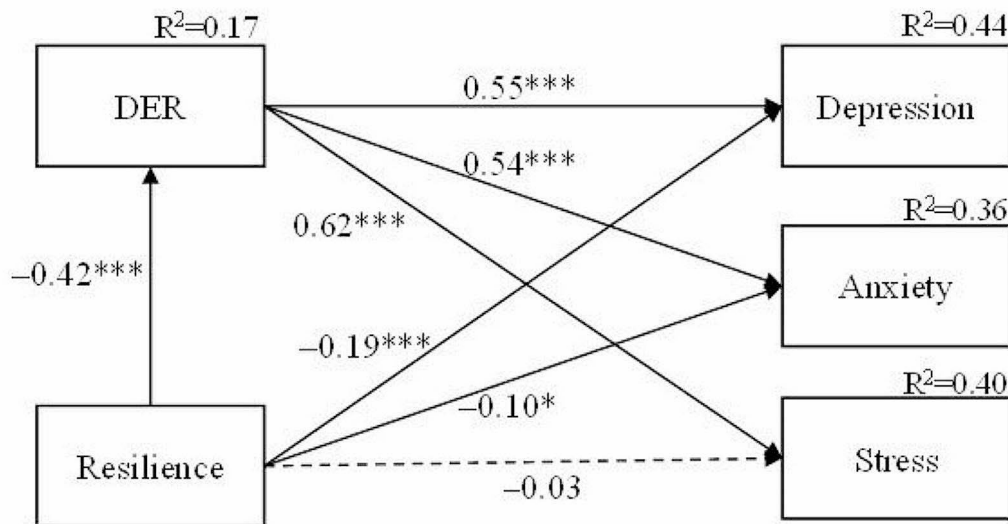
DER Difficulties in emotion regulation

\*\*\* $p < .001$



**Fig. 2** The direct relationships without mediator ( $N=417$ ). *Note:* All the regression coefficients are standardized. Student’s gender and age were included as control variables but not illustrated in the figure

Model fit indices:  $\chi^2=0.645$ ,  $df=2$ ,  $p=.724$ ,  $AIC=10489.85$ ,  $BIC=10570.51$ ,  $CFI=1.00$ ,  $TLI=1.01$ ,  $RMSEA=0.00$  (90%CI = [0.00, 0.069]),  $SRMR=0.01$ ; \*\*\* $p<.001$



**Fig. 3** The model with mediator ( $N=417$ ). *Note:* All the regression coefficients are standardized. DER=Difficulties in emotion regulation. Student’s gender and age were included as control variables but not illustrated in the figure to make the picture concise. Model fit indices:  $\chi^2=0.611$ ,  $df=2$ ,  $p=.736$ ,  $AIC=13419.641$ ,  $BIC=13532.57$ ,  $CFI=1.00$ ,  $TLI=1.01$ ,  $RMSEA=0.00$  (90%CI = [0.00, 0.068]),  $SRMR=0.01$ ; \* $p<.05$ , \*\*\* $p<.001$

Model fit indices:  $\chi^2=0.611$ ,  $df=2$ ,  $p=.736$ ,  $AIC=13419.641$ ,  $BIC=13532.57$ ,  $CFI=1.00$ ,  $TLI=1.01$ ,  $RMSEA=0.00$  (90%CI = [0.00, 0.068]),  $SRMR=0.01$ ; \* $p<.05$ , \*\*\* $p<.001$

**Correlation between resilience and psychological distress and DER**

The second hypothesis postulated a negative correlation between resilience and psychological distress (depression,

anxiety, and stress) and between resilience and DER. First, the results show that students with higher levels of resilience tended to have less depression, anxiety, and stress, suggesting that resilience is a protective factor for psychological distress. Previous research has shown that higher levels of

**Table 3** Standardized indirect effects and their 95% confidence intervals

Model Path	Estimated indirect effect	95% CI	
		Lower	Upper
Resilience→DER→ Depression	−0.23	−0.29	−0.18
Resilience→DER→ Anxiety	−0.23	−0.29	−0.17
Resilience→DER→ Stress	−0.26	−0.32	−0.20

Note: DER difficulties in emotion regulation, CI confidence intervals

resilience are associated with lower levels of psychological distress in students (Stallman 2011). These findings indicate that resilience enables students to cope with first-year stressors and avoid psychological distress.

Second, the current study showed that resilience is negatively correlated with DER. Thus, students with high levels of DER might be characterized by a lack of resilience. Conversely, those with lower levels of resilience might be characterized by a deficit in ER. These findings are consistent with previous studies that have documented a relationship between resilience and ER (Kay 2016). Troy and Mauss (2011) suggested that the ability ER is a critical factor in the development of resilience following adversity in life. They argued that ER and resilience are linked through the use of two strategies: Attentional control and cognitive appraisal. These two strategies should lead to adaptive emotional responses and, as a result, strengthen resilience.

### Correlation between DER and depression, anxiety, and stress

The results confirmed the third hypothesis, which postulated a positive correlation between DER and depression, anxiety, and stress. The university students with a high score on DER were those who exhibited higher levels of psychological distress. These findings extend previous literature that has reported that DER is associated with anxiety, stress, and depression (Joormann & Stanton 2016).

### Mediating role of DER in the relationship between resilience and psychological distress

Examination of the possible mediating role yielded three significant results. First, resilience had a negative influence on DER, which in turn had a positive influence on depression. Thus, DER was a significant mediator in the relationship between resilience and depression. This implies that ER interacts with resilience in the transition to university to prevent depression symptoms. This finding is consistent with the literature that has documented the mediating role of DER in the development of depression (Compare et al. 2014). Previous research has shown that dysfunctional ER through the processes of rumination and emotion

suppression is a critical factor in the development of depression and the use of adaptive ER strategies (e.g., attentional control and cognitive appraisal) is a protective factor against depression symptoms (Compare et al. 2014), and this may also apply to students facing a change in university.

Second, anxiety was positively predicted by DER, suggesting that resilience exerts a significant influence on anxiety through the mediating effect of DER. This implies that the use of ER strategies along with psychological resilience should be a strong factor in protecting students from anxiety, excessive worry, and fear associated with the transition to university. An integrative review of the literature suggests that maladaptive patterns of ER can exacerbate anxiety and fear and associated psychopathological disorders. This finding has been supported by a growing body of evidence suggesting that improvements in ER skills are associated with improvements in anxiety symptoms (Daros et al. 2021).

Third, DER positively predicted stress. This result was to be expected, as the emotional responses associated with stress include ER. Despite some satisfying aspects, the transition to university can be frustrating and stressful, and ER allows individuals to assess the emotional impact of their transition and define what types of emotional responses are appropriate and how useful they are in coping with stress.

Therefore, DER was a significant mediator in the relationship between resilience and psychological distress among university students, confirming our fourth hypothesis. This means that resilience and psychological distress are negatively related, with DER acting as a mediator of the relationship. This is consistent with previous research showing that resilient individuals still experienced negative emotions during the transition to university (Leary & DeRosier 2012), but if they had an adaptive pattern of ER, this prevented them from experiencing psychological distress (Troy & Mauss 2011).

### Limitations and future research

A few limitations should be noted. First, this study was cross-sectional, and some relationships among variables may be bidirectional. Therefore, it would be inappropriate to draw conclusions about the causal direction of observed effects. Future longitudinal studies may provide insight into the direction of these effects.

Second, a random sample with homogeneous characteristics (first-year Italian university students) was used. Therefore, caution should be exercised in generalising the results of this study to other groups and/or cultures. Future research should use representative samples to answer the research questions of this study. Third, the data are based on self-report and are therefore subject to known biases regarding understanding of the questions and response scales,



authenticity of the answers given, and social desirability. Measuring social desirability using an appropriate questionnaire would allow this variable to be controlled for in future studies.

Despite these limitations, this study contributes to the growing body of research on resilience and DER in academic settings. In particular, this study contributes to bringing together previous work on resilience with the literature on ER among students facing university change. New research could further explore the link between these constructs. The findings give us confidence that such research could provide important, meaningful, and useful information, including in the area of transition to university.

## Implications

This study has both theoretical and practical implications. First, the results support the usefulness of a theoretical model linking resilience and ER in promoting well-being and preventing mental health problems. Second, the main practical implication is that a successful ER can increase resilience and subjective well-being and prevent psychological distress. This research-based knowledge should be shared with counselors and school psychologists working with first-year students. In addition, existing college transition programs can be enriched by the findings of this study. To date, these programs take a variety of forms: Workshops, social psychological interventions, and diversified training. Overall, research has shown the efficacy and power of these college transition programs, even if they are not magical. What makes the difference is students' motivation to participate, their confidence, and their understanding and knowledge of program content (Kroeper & Murphy 2017).

As Van Doren et al. (2021) suggest, psychologists can work with young adults entering higher education to clarify goals ER before teaching these individuals how to regulate their emotions. According to these authors, higher education counselors can help their clients develop clear expectations about the ER process, which, while stressful, is also rewarding.

At the macro level, higher education institutions should rethink and, if necessary, adjust their interventions and programs for students to facilitate a successful transition to college. These interventions and programs should include opportunities to improve students' ER. In their pilot study, Bernstein et al. (2021) tested an intervention to promote ER in a group of graduate students that included psychoeducation, skills training (e.g., emotion awareness, cognitive flexibility, and combating emotion-driven behaviors), group discussions, and supervised hands-on activities. The pilot program has been shown to have positive effects on reducing DER, e.g., emotion avoidance and suppression, and to

promote adaptive ER strategies, e.g., cognitive reappraisal. Similar interventions are conceivable for people about to transition to college.

## Conclusions

The present study focused on examining the mediating role of emotion regulation in the relationship between resilience and psychological distress in the context of university transfer. Results help shed light on the functioning of resilience in young adults transitioning to university and suggest that resilient first-year students are more able to cope with psychological distress when they successfully ER. Conversely, individuals with DER are more likely to experience depression, anxiety, and stress. Further research is needed to examine the relationship between resilience and ER in the context of university transfer, but this study already has relevant implications for psychologists and institutions of higher education counselling.

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**Data availability** The data that support the findings of this study are available from the corresponding author upon reasonable request.

## Declarations

**Ethical approval** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

**Informed consent** Informed consent was obtained from all individual participants included in the study.

**Competing interests** The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this study.

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