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The Mediating Role of Positive and Negative Affect in the Relationship between Death Anxiety and Italian Students' Perceptions of Distance Learning Quality during the COVID-19 Pandemic

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Abstract: Recent data show that death anxiety and negative affect (NA) have become increasingly relevant because of the COVID-19 pandemic. The constant reminders of mortality through mass media and social media have contributed to this trend. Simultaneously, students have experienced a sudden and radical shift from face-to-face to online teaching, reducing direct human interactions and increasing anxiety. Death anxiety is often associated with mental illnesses and maladaptive mood states such as depression, anxiety, and NA. Despite this, few studies have investigated the effect of death anxiety, positive affect (PA), and NA on students' perceived quality of distance learning. The present study aims to investigate the association among death anxiety, PA, NA, and the perceived quality of distance learning in a sample of 429 students attending university or training courses. Positive and negative affect were assessed through the positive and negative affect scales; death anxiety was measured through the death anxiety scale, and the perceived quality of distance learning was evaluated through the perceived quality of distance learning questionnaire. Zero-order correlation coefficients were calculated among the examined variables. To study the mediating role of positive and negative affect in the relationship between students' perceptions of distance learning quality and death anxiety, we employed multiple regression analyses. Our findings indicate a significant association between death anxiety and cognitive–emotive reactions to distance learning. Lower levels of death anxiety are associated with PA, while higher levels are related to NA. Moreover, PA and NA act as mediators in the relationship between death anxiety and a positive reaction to distance learning. In conclusion, our findings highlight that PA and NA partially mediate the relationship between death anxiety and the perceived quality of distance learning.

Keywords: death anxiety; positive affect; negative affect; mediation analysis

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1. Introduction

In the early 2020s, the SARS-CoV-2 virus, responsible for the severe acute respiratory syndrome (COVID-19), began to spread rapidly around the world. In an attempt to reduce the circulation of the virus, the governments of several countries imposed lockdowns on their populations. The countries with the highest number of deaths because of COVID-19 were North America, Japan, and Europe (Germany and Italy) [1–3]. Through May 2020, the virus claimed over 300,000 lives worldwide [4]. This unprecedented scenario, in which mass media and social media constantly reported daily news and updates on death tolls, increased the salience of mortality and contributed to an increase in death anxiety [5,6]. Death anxiety is defined as a reaction to the prospect of one's own mortality. In particular,

death anxiety refers to the fear associated with anticipation of death, as well as with awareness of mortality and nonexistence, which may or may not be consciously recognized by an individual [7]. It can manifest as a fear of dying, in particular a fear of a painful death, as well as an increased focus on physical changes associated with illnesses such as cancer and even a preoccupation with the passage of time [8]. Death anxiety is present from early childhood and tends to reach its peak during young adulthood [9,10]. According to some studies, the fear of death reaches its highest point between the ages of 40–60 and then decreases in later stages of life [11]. However, contrasting views are presented by other authors who suggest that it would be greater in the 20s and then occur again in the 50s but only in women [12]. Despite the different findings in the literature, the thought of death, and more generally of our own and others' mortality, persistently pervade our lives from childhood [13]. These thoughts may fluctuate in intensity and resurface because of events or situations in daily life triggering emotional states that are often unpleasant and little explored by the individual.

Research on death anxiety was relatively scarce before the COVID-19 pandemic, with most studies focusing on intervention protocols for adults with advanced cancer and palliative-care patients [14]. In the latter two samples, two types of thoughts coexisted: the desire to live mindfully and be present in the moment and the inclination to hasten death because of an inability to tolerate suffering. The desire to die stemming from the inability to endure psychological and physical distress is often associated with assisted suicide or voluntary euthanasia. In this case, patients experienced depression, frustration, loss of autonomy, fear of the future, and dependency [14–17]. Since the pandemic began, the effects of death anxiety on behavior have become a major focus of psychological research [18]. Several studies found significant associations between death anxiety and many negative psychological outcomes, including post-traumatic stress disorder, depression, separation anxiety, and suicidal tendencies [19,20]. By examining the psychological factors associated with death anxiety, the ability to cope with mental distress can be improved [21].

In recent years, following the global spread of COVID-19, several studies have shown a significant correlation between death anxiety and two components of mood dimensions: negative affect (NA) and positive affect (PA) [22]. NA is characterized by a lack of pleasure and interest in daily activities, low energy, and sadness, while PA is characterized by pleasure and interest in daily activities, high energy, and concentration. NA and PA are trait mood factors that correspond to the personality factors of neuroticism and extraversion, respectively [23]. Specifically, NA is associated with negative emotions such as depression, anxiety, and fear, while PA is associated with positive emotions such as joy, enthusiasm, and an increased well-being [24]. In two recent studies involving a sample of 917 participants, researchers investigated the differences between Chinese people who posted COVID-19-related content on social media during the peak phase of the pandemic and those who did not post any content. Results showed a positive correlation between death anxiety and negative affect ($r = 0.47$, $p < 0.01$) [3,21]. In contrast, Evram and Çakici [18] found that the level of positive affect tended to increase as the university students' death anxiety increased. These data were explained from the perspective of existential psychotherapy, which suggested that awareness of death can increase the meaning of life.

1.1. Association between Death Anxiety and Students' Perceptions of Online Learning during COVID-19

Many governments established lockdowns to mitigate the transmission of the virus, resulting in radical changes in various aspects of daily life, including teaching and learning activities. In numerous cases, traditional face-to-face activities were replaced by distance learning. As a result, school closures affected 192 countries, involving approximately 90% of learners worldwide [25]. The new technological approach to education and the introduction of digital tools often raised concerns about learning quality from the perspectives of both teachers and learners [26,27].

Previous studies [28,29] suggested that the perceived quality of distance learning is deeply associated with students' satisfaction with online learning activities. Student learning satisfaction can be considered an adequate measure to assess the quality of distance education [28]. Similarly, a recent study conducted in 10 countries, including Italy, after the COVID-19 outbreak, found that the quality of distance learning had a significant positive effect on perceived student satisfaction [29]. Authors identified the most relevant variables affecting students' performance and proposed a model that can predict 55% of the variance in students' perceptions of academic performance. In this model, five factors (service quality, teacher's active role in the online education process, overall system quality, students' digital competencies, and online interactions with their colleagues and teachers) influenced the perceived quality of distance learning. The latter, in turn, strongly influenced students' satisfaction with remote learning, which subsequently impacted their perceived performance. Therefore, the study highlights that student satisfaction is a crucial mediating factor between the perceived quality of distance learning and students' perceived performance [29].

Several studies found that the general population [30–36] experienced an increase in psychopathology during the COVID-19 pandemic, including anxiety, depression, post-traumatic stress disorder, death anxiety, and a decrease in well-being. Similar results have also been observed in the population of healthcare workers (e.g., [37–41]) who have been actively involved in directly addressing the spread and treating sick people. Regarding the student population, the traumatic experience of the COVID-19 pandemic brought contemplation of death closer, which may have heightened death anxiety and concerns about death in general [42,43]. Recent literature analyzed descriptive studies on death anxiety in several populations [44–51]. However, few researchers studied the effects of death anxiety on the student population [33]. To date, only four studies analyzed death anxiety among students during the pandemic. One recent study in a sample of Chinese university students found that anxiety and stress influenced death anxiety [52]. Söğütlü and Göktaş [42] found that death anxiety determined significant bodily symptoms in a sample of university students. A study on a sample of nursing students showed that death anxiety decreased with an increased level of attention to events other than COVID-19 and with a belief in healing in the case of contagion with the infection [53]. Finally, a more recent study found significant and positive correlations among death anxiety, anxiety, and depression in a sample of undergraduate students [43].

Death anxiety is associated with several mental illnesses and poor mood states, including depression, anxiety, and negative affect. These negative psychological states increased during the pandemic, particularly among student populations [20,54–61]. Studying the emotional impact on students can help cope with the sudden shift from face-to-face to online teaching [31,62]. Indeed, several studies analyzed the psychological and technological problems associated with distance learning after the outbreak of COVID-19 [63–68]. The most frequently reported difficulties were primarily of a technical nature: many college and university students faced obstacles linked with accessibility to the network accessibility and availability of teaching media in their place of residence, as well as a lack of advanced technological tools and digital supports such as CDs, pen drives, and memory cards [63–66,68]. These difficulties tended to be more marked and impacting in rural areas of economically disadvantaged countries, such as Indonesia and India [63,64,68]. Additionally, students in medical fields frequently reported difficulties in attending and/or replacing laboratory and practical clinical lessons [67]. Psychological factors also played a significant role in students' satisfaction with online lectures: social isolation and higher stress and anxiety levels impacted students' experiences [66,68]. Other frequently reported difficulties included poor organization of online lessons—if compared with face-to-face lectures—lower quality of peer discussion, increased workload, and lower concentration. These factors often led to difficulties in following classes, seeking clarification on doubts, and understanding study materials [64,66,68]. As a result, during the COVID-19 pandemic,

students often perceived online classes as significantly less effective than in-person lectures and experienced lower motivation to participate, as a consequence [65,68].

1.2. Association between Positive and Negative Affect and Distance Learning before and after COVID-19 Outbreak

Despite the importance of mood state in the student sample, to date few studies scientifically explored this topic [56].

Before the pandemic, only a few studies examined the association between affect and distance learning. An experimental study used physiological signals (such as heart rate, skin conductance, blood volume pressure, and EEG brain waves) to predict emotions during individual e-learning activities among graduate students, highlighting the importance of affective data in implementing e-learning sessions [69]. Moreover, analyzing the correlations between e-learners' achievements and PANAS, Zhu and colleagues highlighted that positive affect could contribute to better results for students using online platforms [70]. These findings on distance learning align with the control-process model, where positive and negative affect emerged as key factors to predict learning and academic performance [71–73].

Since the spread of COVID-19, the interest in the relationship between PA and NA and learning activities (and distance learning activities in particular) has increased: recent research showed that 75% of medical students exhibited medium–low or very low levels of positive affect, and 53% of students reported higher levels of negative affect compared to the general population [54]. Similarly, a study conducted on Turkish and Danish high school students who were exposed to distance learning reported a worsening in emotional status and an increase in negative affect following the pandemic outbreak [61].

Furthermore, a sample of Chinese university students reported moderate levels of positive affect and moderately low levels of negative affect, with those with higher academic qualifications and medical knowledge scoring higher on positive affect [59].

However, to date, only one study analyzed the role of negative affect in the context of distance learning during the pandemic in a sample of university students, underlining an increase in negative work–home interaction, the negative impacts of tele-studying (such as irritability), and the feeling of being permanently on call because of work/study demands [56]. Post-pandemic data seem to evidence an increase in negative affect among distance learners. However, research on the relationship between affect and online learning is insufficient and lacks homogeneity. Various authors evidenced the need for more in-depth studies [56,59,69,70].

If positive and negative affect are related to academic performance, it could be important to analyze their role in reducing the negative influence of death anxiety because it is possible to modify individual emotional conditions with proper psychological interventions.

Although the relationship between death anxiety, positive and negative affect, and the perceived quality of distance learning is important, it has not yet been explored deeply in previous studies. Moreover, studies that examine death anxiety and positive and negative affect in the online learning environment among students are mostly descriptive and lack correlational analysis.

1.3. Aims of the Study

The principal aim of this study was to evaluate associations among the perceived quality of distance learning, positive affect, negative affect, and death anxiety altogether.

We developed the following hypotheses:

H1. *Death anxiety had negative and significant correlations with students' perceptions of online lessons.*

H2. *Death anxiety had negative and significant correlations with positive affect.*

H3. *Death anxiety had positive and significant correlations with negative affect.*

H4. *Positive affect mediated the association between death anxiety and students' perceptions of online lessons*.

H5. *Negative affect mediated the association between death anxiety and students' perceptions of online lessons*.

2. Materials and Methods

Participants and Procedure. The sample consisted of 429 participants (74.8% females; aged 23.20 ± 5.91). They overlapped with those included in our previous studies [74]. Participants were students from various categories, including 219 (51.0%) university students attending humanities courses, 158 (36.8%) attending scientific faculties, 16 (3.7%) attending linguistic faculties, 15 (3.5%) attending non-university training courses, 7 (1.6%) attending economic faculties, 6 (1.4%) attending law faculties, and 4 (0.9%) attending PhD and Masters programs. Four participants (0.9%) did not indicate their faculties. Of the total, 203 participants (47.3%) lived in central Italy, 194 (45.2%) lived in southern Italy, 28 (6.5%) lived in northern Italy, and 4 (0.9%) lived in Sardinia or Sicily.

Participants were students who attended online lessons from December 2020 to July 2022. The sample (quote sampling) was not representative of the entire population. The authors contacted the participants via cell phone and asked them to share the survey link with their friends, providing them with information about the study's aims and instructions for compiling the survey. The test battery was administered online using Google modules. The survey link was distributed through platforms such as WhatsApp, Google Teams, Google Meet, and Zoom. All participants provided written informed consent before taking part in the study in accordance with the Declaration of Helsinki [75]. The study received ethical approval from the local scientific PhD committee (protocol number: 0041598).

2.1. Measures

Positive and Negative Affect. Positive and negative affect were assessed through the positive and negative affect scales (PANAS) [22]. The instrument consisted of 10 items that measured the negative affect and 10 items that assessed the positive affect. Participants rated themselves on a 5-point frequency scale from 1 ("Little or none of the time") to 5 ("Extremely"). The coefficient alpha in our sample was $\alpha = 0.79$ for the total score (PA $\alpha = 0.60$; NA $\alpha = 0.665$).

Death anxiety. The death anxiety was assessed through the death anxiety scale (DAS) [76]. The self-report instrument consisted of 15 items with a dichotomous response format (yes vs. no), with scores ranging from 0 to 15. Higher scores indicate a higher degree of death anxiety. The reliability in our sample was KR20 = 0.70.

Perceived Quality of Distance Learning. The perceived quality of distance learning was measured through the perceived quality of distance learning questionnaire (PQDL) [74]. The PQDL was a questionnaire for assessing students' perceptions of distance learning quality. The PQDL consisted of 32 items that assessed two dimensions: distance learning organization (DLO) ($\alpha = 0.86$) and cognitive–emotive reaction to distance learning ($\alpha = 0.865$). Participants rated their responses on a 5-point Likert scale ranging from 1 ("I strongly disagree") to 5 ("I strongly agree"). The instrument assessed a student's ability to use online platforms and applications, to organize their online lessons, and to cope with technical difficulties, as well as their attention and concentration during online lessons and their cognitive and emotional reactions to distance learning (irrational thoughts and mood about the pandemic). Participants responded using a 5-point Likert scale ranging from 1 ("I strongly disagree") to 5 ("I strongly agree"). The higher the score, the higher the perceived quality of DL. Examples of items were as follows: "*I perceive a greater communicative contact between teachers and students*"; "*I procrastinate the start of my daily study sessions, due to negative thoughts about the consequences of the pandemic*"; "*I feel ashamed during oral exams*".

2.2. Statistical Analyses

Descriptive statistics. Means, standard deviations, skewness, and kurtosis were calculated for all measures. Skewness and kurtosis values between −2 and 2 indicate a normal distribution of the data [77].

Bivariate correlations. To examine relationships among death anxiety scale score, distance learning organization score, cognitive–emotive reaction to distance learning score, positive affect score, and negative affect score, zero-order correlation coefficients were calculated.

Mediation model. To test the mediating role of positive and negative affect in the relationship between students' perceptions of the distance learning quality and death anxiety, we calculated multiple regression analyses based on Baron and Kenny's method [78]. In this method, three β coefficients of multiple regressions were calculated: in the first, the target variable predicted the mediator; in the second, the target variable and the mediator predicted the outcome; in the third regression, the target variable predicted the outcome variable while controlling for the mediator. The β coefficient of the mediator variable was included in this last model. A perfect mediation was indicated if the last regression was not statistically significative. If the β coefficient for the mediator was significantly higher than the β for only the target variable that predicted the outcome variable, the mediation was partial [79]. The significance of the mediation effect was calculated through the Sobel test [80].

All statistical analyses were made using SPSS 25.0 [81]; the Sobel test was calculated through the Sobel test calculator [82].

3. Results

Table 1 shows the descriptive statistics of the death anxiety scale score, distance learning organization score, cognitive–emotive reaction to distance learning score, positive affect score, and negative affect score. All scores showed normal values of skewness and kurtosis.

Table 1. Mean, standard deviation, normality indices, and reliability of death anxiety scale score, distance learning organization score, cognitive–emotive reaction to distance learning score, positive affect score, and negative affect score (n = 429). Note: α = Cronbach's alpha; KR20 = Kuder–Richardson coefficient.

Instruments	Mean	SD	Skewness	Kurtosis	Reliability
Death anxiety scale score	8.13	3.037	−0.102	−0.595	KR20 = 0.70
Distance Learning Organization score	3.05	0.806	0.037	−0.588	α = 0.86
Cognitive–Emotive Reaction to distance learning score	3.07	0.834	−0.083	−0.471	α = 0.865
Positive affect score	26.93	7.124	0.313	−0.167	α = 0.60
Negative affect score	25.03	7.733	0.498	−0.373	α = 0.665

3.1. Association among Death Anxiety, Distance Learning Organization, Cognitive–Emotive Reaction to Distance Learning, and Positive and Negative Affect

Table 2 shows the relationships among death anxiety, distance learning organization, cognitive–emotive reaction to distance learning, and positive and negative affect. Associations among scores are computed on death anxiety scale score, cognitive–emotive reaction to distance learning score, positive affect score, and negative affect score. Results showed both significant and negative correlations among death anxiety scale score, cognitive–emotive reaction to distance learning score, and positive affect score ($r = -0.329$; $p < 0.01$ and $r = -0.216$; $p < 0.01$, respectively). Furthermore, findings showed significant and

positive correlations between death anxiety scale score and negative affect score ($r = 0.365$; $p < 0.01$). Finally, results showed no significant association between death anxiety scale score and distance learning organization score.

Table 2. Zero-order correlation analysis among death anxiety, distance learning organization, cognitive–emotive reaction to distance learning, and positive and negative affect (n = 429). Note: p = significance; ** $p < 0.01$.

	1	2	3	4	5
1. Death anxiety scale score		−0.067	−0.329 **	−0.216 **	0.365 **
2. Distance Learning Organization score			0.371 **	0.313 **	−0.178 **
3. Cognitive–Emotive Reaction to distance learning score				0.320 **	−0.386 **
4. Positive affect score					−0.185 **
5. Negative affect score					

3.2. The Mediation Effect of Positive and Negative Affect in the Relationship between Death Anxiety and Cognitive–Emotive Reaction to Distance Learning

To examine the potential mediating effect of the positive and negative affect between death anxiety and cognitive–emotive reaction to distance learning, a series of linear regression analyses were performed.

In the first mediation model, only positive affect was the mediator (Figure 1). These regressions showed as death anxiety was significantly associated with positive affect (B = −0.506; β = −0.216; R Square = 0.05; F = 20.820; t = −4.563, $p < 0.001$) and cognitive–emotive reaction to distance (B = −0.090; β = −0.329; R Square = 0.106; F = 51.737; t = −7.193, $p < 0.001$). In the last equation, when the β coefficient of positive affect was included in the model, the relationship between death anxiety and cognitive–emotive reaction to distance decreased (B = −0.075; β = −0.272, R Square = 0.170; F = 44.583; t = −6.038, $p < 0.001$), although it was statistically significant. The Sobel test (−3.881, $p < 0.001$) showed a partial mediation. Therefore, positive affect mediated partially the relationship between death anxiety and cognitive–emotive reaction to distance learning.

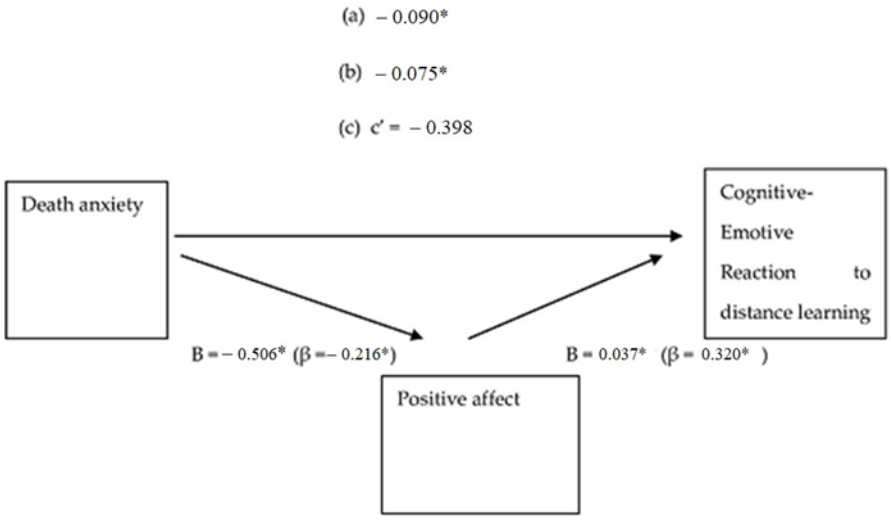

Figure 1. Mediation model with positive affect was the mediator. Values are B unstandardized coefficient. Values are β standardized coefficient. (a) β coefficient without positive affect; (b) β coefficient after controlling for positive affect. c′ = direct effect. Note: * $p < 0.001$.

In the second tested mediation model, only negative affect was the mediator (Figure 2). These regressions showed as death anxiety was significantly associated with negative affect (B = 0.931; β = 0.365; R Square = 0.134; F = 65.808; t = 8.112, $p < 0.001$) and cognitive–emotive reaction to distance learning (B = −0.090; β = −0.329; R Square = 0.108; F = 51.737; t = −7.193, $p < 0.001$). In the last equation, when the β coefficient of negative affect was included in the model, the relationship between death anxiety and cognitive–emotive reaction to distance decreased (B = −0.060; β = −0.217; R Square = 0.190; F = 49.751; t = −4.627, $p < 0.001$), although it was statistically significant. The Sobel test (−5.829, $p < 0.001$) showed a partial mediation. Therefore, negative affect mediated partially the relationship between death anxiety and cognitive–emotive reaction to distance learning.

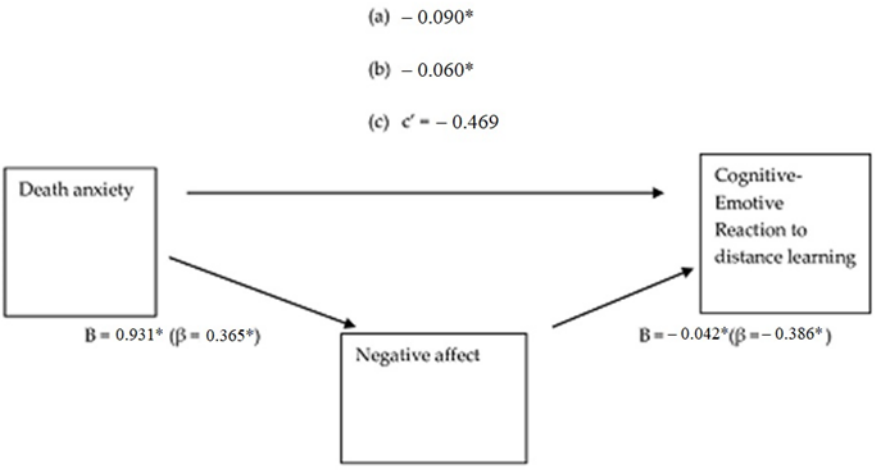

Figure 2. Mediation model with negative affect as mediator. Values are B unstandardized coefficient. Values are β standardized coefficient. (a) β coefficient without negative affect. (b) β coefficient after controlling for negative affect. c′ = direct effect. Note: * $p < 0.001$.

4. Discussion

During the lockdown, to mitigate the transmission of the virus, teaching and learning activities underwent a rapid transition from face-to-face to online platforms. As evidenced by various authors, this sudden change had a negative impact on students' emotional states, leading to an increase in psychopathologies such as death anxiety and negative affect [20,31,54,55,57–59,61,62]. Good mental health is a predictor of learning and academic performance [71–73]. However, to date, there are few studies that have explored the associations among death anxiety and negative and positive affect in the context of distance learning, and these studies have only used descriptive methods [56]. These data are particularly relevant to young people who are in the process of constructing their personal identities [83]. Among young adults, death anxiety tends to increase the expression of negative emotions and depressive ruminations about the end of life [84,85]. Death anxiety includes both emotional and cognitive aspects. From an emotional perspective, it involves the perception and regulation of perceived threats, such as the fear of humiliation, fear of impeding life goals, and fear of punishment. The cognitive aspect involves irrational beliefs and thoughts about the future. Therefore, it is crucial to implement psychological programs that lead to adaptive consequences of death anxiety. Indeed, according to the dual-process model [86], engaging in health-promoting behaviors among young adults can help cope with irrational beliefs and behaviors associated with death anxiety. For example, a greater commitment to social relationships fosters a sense of belonging and improves one's perception of achieving goals. Other health-promoting behaviors include nutrition, stress management, and health responsibility [87]. These factors contribute to an increase in self-esteem, which, in conjunction with positive affect, acts as a protective factor against fears. Self-esteem, along with social relationships, serves as an "anxiety buffer" that helps

protect against death anxiety [88,89]. Additionally, according to the self-determination theory, higher self-esteem enhances autonomy in making life choices.

Prior to the pandemic, studies on death anxiety primarily focused on terminal patients, healthcare workers, university students pursuing specific academic coursework (such as medicine), funeral workers, and terroristic attacks [90]. During and after COVID-19, researchers focused on the prolonged exposure to stressful events, heightened by the constant influx of pandemic-related news through social media, the experience of social isolation, and concerns regarding economic hardships.

Our research is the first that analyzed the associations among death anxiety, students' perceptions of online lessons, and positive and negative affect during the pandemic. Therefore, after the institution of lockdowns to prevent the spread of COVID-19, we conducted a survey among a student population to investigate the relationships between death anxiety, perceived quality of distance learning, positive affect, and negative affect. The final sample consisted of 429 students attending online classes. Correlation coefficients were calculated among the variables to assess the presence of significative correlations among death anxiety, PA, NA, and students' perceptions of distance learning. The aim of the present research was to confirm and extend the previous literature on death anxiety by exploring its correlation with PA and NA and investigating its correlation with perceived quality of distance learning for the first time. Moreover, we investigated the mediating role of PA and NA in the relationship between death anxiety and perceived quality of distance learning, which has not been previously studied.

Regarding our principal hypotheses, hypothesis H1 was partially confirmed: results showed significant and negative correlations among death anxiety and cognitive–emotive reaction to distance learning. Therefore, an increased fear about death is associated with a decreased ability to cope with feelings of embarrassment during online exams, a difficulty regulating one's emotions, a tendency to procrastinate the beginning of the study, irrational thoughts about the consequences of the pandemic, and individual pessimism. Previous research on student populations highlighted correlation between death anxiety and problematic aspects such as somatic symptoms in university students [42] and significant positive correlations among death anxiety, depression, and anxiety in undergraduate students [43]. However, the association among students' perceptions of distance learning and death anxiety had not been investigated. Our results enrich the research on the topic, evidencing for the first time the connection between death anxiety and students' perceptions of distance learning.

Considering the correlation among death anxiety, PA, and NA, findings of previous research reported significant positive correlations between death anxiety and PA [3,21,22]. However, results were not consistent, and there is a lack of data specifically focusing on student populations [18]. Therefore, recognizing the need for further investigation, our study aimed to explore the association. Hypotheses H2 and H3 were also confirmed: death anxiety had negative and significant correlations with positive mood, such as joy, well-being, and enthusiasm (PA), while significant and positive correlations between death anxiety and negative mood, such as lethargy and fatigue (NA), were found. These findings are consistent with previous studies that identified significant correlations among death anxiety, positive affect, and negative affect [22], particularly supporting the positive correlation between negative affect and death anxiety [3,21]. However, our results did not replicate the positive correlation between death anxiety and positive affect reported by Evram and Çakici [18].

Additionally, our study contributes novel insights by examining the mediating role of negative affect and positive affect in the relationship between death anxiety and students' perceptions of distance learning. This aspect has not been explored in previous research, and therefore, we conducted multiple regression analyses based on Baron and Kenny's method [78] to examine these mediating effects.

Hypotheses H4 and H5 were partially confirmed: positive affect partially mediated the association between death anxiety and students' perceptions of online learning. Negative

affect partially mediated the association between death anxiety and students' perceptions of online learning. These findings showed that the reason why death anxiety is associated with cognitive–emotive reaction to distance learning is partly due to the influence of both positive and negative affect. In particular, data showed as PA and NA attenuated the influence of death anxiety on the cognitive–emotive reaction to distance learning. Therefore, increasing positive affect and reducing negative affect influence the impact of death anxiety on cognitive–emotive reactions to distance learning, which should be reduced.

Limitations

There were two main limitations to our study. First, due to the nature of the mediation model used, we were unable to estimate causality between the variables studied.

Correlation analysis presents two principal limitations [91]. The first limitation is a directionality problem: when we identify a correlation between variable 1 and variable 2, it is impossible to determine whether variable 1 causes a change in variable 2 or variable 2 produces an effect on variable 1. The second limitation is the third-variable problem: the identified correlation might occur because variable 1 and variable 2 are actually correlated to one or more other variables. Due to these limitations, although correlation analysis is useful for identifying correlation between variables, it cannot be used to determine whether a change in one variable directly causes a change in another variable. In other words, correlation does not imply causality, and therefore, correlation analysis cannot establish causality between two or more variables.

Second, the sample was composed entirely of university students. Therefore, the generalizability of our findings may be limited to university students and may not apply to other samples of non-university students (e.g., primary or secondary school students).

The third limitation is the lack of attention to clinical populations. We did not assess the presence of individuals with clinically significant psychological issues; consequently, it is not possible to determine whether there is a statistically significant difference in the perceived quality of distance learning between individuals with clinical levels of death anxiety and non-clinical ones.

Our findings indicate the importance to enhancing positive affect to improve the cognitive–emotive reaction to distance learning. This could be obtained through psychoeducational activities aimed at regulating affect and reducing anxiety. Such activities may focus on remarking on positive events, identifying personal strengths, facilitating behavioral activation and positive reappraisal to reach personal goals, activating feelings of gratitude, and encouraging acts of kindness [92]. Recent literature also demonstrated the positive impact of music on positive affect: exposure to musical pieces reduces negative affect and enhances positive affect [93]. Therefore, incorporating the practice of listening to music at the beginning of online lessons may enhance students' affective states, thereby positively influencing their perceptions of distance learning. Future research should focus on the investigation of students who exhibit clinically significant levels of death anxiety to determine if there are any specific effects on their perceived quality of distance learning. Moreover, the research should be extended to other classes of students (e.g., primary and secondary school students) to assess the generalizability of our findings. Eventually, it may be useful to investigate the association between death anxiety and suicidal ideation and the mediating role of positive and negative affect in online learners to investigate the extent of the phenomenon and detect specific risk factors.

5. Conclusions

Our data showed that decreased levels of death anxiety were significantly associated with positive reactions to online lessons. Furthermore, lower levels of death anxiety were associated with higher levels of positive affect, including pleasure and interest in daily activities, high energy, and concentration (PA), while an increased level of death anxiety was associated with an increase in negative affect, such as lack of pleasure and interest in daily activities, low energy, and sadness (NA) and vice versa. Finally, mood states

of negative and positive affect modulate the relationship between death anxiety and the cognitive and emotive reactions to online lessons. Our results could be used as a basis for developing protocols to examine individual differences concerning emotional factors within scholastic or academic contexts. It would be useful to strengthen self-esteem, as it contributes to a positive self-perception throughout life and leaves a positive legacy after death. This aspect could potentially increase motivation in online learning. Furthermore, our findings can contribute to future meta-analyses on studies related to death anxiety.

Practical Implications

Exploring the role of mediators of death anxiety can supply insights for developing new treatments to reduce death fears. Specifically, new interventions should focus on cognitive restructuring to address thoughts about the dying process and the perceived burden on others. On the other hand, behavioral techniques must be aimed at maintaining good relationships, discussions with friends, and exposing oneself to the experiences of others' deaths [14]. To enhance students' perceived quality of distance learning, particularly their cognitive–emotive reactions to distance learning, it could be beneficial to reduce death anxiety and promote positive affect. This can be achieved through various approaches, such as implementing psychoeducational protocols and engaging students in musical exposure activities [92,93].

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