The protective role of positivity and emotional self-efficacy beliefs in times of the COVID-19 pandemic

Title:

The protective role of positivity and emotional self-efficacy beliefs in times of the COVID-19 pandemic

Authors:

Mariagiovanna Caprara[1], Antonio Zuffianò[2], Antonio Contreras-Felipe[3*], Juan C. Suárez-Falcón[4], Pilar Pozo[4], Emilia Cabras[5], Isabel Gómez-Veiga[3]

[1]Department of Personality Psychology, Evaluation and Psychological Treatment, Universidad Nacional de Educación a Distancia (UNED), Madrid, Spain

[2]Department of Psychology, Sapienza University of Rome, Rome, Italy

[3]Department of Developmental and Educational Psychology, Universidad Nacional de Educación a Distancia (UNED), Madrid, Spain

[4]Department of Methodology of the Behavioral Sciences, Universidad Nacional de Educación a Distancia (UNED), Madrid, Spain

[5]Department of Education, Universidad Antonio de Nebrija, Madrid, Spain

*Corresponding author at: Faculty of Psychology, Universidad Nacional de Educación a Distancia (UNED), Juan del Rosal, 10, Madrid 28040, Spain. E-mail address: acontreras@psi.uned.es

Authors' e-mail addresses:
Mariagiovanna Caprara: gcaprara@psi.uned.es
Antonio Zuffianó: antonio.zuffiano@uniroma1.it
Antonio Contreras-Felipe: acontreras@psi.uned.es
Juan C. Suárez-Falcón: jcsuarez@psi.uned.es
Pilar Pozo: ppozo@psi.uned.es
Isabel Gómez-Veiga: igveiga@psi.uned.es
Emilia Cabras: ecabras@nebrija.es

Declarations

This study was not funded by any institution or external entity.

Declarations of interest: none.

The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

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.
The study was reviewed and approved by the Ethics Committee of the National Distance Education University (UNED).

The protective role of positivity and emotional self-efficacy beliefs in times of the COVID-19 pandemic

Abstract

The impact of positivity and self-efficacy beliefs in managing anger, fear, and sadness on positive and negative affect was examined at three time points over 9 months. Data from 1,401 students (73.4% women) attending an online University in Spain were collected before the beginning and during the first wave of the COVID-19 pandemic. The results of a random intercept cross-lagged panel model revealed that the strongest relationships in terms of effect size occurred at the trait level, in which participants who had a general higher positivity over time were also those who reported, in general, higher self-efficacy, higher positive affect, and lower negative affect than their counterparts. At the within-person level, while controlling for stable (trait-like) individual differences, higher than usual levels (state-like) of positivity in January 2020 predicted higher than usual levels of emotional self-efficacy beliefs and lower than usual levels of negative affect in June 2020. During the same transition, higher than usual levels of negative affect in January 2020 predicted lower than usual levels of emotional self-efficacy in June 2020. Moreover, higher than usual levels of self-efficacy in June 2020 predicted higher than usual levels of positivity in September 2020. We did not find any predictive effect for positive affect. The results pointed to the protective role of both positivity and regulatory emotional self-efficacy beliefs mostly against negative affect, corroborating previous findings suggesting a virtuous circle of reciprocal influence

between positivity and regulatory emotional self-efficacy. The practical implications of these findings are discussed.

Keywords: positivity, emotional self-efficacy, COVID-19 pandemic, positive/negative affect, longitudinal data.

Introduction

On March 11th 2020, the World Health Organization (WHO) declared the COVID-19 outbreak a global pandemic, which led governments around the world to enforce strict public health measures like spatial distancing, local confinement and even total lockdown. All these measures produced sudden and dramatic changes in people's lives, affecting their daily routines and habits, as well as how they cope and interact with one another (Abel McQueen, 2020; Chu et al., 2020; Mazza et al., 2020; Orrú et al., 2020). Since then, several studies have focused on the impact the pandemic has had on mental health in the population (Brooks, et al., 2020; Gao et al., 2020; González-Sanguino et al., 2020; Mazza et al., 2020; Nwachukwu et al., 2020; Phiri et al., 2021; Salari et al., 2020). This impact varied across countries depending on the time of onset, the degree of diffusion of the disease, the efficiency of national and local health systems to grant proper attention in terms of diagnosis and care, and the restrictive policies implemented to combat the spread of the virus (Gerli et al., 2020; Hradsky & Komarek, 2021). In Spain, where the present study was carried out, the first cases of COVID-19 were reported on January 31st with the pandemic spreading rapidly in the following weeks. However, it was not until March 14th that the Spanish Government decreed a state of alarm across the entire Spanish territory in order to limit the expansion of coronavirus and to keep the growing sanitary emergency under control (Real Decreto 463/2020). Consequently, a period of lockdown enforced by a worldwide quarantine was implemented from March 14th to May 3rd, 2020.

This confinement implied: conditions of social distancing; home confinement; limited freedom of movement for citizens; the suspension of commercial activities and educational activities at schools, universities, and non-formal educational centres. Only activities related to primary necessities, medical attention and support labour-related centres were maintained. Significantly, a recent cross-sectional survey showed a high prevalence of symptoms of stress (37%), anxiety (32.4%), and depression (44.1%) among the general population during the initial months of the COVID-19 pandemic (Odriozola-González et al., 2022; see also Hidalgo et al., 2020; Sandín et al., 2020, 2021). Not surprisingly, presential and distance college students were not exempt from experiencing the effects of the pandemic. The uncertainty and fear of the unknown provoked by the COVID-19 pandemic generated a stressful situation that had a negative impact on student's lives, provoking a deterioration in perceived self-efficacy, which in turn contributed to increased anxiety (Alemany et al., 2020; Gómez-García et al., 2022; von Keyserlingk et al., 2021).

The COVID-19 pandemic has had detrimental effects on all aspects of life, such that several attempts have been made to define and understand the psychological resources and assets that might dampen its impact (Yildirim & Abdurrahim, 2021). Among the personality factors that may exert a protective role under stressful situations like the COVID-19 pandemic, and which may serve as targets for interventions aimed at enhancing the individuals' resilience and self-regulation to deal with the new challenges posed by the pandemic, a number of studies have pointed to positivity (Alessandri et al., 2021; Cattelino et al., 2021; Crimele et al., 2022; Sette et al., 2022; Thartori et al., 2021). In particular, Thartori et al. (2021) highlighted the benefits of positivity, in concert with self emotional regulatory efficacy beliefs, to combat disturbing feelings and emotions, and to favour compliance with healthy behaviours. This is in accordance with a recent metanalysis highlighting how regulatory emotional self-efficacy beliefs help sustain individual well-being and adjustment (Alessandri et al., 2022). However, Thartori's findings were generated from data obtained at the beginning of the COVID-19 pandemic and therefore, a more thorough examination is needed of how positivity and self-regulatory emotional efficacy beliefs could act to protect the emotional well-being of individuals as the pandemic progressed. By adopting a longitudinal strategy, the goal here was to investigate the role that positivity and self-efficacy beliefs regarding one's capacity to handle negative emotions may have on an individual's emotional status under the stressful conditions stemming from the COVID-19 pandemic.

Positivity

Over the years, the use of the term "positivity" has become popular, although not always in reference to the same phenomenon. Research has contributed to an understanding of positivity from different perspectives and for instance, Frederickson's influential work (2001, 2009) associated positivity with the experience of positive emotions, highlighting its role in enhancing overall well-being. By contrast, Luthans (2002) emphasized positive psychological resources as essential components of positivity, indicating that psychological resources like hope, efficacy, resilience, and optimism contribute to an individual's positive orientation, as well as their ability to cope with challenges and achieve success. The concept of positivity was extended by focusing on virtuousness (Cameron, 2003), which involves employing positive ethical values and behaviors to foster personal growth and well-being. More recently, positivity was identified as one of the key factors associated with the strength of character (Partsch et al., 2022), a perspective suggesting that positivity plays a vital role in shaping an individual's character and

that it enables them to tap into their strengths for personal and social growth. In addition, positivity has been approached under the umbrella of the term "flourishment", which combines feeling good (hedonic component) with functioning well (eudaimonic component). This broader concept encompasses elements of positivity and captures a holistic view of well-being (Diener and Biswas-Diener, 2008; Huppert & So, 2013). This study was inspired by the mental health perspective of positivity outlined in Caprara et al. (2019). This posture considers positivity as an overall positive outlook on life, incorporating constructs like self-esteem, optimism, and satisfaction.

A large body of research has shown that people's views of themselves as worthy of value (i.e.: their *self-esteem*), of their future as promising (optimism), and being satisfied with their life (i.e.: *life satisfaction*) are all associated with a variety of positive outcomes and related to each other (Diener & Diener, 1995; Lucas et al., 1996). Likewise, several studies have shown that common measures of self-esteem, optimism, and life satisfaction can be traced to one basic factor, originally named positive orientation, and then positivity, which accounts for most of their variability and predisposes individuals to view life with a positive outlook (Alessandri et al., 2012; Caprara et al., 2009; Caprara et al., 2010a). A large amount of research points to positivity as a trait-like basic self-evaluative disposition that is associated with numerous measures of well-being, social adjustment, and personal success, and negatively associated with anxiety, loneliness, hostility, depression, and poor mental health (Caprara et al., 2019, for review). Longitudinal findings witness the stability of positivity and suggest that positivity promotes positive affectivity, which in turn may contribute to positivity. Indeed, positivity may set the tone for a virtuous cycle in which viewing oneself, one's life and the future in a positive way promotes the experience of positive emotional states (Alessandri et al., 2014; Laguna, 2017). The importance of positivity for the individual's psychological functioning and well-being, even when faced with serious health issues (Caprara et al., 2016), is further established by the demonstration of a protective role for positivity during the COVID-19 pandemic (e.g., Thartori et al., 2021). Thus, it is likely that individuals who tend to have a positive attitude to life's challenges can make the most of opportunities and their personal assets when dealing with unexpected events and coping with stress. In fact, these individuals can make the most of their experiences to master their emotions and skills.

Regulatory Emotional Self-Efficacy Beliefs

Several studies have highlighted the role of self-efficacy beliefs (specifically judgments people hold about their capabilities to cope effectively with specific challenges or demanding situations) in sustaining motivation and achieving successful adaptation across contexts and domains of functioning, including those of academic life, work, sport and health (see Bandura, 1997, for a review). Self-efficacy beliefs have proven to exert a significant influence over people's habits, goals and standards, affecting whether they think in an enabling or debilitating manner, the efforts they invest in selected endeavours, the degree of perseverance in face of difficulties, their resilience in the face of adversity, how vulnerable they are to stress and depression, and what types of choices they make at important points of inflexion that set the course of their life (Bandura, 1997, 2001).

Although originally conceived as highly contextualized knowledge structures associated with specific tasks and situations, over time it has become evident that self-efficacy beliefs reflect and depend on interactions between different properties of human beings, like consciousness, self-reflection, and intentional mastery. Importantly, these are facets that have a pervasive influence over the individual's existence including their emotions, cognitive behavior and motivations (Bandura, 1997; Bandura et al., 2003). As a consequence, self-efficacy beliefs have been attributed a broader sphere of influence leading to studies into how differences in self-efficacy beliefs affect different domains of functioning, including the regulation of affect, and of interpersonal and social relations (Caprara, 2002).

Several findings have shown that individuals' beliefs about the control they can exert on their positive and negative emotions are crucial to effectively managing their life (Bandura et al., 2003; Gross, 2014), influencing their successful development and social adaptation (Bassi et al., 2018; Caprara et al., 2008; Gunzenhauser et al., 2013). As anticipated above, recent findings further corroborate the beneficial effect of self-efficacy regulatory beliefs as regard individuals' capacity to cope with unexpected adverse events and their consequences, such as those associated with the COVID-19 pandemic. Mostly, an individual's beliefs about their capacity to handle negative emotions like anger, fear and sadness have proved crucial to combat feelings of anxiety and depression while complying with health recommendations (Thartori et al., 2021), and to foster positive coping strategies (Cattelino et al., 2021).

The Present Study

There is evidence from different populations that the COVID-19 pandemic has been detrimental to individuals' mental health in Spain (Odriozola-González et al., 2022; Sandín et al., 2020). Thus, in line with previous cross-sectional findings (Thartori et al., 2021), this study aimed to examine how positivity and regulatory emotional self-efficacy in dealing with sadness, fear and anger could reciprocally influence each other, and to simultaneously contrast the individuals' negative affect and promote their positive affect. Specifically, we hypothesised that those individuals who tended to evaluate themselves, their life and their future, in a positive way, and were confident in their capability to regulate their emotions, were more prone to face up to the challenges posed by the COVID-19 pandemic and therefore, better deal with their unpleasant emotions. Indeed, individuals with both strong positivity and the capacity to better handle their emotions tolerate momentary perturbation, and they are less likely to perceive uncertain situations (e.g., the COVID-19 pandemic) as a threat, thereby avoiding any negative effects on their emotional balance (Thartori et al., 2021). Importantly, in line with recent suggestions for analysing longitudinal data (Hamaker et al., 2015), we investigated the relationships among our constructs using a Random Intercept-Cross-Lagged Panel Model (RI-CLPM). The RI-CLPM allowed us to disentangle the relationships both at the between-person level (i.e., trait-like or stable differences between individuals) and at the within-person level (i.e., state-like or momentary peaks/drops in the constructs of interest), allowing more accurate estimates of the putative protective effects of positivity and regulatory emotional self-efficacy. As noted in Hamaker et al (2015), the RI-CPLM "accounts for trait-like, time-invariant stability through the inclusion of a random intercept (i.e., a factor with all loadings constrained to 1). This random intercept partials out between-person variance such that the lagged relationships in the RI-CLPM actually pertain to within-person (or within-dyad) dynamics" (p.103). In other words, the inclusion of the random intercept captures the trait-like stability of between-person differences in a given construct by estimating a general latent factor with all its factor loadings constrained as invariant (i.e.: fixed as 1). The inclusion of random intercept(s) allows cross-construct effects to be properly estimated when there is trait-like stability over time, as occurs in our study.

Methods

Participants and Procedure

A sample of 1,401 students (73.4% women) attending an online University in Spain was followed at three time points during the first wave of the COVID-19 pandemic (Time 1 [T1] = January 2020; Time 2 [T2] = June 2020, 84% retention; Time 3 [T3] = September 2020, 74% retention). Their ages ranged between

18 and 71 with a mean age of 35.24 years (*SD* = 11.25). In January 2020, students were contacted as part of a recruitment protocol, inviting them to participate in the study through direct messaging and through the group forums associated with their Psychology courses. Continued participation of the students was rewarded by granting them 1 credit, equivalent to 25 hours of dedication to the degree course. This reward aimed to ensure stronger longitudinal compliance with the study, making it more feasible to achieve the objectives proposed. At the time of the study, University educational legislation contemplates academic recognition in credits for activities approved as a Teaching Innovation project. In other words, this measure encourages student commitment to research into educational innovation in the university setting. The benefits of this for the student are clear, as not only does the student reduce the load of their Degree Course but also, he/she will complement their academic training by becoming familiar with research procedures in a given area. To data was gathered using a secure online survey assessment tool to collect data via the Qualtrics website (http://www.qualtrics.com/).

The first survey was launched through Qualtrics in January 2020, which included the different questionnaires prepared to evaluate the variables of interest. After a general explanation of the nature and aims of the research, each participant was asked to provide their consent to participate as a prior requisite for their enrolment in the study. This informed consent also enabled the research team to access their academic records for the degree course to assess their academic performance. In no case was this information used to identify the student outside the context of the study. This study was approved by the ethical committee at the first author's institution.

Measures and Instruments

Positivity (POS). Participants completed the 8-item positivity scale (POS: Caprara et al., 2012, e.g., "I look to the future with hope and optimism") using a five-point scale (from 1 = *strongly disagree*, to 5 = *strongly agree*). The psychometric properties have been studied extensively in different age groups (e.g., Zuffianò et al., 2019) and across countries (e.g., Caprara et al., 2012; Heikamp et al., 2014). The Cronbach's α values were .88 (T1), .88 (T2) and .88 (T3).

Self-efficacy in regulating negative emotions (SNE). Participants filled out 9 items from the Multidimensional Negative Emotions Self-Regulatory Efficacy Scale (MNESRES: Caprara et al., 2013) to rate (1 = *not at all well*; 5 = *very well*) their perceived capacity to regulate different negative emotions (i.e.: anger, sadness and fear; e.g., "How well do you avoid flying off the handle when you get angry?";

"How well do you keep from getting dejected when you are lonely?"; "How well do you stay calm in situations in which many others would be fearful?"). The MNESRES has been previously used in the Spanish population (e.g., Caprara et al., 2020). The Cronbach's α values were .87 (T1), .89 (T2) and .90 (T3).

Positive (PA) and negative affect (NA). Participants used the Spanish version (Ortuño-Sierra et al., 2015) of the Positive and Negative Affect Schedule (PANAS: Watson et al., 1988) to rate (1 = *not at all*; 5 = *very much*) the extent to which they generally experienced ten negative affective states (e.g., upset, stressed, nervous, etc.) and ten positive affective states (e.g., proud, excited, active, etc.). The Cronbach's α values were .89 (T1), .90 (T2) and .90 (T3) for the PA scale and .88 (T1), .88 (T2) and .89 (T3) for the NA scale.

Data Analytic Approach

To investigate the relationships among POS, SNE, PA and NA we used a multivariate RI-CLPM as detailed by Hamaker et al. (2015). Compared to the classic CLPM, the RI-CLPM (for a graphical depiction of a bivariate RI-CLPM, see Figure 1) has the advantage of clearly distinguishing between stable, trait-like effects (i.e.: *between-person* differences) and occasion-specific, state-like effects (i.e.: *within-person* fluctuations at a given point in time). More specifically, the correlations among the four random intercepts at the between-level reflected the extent to which the dispositional tendencies of POS, SNE, PA and NA tended to co-vary (e.g., *in general*, did students with higher/lower POS experience higher/lower PA than their counterparts?). At the within-level, instead, POS, SNE, PA, and NA were modelled as time-specific deviations from their expected score (Hamaker et al., 2015)[1] and three types of relationships were captured (see Mulder and Hamaker, 2020): (a) simultaneous, *time-specific associations* (e.g., were higher/lower than expected levels of POS related to higher/lower than expected levels of PA at the same time point?); (b) *carry-over effects* (e.g., did students with higher/lower than expected scores of POS at time *T* experience higher/lower than expected levels of POS at time *T+1*?); and (c) *spill-over effects* (did students with higher/lower than expected levels of POS at time *T* experience higher/lower than expected levels of PA at time *T+1*?). As noted by Hamaker and Grasman (2015), positive carry-over effects reflect possible regulatory weaknesses since they capture the extent to which momentary

1 In the RI-CLPM, the expected score is given by the sum of two components: the time-specific group mean and the time invariant, trait-like deviation from this mean (see Hamaker et al., 2015).

perturbations continue to exert an effect at the next time point (i.e., inertia), thereby slowing down the capacity of the individuals to return to their equilibrium.

The multivariate RI-CLPM parameters were estimated using maximum likelihood with standard errors robust to non-normality (MLR) in M*plus* 8.4 (Muthén and Muthén, 1998-2017).[2] In addition to the χ^2 test, the model fit was evaluated by also considering alternative indicators such as the comparative fit index (CFI); the Tucker-Lewis index (TLI) > .90, and the root mean square error of approximation (RMSEA) < .08, with 90% confidence intervals (CI). Full information maximum likelihood (FIML) was used to manage missing data (Arbuckle, 1996).

Results

Preliminary Analyses

As reported in Table 1, POS showed positive correlations with SNE and PA, and negative correlations with NA (both concurrently and over time). NA was also negatively correlated with SNE and PA, whereas SNE and PA were positively correlated with each other.

RI-CLPM

The multivariate RI-CLPM showed an excellent fit to the data χ^2 (6) = 7.720, *scf* = 1.065, *p* = .259, CFI = 1.00, TLI = .998, RMSEA = .014, 90% CI [.000, .040]. Since the intervals between the time-lags were unequal (T1 to T2 ≈ 5 months and T2 to T3 ≈ 3 months) we did not impose any equality constraints on the unstandardized effects as suggested previously (see the online materials of Mulder and Hamaker, 2020).

Results from this model (see Table 2) indicated positive correlations among the random intercepts of POS, SNE and PA at the between-person level (trait-like), and negative correlations of NA with POS, SNE and PA. Moreover, the size of the standardized factor loadings at the between-person level was high (i.e.: they ranged from .83 to .89 across the four constructs), thereby attesting to the trait-like nature of POS, SNE, PA, and NA.

Overall, at the within-person level (state-like) we found the following statistically significant coefficients:

(a) positive *time-specific correlations* among the momentary deviations of POS with SNE and PA, as well as negative time-specific correlations of NA with SNE and POS;

[2] A scaling correction factor (*scf*) is associated with the χ^2 when the models are estimated with MLR (Muthén & Muthén, 1998, 2017).

(b) positive *carry-over effects* for POS and NA (both from T1 to T2 and from T2 to T3), as well as for SNE and PA (only from T2- T3);

(c) positive spill-over effects from POS to SNE (from T1 to T2) and from SNE to POS (from T2 to T3), as well as negative *spill-over effects* from POS to NA (from T1-T2) and from NA to SNE (from T1 to T2). Hence, higher-than-expected levels of POS at T1 (January) predicted subsequent (June), higher-than-expected levels of SNE, and lower-than-expected levels of NA (both at T2: see Table 2). Higher-than-expected levels of NA at T1 predicted lower-than-usual levels of SNE at T2. Finally, higher-than-usual levels of SNE at T2 also predicted higher-than-expected levels of POS at T3 (September).

Interestingly, we also found that SNE at T2 mediated the effect from POS at T1 to POS at T3 since the 95% CIs of the unstandardized effect (.034) did not include zero (95% CI .003, .081: Tofighi & Mackinnon, 2011).

Discussion and Conclusion

The impact of the COVID-19 pandemic has been pervasive in people's everyday life, raising concerns regarding its lethal consequences, and provoking unexpected changes in intrafamily and social relations, working conditions and financial problems that were particularly stressful for large sectors of the population. Several studies pointed to the psychological consequences of the pandemic, such as on the well-being of university students, due to the additional stressors it introduced in their everyday life and study routines, affecting them on a personal, professional and academic level (Aslan & Pekince, 2020; Clabaugh et al., 2021; Husky et al., 2020; Islam et al., 2020; Rogowska et al., 2020). University students in Spain resulted especially affected by the COVID-19 confinement, reported significantly higher depression, anxiety and stress scores than university workers (Odriozola-González et al., 2022). From a research perspective, the COVID-19 pandemic offered a unique opportunity to prove the role of individual differences in personality in moderating the impact of severe stressors on individual well-being.

The findings of our study provide new, previously unavailable information supporting the protective role of positivity and regulatory emotional self-efficacy beliefs in mitigating the negative effects of a powerful stressor such as the pandemic. Firstly, the results of our RI-CLPM confirmed the trait-like nature of our constructs and showed that the relationships between them were mostly in the form of stable, between-person differences. Indeed, we found that those participants who were in general more

positive and emotionally self-efficacious than their counterparts also reported higher PA and lower NA over time. In fact, positivity appears to help people manage the unavoidable uncertainties and challenges of their existence, exerting a protective influence in the face of a disease that may have serious consequences (Caprara et al., 2016; Caprara et al., 2019; Tabernero et al., 2021). Secondly, important effects are found at the within-person level. Specifically, while controlling for stable individual differences the participants with higher-than-usual levels of POS and SNE at a given time point also reported simultaneous lower-than-usual levels of NA and higher-than-usual levels of PA (as attested by the within-person correlations). Moreover, our findings also indicated that those participants who had a particularly positive general outlook at the start of the pandemic (January) were also those who experienced lower-than-usual levels of NA five months later, in June 2020. Hence, regardless of one's usual stable level of POS and NA, a peak of POS in January 2020 was not only related to lower than usual levels of NA at the same time point but also, it protected against NA in June 2020. Hence, at the start of a new, negatively-charged event such as the pandemic, those individuals who reported a momentary peak in their POS were not overwhelmed by their negative emotions, both at that time and five months later. This result is consistent with the higher-than-usual levels of POS in January 2020 also predicting higher-than-usual levels of SNE in June 2020. Although the simultaneity between higher-usual levels of SNE and lower-than-usual levels of NA in June 2020 prevents testing the mediational effects, one may speculate that the within-person protective role of POS at T1 on NA at T2 could at least in part be conveyed by the enhanced capability to deal with one's negative emotions. Future studies using shorter time lags (e.g., a month) could help clarify this potential mediational chain.

Interestingly, higher than usual levels of SNE in June (T2) predicted higher than usual levels of POS in T3 (September) and acted as a mediator of the carry-over effects of POS from T1 to T3. This result could indicate how at the within-person level, a general appraisal such as POS may have a primary role in helping people evaluate themselves more positively in terms of their regulatory emotional domain (SNE), which could in turn further strengthen their general positive outlook. Hence, general (i.e.: POS) and domain-specific (i.e.: SNE) self-appraisals probably operate in concert in terms of affecting each other. To the best of our knowledge, no previous studies have tested the possible mediational chain between POS and SNE in terms of within-person changes. These findings partly align with previous works that, at the between-person level, attested to the reciprocal influences and synergies between POS

and SNE (e.g., Thartori et al., 2021). Indeed, positivity is crucial to sustain and promote self-efficacy beliefs, as they in turn are crucial to nurturing individuals' positivity (see Caprara et al., 2010b).

Regrettably, at the within-person level our results only indicated a protective effect against NA. We did not find any positive effects on PA once individuals' stable, trait-like factors of POS, SNE, NA and PA were taken into account. Hence, during the pandemic, the role of POS was mostly against the experience of unpleasant emotions rather than in terms of enhancing the individuals' happiness. This result is interesting because in a novel situation like the pandemic, it could be more important to protect against excessive levels of NA rather than eliciting higher-than-usual levels of PA. Yet, future studies should examine whether the role of POS on PA could operate in a shorter time frame (e.g., day-to-day).

We are aware that despite its strengths (e.g., a relatively large sample size, longitudinal data, and stringent data analysis), our study was not without limitations. By using only self-reports as the best source for the constructs that aim to assess subjective experience, one cannot exclude that the size of the effects may have been inflated. Thus, our findings might benefit from future studies that include other informants to evaluate the individuals' well-being (e.g., partners or family members). Likewise, we are aware that the mere presence of longitudinal data does not enable clear causal relationships to be established. Hence, the use of causal approaches to evaluate correlational data (e.g., instrumental variable approaches) would help corroborate the conclusions of our study. Given that the study population was recruited at an online University in Spain and that all the instruments used were in Spanish, our results may be relevant mostly in a Spanish context and only with caution, can our procedures be extended to other socio-cultural contexts. Finally, as the population studied covered a wide age range, from 18 to 71 years of age, and there was a strong predominance of women, focusing on different age groups and keeping gender under control may allow comparisons to be made that offer better evidence of the generalizability of the findings.

Despite these limitations, we believe our findings may have practical implications in the university context since they highlight mechanisms that may protect against negative affective states and mitigate the risk of suffering mental health disorders (Rodríguez-Rodríguez et al., 2022) while favouring self-regulated learning during prolonged periods of stress (Alemany et al., 2020; Mahmoud et al., 2012). Enabling students to keep negative emotions under control is crucial to support their motivation to learn, which can be facilitated by strengthening personality traits like positivity and self-efficacy beliefs. By

acting in concert and reinforcing each other, these traits help sustain long-term emotional well-being. Indeed, positivity and emotional self-efficacy may contribute to an individual's motivation to learn, and ultimately, to their academic attainments, mitigating the impact of negative experiences while fostering the proper appreciation of positive experiences.

Both positivity and regulatory emotional self-efficacy beliefs are malleable and capable of adapting to circumstances, and they can be enhanced through properly designed psychological interventions that take into account their synergies (Bandura, 1997; Caprara et al., 2010b). In fact, while positivity may be supported by self-efficacy beliefs, mastery dictates the ways in which people can capitalize upon experience and nurture confidence in themselves, their future and their life. It is likely that from the outset, positivity prepares people to deal with life from a positive viewpoint, predisposing them to experiences from which regulatory emotional self-efficacy beliefs derive. Yet, this does not preclude strengthening positivity using regulatory emotional self-efficacy beliefs, such as self-reflection and learning from experience, allowing individuals to adapt and better their own life when necessary (Caprara et al., 2010b).

In a distance learning context, the many communication tools available (chats, videoconferencing-teleconferencing, etc.) can be used to: promote positive attitudes toward learning; value students' efforts and attainments through goal setting and feedback; help students monitor their progress and master their challenges, overcome setbacks and capitalize on successful experiences. Encouraging students to reflect on their personal assets and manage their feelings may help them realise their true capacities, boosting their self-confidence in areas that will help them cope with stressful situations like the Pandemic.

Sound mental health among students may be promoted at distance universities by offering services catering to their specific needs, helping reduce drop-out rates. Academic support could be expanded to ensure students have access to tutoring, study groups, and academic counselling that help them overcome the challenges they face, enhancing their self-confidence and diminishing academic stress. Likewise, peer support programs can provide emotional support to help new students adjust to their (online) learning environment (Andersen, 2020; Cornelius et al., 2016; Kachaturoff, et al., 2020). Support groups or discussion forums focusing on specific mental health concerns (anxiety, depression or time management) may also offer relief, providing students a safe haven to share experiences and learn from

each other. Qualified mental health professionals could provide counselling services to students, remotely or in person (individual/group therapy or crisis intervention support), paving the way for students to adopt strategies to cope with stress or other mental health concerns. Partnerships with external mental health providers or local counselling services would facilitate such referrals, providing access to their workshops or awareness campaigns. Such mental health awareness campaigns would educate students on the importance of mental well-being, self-care, and stress management, as well as highlighting the support services available. These may be driven by webinars, online workshops, newsletters, and social media platforms, while repositories of mental health well-being and self-help resources could be made available (articles, videos, and downloadable material that focuses on topics like stress reduction, mindfulness, time management, building resilience, etc).

In conclusion, the protective role of both positivity and regulatory emotional self-efficacy beliefs against negative affect is highlighted here, corroborating the earlier proposed feedback loop between positivity and regulatory emotional self-efficacy. From this work, we can recommend that further studies be carried out to confirm whether positivity and self-efficacy beliefs operate together in favouring self-regulation and academic success, in particular through their relationship with negative affect.

REFERENCES

Abel, T., & McQueen, D. (2020). The COVID-19 pandemic calls for spatial distancing and social closeness: not for social distancing!. *International Journal of Public Health*, *65*(3), 231-231. https://doi: 10.1007/s00038-020-01366-7.

Alemany-Arrebola, I., Rojas-Ruiz, G., Granda-Vera, J., & Mingorance-Estrada, Á. C. (2020). Influence of COVID-19 on the perception of academic self-efficacy, state anxiety, and trait anxiety in college students. *Frontiers in Psychology*, *11*, 570017.

Alessandri, G., Caprara, G. V., & Tisak, J. (2012). The unique contribution of Positive Orientation to optimal functioning: Further explorations. *European Psychologist*, *17*(1), 44–54. https://doi.org/10.1027/1016-9040/a000070

Alessandri, G., Filosa, L., Sonnentag, S., Crea, G., Borgnogni, L., Avanzi, L., Cinque, L., & Crocetti, E. (2021). Determinants of workers' well-being during the covid-19 outbreak: an exploratory study. *Current Psychology: A Journal for Diverse Perspectives on Diverse Psychological Issues.* https://doi.org/10.1007/s12144-021-02408-w.

Alessandri, G., Tavolucci, S., Perinelli, E., Eisenberg, N., Golfieri, F., Caprara, G. V., & Crocetti, E. (2022). Regulatory emotional self-efficacy beliefs matter for (mal)adjustment: A meta-analysis. *Current Psychology*, 1-20. https://doi.org/10.1007/s12144-022-04099-3.

Alessandri, G., Zuffianò, A., Fabes, R., Vecchione, M., & Martin, C. (2014). Linking positive affect and positive self-beliefs in daily life. *Journal of Happiness Studies*, *15*(6), 1479–1493. https://doi.org/10.1007/s10902-013-9487-y

Andersen, C. L. (2020). *Improving Mentoring in Higher Education*. Brigham Young University.

Arbuckle, J. (1996). Full Information Estimation in the Presence of Incomplete Data In R. E. Schumacker & G. A. Maroulides (Coord.), *Advanced structural equation modeling: issues and techniques* (pp. 243-278). Lawrence Erlbaum Associates.

Aslan, H., & Pekince, H. (2021). Nursing students' views on the COVID□19 pandemic and their perceived stress levels. *Perspectives in Psychiatric Care*, *57*(2), 695-701. https://doi.org/10.1111/ppc.12597.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: Freeman.

Bandura, A. (2001). Social cognitive theory: an agentic perspective. *Annual Review of Psychology*, *52*, 1-26. htpps://doi:10.1146/annurev.psych.52.1.1.

Bandura, A., Caprara, G. V., Barbaranelli, C., Gerbino, M., & Pastorelli, C. (2003). Role of affective self-regulatory efficacy on diverse spheres of psychosocial functioning. *Child Development*, *74*, 769-782. htpps://doi:10.1111/1467-8624.00567.

Bassi, M., Delle Fave, A., Steca, P., & Caprara, G. V. (2018). Adolescents' regulatory emotional self-efficacy beliefs and daily affect intensity. *Motivation and Emotion*, *42*(2), 287-298. https://doi.org/10.1007/s11031-018-9669-3.

Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The Lancet*, *395*, 912-920. htpps://doi.org/10.1016/S0140-6736(20)30460-8.

Cameron, K. S. (2003). Organizational virtuousness and performance. In K. Cameron, J. Dutton, & R. Quinn (Eds.), *Positive organizational scholarship: Foundations of a new discipline* (pp. 48-65). San Francisco: Berrett-Kohler.

Caprara, G.V. (2002). Personality psychology: filling the gap between basic processes and molar functioning. In C. von Hofsten & L. Bakman (Eds.), *Psychology at the turn of the millennium. Social, developmental and clinical perspectives* (Vol. 2, pp. 201–224). Psychology Press.

Caprara, G. V., Alessandri, G., & Barbaranelli, C. (2010b). Optimal Functioning: Contribution of Self-Efficacy Beliefs to Positive Orientation. *Psychotherapy and Psychosomatics*, *79*(5), 328–330. https://www.jstor.org/stable/48511286.

Caprara, G.V., Alessandri, G., Caprara, M. (2019). The associations of positive orientation with health and psychosocial adaptation: A review of findings and perspectives. *Asian Journal of Social Psychology*, *22*, 126–132. https://doi.org/10.1111/ajsp.12325.

Caprara, G. V., Castellani, V., Alessandri, G., Mazzuca, F., La Torre, M., Barbaranelli, C., Colaiaco, F., Gerbino, M., Pasquali, V., D´Amelio, R., Marchetti, P., & Ziparo, V. (2016). Being positive despite illness: the contribution of positivity to the quality of life of cancer patients. *Psychology & Health, 31*, 524–534. htpps://doi:10.1080/08870446.2015.1117081.

Caprara, M., Di Giunta, L., Bermúdez, J., & Caprara, G. V. (2020). How self-efficacy beliefs in dealing with negative emotions are associated to negative affect and to life satisfaction across gender and age. *PLoS One*, *15*(11), Article e0242326. https://doi.org/10.1371/journal.pone.0242326.

Caprara, G. V., Di Giunta, L., Eisenberg, N., Gerbino, M., Pastorelli, C., & Tramontano, C. (2008). Assessing regulatory emotional self-efficacy in three countries. *Psychological Assessment*, *20*, 227–237. http://doi.org /10.1037/1040-3590.20.3.227.

Caprara, G. V., Eisenberg, N., & Alessandri, G. (2017). Positivity: The dispositional basis of happiness. *Journal of Happiness Studies, 18*(2)*,* 353-371. https://doi.org/10.1007/s10902-016-9728-y.

Caprara, G. V., Fagnani, C., Alessandri, G., Steca, P., Gigantesco, A., Cavalli-Sforza, L., & Stazi, M. A. (2009). Human optimal functioning. The genetics of positive orientation towards self, life, and the future. *Behavior Genetics*, *39*, 277–284. htpps://doi:10.1007/s10519-009-9267-y.

Caprara, G. V., Steca, P., Alessandri, G., Abela, J. R., & McWhinnie, C. M. (2010a). Positive orientation: Explorations on what is common to life satisfaction, self-esteem, and optimism. *Epidemiologia e Psichiatria Sociale*, *19*, 63–71. htpps://doi:10.1017/S1121189X00001615.

Caprara, G. V., Steca, P., Gerbino, M., Paciello, M., & Vecchio, G. M. (2006). Looking for adolescents' well-being: self-efficacy beliefs as determinants of positive thinking and happiness. *Epidemiologia e Psichiatria Sociale*, 15(1), 30–43. https://doi.org/10.1017/S1121189X00002013.

Caprara, G.V., Vecchione, M., Barbaranelli, C., & Alessandri, G. (2013). Emotional stability and affective self–regulatory efficacy beliefs: proofs of integration between trait theory and social cognitive theory. *European Journal of Personality*, *27*(2), 145-154. https://doi.org/10.1002/per.1847.

Cattelino, E., Testa, S., Calandri, E., Fedi, A., Gattino, S., Graziano, F., Rollero, C., & Begotti, T. (2021). Self-efficacy, subjective well-being and positive coping in adolescents with regard to Covid-19 lockdown. *Current Psychology*, 1-12. https://doi.org/10.1007/s12144-021-01965-4.

Chu, I. Y. H., Alam, P., Larson, H. J., & Lin, L. (2020). Social consequences of mass quarantine during epidemics: a systematic review with implications for the COVID-19 response. *Journal of Travel Medicine*, *27*(7), taaa192. https://doi.org/10.1093/jtm/taaa192.

Cirimele, F., Pastorelli, C., Favini, A., Remondi, C., Zuffiano, A., Basili, E., Thartori, E., Gerbino, M., & Gregori, F. (2022). Facing the Pandemic in Italy: Personality Profiles and Their Associations With Adaptive and Maladaptive Outcomes. *Frontiers in Psychology*, *13*. http://doi.org/10.1007/s12144-022-02701-2.

Clabaugh, A., Duque, J. F., & Fields, L. J. (2021). Academic stress and emotional well-being in united states college students following onset of the COVID-19 pandemic. *Frontiers in Psychology*, *12*. e628787. htpps://doi: 10.3389/fpsyg.2021.628787.

Cornelius, V., Wood, L., & Lai, J. (2016). Implementation and evaluation of a formal academic-peer-mentoring programme in higher education. *Active Learning in Higher Education, 17*(3), 193–205. https://doi.org/10.1177/1469787416654796.

Diener, E., & Biswas-Diener, R. (2008). *Happiness: Unlocking the mysteries of psychological wealth*. Blackwell Publishing. https://doi-org.bibliotecauned.idm.oclc.org/10.1002/9781444305159

Diener, E., & Diener, M. (1995). Cross-cultural correlates of life satisfaction and self-esteem. J*ournal of Personality and Social Psychology*, *68*, 653–663. htpps://doi:10.1037//0022-3514.68.4.653.

Fancourt, D., Steptoe, A., & Bu, F. (2021). Trajectories of anxiety and depressive symptoms during enforced isolation due to COVID-19 in England: a longitudinal observational study. *Lancet Psychiatry, 8*(2), 141-149. https://doi.org/10.1016/S2215-0366(20)30482-X.

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *The American Psychologist*, *56*(3), 218–226. https://doi.org/10.1037/0003-066x.56.3.218

Fredrickson, B. (2009). *Positivity: Groundbreaking research reveals how to embrace the hidden strength of positive emotions, overcome negativity, and thrive*. Crown Publishers/Random House.

Gao, J., Zheng, P., Jia, Y., Chen, H., Mao, Y., Chen, S., Wang, Y., Fu, H., & Dai, J., (2020). Mental health problems and social media exposure during COVID-19 outbreak. *PLoS One*, *15*(4), e0231924. https://doi.org/10.1371/journal.pone.0231924.

Gerli, A. G., Centanni, S., Miozzo, M .R., Virchow, J. C., Sotgiu, G., Canonica, G. W., & Soriano, J. B. (2020). COVID-19 mortality rates in the European Union, Switzerland, and the UK: effect of timeliness, lockdown rigidity, and population density. *Minerva Medicine*, *111*(4), 308-314. https://doi.org/10.23736/S0026-4806.20.06702-6.

Gómez-García, G., Ramos-Navas-Parejo, M., de la Cruz-Campos, J. C., Rodríguez-Jiménez, C. (2022). Impact of COVID-19 on University Students: An Analysis of Its Influence on Psychological and Academic Factors. *Int J Environ Res Public Health*, 19(16):10433. doi: 10.3390/ijerph191610433.

González-Sanguino, C., Ausín, B., Castellanos, M. Á., Saiz, J., López-Gómez, A., Ugidos, C., & Muños, M. (2020). Mental health consequences of the Coronavirus 2020 Pandemic (COVID-19) in Spain. *Brain, Behavior and Immunity*, *87*, 172-176. https://doi.org/10.1016/j.bbi.2020.05.040.

Gross J. J. (2014). *Handbook of emotion regulation* (2th. ed.). Guilford.

Gunzenhauser, C., Heikamp, T., Gerbino, M., Alessandri, G., Von Suchodoletz, A., Di Giunta, L., Caprara, G. V., & Trommsdorff, G. (2013). Self-efficacy in regulating positive and negative emotions. *European Journal of Psychological Assessment*, *29*(3), 197-204. https://doi.org/10.1027/1015-5759/a000151.

Hamaker, E. L., & Grasman, R. P. (2015). To center or not to center? Investigating inertia with a multilevel autoregressive model. *Frontiers in Psychology*, *5*, 1492. https://doi.org/10.3389/fpsyg.2014.01492.

Hamaker, E. L., Kuiper, R. M., & Grasman, R. P. P. P. (2015). A critique of the cross-lagged panel model. *Psychological Methods, 20*, 102–116. https://doi.org/10.1037/a0038889.

Heikamp, T., Alessandri, G., Laguna, M., Petrovic, M., Caprara, M., & Trommsdorff, G. (2014). Cross-cultural validation of the positivity scale in five European countries. *Personality and Individual Differences*, 71, 140–145. https://doi.org/10.1016/j.paid.2014.07.012.

Hidalgo, M. D., Balluerka, N., Gorostiaga, A., Espada, J. P., Santed, M. A., Padilla, J. L., & Gómez-Benito, J. (2020). The Psychological Consequences of COVID-19 and Lockdown in the Spanish Population: An Exploratory Sequential Design. *International Journal of Environmental Research and Public Health, 17,* 8578. Doi:10.3390/ijerph17228578

Hradsky, O., & Komarek, A. (2021). Demographic and public health characteristics explain a large part of variability in COVID-19 mortality across countries. *European Journal of Public Health*, *31*(1), 12-16. https://doi.org /10.1093/eurpub/ckaa226.

Huppert, F. A., & So, T. T. C. (2013). Flourishing across Europe: Application of a new conceptual framework for defining well-being. *Social Indicators Research, 110*(3), 837–861. https://doi-org.bibliotecauned.idm.oclc.org/10.1007/s11205-011-9966-7

Husky, M. M., Kovess-Masfety, V., & Swendsen, J. D. (2020). Stress and anxiety among university students in France during Covid-19 mandatory confinement. *Comprehensive Psychiatry, 102*, 152191. https://doi.org/10.1016/j.comppsych.2020.152191.

Islam, M. S., Sujan, M. S. H., Tasnim, R., Sikder, M. T., Potenza, M. N., & Van Os, J. (2020). Psychological responses during the COVID-19 outbreak among university students in Bangladesh. *PloS One*, *15*(12), e0245083. https://doi.org/10.1371/journal.pone.0245083.

Iterbeke, K., & De Witte, K. (2022). Helpful or harmful? The role of personality traits in student experiences of the COVID-19 crisis and school closure. *Personality and Social Psychology Bulletin, 48*(11), 1614-1632. https://doi.org /10.1177/01461672211050515.

Kachaturoff, M., Caboral-Stevens, M., Gee, M., & Lan, V. M. (2020). Effects of peer-mentoring on stress and anxiety levels of undergraduate nursing students: An integrative review. *Journal of Professional Nursing: Official Journal of the American Association of Colleges of Nursing, 36*(4), 223–228. https://doi.org/10.1016/j.profnurs.2019.12.007.

Laguna, M., Alessandri, G., & Caprara, G. V. (2017). How do you feel about this goal? Goal-related affect, positive orientation, and personal goal realization in the family domain. *Journal of Happiness Studies, 18*, 827–842. doi:10.1007/s10902-016-9750-0

Lucas, R. E., Diener, E., & Suh, E. (1996). Discriminant validity of well-being measures. *Journal of Personality and Social Psychology*, *71,* 616–628. https://doi:10.1037/0022-3514.71.3.616.

Luthans, F. (2002). The need for and meaning of positive organizational behavior. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior, 23*(6), 695-706. https://doi-org.bibliotecauned.idm.oclc.org/10.1002/job.165

Mahmoud, J. S. R., Staten, R., Hall, L. A., & Lennie, T. A. (2012). The relationship among young adult college students' depression, anxiety, stress, demographics, life satisfaction, and coping styles. *Issues in Mental Health Nursing*, 33(3), 149–156. ttps://doi.org/10.3109/01612840.2011.632708.

Mazza, C., Ricci, E., Biondi, S., Colasanti, M., Ferracuti, S., Napoli, C., & Roma, P. (2020). A nationwide survey of psychological distress among Italian people during the COVID-19 pandemic: immediate psychological responses and associated factors. *International Journal of Environmental Research and Public Health*, *17*(9), 3165. https://doi.org/10.3390/ijerph17093165.

Mulder, J. D., & Hamaker, E. L. (2020). Three extensions of the random intercept cross-lagged panel model. *Structural Equation Modeling*, 27, 1–11. https:// doi.org/10.1080/10705511.2020.1784738.

Muthen, L. K., & Muthen, B. (2017). *Mplus user's guide: Statistical analysis with latent variables* (8th ed.).

Nwachukwu I., Nkire, N., Shalaby. R., Hrabok, M., Vuong, W., Gusnowski, A., Surood, S., Urichuk, L., Greenshaw, A. J., & Agyapong, V. I. O. (2020). COVID-19 Pandemic: Age-Related Differences in Measures of Stress, Anxiety and Depression in Canada. *International Journal of Environmental Research and Public Health, 17*(17), 6366. https://doi.org/10.3390/ijerph17176366.

Odriozola-González, P., Planchuelo-Gómez, Á., Irurtia, M. J., & de Luis-García, R. (2022). Psychological symptoms of the outbreak of the COVID-19 confinement in Spain. *Journal of Health Psychology*, *27*(4), 825-835. https://doi.org/10.1177/1359105320967086.

Orrù, G., Ciacchini, R., Gemignani, A., & Conversano, C. (2020). Psychological intervention measures during the COVID-19 pandemic. *Clinical Neuropsychiatry*, *17*(2), 76. https://doi.org/10.36131/CN20200208.

Ortuño-Sierra, J., Santarén-Rosell, M., de Albéniz, A. P., & Fonseca-Pedrero, E. (2015). Dimensional structure of the Spanish version of the Positive and Negative Affect Schedule (PANAS) in

adolescents and young adults. *Psychological Assessment*, 27(3), e1-9. https://doi: 10.1037/pas0000107.

Partsch, M. V., Bluemke, M., & Lechner, C. M. (2022). Revisiting the hierarchical structure of the 24 VIA character strengths: Three global dimensions may suffice to capture their essence. *European Journal of Personality, 36*(5), 825-845. doi:10.1177/08902070211017760

Phiri, P., Ramakrishnan, R., Rathod, S., Elliot, K., Thayanandan, T., Sandle, N., Hque, N., Chau, S.W.H., Wong, O. W. H., Chan, S., Wong, E. K. Y., Raymont, V., Au-Yeung, S. K., Kingdon, D., & Delanerolle, G. (2021). An evaluation of the mental health impact of SARS-CoV-2 on patients, general public and healthcare professionals: a systematic review and meta-analysis. *EClinicalMedicine 34*, 100806. https://doi.org/10.1016/j.eclinm.2021.100806.

Real Decreto 463/2020, de 14 de marzo, por el que se declara el estado de alarma para la gestión de la situación de crisis sanitaria ocasionada por el COVID-19. *Boletín Oficial del Estado, 67*, de 14 de marzo de 2020. https://www.boe.es/eli/es/rd/2020/03/14/463.

Rodríguez-Rodríguez, A., Guerrero-Barona, E., Chambel, M. J., Guerrero-Molina, M., & González-Rico, P. (2022). Predictor Variables of Mental Health in Spanish University Students. *Education Sciences*, *12*(11), 839.

Rogowska, A. M., Kuśnierz, C., & Bokszczanin, A. (2020). Examining anxiety, life satisfaction, general health, stress and coping styles during COVID-19 pandemic in Polish sample of university students. *Psychology Research and Behavior Management*, *13*, 797. https://doi.org/10.2147/PRBM.S266511.

Salari, N., Hosseinian-Far, A., Jalali, R., Vaisi-Raygani, A., Rasoulpoor, S., Mohammadi, M., Rasoulpoor, S., & Khaledi-Paveh, B. (2020). Prevalence of stress, anxiety, depression among the general population during the COVID-19 pandemic: a systematic review and meta-analysis. *Globalization and Health*, *16*(1), 1-11. https://doi.org/10.1186/s12992-020-00589-w.

Sandín, B., Valiente, R. M., García-Escalera, J., & Chorot, P. (2020). Impacto psicológico de la pandemia de COVID-19: Efectos negativos y positivos en población española asociados al periodo de confinamiento nacional. *Revista de Psicopatología y Psicología Clínica*, *25*(1), 1-22. https://doi.org/10.5944/rppc.27569.

Sandín, B., Espinosa, V., Valiente, R. M., García-Escalera, J., Schmitt, J. C., Arnáez, S., & Chorot, P. (2021). Effects of Coronavirus Fears on Anxiety and Depressive Disorder Symptoms in Clinical and

Subclinical Adolescents: The Role of Negative Affect, Intolerance of Uncentainty and Emotion Regulation Strategies. *Frontiers in Psychology, 12:716528* https:/doi.org/10.3389/fpsyg.2021.716528

Sette, S., Zuffianò, A., López-Pérez, B., McCagh, J., Caprara, G. V., & Coplan, R. J. (2022). Links between Child Shyness and Indices of Internalizing Problems during the COVID-19 Pandemic: The Protective Role of Positivity. *The Journal of Genetic Psychology, 183*(2), 91-106. https://doi.org/10.1080/00221325.2021.2011093.

Tabernero, C., Caprara, G.V., Gutierrez-Domingo, T., Cuadrado, E., Castillo-Mayen, R., Arenas, A., Rubio, S. & Luque, B. (2021). Positivity and Self-Efficacy Beliefs explaining health-related quality of life in cardiovascular patients. *Psychotema*, 33, 433-441. https://doi.org/10.7334/psicothema2020.476.

Thartori, E., Pastorelli, C., Cirimele, F., Remondi, C., Gerbino, M., Basili, E., Favini, A., Lunett, C., Fiasconaro, I., & Caprara, G. V. (2021). Exploring the Protective Function of Positivity and Regulatory Emotional Self-Efficacy in Time of Pandemic COVID-19. *International Journal of Environmental Research and Public Health, 18(24)*, 13171. https//doi.org/10.3390/ijerph182413171.

Tofighi, D., & MacKinnon, D. P. (2011). RMediation: An R package for mediation analysis confidence intervals. *Behavior Research Methods, 43*(3)*,* 692-700. https://doi.org/10.3758/s13428-011-0076-x.

von Keyserlingk, L., Yamaguchi□Pedroza, K., Arum, R., & Eccles, J. S. (2022). Stress of university students before and after campus closure in response to COVID□19. *Journal of community psychology*, *50*(1), 285-301.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology*, *54*(6), 1063. https://doi.org/10.1037/0022-3514.54.6.1063.

Yıldırım, M., & Güler, A. (2021). Positivity explains how COVID-19 perceived risk increases death distress and reduces happiness. *Personality and Individual Differences*, *168*, 110347. https://doi.org/10.1016/j.paid.2020.110347.

Zuffianò, A., López-Pérez, B., Cirimele, F., Kvapilová, J., & Caprara, G. V. (2019). The Positivity Scale: Concurrent and factorial validity across late childhood and early adolescence. *Frontiers in Psychology*, *10*, 831. https://doi.org/10.3389/fpsyg.2019.00831.

Table 1

Descriptive Statistics and Correlations among Study Variables

Variable	POS_T1	POS_T2	POS_T3	SNE_T1	SNE_T2	SNE_T3	NA_T1	NA_T2	NA_T3	PA_T1	PA_T2	PA_T3
1. POS_T1	—											
2. POS_T2	.83**	—										
3. POS_T3	.79**	.85**	—									
4. SNE_T1	.46**	.45**	.43**	—								
5. SNE_T2	.46**	.50**	.48**	.77**	—							
6. SNE_T3	.43**	.46**	.49**	.79**	.81**	—						
7. NA_T1	-.59**	-.54**	-.52**	-.55**	-.53**	-.51**	—					
8. NA_T2	-.53**	-.60**	-.55**	-.49**	-.54**	-.53**	.75**	—				
9. NA_T3	-.49**	-.53**	-.59**	-.48**	-.52**	-.54**	.71**	.79**	—			
10. PA_T1	.68**	.61**	.59**	.43**	.42**	.42**	-.42**	-.39**	-.38**	—		
11.	.60**	.66**	.60**	.43**	.46**	.46**	-.41**	-.42**	-.42**	.73**	—	

Descriptive Statistics and Correlations among Study Variables

Variable	POS_T1	POS_T2	POS_T3	SNE_T1	SNE_T2	SNE_T3	NA_T1	NA_T2	NA_T3	PA_T1	PA_T2	PA_T3
PA_T2												
12. PA_T3	.60**	.62**	.69**	.43**	.45**	.49**	-.38**	-.42**	-.46**	.73**	.79**	—
M	30.14	29.60	29.79	46.58	45.90	46.18	19.36	19.87	19.54	30.86	29.57	29.85
SD	5.77	5.73	5.55	8.61	8.98	9.04	5.45	5.36	5.26	5.29	5.26	5.38

Note. Pearson's correlations, means (M), and standard deviations (SD) are reported for positivity (POS), self-efficacy in regulating negative emotions (SNE), negative affect (NA), and positive affect (PA) at time 1 (T1), time 2 (T2), and time 3 (T3). $^{**}p < .01$

Table 2

Random Intercept Cross-Lagged Panel Model (RI-CLPM) of Positivity (POS), Self-Efficacy in Regulating Negative Emotions (SNE), Negative Affect (NA), and Positive Affect (PA).

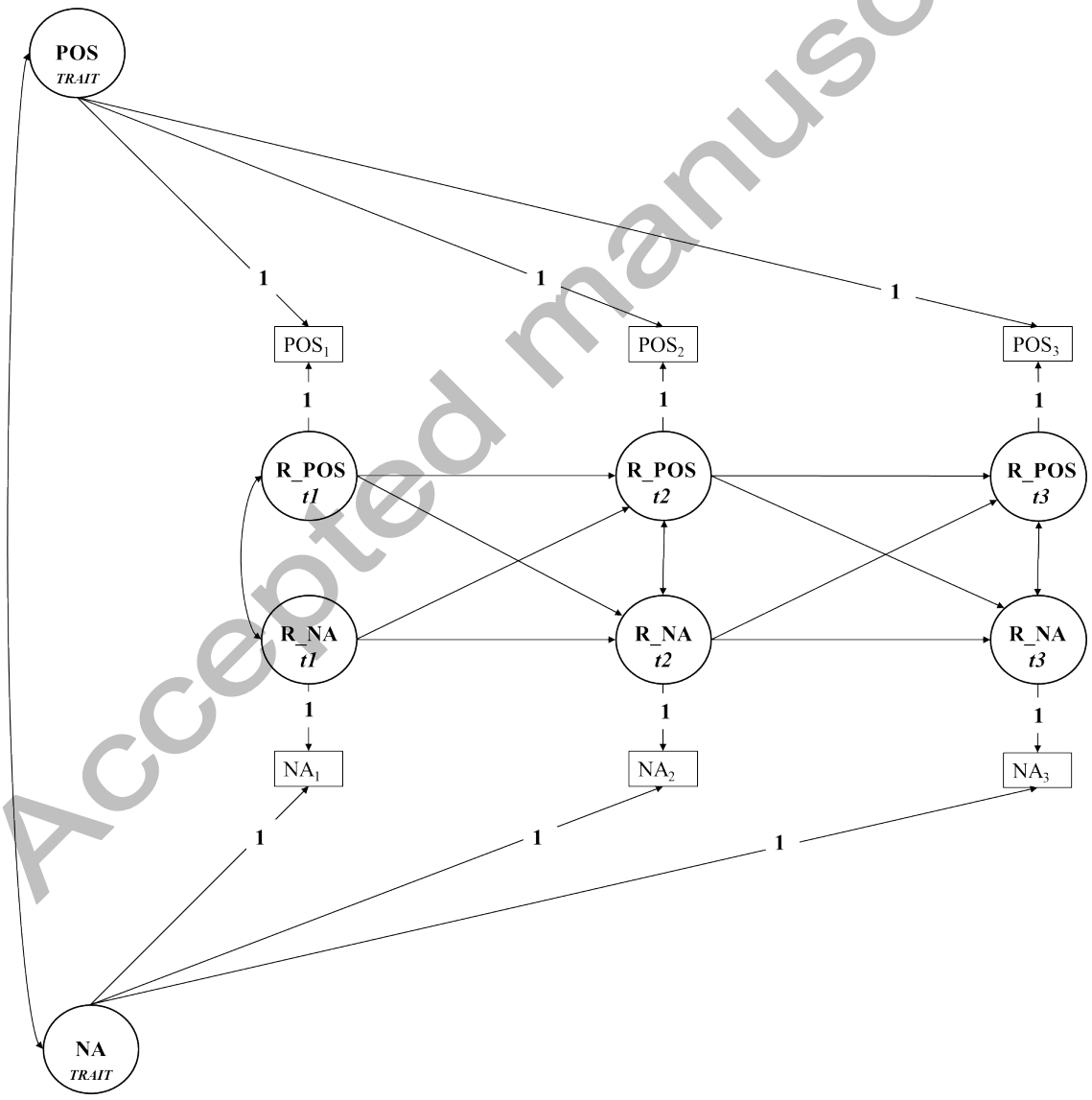
Between-person	Std	SE	p-value
RI POS ↔ RI SNE	.529	.030	<.001
RI POS ↔ RI NA	-.677	.025	<.001
RI POS ↔ RI PA	.784	.021	<.001
RI SNE ↔ RI NA	-.648	.027	<.001
RI SNE ↔ RI PA	.570	.027	<.001
RI NA ↔ RI PA	-.520	.032	<.001
Within-person			
Correlations			
R_POS T1 ↔ R_SNE T1	.145	.095	.127
R_POS T2 ↔ R_SNE T2	.265	.070	<.001
R_POS T3 ↔ R_SNE T3	.293	.056	<.001
R_POS T1 ↔ R_NA T1	-.367	.066	<.001
R_POS T2 ↔ R_NA T2	-.391	.059	<.001
R_POS T3 ↔ R_NA T3	-.315	.054	<.001
R_POS T1 ↔ R_PA T1	.377	.073	<.001
R_POS T2 ↔ R_PA T2	.351	.073	<.001
R_POS T3 ↔ R_PA T3	.406	.051	<.001
R_SNE T1 ↔ R_NA T1	-.220	.087	.011

R_SNE T2 ↔ R_NA T2	-.198	.079	.012
R_SNE T3 ↔ R_NA T3	-.179	.055	.001
R_SNE T1 ↔ R_PA T1	-.046	.105	.666
R_SNE T2 ↔ R_PA T2	.126	.088	.151
R_SNE T3 ↔ R_PA T3	.271	.050	<.001
R_NA T1 ↔ R_PA T1	-.192	.078	.014
R_NA T2 ↔ R_PA T2	-.137	.090	.127
R_NA T3 ↔ R_PA T3	-.282	.054	<.001
Carry-over effects			
R_POS T1→ R_POS T2	.292	.075	<.001
R_POS T2→ R_POS T3	.337	.099	.001
R_SNE T1→ R_SNE T2	.024	.097	.804
R_SNE T2→ R_SNE T3	.197	.069	.004
R_NA T1→ R_NA T2	.181	.083	.029
R_NA T2→ R_NA T3	.266	.081	.001
R_PA T1→ R_PA T2	-.025	.105	.813
R_PA T2→ R_PA T3	.219	.071	.002
Spill-over effects			
R_POS T1→ R_SNE T2	.212	.079	.004
R_POS T2→ R_SNE T3	.104	.078	.183
R_POS T1→ R_NA T2	-.197	.082	.016
R_POS T2→ R_NA T3	-.053	.075	.476
R_POS T1→ R_PA T2	.060	.097	.534
R_POS T2→ R_PA T3	.048	.077	.530
R_SNE T1→ R_POS T2	.087	.081	.281
R_SNE T2→ R_POS T3	.162	.069	.020
R_SNE T1→ R_NA T2	.072	.092	.434
R_SNE T2→ R_NA T3	-.072	.062	.244
R_SNE T1→ R_PA T2	-.083	.106	.432
R_SNE T2→ R_PA T3	.043	.064	.501
R_NA T1→ R_POS T2	-.096	.062	.121
R_NA T2→ R_POS T3	-.075	.078	.335
R_NA T1→ R_SNE T2	-.151	.074	.042
R_NA T2→ R_SNE T3	-.054	.075	.476
R_NA T1→ R_PA T2	-.163	.085	.056
R_NA T2→ R_PA T3	-.106	.076	.166
R_PA T1→ R_POS T2	.063	.076	.406
R_PA T2→ R_POS T3	-.079	.069	.254
R_PA T1→ R_SNE T2	-.146	.083	.080
R_PA T2→ R_SNE T3	.082	.071	.253

R_PA T1→ R_NA T2	.062	.084	.462
R_PA T2→ R_NA T3	-.077	.065	.238

Note. The following standardized (std) coefficients and their standard errors (SE) are reported: Between-level correlation (↔) among the random intercepts (RI) of POS, SNE, NA and PA; within-level correlations (↔) among the residual components of POS (R_POS), SNE (R_SNE), NA (R_NA), and PA (R_PA) at time 1 (T1), time 2 (T2), and time 3 (T3); within-level carry-over effects (→) for R_POS, R_SNE, R_NA, and R_PA; within-level spill-over effects (→) for R_POS, R_SNE, R_NA, and R_PA.

Figure 1 *Example of the RI-CLPM between Positivity (POS) and Negative Affect (NA)*



Note. For the sake of simplicity, the figure only displays RI-CLPM for POS and NA measured at time 1 (T1; January 2020), time 2 (T2; June 2020), and time 3 (T3;

September 2020). The within-person, state-like deviations from the respective trait are reported with the prefix R_.