# Scientific report about the methodology of the project

1. **Title of project:** Psychological Coping with the COVID-19 Pandemic.
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3. **Purpose of project and its academic rationale.**

Our goal is to conduct novel research into how people cope psychologically with the current coronavirus crisis (e.g., confinement, feelings of stress and depression). The study will be applied online and aims to measure longitudinally different mechanisms of psychological coping, with a special emphasis on coping with existential components (e.g., meaning in life and acceptance of negative emotions) and its beneficial effects on mental health.

We live in a very intense and key time for humanity because more than a hundred years ago we have not faced a pandemic as harmful as the current one. As psychologists and researchers, we have a responsibility to measure the psychological effects of this crisis in order to understand which are the most effective coping methods. With this knowledge we will be able to identify the characteristics of the most resilient and also the most vulnerable people with the long-term objective of generating interventions that can help in times of crisis like this.

The present study is framed in positive existential psychology (EPP; Wong, 2009) or second wave of positive psychology (PP2.0, Lomas & Ivtzan, 2015; Ivtzan, Lomas, Hefferon & Worth, 2015; Wong, 2011). Positive existential psychology was developed seeking the integration of Humanistic Existential Psychology with positive psychology. PP2.0 represents a development of the first wave of positive psychology (Seligman & Csikszentmihalyi, 2000), a paradigm criticized for being excessively focused on positivity (for example, Held, 2004; Wong & Roy, 2017). In addition to the positive qualities of human functioning proposed in the first wave research, PP2.0 affirms that to get the best out of people, it is necessary to accept the negative side of life. In life suffering is inevitable but also potentially beneficial. According to this point of view, heartbreaking moments, trauma, death, illness, existential abyss, among others, although instinctively they can be considered undesirable, they can also be promoters of personal and spiritual growth (Wong, 2011).

How one relates to adversity and negative emotions is crucial to well-being. A style of avoidance to cope with life's demands has been associated with a significant number of psychological problems. For example, Ben-Zur (2009) found that avoidance-based coping was negatively related to positive affect and positively related to negative affect. Blalock and Joiner (2000) found that cognitive avoidance is predictive of depressive and anxious symptoms in women. Similarly, Elliot, Thrash and Murayama (2011) observed in a longitudinal study with university students that facing stressful situations by evading undermines subjective well-being. In another study, Dempsey, Overstreet, and Moely (2000) found that children who experienced higher levels of violence and used cognitive distraction strategies were at risk for more symptoms of post-traumatic stress disorder. Drug use has also been considered as a coping strategy based on the avoidance of negative emotions (Carreno & Pérez-Escobar, 2019).

Although adversity is generally not desired, it can also be a strong promoter of personal growth. Many people who experience events such as diagnosing a life-threatening illness, survivors of natural disasters, war veterans, spouses, and parents who lose loved ones and other survivors of a near-death event report what is called " post-traumatic growth "(Calhoun & Tedeschi, 2006; Khanna & Greyson, 2015). This growth is based on positive change related to greater personal strength, an openness to new possibilities in life, a greater connection with other people, a greater appreciation of life and a spiritual change after such events (Calhoun & Tedeschi, 2006). This phenomenon indicates that growth and discomfort coexist.

However, adversity does not guarantee growth. Post-traumatic growth depends on two coexisting components (Maercker & Zöllner, 2004; Zoellner & Maercker, 2006): a functional constructive side (based on openness and acceptance) and a dysfunctional illusory side (self-deception or cognitive avoidance). Post-traumatic growth is predicted on the constructive side and the severity of post-traumatic stress, suggesting that those who suffer greatly but accept their experience have more potential to grow (e.g., Görg et al., 2017; Shipherd & Salters- Pedneault, 2018). Distorted positive illusions can be useful, at least in the short term, to counteract emotional distress and promote self-consolidation (Zoellner & Maercker, 2006). However, if the illusory component serves as a long-term cognitive avoidance strategy, it can make psychological adjustment difficult (e.g., Dempsey et al., 2000).

Another fundamental component to face stressful events is the meaning in life. Meaning in life has been defined as "the sense of, and the felt importance regarding, the nature of being and one's existence" (Steger, Frazier, & Oishi, 2006, p. 81). Reker and Wong (1988) describe it as "the perception of order, coherence and purpose in one's existence, the search and achievement of valuable goals, and an accompanying sense of accomplishment" (p. 221). This construct is at the heart of human experience and represents an important

area in clinical and health psychology (Hicks & Routledge, 2013; Wong, 2012). For example, meaning in life has been included as one of the main components of psychological well-being (Ryff, 1989), which has a protective role on health in reducing the risk of illness and prolonging life expectancy. (Ryff, 2014; Ryff, Heller, Schaefer, van Reekum, & Davidson, 2016). Furthermore, meaning-focused interventions have shown improvements in quality of life and psychological well-being, as well as reduced psychological distress (Vos, 2016; Vos and Vitali, 2018). In a previous study, we observed that meaning in life, particularly sources of relational character, play a key role in well-being, while predicting less psychological discomfort, fundamentally less depression (Carreno et al., 2020).

The present study aims to analyze and compare the aforementioned coping strategies during this COVID-19 pandemic. We seek to carry out a predictive analysis of which coping styles lead people to greater well-being and psychological adjustment to the current crisis, and which are related to greater post-traumatic post-traumatic stress and discomfort. The greatest emphasis will be given to the mechanisms proposed by positive existential psychology such as the acceptance of negative emotions and the personal meaning that is given to this pandemic.

## 4. Brief description of methods and measurements.

*Measures*

All instruments are attached to this application.

-Demographic data

The demographic data of the participants are asked, such as country and municipality of residence, age, gender, marital status, studies, occupation, socio-economic level, if they are under psychological / psychiatric treatment and diagnosis if so.

-Attitudes and opinions about the coronavirus

In this section, participants are asked about their opinions and attitudes about the current pandemic. The questions include the level of concern for themselves and other people, effects on physical and mental health, beliefs about contagion, prevailing emotion at this time, days in confinement, whether or not they are infected and their symptoms. See attached full questions.

-Stress, Anxiety and Depression Scale (DASS-21)

Different versions of the Stress, Anxiety and Depression Scale will be used (DASS-21; Brown, Chorpita, Korotitsch and Barlow, 1997). The items on this scale describe negative emotional states experienced during the past week and are rated on a 4-point Likert-type scale that ranges from 0 (not applicable to me at all) to 3 (very applicable to me, or the most hours). It consists of 21 items organized in three subscales: depression, anxiety and stress. The full scale scores represent general psychological distress.

-PERMA profile (PERMA)

The PERMA profile (Butler and Kern, 2015) measures subjective well-being and satisfaction with life through five subscales: positive emotions, commitment, relationships positive, meaning in life and achievement. The questionnaire consists of 23 items. Each question offers a scale of eleven points from 0 to 10 as indicated in each question. In this study, we will use the PERMA profile on a 7-point scale, from 0 to 6 to better adapt it to the rest of the questionnaires in the package.

-Brief COPE Inventory (Brief-COPE)

The short version of the COPE inventory will be used (Carver, 1997). It is a questionnaire of 28 items and 14 subscales (active coping, planning, instrumental support, use of emotional support, self-distraction, relief, behavioral disconnection, positive reinterpretation, denial, acceptance, religion, substance use, humor, self-blame ) that is answered on a Likert-type scale of 4 response alternatives (from 0 to 3), between "I never do this" and "I always do this" with intermediate scores.

-Transformative Coping Scale (TCS)

This instrument has been developed for the present study in order to collect the coping strategies during the pandemic proposed from positive existential psychology. The instrument measures acceptance of negative emotions, personal sense, prosociality, existential gratitude, spirituality, faith, and value-based behavior. It contains a total of 20 items with a Likert scale from 1 (not at all agree) to 7 (completely agree). The psychometric properties of the questionnaire will be investigated in this study in order to validate the instrument in different languages.

-Mature Happiness Scale (MHS)

This scale has been recently developed by Paul T. P. Wong (researcher in the present study, Wong & Bowers, 2018). It measures psychological well-being oriented to calm and emotional maturity. It is made up of 12 items on a Likert scale from 1 (not at all) to 5 (all the time) that evaluate inner harmony, acceptance, gratitude, satisfaction and peace with oneself, others and the world. The present study will serve to investigate its psychometric properties in different languages.

-Valued Living Questionnaire- Perceived Change (VLQ-PC)

This instrument is an adapted version of the Valued Living Questionnaire (VLQ, Wilson et al., 2010) that assesses personal values across eleven domains: 1) Family (other than parenthood or intimate relationships), 2) Partner / intimate relationships, 3) Childcare, 4) Friends / social life, 5) Work, 6) Education / training, 7) Leisure / fun, 8) Spirituality, 9) Citizenship / community life, 10) Physical care, and 11) Me /myself. In a previous study we adapted this instrument to measure the perceived change in each personal value from a specific past point (to be chosen depending on the study). Retrospectively, respondents rate on a 9-point Likert scale from -4 (much less important / now involved) to +4 (much more important / now involved) the change perceived in the eleven domains. Zero represents the same perceived level of importance or involvement as before. Cronbach's alpha of the original version has shown adequate internal consistency and reliability (Wilson et al., 2010). Our adapted version has also shown different validity rates and good reliability.

-Post-Traumatic Stress (PCL-5)

The Post Traumatic Stress Disorder Checklist for DSM-V (PTSD Checklist for DSM-5; PCL-5) is one of the most widely applied scales to measure post-traumatic stress (Ashbaugh, Houle-Johnson, Herbert, El - Hage and Brunet, 2016). The questionnaire contains 20 items measured on a Likert-type scale from 0 (not at all) to 4 (totally). The items describe the symptoms referring to the diagnostic criteria of re-experimentation, avoidance, activation and cognitive alterations that characterize post-traumatic stress.

-Post-Traumatic Growth-Short Version (PTGI-SF)

The Posttraumatic Growth Inventory -Short Form (PTGI-SF) Inventory will be used in this study. The PTGI-SF (Cann et al., 2010) measures five different factors (relationship with others, appreciation of life, personal strength, change in the philosophy of life, new possibilities) as possible areas of personal growth after having lived through a traumatic event. The instrument consists of 21 items that are answered on a Likert scale from 0 (No change) to 5 (A huge change).

*Procedure*

The study will be carried out using an online survey through the Google Forms program. All the information, consent, and questionnaires will be applied through this web application. Since participants can fill out the questionnaire from anywhere in the world, the identical questionnaire (including study

information and consent) is offered in different languages. The study design is longitudinal with three measurement points.

The first measure will be applied during the initiation or development of the virus in each country, depending on when we can start the study. The second measure will be applied at the end of the pandemic, when the virus is under control in each country. In countries where confinement or other social restrictions are implemented, the second measure will be taken when people begin to return to social normality. The third measure will be a follow-up 3 months after the end of the state of social alarm.

The measures included in the first package of questionnaires: Study information and consent; Demographic data; Attitudes and opinions about the coronavirus; DASS-21; PERMA, Brief-COPE; TCS; MHS.

The measures included in the second questionnaire package: Study information; Identification code; DASS-21; Brief-COPE, TCS, PERMA.

The measures included in the third questionnaire package: Study information; Identification code; DASS-21; VLQ-PC, MHS, PCL-5, PTGI-SF, PERMA.

With this design, we will be able to determine which coping strategies (and other psychological and demographic variables) predict a better future psychological adjustment, leaving fewer sequelae (eg, anxiety, post-traumatic stress, depressive symptoms). We will keep abreast of the evolution of the virus in each participating country. The link to the questionnaire package will be disseminated on social networks and to the contacts of the main researchers. The entry criteria will be over 18 years old.

## 5. Participants: recruitment methods, number, age, gender, exclusion/inclusion criteria.

The study is international, so we will try to recruit online participants from different countries around the world.

The exclusion criterion is not to exceed 18 years. An attempt will be made to have a diverse sample in terms of provinces, ages, and gender, in order to have the greatest possible representation of the general population. To recruit this sample, the URL with the survey will be shared in Google Forms to all personal contacts and groups that we have access to on social networks, mainly through Facebook and WhatsApp.

To have samples in other countries, were are contacting interested collaborators who translate the questionnaires into their respective languages (those that have not yet been translated) and also disseminate the survey on social networks in their country.

We have obtained collaborators in the Spain, Canada, United States, UK, Italy, Mexico, Romania, Germany, Lebanon, Turkey, Portugal, Pakistan, Poland, Egypt, Algeria, Nigeria, Brazil, India, Indonesia, France, Bangladesh, Sweden, Thailand, Slovenia, Russia, and New Zealand. The estimated sample of participants by country is above 300 people with the same criteria and methods of recruitment as in Spain.

## 6. Consent and participant information arrangements, debriefing.

In this study the anonymity of the participants is preserved so that their responses to the questionnaires and other types of information required will not be identifiable with the person in question. For this, the online questionnaire does not ask for the name or ID of the participants. Since we will deliver several questionnaire packages at different times, and we need to know which questionnaires belong to the same person, in the first questionnaire package each participant is asked to invent a code that will later be requested in the subsequent questionnaire packages.

However, to send participants the additional questionnaire packages, people who decide to continue participating after completing the first survey are asked for a means of contact or an email. To those who decide to participate, a reminder will be sent to said email with the link of the following survey. Emails will be saved completely separate from other participant responses and all contact details will be erased immediately after the reminder email has been sent.

The researchers undertake to protect any type of personal information provided during the study by the participants. The investigator responsible for the custody of the data will be David Fernández Carreño and Nikolett Eisenbeck. In addition, a password will be placed in the data file so that only attached researchers can access the study databases. The results of the study will be scientifically disclosed from absolute anonymity.

The questionnaire is designed so that people can express how they feel and how they are psychologically facing the pandemic and confinement (in those countries where it has already been implemented). We believe that the survey can help participants reflect on different ideas on how to handle the situation, while sharing their experience with others. The survey takes no more than 20 minutes.

The questionnaires used in the package do not induce discomfort, therefore their potential undesirable effects are very low. In particular, the DASS-21 questionnaire asks participants about their levels of depression, anxiety and stress. However, in previous studies we have observed that people do not report greater discomfort for answering this questionnaire, rather the opposite, they find some relief for being able to verbalize and share their discomfort.

**7. Estimated start date and duration of project.**

The study will start in March 2020 (as soon as we got the ethical approval) and will finish by December 2021.

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