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The Impact of Optimism and Internal Locus of Control on Workers' Well-Being, A Multi-Group Model Analysis before and during the COVID-19 Pandemic

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Abstract: The COVID-19 crisis led to changes in different areas of workers' lives, as well as repercussions in stress management, social relationships, and perception of personal and professional growth. Considering this, well-being in the workplace is crucial to carrying out effective activities and performance, and it is also essential to verifying the impact of the pandemic on the current situation of workers' overall well-being. The study investigates the mediation of Personal Growth (PG) between two personal resources at work, Internal Locus (LOCI) and Optimism (OPT), on the Pemberton Happiness Index (PHI), an important multi-faceted indicator of well-being. This study was conducted on respondents performing professions ($n = 666$), both before (2019, $n = 410$) and during the pandemic (2020, $n = 256$). The relationships were tested simultaneously using a multi-group structural equation model (MPLUS7). The estimated model shows that personal resources at work increase PG (LOCI mostly during the pandemic; OPT mostly before the pandemic); OPT directly increases PHI; PG increases PHI (mostly before the pandemic); and personal resources increase through PG and PHI (LOCI more during the pandemic; OPT more before the pandemic). The study is cross-sectional, as it was not possible to compare the same workers over two years. The research offers ideas for activation of training programs, support and development of individual resources, and personal growth aimed at improving well-being and the work experience for workers.

Keywords: well-being; optimism; locus of control; personal growth; PHI; COVID-19; workers



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1. Introduction

The outbreak of the COVID-19 pandemic in Italy at the beginning of the year 2020 led to a severe and unexpected situation. As of the very difficult month of March, Italy counted 110.574 cases of individuals infected by COVID-19 since the beginning of the epidemic, and 13.155 deceased (11.9% of the infected). By the end of the first trimester of the pandemic, the numbers had grown conspicuously to 234.119 infected and 32.354 deceased (13.8% of the infected). On March 9, the first lockdown was proclaimed, which lasted until 7 May.

The unexpected critical medical situation of those who contracted the disease led to everyone's attention focusing on their physical health. This was demanded and crucial as long as the emergency was proceeding. However, individuals evidenced many psychological difficulties in facing the events. The pandemic was qualified as a traumatic experience (Lopez et al. 2020), even for those who did not contract the disease (Vazquez and Hervas 2010; Norris et al. 2002). In addition, people who were not experiencing hospitalizations or more serious matters still lived with the fear of being infected, fear of dying, constraints in their movements, social detachment, domestic isolation, loneliness, restrictions, impossibility to work, inactivity, and economic concern, among others, all of which conveyed a general state of anxiety and strongly affected their quality of life, their work activities, and, consequently, their general mental health status.

Studies regarding the early period of COVID-19 revealed significant levels of stress, especially in women, single people, people of younger age, people staying with more children, the less educated, and those from countries and areas with a more severe COVID-19 situation (Kowal et al. 2020). Moreover, anxiety, depression, and distress were proven to have increased in the early months of the pandemic (Aknin et al. 2021). Moreover, lower job security that led to lower well-being scores were reported by women, migrants, and people facing financial hardships (Pacheco et al. 2020). In addition, poor life satisfaction across all domains was also associated with perceived social isolation and work-related stress (Clair et al. 2021). Finally, psychological distress and post-traumatic stress disorder (PTSD) were proven to be predictable in people who perceived loneliness and anxiety due to the COVID-19 lockdown (Moccia et al. 2020; Valiente et al. 2021), and lower family and work satisfaction were also recorded (Mohring et al. 2020).

In addition to these general aspects, workers needed to face a completely new situation: many firms, public offices, and private offices were closed, and people had to work remotely. This meant a great organizational change for workers and a huge impact of working activities on the workers' personal and family lives. Consequences such as excessive workload, technostress, burnout, work–family conflict, and behavioral stress were acknowledged and recorded (Molino et al. 2020), with an important impact being observed on work satisfaction (Mohring et al. 2020).

Considering the factors mentioned above, as well as that, in the literature, a relation between job satisfaction and life satisfaction (Mishra et al. 2014; Yahyagil 2015), subjective well-being (Bowling et al. 2011), and work well-being (Fisher 2014) have been found, the general expectation is that workers would have a lower level of well-being in the 2020 period. Thus, following a previous analysis on workers' well-being in Italy, with data gathered in 2019 (Micheletto et al. 2020), the current paper had the purpose of investigating if any change in workers' well-being emerged before and during the COVID-19 pandemic.

Considering that well-being can be undermined by particular traumatic events, and also affected by the individuals' personal resources and traits, it was decided that we would focus on crucial factors such as Internal Locus of Control (LOCI)—a person's tendency to see events as being controlled internally (Rotter 1966)—and Optimism (OPT)—the generalized expectation that a person will obtain good outcomes in life (Scheier et al. 2001)—as these are usually held as protective measures with an impact on well-being and a negative correlation with psychological distress (Alat et al. 2021; Krampe et al. 2021).

Furthermore, the uncertainty about the working future, the adjustment to new roles and needs, the limitations in work relations due to remote working, and social distancing all led to an alteration of the natural evolution of working life. In such a situation of emergency, career advancements, salary raises, promotions, and new job opportunities may have been smaller parts of the picture (Yarberry and Sims 2021). On the contrary, themes such as salary cuts (Cribb et al. 2021), job and income insecurity (Workman 2021; Pacheco et al. 2020), and fewer career opportunities evidently characterized the generalized idea of COVID-19 as including career shock (Akkermans et al. 2020). Considering this, Personal Growth (PG), which is, on the one hand, the general perception of being in a situation of evolution and development as a person and as a worker, and, on the other hand, a core component of positive psychological functioning (Lopez et al. 2020), can help in monitoring how psychological functioning evolved between 2019 and 2020. We hypothesized that, during the aforementioned period, workers could have perceived themselves as developing at a slower rate, i.e., with a lower PG. However, considering that PG has a guiding role in Psychological Well-Being (PWB), it does affect well-being (Shojaee and French 2014).

In light of the fact that current studies regarding LOCI and OPT tend to affirm that people who possess them have had the ability to recover more easily from the COVID-19 period and the trauma caused by it (Krampe et al. 2021; Sun et al. 2020), as well as PG (Kim et al. 2021), it is important to verify whether COVID-19 had an impact on the resources of these individuals, and if they actually, in turn, impacted well-being and happiness. Our hypotheses are that well-being has been diminishing in this period, and that its actual

lowering may also be a consequence of the fact that, somehow, these resources lowered during the COVID-19 period.

1.1. Well-Being in Life and at Work

Well-being is generally considered a multidimensional construct formed of subjective, psychological, and social dimensions (Shojaee and French 2014; Boniwell 2015; Keyes 2005).

In the literature, the construct of subjective well-being originates from the Greek perspective of hedonia (Delle Fave et al. 2011), and is defined as an individual's cognitive evaluation of one's own satisfaction of life and an affective appraisal of the positive and negative emotions of one's life (Diener 1984; Diener and Lucas 1999). This conveys an idea of well-being that includes experiencing pleasant emotions, low levels of negative moods, and high life satisfaction (Oishi et al. 2009). Psychological well-being, originating from the Greek eudemonia, denotes the idea that well-being is a function of virtue and purpose in life (McMahon 2006; Kashdan et al. 2008), focusing on optimal psychological functioning (Ryff and Keyes 1995), which consists of purpose in life, autonomy, relatedness, personal growth, environmental mastery, and self-acceptance. Social well-being has more recently been included in this framework, following the idea that the social dimension is relevant in the conceptualization of well-being and mental health (Keyes 1998), and this is detached from the leading conceptions of adult functioning that portray well-being as a primarily private phenomenon. In actuality, all kinds of ties, from family to friends, colleagues, community, etc., seem to be independently and robustly related to happiness, well-being, and life satisfaction (Helliwell and Putnam 2004).

The idea of a multi-faceted model of well-being was met with agreement in many contexts of research (Zambianchi 2015; Boniwell 2015; Hervas and Vazquez 2013; Gallagher et al. 2009). Following this, Hervas and Vazquez (2013) created the Pemberton Happiness Index (PHI), intended to measure, in a very concise and efficient way, the complexity of the phenomenon. In fact, PHI is a suitable unidimensional multi-faceted assessment that includes two different timeframes and considers the three areas of well-being mentioned above, for the purpose of a general evaluation of well-being (Hervas and Vazquez 2013; Micheletto et al. 2020). The two timeframes are based on the fact that a strong relationship was found between the individuals' positive or negative current experiences and their state of mental health and well-being (Oishi 2002; Kahnemann and Riis 2005). Thus, in the PHI, experienced well-being refers to the momentary affective states and people's feelings in real time (Hervas and Vazquez 2013), while remembered well-being refers to a retrospective judgement of well-being based upon the individuals' memory and evaluation of their lives. This is formed of general well-being, which is a general evaluation of one's own satisfaction in life; hedonic well-being of the affective state; eudemonic well-being, including the six domains of life's meaning (including self-acceptance, personal growth, relatedness, perceived control, and autonomy); and social well-being.

Well-being is crucial in individuals' lives, and it evidences so many individual and secondary benefits in the areas of health, social relations, employment, education, and environment (Keyes 2002; Keyes 2007; Priller and Schupp 2011; Griep et al. 2014; Veenhoven 2008; Micheletto et al. 2020). Well-being is also important for workers; it is consistent with the reduction in accidents at work and absenteeism (Engel 1977; Lyubomirsky et al. 2005); social functioning is associated with longevity at work (Lyubomirsky et al. 2005); and cognitive well-being in teachers has positive correlations with their positive functioning and teaching efficacy (Arslan 2018). Individuals and groups with elevated well-being perform better in their jobs than those with lower well-being do (Warr and Nielsen 2018).

Considering that the pandemic was qualified as a traumatic experience, it is, therefore, crucial, on the one hand, to understand whether individuals and workers' well-being was affected by this outbreak and to identify the antecedents that mostly influence well-being in order to work on them. On the other hand, it is necessary to pursue and ensure positive health by looking beyond the absence of disorders and directly at people's well-being (Diaz et al. 2018).

1.2. Well-Being Antecedents

Investigation into what predicts well-being and happiness is an important step in order to delve deeply into the topic. In the past, researchers have investigated the impact of locus of control, optimism, and personal growth on well-being. In particular, locus of control and optimism are considered to be personal resources, and are described as positive aspects of the self, connected to resilience and relating to the ability of a person to control and manage the environment (Hobfoll et al. 2003). Such resources are described as having a positive impact on psychological and physical well-being, and, thus, as giving support to individuals in dealing with demanding situations, giving them energy, and protecting them from psychological discomfort (Xanthopoulou et al. 2013; Van Wingerden et al. 2017).

Locus of Control—Locus of Control (LOC) is defined as a person's tendency to see events as being controlled internally or externally (Rotter 1966), or as the «generalized expectancy that rewards, reinforcements or outcomes in life are controlled either by one's own actions (internality) or by other forces (externality)» (Spector 1988). In work settings, rewards are considered any kind of favorable circumstances, such as promotions, salary increases, and general career advancements, among others (Ng et al. 2006). LOCI and external Locus of Control (LOCE) are thought as one continuum, on which they are the two extremes, and can thus create different motivational behaviors (Shojaee and French 2014).

Having LOCI means having an internal attributional style. LOCI is the measure of what we perceive ourselves to control in our lives. It is considered a universal component and vital element of well-being, and it has positive relations with psychological well-being (Spector et al. 2002; Sharma and Juyal 2017). Indeed, it tends to decrease in a significant way in cases of high trauma, especially in relation to the time of exposure to stress (Roazzi et al. 2016).

LOCI seems to be a good predictor of well-being and mental health. In fact, higher external locus of control (LOCE) scores have correlations with health risks, while higher LOCI scores are positively related to higher mental health scores in university students (Karayurt and Dicle 2008). Furthermore, a higher LOCI in at-risk adolescent girls can lead to an enhanced emotional well-being (Armstrong and Boothroyd 2007). In parallel, LOCI is related to lower anxiety trait scores, and leads those who possess it to use a problem-focused coping strategy more often than people with high LOCE (Arslan et al. 2009). LOCI is also related to high levels of grade points and self-confidence in predicting ones' success for academic performance (Bozorgi 2009), as well as to stress management, which helps in obtaining achievements at work (Bernardi 1997). People with a higher internal locus of control develop better-quality relations with their managers, which, in turn, results in more favorable work-related reactions (Martin et al. 2005)

Regarding the relationship between LOCI, PWB, and PWB's dimensions, the literature confirms that individuals with higher LOCI generally report experiencing a higher level of psychological well-being than individuals with higher LOCE (Hough et al. 2021; Baluku et al. 2022). Furthermore, considering PG as a guiding dimension of PWB (Shojaee and French 2014), a significant positive association has already been found with LOCI. People with higher LOCI scores have a tendency to develop their personal abilities and to actualize their potentialities in a positive way (Shojaee and French 2014; Baluku et al. 2022; Robitschek 1998).

Therefore, the first hypothesis would be:

Hypothesis 1. *LOCI has a direct and positive association with PG (H1a) and PHI (H1b).*

Optimism—OPT is considered a stable personality characteristic (Ferguson and Goodwin 2010) and is a component of the Psychological Capital (Luthans et al. 2007). Scheier et al. (2001) defined OPT as the generalized expectation that a person will obtain good outcomes in life, and Chang (2001) referred to it as the tendency to believe that, in the future, positive results or success will occur.

As a general idea of a positive future, OPT is correlated with psychological well-being (Shaheen 2015; Parveen et al. 2016) and mental health (Avey et al. 2010).

An optimistic outlook towards life seems to have benefits to individuals' lives (Scheier et al. 2001). Optimistic older adults are likely to experience higher levels of well-being in terms of life satisfaction, happiness, physical health, and mental health (Ho et al. 2014). OPT was proven to be useful in facing diverse stressful situations (Scheier et al. 2001), and is a powerful predictor of well-being in older adults (Ferguson and Goodwin 2010). It is also positively related to happiness among students (Dar and Wani 2017). OPT and life satisfaction are positively related to all dimensions of psychological well-being as far as working and non-working women are concerned; it can thus be said that OPT plays an important role in women's psychological well-being, and that working women tend to be more optimistic and, consequently, in a better health condition than non-working women (Shaheen 2015).

On the side of well-being and personal development, some dispositional characteristics (such as optimism, locus of control, self-efficacy, etc.) can be considered personal resources which are also at work (Salanova et al. 2006), allowing people to deal with job demands, to develop skills, and to grow. Such evidence is particularly interesting in our study, since it allows us to hypothesize an association between these dimensions in the light of personal growth and subsequent well-being. OPT, indeed, has been proven to be correlated with LOCI, particularly in those studies detecting the optimal experience by workers (flow at work) in the light of positive psychology (Zito et al. 2015; Emanuel et al. 2016). This suggests that personal resources are key antecedents of optimal experience, the possibility to create new skills, and personal development. These results are in line with studies suggesting that OPT is positively correlated with PG (Augusto-Landa et al. 2011); indeed, optimists also tend to rely on personal growth as a coping tactic (Scheier and Carver 1992).

Therefore, the hypothesis would be:

Hypothesis 2. *OPT has a direct and positive association with PG (H2a) and PHI (H2b).*

Personal growth—PG is considered to be the extent to which an individual develops potential by growing and expanding as a person, and is considered, together with purpose in life, as a core component of positive psychological functioning (Lopez et al. 2020). It is explicitly concerned with the self-realization of the individual (Ryff and Singer 2008), and because of this, it plays an important role when dealing with workers.

According to the psychological wellbeing conceptualization (Ryff 2014), having higher scores of PG implies having a feeling of continued development, perceiving oneself as growing and expanding, making effective use of external opportunities, making continual improvements to one's self and behavior, and acknowledging and monitoring such improvements. On the other hand, low PG scores indicate a sense of personal stagnation, lacking a sense of improvement and expansion, and feeling unable to develop new attitudes and behaviors. Previous studies have documented that PG tends to decline with age (Heo et al. 2017).

On the other hand, happiness has been shown to have strong relations with PWB (Heizomi et al. 2015), and to be strictly linked to a general acknowledgement of one's satisfaction (Sood and Gupta 2014). Indeed, individual's changes and development, as well as the general idea of growth, both in life and at work, have an influence on the judgement of one's life satisfaction (Micheletto et al. 2020; Sood and Gupta 2014). This leads us to infer that there can be a relation between the perception of growth and the happiness of individuals.

Therefore, the hypothesis would be:

Hypothesis 3. *PG has a direct and positive association with PHI.*

Considering the previous suggestions regarding the relationship between the variables detected in this study, we assume that personal resources (OPT and LOCI) could be considered as more than antecedents of personal growth and well-being. According to positive psychology, which found that resources can be strong antecedents of optimal

experience (Emanuel et al. 2016), as well as that, together with the possibility to experiment optimal experience and to grow, the subject can enhance well-being and be protected from discomfort (Zito et al. 2019; Zito et al. 2016), we may assume that personal resources can activate a mutual positive relation. In this view, PG could be a mediator between OPT, LOCI, and PHI.

Therefore, the hypothesis would be:

Hypothesis 4. *PG has a mediator role between LOCI and PHI (H4a) and between OPT and PHI (H4b).*

1.3. Purpose of the Paper

This research considered two different groups of workers who answered to a questionnaire before the COVID-19 pandemic (G1) and after the COVID-19 pandemic (G2). This study provided a multi-group model to simultaneously detect the relations between locus of control and optimism (as antecedents), personal growth (as mediator), and PHI measure (as outcome).

On the basis of the literature, in order to deepen the assessment of these relations and to understand possible differences between groups, presented here is Figure 1, showing the theoretical model and the expected relationships through hypotheses.

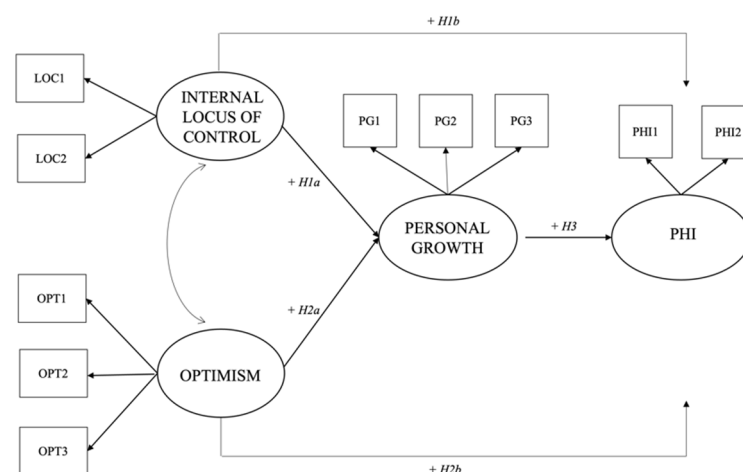


Figure 1. The hypothesized theoretical model.

Thus, our aim in this study is to understand whether Internal Locus of Control and Optimism, as personal resources, changed significantly before and during the pandemic, as well as whether their change affected well-being, as measured through the complete and short Pemberton Happiness Index, and through the mediating action of Personal Growth.

2. Material and Methods

2.1. Procedure and Data Collection

Prior to the administration of the Italian version of the questionnaire, it passed a translation–back-translation process (Jones et al. 2001), with the supervision of an English native speaker. Therefore, the original version of the questionnaire was translated from English to Italian, and then back-translated from Italian to English in order to control and verify items' conformity, resulting in satisfactory items' correspondence.

Data were collected at the same time of year (April to June) in two different years, 2019 and 2020. Data were collected from participants who were invited to an online questionnaire and placed on a platform implemented by the researchers. They were directly invited via mail or social networks to access the link provided and fill in the online questionnaire. The composition of the sample was heterogenous in terms of age, sex, socio-economic status, geographical Italian area, and education level.

Before starting the questionnaire, participants received instructions to complete it, as well as information on the voluntary nature of the participation in the study and the anonymity of their data. They were also informed of the non-commercial use of the data. There was no medical treatment or other procedures that could cause psychological or social discomfort to participants; therefore, no additional ethical approval was necessary.

2.2. Participants

The study included participants who filled in the questionnaire before the COVID-19 pandemic (G1; $N = 410$) and during the COVID-19 pandemic government restrictions (G2; $N = 256$). Participants stated that they were workers and healthy individuals.

The G1 sample was 68.3% female, with an average age of 42.49 years ($SD = 13.77$), which was previously cleaned (missing values and inconsistencies) from a sample of 447. The cleaned sample mainly consisted of participants with medium-high education levels (51.4% with a university degree; 43.4% with a high school diploma); 61.2% were married or cohabiting, and 54.9% had children. Moreover, the geographical origin of respondents was mainly from northeastern Italy (51%), followed by northwestern (28.5%), southern Italy (15.4%), and central Italy (5.1%). Respondents were mainly professionally occupied (70.9%); 48.1% were employees, and 60.2% had a full-time contract. Their professional sectors were mainly industry (18.4%); trade (12.7%), business consultancy (9.5%), education and research (10.5%), private services (14.9%), public services (11%), health (6.3%), and other (16.7%—sports, arts, etc.).

The G2 sample was 62.60% female, with an average age of 40.06 years ($SD = 16.41$), mainly with medium-high education levels (55.2% with a university degree; 26.6% with a high school diploma); 50.4% were married or cohabiting, and 48% had children. As for this sample, the geographical origin of respondents was mainly from northeastern Italy (47.3%), followed by northwestern (39.5%), southern Italy (7%), and central Italy (6.3%). Respondents were mainly professionally occupied (64.8%); 44.8% were they are employees, and 73% had a full-time contract (73%). The professional sectors of respondents consisted of those in industry (10%); business consultancy (20.1%), private services (10%), public services (5.6%), trade (8.8%), health (5.2%), education and research (17.6%), and other (14.1%—sports, arts, etc.).

2.3. Measures

The study detected four main measures:

Internal locus of control was measured using a selection of items from the LOC scale by [Rotter \(1966\)](#). The scale was composed of 5 items on a 6-point Likert scale, from 1 (completely disagree) to 6 (completely agree). An example is the item “What happens to me is my own doing”. This measure obtained a satisfactory reliability with a Cronbach’s Alpha coefficient (α) of 0.80 ($\alpha_{G1} = 0.79$; $\alpha_{G2} = 0.82$).

Optimism was measured through a selection of items from the Life Orientation test by [Scheier and Carver \(1985\)](#). The 3 items were on a 6-point Likert scale, from 1 (completely disagree) to 6 (completely agree). An example is the item “In uncertain times I usually expect the best”. This measure obtained a satisfactory reliability, with $\alpha = 0.79$ ($\alpha_{G1} = 0.76$; $\alpha_{G2} = 0.82$).

Personal growth was measured using the Italian adaptation of the Ryff’s Psychological Well-Being Scale by [Sirigatti et al. 2009](#). The items selected were the 3 measuring the dimension of Personal Growth, on a 6-point Likert scale from 1 (completely disagree) to 6 (completely agree). An example is the item is “For me, life has been a continuous process of learning, changing and growth”. This measure obtained a satisfactory reliability, with $\alpha = 0.71$ ($\alpha_{G1} = 0.72$; $\alpha_{G2} = 0.70$).

PHI: Pemberton Happiness Index (PHI)—Pemberton Happiness Index is the unidimensional multi-faceted assessment developed by [Hervas and Vazquez \(2013\)](#), which was recently adapted in the Italian language ([Micheletto et al. 2020](#)). It consists of 21 items, of which 11 items are related to remembered well-being, on a 10-point Likert scale from 1

(fully disagree) to 10 (fully agree), and ten items detecting the Experienced well-being (five items for positive experiences and five items for negative experiences). The composition is as follows:

1. Remembered well-being, the retrospective evaluation of well-being can cover 4 types of well-being:
 - a. General well-being (GWB): 2 items that investigate the general level of satisfaction and vitality of the interviewed; an example is “I am very satisfied with my life”;
 - b. Hedonic well-being (HWB): 2 items measuring the affective state of the interviewed by investigating positive and negative affects; an example is “I enjoy a lot of little things every day”;
 - c. Eudemonic well-being (EWB): 6 items investigating life meaning, self-acceptance, personal growth, relatedness, perceived control, and autonomy; an example is “I think my life is useful and worthwhile”;
 - d. Social well-being (SOCWB): 1 item measuring individuals’ trust in society as a place in which they can express themselves and develop their potential (Keyes 1998; Hervas and Vazquez 2013); the example is “I think that I live in a society that lets me fully realize my potential”.
2. Experienced well-being: 10 items investigating positive (POS) and negative (NEG) experiences that occurred in the 24 h preceding the compilation of the questionnaire; an example of POS is “Something I did made me proud”, and an example of NEG is “At times I felt overwhelmed”. In line with the original scale (Hervas and Vazquez 2013), the ten items of experienced well-being were operationalized as dichotomous response options (yes/no), and then converted into one single score by adding up the number of affirmative answers to POS and the number of negative answers to NEG.

As per the original study (Hervas and Vazquez 2013), PHI is the result of the division by 12 of the sum of the 11 scores of each item added to the single score of experienced well-being. It is a score that ranges from 0 to 10. This measure obtained a satisfactory reliability, with $\alpha = 0.88$ ($\alpha_{G1} = 0.87$; $\alpha_{G2} = 0.88$).

2.4. Data Analyses

Descriptive statistics, correlations (Pearson’s r), and alpha reliabilities (α) for each scale were performed for each group considered in the study using SPSS 27. A multi-group structural equations model (SEM) was estimated with MPLUS 8, to test the relationship between the variables and the mediator role of personal growth simultaneously in both groups. It must be specified that hypotheses were defined a priori, and a partial mediation model was performed (James et al. 2006). The goodness of fit of the model was evaluated by the chi-square value (χ^2), the Comparative Fit Index (CFI), the Tucker Lewis Index (TLI), the Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR).

Considering the high number of items, the latent variables of locus of control and of PHI were created with the parceling method, and were composed of two parcels (indicators composed by two or more items on average). The parceling method can reduce type I errors in item correlations, and can reduce the likelihood of a priori model misspecification (Little et al. 2002; Yang et al. 2010). All parcels showed significant loadings ($p < 0.001$) in the present SEM.

Moreover, in order to exclude the possibility that the differences between the two subsamples were due more to errors in the measurement models, we performed additional analyses, checking with the “weak metric invariance” method (Meredith 1993; Widaman and Reise 1997; Vandenberg and Lance 2000). We, therefore forced the model so that the factorial saturations in the two subsamples were equal, and then compared the fit of this model with the original model. The original model and the model with equal factorial

weights in the two subsamples did not differ in fit (Chi-square difference: 4.24; $p = 0.6433$), confirming that the differences were not due to errors in the measurement of the variables.

Finally, in order to assess possible effects of common method bias, the Harman's single-factor test has been performed (Posdakoff et al. 2003) through a confirmatory factor analysis. Results obtained with MPLUS 8 showed the following fit indices: $\chi^2(35) = 725.464$, $p < 0.00$, CFI = 0.70, TLI = 0.62, RMSEA = 0.17, SRMR = 0.11. This additional model shows indices that do not allow for the identification of the model, thus indicating that the one single factor does not account for the variance in the data, and suggesting that the common method is unlikely.

3. Results

From a psychometric perspective, all of the assessed variables showed a satisfactory Cronbach's alpha, which ranged between 0.71 and 0.88, meeting the criterion of 0.70 (Nunnally and Bernstein 1994).

3.1. Descriptive Statistics and Correlations

Other analyses, such as correlations and descriptive statistics, are shown in Table 1 (G1) and in Table 2 (G2). As for descriptive statistics, both the G1 sample and G2 sample show variable levels over the central point of the scale. In more depth, the groups show high levels of PHI and personal growth, particularly in the G1 sample. As for correlations, the two groups show similar tendencies in correlation values. In particular, the correlation between PHI and personal growth ($r_{G1} = 0.43$; $r_{G2} = 0.42$) shows similar trends between the two groups, whereas higher values in the G2 sample are shown for the correlation between personal growth and internal locus ($r_{G1} = 0.40$; $r_{G2} = 0.53$) and between personal growth and optimism ($r_{G1} = 0.28$; $r_{G2} = 0.38$).

Table 1. Means, standard deviations, and correlations (Pearson's r) of G1 (2019).

	M	SD	1	2	3	4
1. PHI	7.55 (1–10)	0.11	(0.87)			
2. PERSONAL GROWTH	5.05 (1–6)	0.79	0.43 **	(0.72)		
3. INTERNAL LOCUS	4.85 (1–6)	0.76	0.30 **	0.40 **	(0.79)	
4. OPTIMISM	3.95 (1–6)	1.05	0.54 **	0.28 **	0.25 **	(0.76)

Note. ** $p < 0.01$ level. Cronbach's alphas are on the diagonal (between brackets).

Table 2. Means, standard deviations, and correlations (Pearson's r) of G2 (2020).

	M	SD	1	2	3	4
1. PHI	7.24 (1–10)	0.12	(0.88)			
2. PERSONAL GROWTH	4.97 (1–6)	0.78	0.42 **	(0.70)		
3. INTERNAL LOCUS	4.94 (1–6)	0.77	0.41 **	0.53 **	(0.82)	
4. OPTIMISM	3.96 (1–6)	1.19	0.63 **	0.38 **	0.35 **	(0.82)

Note. ** $p < 0.01$ level. Cronbach's alphas are on the diagonal (between brackets).

An analysis of variance between the two groups showed that the G1 sample perceived higher levels of PHI than the G2 sample: $t(3.295) = 664$ $p < 0.01$.

3.2. The Multi-Group Model

The estimated multi-group SEM (Figure 2) showed satisfactory fit indices, which confirmed the goodness of the model's fit: $\chi^2(64) = 100.027$ (contribution $\chi^2_{G1} = 39.932$; $\chi^2_{G2} = 60.095$), $p < 0.05$, CFI = 0.98, TLI = 0.98, RMSEA = 0.04; C.I. 95% (03; 05); SRMR = 0.04. Moreover, the multi-group SEM showed significant and good item loadings ($p < 0.001$)

in each group, suggesting a good structure of the created latent variables. In this model, internal locus of control showed a direct and positive association with personal growth ($\beta_{G1} = 0.49$; $\beta_{G2} = 0.68$), and an insignificant association with PHI in each group, which confirmed H1a, but not H1b. Moreover, optimism showed a weaker, but positive and significant, association with personal growth ($\beta_{G1} = 0.22$; $\beta_{G2} = 0.19$) and a stronger positive association with PHI ($\beta_{G1} = 0.53$; $\beta_{G2} = 0.61$), confirming both H2a and H2b. As for H3, this hypothesis is confirmed, as personal growth showed a positive and significant association with PHI, with a stronger value in G1 ($\beta_{G1} = 0.42$; $\beta_{G2} = 0.16$).

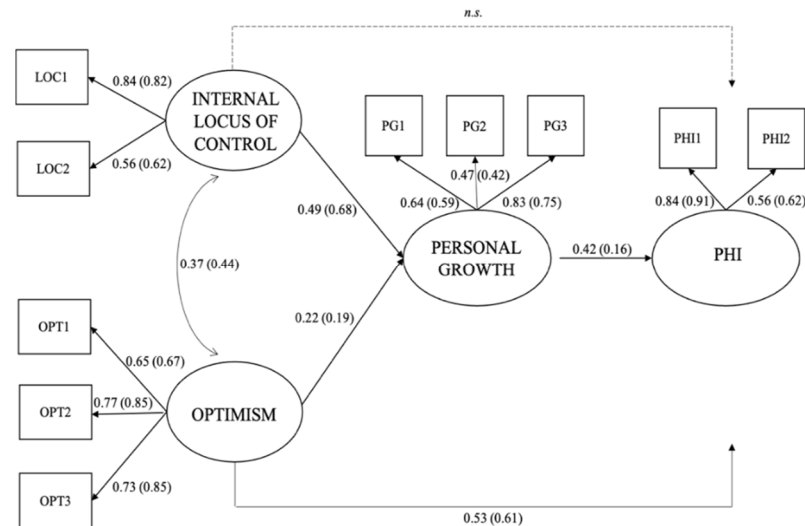


Figure 2. Results of the multi-group structural equations model. *Note.* Group 1 = 2019—outside brackets; Group 2 = (2020)—between brackets.

Moreover, the model detected the mediating role of personal growth between locus of control and PHI, and that between optimism and PHI. As shown in Table 3, a significant mediation in each group was found, with higher values for the G1 sample (locus of control \rightarrow personal growth \rightarrow PHI = $\beta_{G1} = 0.21$; $\beta_{G2} = 0.11$; optimism \rightarrow personal growth \rightarrow PHI = $\beta_{G1} = 0.10$; $\beta_{G2} = 0.05$), thus confirming H4a and H4b.

Table 3. Indirect effects of the estimated multi-group SEM.

Indirect Effects	Standardized Indirect Effects		
	Est.	s.e.	p
locus of control \rightarrow personal growth \rightarrow PHI	0.21 (0.11)	0.04 (0.03)	0.00 (0.02)
optimism \rightarrow personal growth \rightarrow PHI	0.10 (0.05)	0.03 (0.04)	0.00 (0.05)

Note. Group 1 = 2019—outside brackets; Group 2 = (2020)—between brackets.

4. Discussion and Conclusions

Well-being is an important phenomenon impacting workers’ performance. Considering that the pandemic—together with the following lockdown—has generally been acknowledged as traumatic for many workers (Akkermans et al. 2020), it is important to monitor well-being and its antecedents in order to understand how workers’ performance was affected.

Therefore, our aim in this study was to understand whether, during the COVID-19 lockdown, a variation in well-being could be noticed with respect to the same period in the previous year. Furthermore, our purpose was to understand whether personal resources such as LOCI and OPT, which tend to have a protective role against stress and traumatic

situations (Besser and Zeigler-Hill 2014; Khan et al. 2012), significantly impacted their well-being as measured as PHI. We intended to determine whether any difference was found in 2020 with respect to 2019, and whether this possible change had a direct or indirect impact, through PG, on well-being.

Our first results, from the descriptive statistics, evinced that in the 2020 sample, the values of PHI and PG were lower with respect to the 2019 sample. This is in line with our general expectations and with the literature in the field considering the pandemic period (Kowal et al. 2020; Clair et al. 2021). We could suppose that the COVID-19 situation, as a traumatic situation, impacted the individuals' general state together with their perception their development, both personally and in their career (Akkermans et al. 2020). The data on lower PG values are in line with the period of social distancing and the reduced possibility of relations and interactions which was imposed by the closure of workplaces during lockdown. Together with the data on lower well-being, these results are in line with studies indicating that, during the lockdown and social distancing period, depleted well-being, social interconnection, and decreased growth in the workplace had emerged (Zito et al. 2021).

Considering correlations between variables, they were all calculated as significant, indicating a strong positive relation. Furthermore, the correlations are, interestingly, stronger in 2020 than in 2019. Personal resources such as LOCI and OPT seem to have had a greater impact on the development of well-being in 2020, which is in line with studies suggesting that these resources have a positive impact on psychological and physical well-being, providing individuals with support, energy, and protection from psychological discomfort (Xanthopoulou et al. 2013; Van Wingerden et al. 2017). A greater perception of stagnation due to the lockdown and isolation, both in the professional and personal fields, could have led to a greater request to oneself to act and to engage in overcoming the difficulties of the period, as well as to a general tendency to rely more on personal resources in order to face it. Theories concerning post-traumatic growth mention that adverse events can play an important role in the process of growth, particularly through the provision of new schemas related to growth (Tedeschi and Calhoun 2004; Kim et al. 2021), and this could explain the stronger engagement and correlations between LOCI, OPT, and PG in 2020. In the estimated multi-group structural equations model, some differences between groups emerged.

As H1a hypothesized, LOCI had a strong direct impact on PG in both years (even stronger in 2020), which is in line with the previous literature considering a positive relation between PG and LOCI (Pufal-Struzik 1998). This revealed that people with high LOCI tend to develop their personal abilities and actualize their potentialities in positive ways (Shojaee and French 2014; Robitschek 1998), suggesting that internal attribution to what occurs in life may possibly lead individuals to act in order to self-develop, to construct one's own future, and to experience life as a training setting for improving and maturing. This association was especially true for the 2020 group, demonstrating that LOCI played a crucial role of in the formation of PG during the pandemic. In fact, it is possible to believe that people living through the hardest period of the COVID-19 pandemic, with the unexpected lockdown and its difficulties, who were possibly in a situation of physical and psychological detachment and loneliness, had to count on themselves and rely more strongly on personal resources such as LOCI to react to the external events and feel as if they were in a situation of development. This is also in line with results during the lockdown period, suggesting that, despite problems and emotional concerns, LOCI helps in overcoming such feelings, allowing people to be more efficient, grow, and achieve well-being (Alat et al. 2021). This would also explain the different direct effects of LOCI in 2019 and 2020.

The positive correlations between LOCI and well-being which are sustained by the literature notwithstanding (Sharma and Juyal 2017), the association between LOCI and PHI, suggested in the model by H1b, was not significant in either year, implying that the internal attributional style is not, in itself, directly related to well-being. However, it can be hypothesized that PG could have an important role as a mediator in the model, absorbing

LOCI association and having an indirect impact on well-being. This aspect will be verified in H4a.

Hypotheses H2a and H2b considered the association between OPT and PG, and OPT and PHI, respectively. OPT showed association with PG in both years, though its values were lower with respect to LOCI, implying a more impactful role of internal attributional style on individual self-development, and a less impactful role of a positive disposition towards the events, especially during the 2020 period. On the other side, looking to the future with confidence also had a strong direct impact on the formation of well-being in both years, showing higher scores in 2020 than in 2019. Being optimistic and seeing the future in a positive way can induce a person to look at their personal situation in a positive way, and to feel that they are in better condition, which is in line with the literature in this field (Augusto-Landa et al. 2011; Shaheen 2015). However, the association values in the model between OPT and PG between the two years should also be considered. The difference, indeed, is not high, and values are quite similar in 2019 and 2020. This is consistent with the correlation values, but, more importantly, it is consistent with the literature. OPT, indeed, belongs to the Psychological Capital (Luthans and Youssef 2004) related to dispositional levels (Nolzen 2018). This means that optimism could, of course, show lower levels during the pandemic period, but its level would have fewer possibilities to change in a such short period. This would explain not only the similarity of levels in comparable samples, but also the similarity of the association levels between OPT and PG in 2019 and 2020.

As H3 hypothesized, PG was shown to have a role in the formation of well-being measured through PHI. This is in line with the existing literature in the field, both because personal growth is a key factor and a core dimension of optimal functioning and well-being (Lopez et al. 2020; Ryff 2014; Ryff and Singer 2008), and because an individual with feelings of continued development, expansion, and growth tends to feel protected from stress and discomfort (Zito et al. 2016) and to feel a deeper sense of well-being (Kim et al. 2021). Considering that PG is intended as a general tendency to realize one's potential, to be open to new experiences, and to continually develop oneself as a person (Waterman 2008) and as a worker, it also affects the individual's overall appraisal of the quality of his or her life (Gilman and Huebner 2003), which is measured through Life Satisfaction (Straume and Vittersø 2015).

Finally, Hypothesis 4 indicated that PG has a mediating role between LOCI and PHI (H4a) and between OPT and PHI (H4b). As evidenced by their associations, a relationship between both the personal resources and PHI is present through the fundamental mediation of PG. Thus, personal resources are crucial in facing stressful situations such as the pandemic, but its relationship with well-being is possible thanks to the mediation of PG.

The model works, and LOCI impacts PHI through the impact of PG, while OPT has a weaker mediation with respect to LOCI; this conveys the idea of a crucial role of LOCI in the model. Furthermore, considering the different years, we can see that the strength of the indirect association weakened in 2020, particularly in the indirect association of OPT and PHI with PG. This, consistent with the direct associations between OPT and PG and between PHI and PG, while the association between LOCI and PG grew. These changes confirm the crucial role of LOCI and the crucial relation between LOCI and PG in the model, which was even stronger during the pandemic.

Personal resources are of great importance in workers' well-being, and, consequently, in workers' performance as well as for all the activities. In line with the conclusions by Yarberry and Sims (2021), the COVID-19 period has completely changed the landscape of the work setting and the working relationship, both horizontally and vertically. Virtual mentoring for the workers is something which is needed and necessary, so as not to increase the negative perceptions around trauma, which can impact not only the individuals' lives and habits, but also possibilities of career advancement and personal growth, and, through this, their well-being. Considering the centrality of the two variables of internal locus of control and personal growth for workers, even in emergency situations, organizations should make efforts

to enhance and foster them. As far as locus is concerned, and considering the fact that Rotter himself underlined that changes, especially in locus of control orientation, can exist (1966), organizations should develop a greater sense of autonomy and less dependence on external agents in workers, so as to improve their internal attributional style (Kormanik and Rocco 2009). As far as personal growth is concerned, it can be enhanced through courses, projects, and parallel activities in order to keep the workers positive and to avoid giving them the opportunity not to develop or evolve as professionals. Training should not only consider professional and technical issues, but should consider the possibility of enhancing the individual personal resources that, in this study, play an important role in growth and well-being. As they are aspects of the self that are linked to resilience (Hobfoll et al. 2003), they can support the individuals in a crisis period and allow them to cope during that period, thus ensuring growth, performance (Haroon and Malik 2018), and well-being (Zito et al. 2021). The importance of supporting an individual's self-confidence and self-esteem, as well as taking responsibility for one's own behavior, should also be emphasized (Arslan 2018). This would be beneficial, both for the individual and his/her well-being, and for the organizations on the productivity side. As suggested by the cited studies on the positive effect of personal resources, they can activate a positive virtuous circle that, in the light of this study, can be translated in growth and well-being, both from the individual side and the organizational side. According to the Conservation of Resources (COR) Theory (Hobfoll 2002), indeed, individuals usually protect and maintain resources, which generate other resources, and this results in positive organizational outcomes and well-being. In this sense, as Prati and Pietrantonio (2009) suggest, interventions aimed at increasing optimism may promote positive changes in the aftermath of trauma, as it is possible to take advantage of this positive cycle in order to obtain positive experiences among employees. This view is particularly relevant considering the crisis period, since workers experiencing high levels of discomfort at work may have difficulty in the recognition and use of resources. Therefore, maintaining well-being at work is important for the recognition and activation of resources. This would address another possible implication of the research, which is related to the necessity to create protocols to accompany employees during the traumatic periods, thus supporting them, protecting them, and producing a risk mitigation effect (Gorbena et al. 2021).

Though lockdown periods such as the one in 2020 are rare in history, having a clear idea of what happened in that very period, verifying the gap and the changes between a 'normal' situation and a traumatic one, and comprehending how the first period of COVID-19 impacted people's lives, so as to understand the following phenomena, are crucial aspects that allow organizations and individuals to overcome difficulties and remain healthy and well.

Limitations

There are some limitations to be acknowledged in this study. First of all, in this study, a cross-sectional design was used, which did not allow us to define causal relationships between variables.

Another limitation of this study is the non-probability sampling in the two groups, which future research should try to overcome; indeed, the groups compiling the questionnaire were not the same in the two years, meaning that the research was not longitudinal, although those results would have been rather interesting. Future studies should use longitudinal methodology to assess the same subjects across different time periods. However, the two samples showed similar levels in demographic composition, which allowed them to be compared in this study. However, the singularity and the extraordinary nature of the COVID-19 pandemic must be considered, as it could not have been foreseen. The study, therefore, stands as an important information point for comparing events experienced before and during the period of the pandemic, thus addressing important points for thought for the investment, the management, and the prevention of malaise during a period of crisis.

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