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Self-compassion, intolerance of uncertainty, fear of COVID-19, and well-being: A serial mediation investigation

M. Engin Deniz*

Department of Psychological Counselling, Yildiz Technical University, Turkey

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ABSTRACT

The present study examined the mediating role of intolerance of uncertainty and fear of COVID-19 in the relationship between self-compassion and well-being. The participants were comprised of 667 Turkish individuals (465 females and 202 males; aged between 18 and 73 years) from 75 of 81 cities in Turkey. The model was investigated using bootstrapping. The results showed that self-compassion, intolerance of uncertainty, fear of COVID-19, and well-being are significantly interrelated. Moreover, a serial mediation was found among the variables: individuals with a growth self-compassion to report lower intolerance of uncertainty, which further decreased perceived fear of COVID-19, and subsequently weakened well-being. Results are discussed in the context of COVID-19 and the well-being literature, and theoretical and practical implications were also provided.

1. Introduction

One of the biggest issues that people of our day and age have faced, is Coronavirus (COVID-19), that the first case first seen in China, and spread to the whole world. According to The World Health Organization (2020), since the outbreak, over 73 million have been infected and more than 1.65 million have died as a result. Since the first day that signs were evident of the virus in Turkey; 11th March 2020, swift measures have been taken in order to control the spread of the virus. Converting the education system to remote learning, remain at home campaigns, lockdowns and quarantines, are just some of the measures put in place to tackle COVID-19 in Turkey. Despite this, there have been 1.95 million infected and 17 thousand fatalities (Ministry of Health, 2020). During this period, nearly all sectors from tourism to economy have been affected as a result.

A topic of significant relevance to COVID-19, is the prevention of its psychological effects on society and the individual. In actual fact, studies carried out in China where the virus first broke out, put forward that COVID-19 could possibly trigger various psychological problems such as panic disorders, anxiety and depression and thereby be a serious threat to peoples' physical health and lives (Qiu et al., 2020). A nationally representative sample study carried out in the USA, indicated that fear of COVID-19 correlates with negative mental health (Fitzpatrick et al., 2020). Furthermore, another study also conducted in Turkey, such as this current study was, determined that fear of COVID-19 could similarly

increase levels of depression, anxiety and stress (Satici, Gocet-Tekin, Deniz, & Satici, 2020). This has accordingly sparked an interest as to how people may cope with their fear of the virus and improve their well-being, thereby increasing the importance of self-regulation and coping mechanisms. Individuals with a high level of self-compassion accept themselves as they are, they take care of themselves; thus, self-compassion takes on a protective role in the face of hardships and stressful situations (Allen et al., 2012). It is therefore able to prevent an individual from being caught up in negative emotions such as fear and anxiety. Self-compassion increases resilience (e.g., Gilbert, 2009), and resilience decreases the fear of COVID-19 (Satici, Kayis, Satici, Griffiths, & Can, 2020). The findings of Nguyen and Le (2021) clearly support the conclusion that self-compassion decreases the stress of COVID-19. Self-compassion has a tendency to promote re-evaluation from a positive perspective and address issues proactively. Thus it tends to decrease avoidant behaviour. Self-compassion is said to promote positive emotional regulation (e.g., clarification of emotions, impulse control and acceptance of emotional reaction) and that this provides mental health benefits (Finlay-Jones et al., 2015; Inwood & Ferrari, 2018). It is thought that in this respect, it will contribute to overcoming the fear of COVID-19. Moreover, empirically, it is known that self-compassion has correlations with low levels of depression, anxiety and a high level of satisfaction with one's life, and well-being (Allen & Leary, 2014; Barnard & Curry, 2011). Furthermore, during COVID-19, strong links with satisfaction of life and self-compassion were made (Li et al., 2020).

* Faculty of Education, Department of Psychological Counselling, Yildiz Technical University, İstanbul, Turkey.

E-mail address: edeniz@yildiz.edu.tr.

Hence the possibility of the fear of COVID-19 being a mediator in the relation between self-compassion and well-being springs to mind.

Due to the lack of knowledge as to how exactly one may be infected by COVID-19 and the speed at which it is spreading, people are experiencing fear and panic in a variety of issues. These fears range from being infected, dying from the virus, infecting others, losing one's near and dear from the virus, to not being able to receive adequate and appropriate medical care, and loss of employment (Montemurro, 2020; Saricali, Satici, Satici, Gocet-Tekin, & Griffiths, 2020; Satici, Kayis et al., 2020). The element of the unknown can therefore trigger a fear of COVID-19. We should not however, overlook the fundamental conflict between certainty and uncertainty which is an integral part of being human. Gigerenzer and Garcia-Retamero (2017) claim this is due to the majority of people being regretful of knowing the future, as in they do not want to know its negativities and uncertainties. Actually, they do not want to feel future threats. Alternately, they do desire however, to have complete and clear understanding of the danger they are being presented with at the time. Intolerance of uncertainty is defined as situations with strong perceptions of the unknown, underlined with emotional difficulties causing anxiety and a tendency towards fear (Fergus, 2013). Intolerance of uncertainty, encompasses negative reaction in the event of uncertainty, except wherein there is a rational possibility of a phenomena occurring (Hong & Lee, 2015). From this perspective it is accepted that intolerance of uncertainty is the underlying component of anxiety disorders (Morris et al., 2016). Moreover, intolerance of uncertainty has been noted to heighten anxiety (Rettie & Daniels, 2020). Satici, Saricali, et al. (2020c) have also identified intolerance of uncertainty as a strong factor in increasing the fear of COVID-19. Henceforth, reducing fear of COVID-19 and increasing well-being have taken on an important role.

1.1. The present study

Self-compassion has a tendency to reduce avoidant behaviour whilst reinforcing positive re-evaluation and proactive coping behaviour. From this perspective, it can be viewed to have a reductive effect on intolerance of uncertainty. Indeed, situations may be perceived from a healthier stance, by easing proactivity and evaluating the situation with moderation whilst distancing one's self from cruel pursuits and resisting the toxic effects of guilt and shame (Neely et al., 2009; Terry & Leary, 2011). In a study which tested the relationship between self-compassion and intolerance of uncertainty with a structural model, the two variables were found to have a negative correlation and self-compassion was determined as being a direct negative predictor of intolerance of uncertainty (Tang, 2019) Alongside this, mindfulness therapy, which inherently incorporates self-compassion was found to have a significant effect on intolerance of uncertainty (Asli Azad et al., 2019). In contrast, as intolerance of uncertainty is stressful and upsetting (Buhr & Dugas, 2002) and likely to be triggered by emotions perceived from loss of control (Satici, Saricali, et al., 2020c), it can be foreseen to possibly increase the fear of COVID-19. All these can predict the well-being of individuals. All the aforementioned theoretical information and research results upon evaluation, have been submitted as a cross sectional model, whereby self-compassion has the possible effect of reducing intolerance of uncertainty, weakening COVID-19 fear and thus creating overall well-being and happiness.

2. Method

2.1. Participant and procedure

The study was comprised of 667 people of Turkish origin, 465 (69.7%) of them being male and 202 (30.3%) of them being female. Their ages ranged between 18 and 73 ($M = 31.22$, $ss = 10.33$). Half of the participants were civil servants ($n = 322$, 48.3%), 139 (20.8%) were students, 85 (12.7%) worked in the private sector and 121 (18.1%) were

unemployed. A large majority of the participants ($n = 523$, 78.4%) knew someone who had contracted the virus. Additionally, 214 (32.1%) of the participants knew someone who had passed away as a result of COVID-19. Finally, 514 (77.1%) of the participants reported that they had completely adhered to the rules of hygiene, masks and social distancing, whilst 152 of them declared that they had only partially adhered to the said rules. Data was obtained online from 75 out of the 81 provinces in Turkey. The convenience sampling method wherein all scales relating to fear of COVID-19, self-understanding, uncertainty of intolerance and well-being were used in the study, were transferred to web based Google forms. This form initially obtained informed consent. Only data from persons willing was collected, participants were free to retract their consent it at any time using the forms.

2.2. Measures

2.2.1. Happiness

In order to measure the happiness of participants, the Subjective Happiness Scale (Lyubomirsky & Lepper, 1999) was used. It consists of 4 items and a 7 point Likert scale. The total points vary between 4 and 28 and the increase in points indicates a stronger sense of well-being. The Turkish adaptation of the SHS was carried out by Akin and Satici (2011). Researchers have reported that the Turkish version is both acceptable and reliable. In this study, the SHS's reliability has been found as 0.73.

2.2.2. Fear of COVID-19

The participant's fear of COVID-19 was measured using the Fear of COVID-19 Scale (FCVS19; Ahorsu et al., 2020). The FCVS19 has 7 items and a 5 point Likert scale. The total points vary between 7 and 35 and an increase indicates a stronger fear of COVID-19. The Turkish adaptation of the FCVS19 was carried out by Satici, Gocet-Tekin et al. (2020). Researchers have reported that the Turkish version is both acceptable and reliable. In this study, the FCVS19's reliability has been found as 0.85.

2.2.3. Self-compassion

To measure the self-compassion of the participants the Self-Compassion Scale (SCS; Neff, 2003a, 2003b) was used. The SCS has 26 items and a 5 point Likert scale. The total points vary between 26 and 130, and an increase in points indicates an increase in intolerance of uncertainty. The Turkish adaptation of the SCS was carried out by Deniz et al. (2008). Researchers have reported that the Turkish version is both acceptable and reliable. In this study, the SCS's reliability has been found as 0.87.

2.2.4. Intolerance of uncertainty

In order to measure the intolerance of uncertainty of the participants, the Short Version of the Intolerance of Uncertainty Scale (IUS; Carleton et al., 2007) was used. The IUS has 12 items and a 5 point Likert scale. The total points vary between 12 and 60, and an increase in points indicates an increase in intolerance of uncertainty. Sarıçam et al. (2014) were responsible for the Turkish adaptation of the IUS. Researchers have reported that the Turkish version is both acceptable and reliable. In this study, the IUS's reliability has been found as 0.93.

2.3. Data analysis

The PROCESS macro for the SPSS (Model 6, Hayes, 2018) was used to analyse the model used to test sequential mediatorship of intolerance of uncertainty and fear of COVID-19, in the relationship between self-compassion and well-being. In the analyses, age was checked as covariates, whilst 5000 bootstrap samples were used with confidence intervals of 95%. As long as the confidence intervals do not comprise of zero, then they may be stated to be of statistical value (Hayes, 2018).

3. Results

3.1. Preliminary analyses

Primarily, the study analysed the relationships between descriptive statistics. The results are presented in Table 1. Well-being and self-compassion have a positive correlation ($r = 0.59$, 95%CI = 0.53–0.63). On the other hand, well-being's relation to intolerance of uncertainty ($r = -0.43$, 95%CI = -0.49 – -0.36) and fear of Covid-19 ($r = -0.31$, 95%CI = -0.37 – -0.24) is a negative one. The relation between the fear of COVID-19 and self-compassion however is negative in nature ($r = -0.37$, 95%CI = -0.43 – -0.30), whilst with intolerance of uncertainty, it is positive ($r = 0.40$, 95%CI = 0.33–0.46).

Under this heading, assumptions were also checked. The results showed that the skewness of the variables varied between -30 and 0.17, and their kurtosis between -41 and -21, which evidenced the normality criteria. The Durbin Watson value was 1.96, with variance inflation factor values between 1.22 and 1.61 and the tolerance value between 0.62 and 0.82. When these results took into consideration Field's (2016) recommendation, it was established that multicollinearity and residual problems were not present. Thus, it can be submitted that all assumptions were validated.

3.2. Serial multiple mediational analyses

The results reached with concern to serial multiple mediational analyses were presented in Fig. 1. To begin with it is evident that self-compassion directly predicted well-being (total effect; $B = 0.146$, 95% CI = 0.131–0.161). Interestingly, when mediational variables are introduced, this coefficient decreases but it is still of significance (direct

effect; $B = 0.122$, 95%CI = 0.103–0.141). Besides this, self-compassion is direct negative predictor of intolerance of uncertainty ($B = -0.311$, 95%CI = -0.344 – -0.277) and fear of COVID-19 ($B = -0.068$, 95%CI = -0.096 – -0.039).

When the mediators were analysed (see Table 2), what was concurred to be of significance, was that through intolerance of uncertainty; self-compassion was an indirect predictor of well-being, $B = 0.016$, 95%CI = [0.004, 0.027]. Likewise, self-compassion was seen also to predict well-being indirectly through a fear of COVID-19, $B = 0.005$, 95%CI = [0.002, 0.009]. On a final note, it was determined that self-compassion was a predictor of happiness, through intolerance of uncertainty and fear of COVID-19, in a sequential manner, $B = 0.004$, 95% CI = [0.001, 0.007].

Table 2

Indirect effect of self-compassion on mental well-being via intolerance of uncertainty and fear of COVID-19.

| Path | Coefficient | 95%CI | |
|------------------------|-------------|-------|-------|
| | | LL | UL |
| SC → IoC → WB | 0.016 | 0.004 | 0.027 |
| SC → FoC-19 → WB | 0.005 | 0.002 | 0.009 |
| SC → IoC → FoC-19 → WB | 0.004 | 0.001 | 0.007 |
| Total effect | 0.146 | 0.131 | 0.161 |
| Direct effect | 0.122 | 0.103 | 0.141 |
| Total indirect effect | 0.024 | 0.012 | 0.036 |

Note. CI confidence interval; LL lower limit; UL upper limit; SC Self-compassion; IoC Intolerance of uncertainty; WB Well-being; FoC-19 Fear of COVID-19.

Table 1

Descriptive statistics and correlations among study variables.

| Variable | 1 [95% CI] | 2 [95% CI] | 3 [95% CI] | 4 |
|-------------------------------|------------------------|------------------------|------------------------|--------|
| 1. Fear of COVID-19 | – | | | |
| 2. Well-being | -0.31** [-0.37, -0.24] | – | | |
| 3. Self-compassion | -0.37** [-0.43, -0.30] | 0.59** [0.53, 0.63] | – | |
| 4. Intolerance of uncertainty | 0.40** [0.33, 0.46] | -0.43** [-0.49, -0.36] | -0.58** [-0.62, -0.52] | – |
| α | 0.85 | 0.73 | 0.87 | 0.93 |
| M | 18.98 | 18.07 | 78.55 | 40.55 |
| SD | 5.73 | 4.32 | 17.47 | 9.21 |
| Skewness | 0.168 | -0.300 | -0.204 | -0.286 |
| Kurtosis | -0.405 | -0.243 | -0.372 | -0.212 |

** $p < .001$.

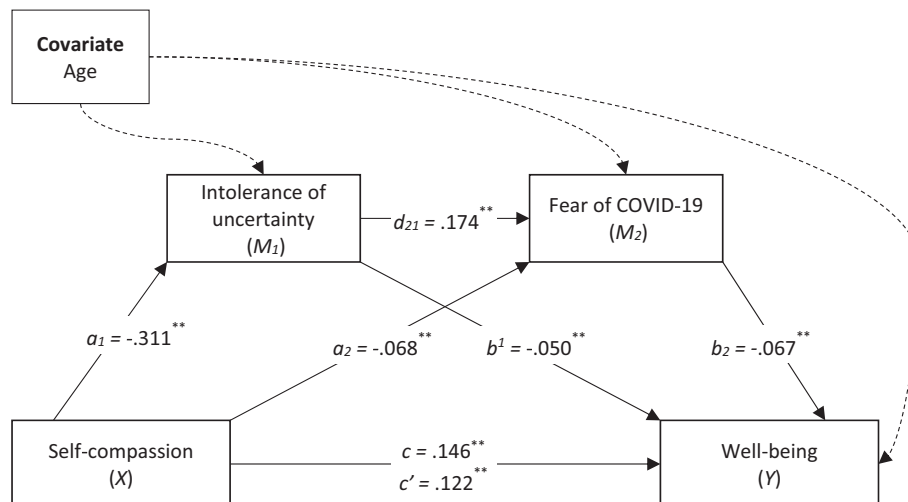


Fig. 1. The result of serial multiple mediational model, ** $p < .01$, Values shown are unstandardized coefficients.

4. Discussion

To this day, COVID-19 continues to be a global crisis just as it was the day it first broke out. Not surprisingly, researching the extent of what it is capable of doing on a psychological scale, its indicators and ramifications have become of vital importance. Hence this study undertook to analyse the network of relations between self-compassion, intolerance of uncertainty, fear of COVID-19 and well-being. Research findings have concluded that in the relation between self-compassion and well-being, intolerance of uncertainty and fear of COVID-19 play a sequential mediational role. The hypothesis put forward in that there was a relation between self-compassion and well-being was authenticated by analyses results. It has been widely submitted in previous studies that self-compassion plays a role in transforming negative thoughts and emotions into self-acceptance, thereby decreasing anxiety and depression, and consequently increasing well-being (Neff, 2003a; Neff et al., 2006; Neff et al., 2007). Indeed, self-compassion being defined as the breath of life, and that it is beneficial to our bodies and minds (Siegel, 2010), raises the probability that it may be a factor in increasing well-being.

Another hypothesis examined the mediatorship of intolerance of uncertainty between self-compassion and well-being and the said hypothesis was accepted. In a further hypothesis, fear of COVID-19 as a mediator was approved in the relation between self-compassion and well-being. These findings show that cross-sectionally, the strengthening of well-being predicts intolerance of uncertainty negatively, and that intolerance of uncertainty likewise results in a negative prediction of well-being. Similar findings were made with concern to self-compassion, well-being and fear of COVID-19. It is thought that the source of this network of relations and links may be derived from the general features of well-being. This is due to the individual being honest, aware, and sensitive to their pain where self-compassion is present. As they show more kindness and care towards themselves, they are unlikely to be judgmental of the shortcomings and failures of others and acknowledge that an individual's experience is also part of the collective's experience (Neff, 2003b). Therefore self-compassion can be indicative of the lessening of intolerance of uncertainty and fear of COVID-19. Since self-compassion inherently brings about acceptance in an individual, it can prevent intolerance of uncertainty (Tang, 2019). Moreover, an increase in self-compassion can indicate an increase in an individual's emotional intelligence, coping skills and ability to handle intolerance of uncertainty. Indeed, being able to cope with intolerance of uncertainty can lead to the increase in the overall well-being in an individual (Satici, Saricali, Satici, & Griffiths, 2020) because it much harder to regulate emotions when intolerance of uncertainty is present (Tang, 2019).

The main hypothesis of the study which has been validated, is that intolerance of uncertainty and fear of COVID-19 play a sequential mediatorship role in the relation between self-compassion and well-being. Self-compassion, has the potential to decrease intolerance towards uncertainty in individuals, once they are actually honest and aware of their unhappiness (Neff, 2003a) and acknowledge that people are not infallible (Leary et al., 2007). It has also been stated that self-compassion has a strong negative relation with intolerance of uncertainty (Mantzios et al., 2015). Likewise, in a more recent study, it was also determined that self-compassion was a predictor of intolerance of uncertainty in a negative manner (Tang, 2019). Furthermore, mindfulness therapy which is similar in nature to self-compassion, has been identified as significantly reducing intolerance of uncertainty (Asli Azad et al., 2019). During COVID-19, it has been put forward that intolerance of uncertainty increases fear of the virus and decreases well-being (Saricali, Satici et al., 2020). In fact, researchers made a discovery parallel to our study that the fear of COVID-19 acted as a mediator in the relation between intolerance of uncertainty and well-being. Further explanation may be made regarding sequential mediatorship. Individuals who have achieved self-compassion, incorporate themselves into real-life situations from a stable yet flexible and compassionate

stance, that is far from conflict (Germer, 2009). From this perspective, self-compassion may take on a protective role for individuals in terms of COVID-19. It may also be thought to take on a role in protecting individuals from the fear of COVID-19 and increasing well-being, by acting as a buffer against negative feelings and ensuring that they develop positive feelings directed towards themselves when life presents difficulties (Leary et al., 2007).

4.1. Limitations and future research

It is of importance to mention the limitations of this study, which undertook to analyse the relations between psychological variables arising during COVID-19. To begin with, the data obtained was based on self-declaratory assessment tools. This meant that the data collected could only reveal variants within the scope of the assessment tools. In later studies, other methods besides one that is dependent on self-declaration may be used. Another limitation is with regards to the method used. Despite using bootstrapping, one of the strongest qualitative methods there is, and increasing the sample count to 5000; the nature of the method and sampling being cross-sectional alongside the relationship of cause and effect, call for one to proceed with caution. In order to be able to submit causal sequences in full, there is a need for longitudinal and experimental studies. This will serve to give more clarity to the cause and effect relationship and the direction of the variables in the study. Reference should also be made to the limitations as to the size of the effects with respect to the findings. By applying Cohen's (1988) recommended publication whereby 0.2 is of small effect, 0.5 medium effect and 0.8 big effect; it is evident that the limitations had a small effect. Furthermore, even though the data was collected in a manner that covered nearly the entire country, one should bear in mind that convenience sampling has its limitations. Finally, it should be noted that they were non-clinical samples.

5. Conclusion

According to Neff (2003a), self-compassion may be seen as a beneficial strategy for regulating painful and distressing emotions, by dealing with them with compassion, understanding and an awareness of common humanity, as opposed to avoiding them. An individual said to have self-compassion, prioritises the taking of precautions to protect themselves in painful situations when they have the opportunity and capacity to do so. In effect it gives precedence to an increase in preventive measures that will ensure the well-being of an individual. Consequently; as a quality that can be strengthened, self-compassion will contribute to the welfare of individuals and support the reduction of their intolerance of uncertainty and fear of COVID-19. The other variable in the study which is intolerance of uncertainty, is a quality that can likewise be reduced (e.g. Yildiz & Iskender, 2019). In this respect, programmes focused on self-compassion and intolerance of uncertainty could be developed and implemented. In this manner, support and contribution would be made in terms of reducing both the fear of COVID-19 in individuals and increasing their psychological well-being.

Ethical statement

All procedures performed in studies involving human participants were in accordance with the ethical standards and with the Helsinki Declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

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Data share statement

Data will be available on request.

CRedit authorship contribution statement

M. Engin Deniz is the sole author of this paper. Conceptualization, Methodology, Data collection, Writing - Original Draft, Writing - Review & Editing.

Declaration of competing interest

I have no conflicts of interest to disclose.

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