Coping Post Covid - Analysing the Influence, Across Cultures, of Personality, Control, Support and Beliefs on Mental Health

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Abstract

The study tested the influence of culture, personality, locus of control (LoC), support, and beliefs linked to religiosity and paranoia, on general mental health. A volunteer sample (n=246) completed a survey shared on an online platform. The degree to which cultures are individualistic or collectivist, influences the coping responses used, including those linked to control, to support and to beliefs (both religious beliefs, beliefs in conspiracy theories and paranoia). Dispositional factors, such as personality and control, are associated with mental health but research offering this finding is largely confined to individualistic cultures. This study tested this across cultures. A hierarchal multiple regression accounted for 30% of the variance in mental health. Key predictors were resilience, internal LoC, paranoia, culture, and gender. Resilience was found to be a mediator between extraversion and mental health. Initiatives that nurture control and resilience, irrespective of culture, are likely to enhance coping and mental health.

Introduction

The cost to life of the pandemic in the year 2020 was just over 1.8 million deaths. With countries varying dramatically in how effectively they monitor Covid-19 related deaths, WHO [1] estimate mortality was in excess of three million in 2020. Covid-19 had an impact on mental health too. Significantly more adults in the United Kingdom (UK), for example, reported mental distress during the pandemic than before [2]. Some studies, in the same report, found it was the impact of the restrictions as much as the pandemic itself that affected mental health. Stevens *et al.* [3] found, for example, a 65% increase in self-harm encounters in the first wave of COVID-19, in the east of England.

Similar patterns in increased psychological distress were found in the USA [4]. A within-samples analysis of 2,555 participants found that there was a 12% increase in psychological distress between February 2019 and April 2020. Sakamoto *et al.* [5], in Japan, found that over 90,000 cases of suicides were reported between 2016 to 2020. When compared with trends from previous years, the highest increase was in men and women aged 18-30 years during 2020. Petzold *et al.* [6], from a sample of over 6,000 in Germany, a reported 50% increase in acute anxiety and distress associated with thinking about the virus and ruminating on the risks.

Culture

Culture and cultural factors influence coping responses. This can include one's social relations at a personal level e.g., in intimate and family relations; and at the community level, along with wider customs, values and religious beliefs. Taken together, they inform individual and community resilience to acute and chronic stressors.

Culture has been measured along an individualism-collectivism dimension [7]. It is a common way of classifying cultures based on the degree of interdependence promoted within groups. Individualists value the freedom to pursue their own personal goals, without worrying too much about the impact on

the collective. Individuals from a collectivist culture, on the other hand, value greater interdependence and work towards achieving group-oriented goals [8].

Cultures vary in their attitudes and perspectives towards mental health [9,10]. This may factor into why different cultures deal with mental health issues differently. For example, collectivists are more likely to receive social support from family compared to individualists [11]. As Cheng *et.al.* (2013) identified in their meta-analysis, most research tends to examine culture at the country level, making analysis on the individual level difficult to compare.

Resilience

Resilience is both the ability to recover quickly from a stressful event and to remain psychologically guarded before and during a stressful experience (Bonnano *et al.,* 2010). The distinction is important as the former is a post-incident recovery tool while the latter is a buffering mindset. Resilience has been shown to be a strong influence on health promoting behaviour [12], with resilience functioning as a buffer to health from adverse stress [13] (Bonnano, 2004). Furthermore, research and meta-analyses have revealed resilience is strongly associated with certain traits, such as extraversion, conscientiousness and agreeableness [14,15]. It is possible, therefore, that it may play a mediating role between personality and mental health [16].

Social Support

Access to social support has been shown to influence health promoting behaviour (Shin & Kang, 2015). Positive associations have been found between religiosity and social support [17]. Individuals with support report higher resilience. Collectivists have been found to perceive more familial support and more global support from their communities than individualists and to experience more positive outcomes, such as increased life satisfaction (Goodwin & Hernandez Plaza, 2000).

Gender

Females usually report higher scores on measures such as anxiety, negative mood and mental health compared to males [14,18]. This is often attributed to the greater responsibility females usually carry in managing family commitments alongside work (Burke, 1994). However, it may also relate to the tendency for females to be more attuned and emotionally responsive [14]. This is typically found in individualistic cultures. This study will seek to test this finding across both types of cultures.

Religiosity

The concept of religion is defined as organised system of worship, beliefs, and rituals [19]. Religiosity or spirituality refers to a method for individuals to find meaning and purpose in life [20]. A meta-analysis found positive correlations between religiosity, resilience and psychological growth [21,22]. From a wellbeing point of view, religion is good for you!

Beliefs in the existence of a higher power influencing events provides a framework to positively reframe stress and coping [23]. This is consistent with the 'just-world' bias, first proposed by Lerner and Miller [24] - this is a schema bias to more readily interpret failure or adversity as happening 'for a reason'. A 'just-world' belief can function as a psychological buffer to adversity [25]. Religious beliefs may boost resilience by helping reframe how challenges are interpreted. Aksoy *et al.* [26] found that increased attendance to religious services was associated with better mental health and was associated with the benefits of finding 'meaning' or reframing, as well as the broad benefit that support offers in managing stress.

Locus of control, paranoia, and conspiracy belief

Locus of control is frequently found to be associated with coping. Those with an external locus perceive circumstances and factors outside their control as something they have little influence over. Those high in an internal locus, have high confidence to shape change. They more readily feel in control. Singh and Choudhri (2014) found, for example, that adults (aged 20 to 35) higher in internal locus of control (ILoC), report greater subjective well-being compared to those with an external locus of control (ELoC). In samples of PTSD patients, no correlation was found between control and well-being but there was between negative cognitions towards self and well-being [27]. This suggests self-efficacy or self-confidence is important too. Most evidence finds that an ELoC correlates with adverse mental health [28,29]. As well as lowered self-efficacy, this might be explained by the feelings of powerlessness over circumstances outside one's control.

Conspiracy theories during the pandemic frequently sought to undermine Government health policies [30]. Uscinski *et al.* [31] found that an ELoC positively correlated with conspiracy mentality, and paranoia and conspiracy mentality may be linked as both are associated with an ELoC. Patsali *et al.* [32] found that conspiracy mentality was associated with depression. They argue that it is not likely to cause depression but inform the coping mechanism that make it more likely. Other evidence, ironically, finds conspiracy theory beliefs associated with growth and improved mental health. Similar to the explanations offered for religion, it is the support and shared ideologies that come from interacting with other believers that is key [33]. While conspiracy belief and paranoia share many factors, they also differ in some respects. Paranoia involves perception of harm to oneself and is typically held in isolation while conspiracy beliefs are shared amongst a collective and involves the collective harm of the group [34].

Personality

McCrea and Costa [35] developed the 'Big Five', the most widely used measure of personality. Of the traits measured, conscientiousness, extraversion and agreeableness are associated with good mental health and neuroticism (or worry-prone tendencies) with adverse mental health [15,18,36]. Lewis and Cardwell [37] found that low conscientiousness was associated with poor mental health. Those conscientious are usually proactive in acquiring the skills that will help them cope [18]. Meta-analyses also show that neuroticism predicts adverse mental health and agreeableness, conscientiousness, and extraversion usually predict improved mental health [16]. Openness is important for psychological growth but because it involves managing change, it is sometimes associated with increased anxiety and adverse wellbeing [15]. Most of the research on personality, coping and mental health has been in individualistic cultures. This study will explore this gap in research.

This study sought to test the influence of culture, personality, and control on mental health along with the influence of beliefs (informed by religion, conspiracy theories and paranoia) on mental health. Hypotheses stated:

H1 There will be a negative correlation between social support and adverse mental health

H2 There will be a negative correlation between control and adverse mental health.

H3 There will be a difference in the risk of developing a stress-related illness between respondents from collectivist and individualistic cultures.

H4 There will be a positive correlation between paranoia and adverse mental health.

H5 There will be a negative correlation between resilience and adverse mental health.

H6 Females will be more likely to report a more adverse mental health compared to males.

H7 Personality will correlate with mental health

H8 Resilience will mediate between personality (extraversion, conscientiousness and agreeableness) and mental health.

Method

Participants

From a convenience and volunteer sample (n=250), 86 (35.0%) identified as male and 151 (61.4%) identified as female, 1 (0.4%) did not state their gender and 8 (3.3%) stated that their gender was not listed. Age ranged from 18 to 71 years old (M = 28.58, SD = 10.33). Table 1 shows where participants lived most of their life.

Table 1: Countries where participants 'spent most of their life'.

Country	Frequency	Percentage (%)
Ireland	25	10.2
Malaysia	21	8.5
New Zealand	18	7.3
Russia	7	2.8
Spain	8	3.3
Sweden	9	3.7
South Africa	23	9.3
United Kingdom (UK)	58	23.6
United States of America (USA)	45	18.3
United Kingdom (UK)	58	23.6

Design

A correlational design and survey method were used. The predictors were religiosity, culture (individualism and collectivism), the 'Big Five' personality traits, locus of control, support, resilience, paranoia and conspiracy theory belief. The outcome measure was general mental health (GHQ). Qualtrics was employed to generate the survey, study brief and consent form.

Materials

Along with demographics, participants were asked to rate their level of religiosity on a Likert scale of 1 – 10. A higher score indicated higher levels of religiosity. *Horizontal and Vertical Individualism and Collectivism* [38]. A 16-item questionnaire that measures participant's cultural orientation. A sample item included, 'Family members should stick together, no matter what sacrifices are required' for the collectivism scale and 'I rely on myself most of the time; I rarely rely on others' for the individualism scale. All items are answered on a 9-point Likert scale, ranging from 1 (never or definitely no) to 9 (always or definitely yes). High scores indicated a greater individualistic or collectivistic focus respectively. The Cronbach's Alpha for individualism was $\alpha = .71$ and for collectivism $\alpha = .76$.

Big-5 Invetory-10 [39]. This is a 10-item scale with five subscales. Each subscale consists of two items each that measure openness ($\alpha = .22$), conscientiousness ($\alpha = .59$), extraversion ($\alpha = .70$), agreeableness ($\alpha = .30$), and neuroticism ($\alpha = .73$). A sample item is 'I see myself as someone who is outgoing and social'. A 5-point Likert response scale was used. The Cronbach's Alpha scores were low, openness and agreeableness. These were excluded from the analysis. *Internal-External Locus of Control Scale (IE-4)* [40]. This is a 4-item scale that measures participants internal ($\alpha = .65$) and external locus of control ($\alpha = .61$). A sample item is 'If I work hard, I will succeed'. Answers were on a 5-point Likert scale. Two items measure an internal locus and two an external locus.

The Brief Resilience Scale [41]. This is a 6-item scale. An example item is 'I tend to bounce back quickly after hard times.' Participants respond on a 5-point Likert scale. Higher scores indicate higher resilience. The Cronbach's Alpha was α = .90. *Conspiracy Mentality Questionnaire* [42]. This is a 5-item questionnaire that measures orientation towards having a conspiracy mentality. An example item is 'Politicians usually do not tell us the true motives for their decisions.' Participants respond from 0% agree to 100% agree. The Cronbach's Alpha was α = .80.

Shortened Paranoia Checklist [43]. This is a 5-item questionnaire measuring paranoia ideation. An example item is 'I need to be on my guard against others.' Participants respond from 0 'not at all true' to 10 'very true'. The Cronbach's Alpha was α = .82. *MOS Social Support Scale-6* [44]. This is a 6-item scale that measures perceived functional social support. 'Is there someone to help you if you were confined to bed' is an example item. Participants respond on a 5-pointLikert scale. The Cronbach's Alpha was α = .80.

The General Health Questionnaire [45]. This is a 12-item scale that measures general mental health. An example item is 'Have you recently been able to concentrate on whatever you're doing?' Participants respond on a 4-point Likert scale. As well as totals, the data was also categorised into those 'at risk' or 'not at risk' of a stress-related illness, using a cut-off point of above 3 to categorise 'at risk'. The Cronbach's Alpha was α = .92.

Procedure

The questionnaire, study brief and consent form were shared on the Reddit platform. Participation was voluntary and the instructions made clear that respondents could stop at any time. The survey took approximately ten minutes to complete. Three attention-check items were used and participants who failed two of these were excluded from the analysis. The study was approval by the Ethics committee at the host university. All participants received a brief and a point of contact for further clarifications. All acknowledged informed consent before participating, in accordance with the Declaration of Helsinki.

Result

SPSS 27 was used to run correlational analyses between the predictors and mental health (Table 2). Those significant met the linearity assumption and were entered into a multiple regression. The guidelines proposed by Baron and Kenny [46] were followed to arrive at the most parsimonious model and in testing for mediation. To determine if culture and gender should be added to the regression, independent samples t-tests were run. For mental health, both culture and gender were significant, $t(225) = -3.41$, $p<.001$ and $t(235)= -2.24$, $p = .026$, respectively. From the list of predictors in Table 2, twelve were included in the regression for mental health, along with culture and gender.

Table 2: Correlation Matrix for predictors against outcome measure of mental health.

Age	-.18**
Religiosity	-.14*
Conscientiousness	-.24***
Extraversion	-.29***
Neuroticism	.43***
Internal Locus of Control	-.23***
External Locus of Control	.20**
Defensive Pessimism	.23***
Support	-.24***
Paranoia	.41***
Resilience	-.49***

*p<.05 **p<.01 ***p<.001 (n =246)

Table 3: Multiple regression with GHQ: regressed on the cluster of Culture, Gender Internal Locus of Control, Resilience, and Paranoia.

		Unstandardized Coefficients		Standardized Coefficients
	Model	**B**	**Std. Error**	**Beta**
1	(Constant)	31.99	2.94	
	Culture	2.15	0.82	.15**
	Gender	1.96	0.87	.14*
	Internal Locus of Control	-0.81	0.22	-.22***
	Resilience	-2.3	0.52	-.30***
	Paranoia	0.12	0.05	.16*

*p<.05 **p<.01 ***p<.001

The model explained 30% of the variance in scores on mental health, $F(5, 208) = 25.38$, $p <.001$, $R^2 = .314$, Adjusted $R^2 = .304$. Paranoia, culture, and gender were positively correlated with adverse mental health (GHQ scores), and resilience and an internal locus of control were negatively correlated. The results offer support for H2, H4 and H5. The direction of the beta coefficient for gender offers support for H6, with females reporting more adverse mental health. Neither support nor personality featured in the final model, therefore H1 and H7 are not supported.

A Chi squared analysis was run between culture (individualists and collectivists) and being 'at risk' or 'not at risk' of a stress-related illness on the GHQ. No differences was found - X^2(1, N=228) = .476, p=.490, therefore H3 was not supported. Mediation analyses were run for resilience between personality and mental health. Significant evidence (Figure 1) was found with resilience as the mediator between extraversion and mental health (GHQ). This offers partial support for H8. Table 4 reports the mediated and unmediated paths.
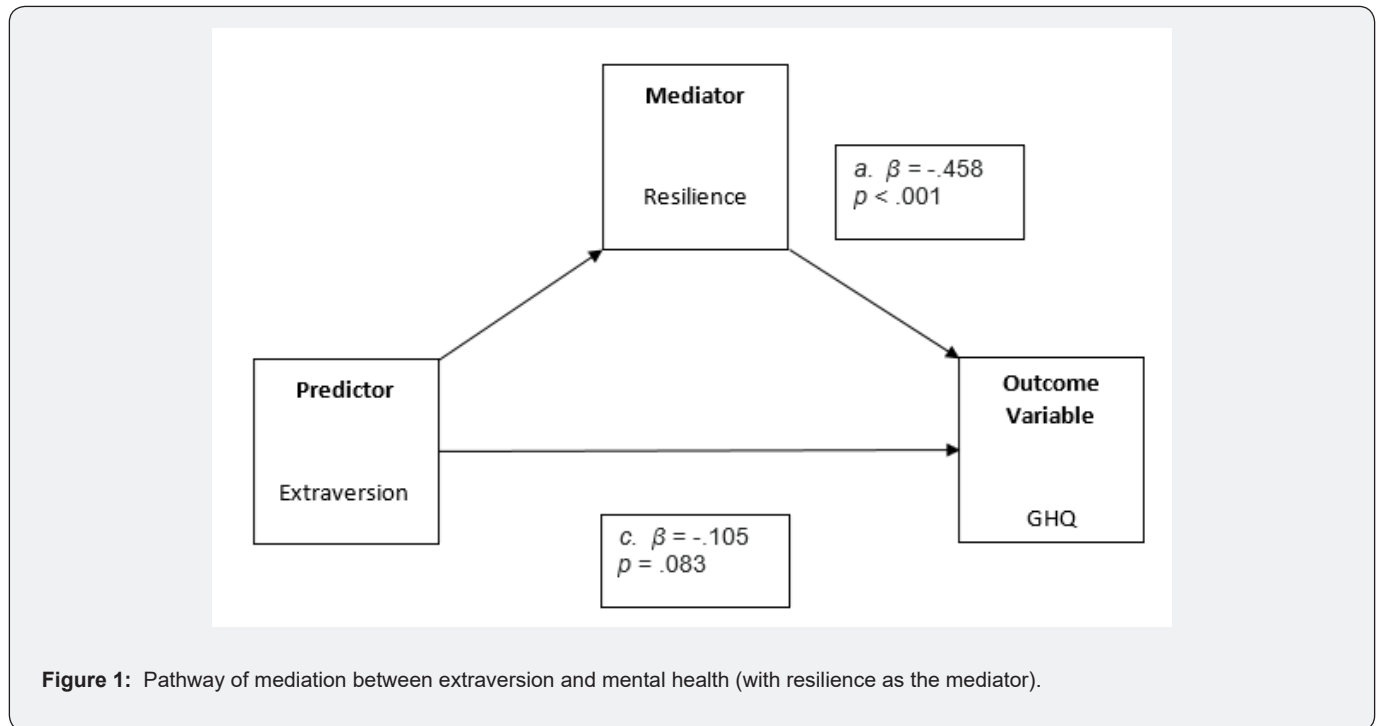

Figure 1: Pathway of mediation between extraversion and mental health (with resilience as the mediator).

Table 4: Unmediated and mediated values between Extraversion and GHQ (with Resilience as the mediator).

	β value	p value
Unmediated path	-0.274	<.001
Mediated path	-0.105	0.083

Discussion

Resilience was found to be the strongest predictor - increases in resilience were associated with lower adverse mental health. This supports its efficacy as a coping strategy to reduce stress (Shin & Kang, 2015; Besharat, 2010). Resilience was found to mediate the relationship between extraversion and mental health. Extraversion was found to positively correlate with mental health, but not when resilience was added. This is consistent with findings from Oshio et al. [16]. This result indicates that the effects of extraversion were transmitted through resilience, suggesting that most of the coping dividends that come from being extraverted are related to levels of resilience. It is easier to develop improved resilience than to change personality, and as more benefits derive from the former, this offers a clear direction for improving coping.

The second strongest influence was internal locus of control. It was positively associated with improved mental health. This is consistent with Singh and Choudhri's (2014) findings. Individuals who perceive they can exact change interpret stress demands as less threatening. Interestingly, external locus of control did not feature in the final model. The effect of the other influences measured, such as personality and resilience, may explain this.

Paranoia ideation was associated with adverse mental health. Those high on paranoia more readily perceive their circumstances are heavily influenced by external, malicious actors. This might feed into feelings of powerlessness and lead to inaction in the face of threats and stress [47]. In terms of cultural orientation, the negative beta value of culture indicated that collectivists reported better mental health than individualists. This supports the broader research on the value of collectivism on wellbeing [48]. Its success is often attributed to the greater support and attribution style associated with collectivist cultures. However, support did not feature in the model. This suggests the attributional style, to more readily associate success with collective effort and therefore to

utilise others as the norm, is important, and because it is the norm it may not be rated as 'high' support because it is not unusual within that culture. This may be why support did not feature. It is also the case, however, that cultures are not homogenously individualist or collectivist but, on a continuum in between. To conceive of them as one or the other is a false dichotomy, and even countries that might, for example, be strongly considered towards one end, frequently contain sub-cultures characteristic of the other end. This is likely to explain why the Chi squared analysis revealed no differences (H3) when culture was treated as dichotomous.

The positive Beta value for gender in the model, indicated that women had more adverse mental health than men. This is consistent with earlier findings [14,15] and the same explanations are likely to apply too – females frequently face more demands outside work and often inside work where the experience of discrimination may be present (Burke, 1994). It may also relate to the tendency for females to be more attuned and emotionally responsive [14]. These results suggest these factors are experienced across collectivist oriented as well as individualistic cultures.

Limitations and Future Direction

The influence of some personality traits (openness and agreeableness) could not be explored because their measures reported lower internal reliability. There was a large gender variation across cultures and this may skew their representativeness within some cultures. The online platform used was more frequently used by students and this limits sample representativeness. Research on culture frequently draws on migrant samples. This study did not investigate if participants were living in their own country or if they had migrated. So, the influence of this as a factor could not be considered. The study data was collected in 2022, where the effects of the Covid-19 pandemic were still felt. As the global population increases, global pandemics remain a real risk and need to be matched by research that explores the effects of such phenomena [49-52].

Conclusion

Individualistic oriented cultures are more associated with adverse mental health and females suffer more, irrespective of culture. Paranoid beliefs were associated with poor mental health and these may be more frequent post pandemic. The benefit of support on health has a strong evidence base but it was not found here. However, this may depend on how it is interpreted - high support is no longer high if it is the cultural norm and this may have affected the ratings participants gave to this from more collectivist orientated cultures. The benefit of resilience and control crossed cultures and these ingredients should be incorporated into health-related coping interventions.

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