Journal of Applied Structural Equation Modeling

eISSN: 2590-4221 Journal of Applied Structural Equation Modeling: 5(2),1-25, July 2021
DOI: 10.47263/JASEM.5(2)03

A MODERATED-MEDIATION MODEL OF FEAR OF ILLNESS AND SUBJECTIVE PSYCHOLOGICAL WELL-BEING DURING COVID-19 PANDEMIC

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ABSTRACT

A sudden outbreak of diseases poses a serious threat to mental health. Relying on strengths might mitigate negative mental health outcomes and promote positive mental health. Prior research suggests a potential moderated mediation effect between fear of illness and subjective psychological well-being. Based on the Competence-based Model of mental health, this study examined the relationship between fear of illness and subjective psychological well-being through perceived distress moderated by resilience in the context of COVID-19 pandemic. A cross-sectional survey using questionnaires was employed. Data were collected online from 384 participants (270 female and 114 male, age range= 15 to 29 years). The participants had indirect exposure to COVID-19 through information from the media. Results demonstrated that fear of illness significantly predicts subjective psychological well-being both directly and indirectly. In addition, the moderated mediation effect of resilience was confirmed. Resilience moderated the indirect effect between fear of illness and subjective psychological well-being through perceived distress. The magnitude of the indirect effect was contingent on resilience. Further, the effect of perceived distress on subjective psychological well-being is weakened as the level of resilience increases. This study contributes theoretically to a better understanding of the salutogenic effect of resilience on positive mental health during a pandemic. Based on the findings, implications and future directions are discussed.

Keywords: *Resilience; pandemic; mental health; media; adversity*

INTRODUCTION

The current pandemic of novel coronavirus disease (COVID-19) is spreading and affecting people exponentially day after day. By June 24, 2021 sizable population got affected worldwide with 179,684,849 COVID-19 infections and 3,893,698 deaths. In India alone, the number of confirmed COVID-19 cases and deaths was 30,092,205 and 392,113 respectively of which 313,028 infections and 4,273 fatalities were reported in Jammu and Kashmir (India Covid-19 2021, June 2021). Novel diseases are traumatic as they give a sense of uncertainty and act as a threat to life, which triggers the fear of illness (Vahedian-Azimi et al., 2020). Extant literature

reveals negative mental health outcomes are a sequela of exposure to traumatic events (Pine et al. 2005; Su & Chen 2015).

During a pandemic, it is atypical to exhibit symptoms of negative mental health (Boyraz & Legros 2020). Reports from studies done globally reveal the alarming conditions of mental health with an increase in depression, anxiety, and stress (Hossain et al. 2021; Li et al. 2020; Roy et al. 2020; Rossell et al. 2021; Salari at al. 2020; Saunders et al. 2021; Serafini et al. 2020; Vindegaard & Benroz 2020) and decrease in psychological well-being (Serafini et al. 2020; Vindegaard & Benroz 2020) among the general population during COVID-19 pandemic. India witnessed a similar trend with significant deterioration in mental health (Rehman et al. 2021; Singh et al. 2021; Singh & Khokhar 2021; Venugopal et al. 2020) and well-being (Samal 2021; Singh et al. 2021). Soon after the COVID-19 outbreak in India, a twenty percent rise in cases of mental illnesses became evident (Loiwal 2020). Thus, in the grim situation of COVID-19, psychological distress might increase whereas well-being might decrease (Rashid & McGrath 2020). Hence, during pandemics along with mitigating negative mental health, it has become necessary to build on the strengths to enhance positive mental health.

During the locked-down period, there was a greater indirect exposure to the information related to infection. Nevertheless, continuous exposure to COVID-19 related information has acted as a major stressor, thus developing a fear of contracting an infection (Lin 2020; Otu et al. 2020). The fear of illness during the current pandemic is the fear of contracting COVID-19 infection. Fears pose a serious threat to our well-being, hence, cannot be left unattended (Pappas et al. 2009). Undeniably, the fear of developing illness during pandemics may translate into a range of mental health outcomes.

In global pandemics, it is common to see people preoccupied with getting infection thus in a state of fear of illness (Ahorsu et al. 2020; Sakib et al., 2021; Satici et al. 2020) or distress (Hsing et al. 2020). The ambiguity and uncontrollable nature of the outbreak of infectious diseases pose a threat to existence (Bao et al; 2020; Khan et al. 2020). In addition, excessive fear further generates psychological distress (Alyami et al. 2020; Satici et al. 2020; Xiang et al. 2020). This implies that the fear of COVID-19 infection and psychological distress can cause an increased risk of developing mental health disorders (Belen 2021; Sakib et al. 2021; Zhang 2020). In addition, with the rise in fear of illness, the well-being of people is affected (Ahuja et al. 2020; Lathabhavan & Vispute 2021; Zacher & Rudolph 2020). However, to counter the adverse effects of fear of illness, positive psychological resources could be relied on (Polizzi et al. 2020). Resilience could potentially buffer the negative effect of fear on mental health since it is activated in adversity (Goodman et al. 2020). Recent studies have supported this idea that resilience has positive effects on subjective psychological well-being (Yildirim & Arslan 2020; Arslan & Yildirim 2021), and is related to the reduction in signs of psychological distress (Yildirim & Arslan 2020; Yildirim, Arslan, & Wong 2021). Thus, resilience helps in maintaining psychological well-being, thereby lesser chance of developing mental health disorders (Mowbray 2020).

Extant literature reveals that young people have experienced a decline in their mental health in the COVID-19 situation (Lathabhavan & Vispute 2021). Further, the continuous exposure to COVID-19 might create peri-traumatic distress (Djillali et al. 2021; Schmidt et al. 2021) or in the long run post-traumatic stress disorder (Megalakaki et al. 2021). This requires immediate attention so that positive mental health is promoted (Boyraz & Legros 2020; Yang & Ma 2020). It is a vociferous call of the researchers (e.g. Chen et al. 2020; Mamun & Griffiths 2020) to identify preventive factors to curb the pandemic's negative mental health repercussions, which is still untapped.

A large and sufficient amount of empirical evidence demonstrates that the COVID-19 pandemic has lowered subjective well-being (e.g. Ahuja et al. 2020; Blasco-Belled et al. 2020; Satici et al.

2020; Yildirim & Arslan 2020; Zacher & Rudolph 2020). So far, while greater emphasis has been given to the pathogenic aspect, very little attention has been paid to the positive mental health and salutogenic factors. Moreover, studies assessing both psychological distress and psychological well-being in the same sample are scarce (e.g., Jiang 2020; Paredes et al. 2020; Tecson et al. 2019). Nevertheless, the aforementioned studies revealing an inverse relationship between psychological well-being and psychological distress were conducted in different contexts, other than pandemics or outbreaks of diseases. Hence, the findings though could set the ground for the need for measurement of both psychological well-being and psychological distress in the same sample, but we fail to ascertain its relevance for pandemic-like situations. For this reason, the present study intended to fill these gaps and assess the indispensable role of resilience in enhancing subjective psychological well-being during adversity. We propose that the relationship between fear of illness and subjective psychological well-being is moderated by resilience and mediated through perceived distress. The exploration of these linkages will help understand the relevance of each variable in designing protective and preventive interventions to combat COVID-19 and similar pandemics.

The contribution of this study lies in testing the applicability of the Strength/Competence-based Model of Mental Health in the context of the COVID-19 pandemic. Further, it clearly spells out the requirement to focus on maximizing positive mental health by adopting a preventive stance. It also provides evidence on the salutogenic effect of resilience, thereby diminishing perceived distress and augmenting subjective psychological well-being, which is affected by the fear of illness.

Following this introduction, this paper introduces the theoretical background and the development of the hypotheses. The methodology section of this paper explains the sample and data collection, measures, sample descriptive, and data analysis. The results section first presents findings for common method bias. Next, the measurement model and structural model assessment results are given. In the discussion section, the results are discussed in relation to the literature review. The paper concludes with theoretical contributions, practical implications, limitations, and suggestions for future studies.

THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT

Positive psychology holds that negative and positive outcomes co-occur. The presence of a high level of psychological well-being and a low level of mental illness are important components of mental health which co-exist (Diener & Lucas 2000). Winefield et al. (2012) opine that perceived distress and psychological well-being are not unidimensional and need to be measured separately. Consequently, it requires an assessment of both components of mental health to promote positive and prevent negative mental health outcomes. Psychological distress and subjective psychological well-being are indicators of negative and positive mental health, respectively (Kane 2019). In this study, self-perceived subjective aspects of both negative and positive mental health are studied.

Strength/competence-based model of mental health

The theoretical grounding for building on the inherent capacities of an individual to reduce suffering is provided by the Strength/Competence-based Model of mental health (Southwick et al. 2014). The Strength/Competence-based Model of Mental Health posits that people are equipped with certain competencies and psychological resources that facilitate coping with stressful situations (Glicken 2004; Rothman, 1994). The strengths can attenuate the negative outcomes of stress (Gable & Haidt 2005). As per this approach, people must identify their resources, strengths, competencies, or assets rather than limitations (Saleebey 1996).

The strengths play a role in transcending challenges, gaining positive experiences (Blundo 2008), and facilitate a mental health recovery (Deegan 1988). Thus, an individual can rely on his/her strengths to overcome challenges (Brun & Rapp 2001). Saleebey (1996) proposed that every individual has unique capabilities that are activated in traumatic situations. Furthermore, every individual facing trauma is not necessarily incapacitated. In fact, one strives to recover from trauma once one knows their strengths. Thus, strengths act as salutogens and help in managing the demands of negative life events (Rashid & McGrath 2020).

In adverse life situations, it is important to face challenges and mitigate negative outcomes. During a crisis, the presence of negative mental health or outcomes cannot be ignored, thus requiring repair of damage to complement negative by building strengths (Luthans & Church 2002). Due to this reason, attention should be paid to positive mental health, for it is relevant in the COVID-19 pandemic. Positive mental health is evident through subjective psychological well-being (Suldo & Shaffer 2008).

Possibly, resilience acts as a salutogen and maximizes positive outcomes. Resilience is an individual's capacity to adapt or recover from threatening or destructive forces (Masten 2001; Smith et al. 2008). Färber and Rosendahl (2018) affirmed that resilience can enhance positive mental health as it helps in adaptation to the stressors. Moreover, resilience acts as a buffer to mental health problems. In line with the strength-based approach, individuals with a higher level of resilience might experience better subjective psychological well-being, irrespective of the extent of the perceived psychological distress (Rashid & Seligman 2018).

Fear of illness as predictor of perceived distress and subjective psychological well-being

Huppert (2009) proposed that the same factors might act as precursors for both positive and negative mental health. There are loads of evidence to suggest that fear of illness predicts negative and positive mental health. More recently, in the context of the COVID-19 pandemic, the positive relationship between fear of illness and psychological distress has become apparent (Ahorsu et al. 2020; Harper et al. 2020; Newby et al. 2020; Parlapani et al. 2020; Satici et al. 2020). Further, Shigemura et al. (2020) found an association between heightened fear of illness and the potential development of mental health disorders even among healthy people during the current pandemic. It could be said that due to increased fear of illness, there is potential to see a deterioration in mental health, predisposing the general population to develop symptoms of psychological distress. The fear of illness can also be a challenge to maintain positive mental health during adversity. In a study conducted on 1,772 Turkish adults during the COVID-19 pandemic, Satici et al. (2020) not only reported a significant positive relationship between fear of COVID-19 and indicators of psychological distress, namely depression, anxiety, and stress but also found that the fear of COVID-19 negatively predicted well-being. Empirical findings show that with the fear of COVID-19, well-being was inversely related (Ahuja et al. 2020; Amin 2020; Hsing et al. 2020). Serafini et al. (2020) confirmed that the fear of illness deteriorates subjective psychological well-being. Thus, it appears that the fear of illness is a precursor of positive and negative mental health. Based on the empirical evidence and theoretical support given above, the following hypotheses have been framed:

H1: Fear of illness relates negatively to subjective psychological well-being.

H2: Fear of illness relates positively to perceived psychological distress.

Fear of illness and subjective psychological well-being: the mediating role of perceived distress

Negative reactive responses and thoughts spiral into and characterize the COVID-19 crisis. Several researchers have reported negative mental health during the current pandemic (Abramson 2020; Kumar & Nayar 2020). The findings of these studies provide an insight that indirect exposure to traumatic life situations develops signs of psychological distress, even in the general population (Hsing et al. 2020; Pine et al. 2005). Hence, indirect exposure to COVID-19 related information through media increases perceived distress, which in turn might affect subjective psychological well-being. The relationship between perceived distress and psychological well-being has been supported by previous researchers. Jiang (2020); Meng and D'Arcy (2016); Mankiewicz et al. (2013); Tecson et al. (2019) have provided empirical evidence that perceived psychological distress is significantly and inversely related to psychological well-being. Therefore, the aforementioned studies show that psychological distress has a negative impact on subjective psychological well-being.

Previous empirical studies support the mediating role of psychological distress between fear of illness and subjective psychological well-being. As emerged by recent literature, depression, anxiety, and stress which are the symptoms of negative mental health play a mediating role in the relationship between the fear of COVID-19 and life satisfaction (Satici et al. 2020). In addition, the fear of COVID-19 was shown to increase negative mental health outcomes and to decrease the positive mental health. Based on these findings, the following hypothesis has been framed:

> *H3: Perceived distress mediates the relationship between fear of illness and subjective psychological well-being.*

Perceived distress and subjective psychological well-being: the moderating role of resilience

According to Huppert (2009), psychological well-being tends to decline in case an individual remains in a negative state for a long time. Hence, understanding the pathways to enhance well-being becomes important, especially when positive and negative mental health share the same drivers. Resilience has been researched extensively in the context of stressful and adverse life situations (Polizzi et al. 2020). As per Bakioğlu et al. (2020) during COVID-19, the protection of mental health and enhancement of psychological resilience is of prime importance. Researchers propose an exploration of the moderating role of resilience between adverse conditions and positive mental health (Min et al. 2015). Researchers hold that resilience gets activated in adversity (Bonanno et al. 2008; Southwick et al. 2014) and facilitates coping (Connor & Davidson 2003). Further, Polizzi et al. (2020) argued that people endowed with resilience inevitably can survive and overcome the fear of being pulverized and persevere. Hence, resilience is associated with both positive and negative mental health (Shapero et al. 2019; Srivastava 2011). Resilience has been revealed to result in lowering symptoms of negative mental health (Tecson et al. 2019). Further, researches indicated that resilience enhances positive mental health (Cuhadar et al. 2016; Vieselmeyer et al. 2017) in particular subjective well-being (Satici 2016; Tecson et al. 2019; Yildirim & Arslan 2020) and it acts as a protective factor (Serafini et al. 2020).

The presence of resilience during adverse life situations acts as a salutogen and helps in coping with the stressors, thus diminishing negative consequences so that positive mental health improves. It could be said that, during pandemics, activation of resilience is the conditional factor that affects the mediated relationship between fear of illness and subjective psychological well-being. In the presence of high resilience, the effect of mediator perceived distress gets weaker between the relationship of fear of illness and subjective psychological well-being.

Therefore, resilience may influence the mediated relation between perceived distress and subjective psychological well-being. Hence, we propose:

H4: The indirect relationship between fear of illness and subjective psychological well-being via perceived distress is moderated by resilience, such that the relationship is weaker with increasing levels of resilience.

By integrating mediation and moderation relationships, we propose a moderated-mediation model. As demonstrated in Fig.1, in our model, resilience moderates the path from perceived distress to subjective psychological well-being in a mediated relationship. So, in the integrated model, we shall evaluate the indirect effect of the interaction of perceived distress and resilience on subjective psychological well-being in the mediated relationship between fear of illness and subjective psychological well-being.

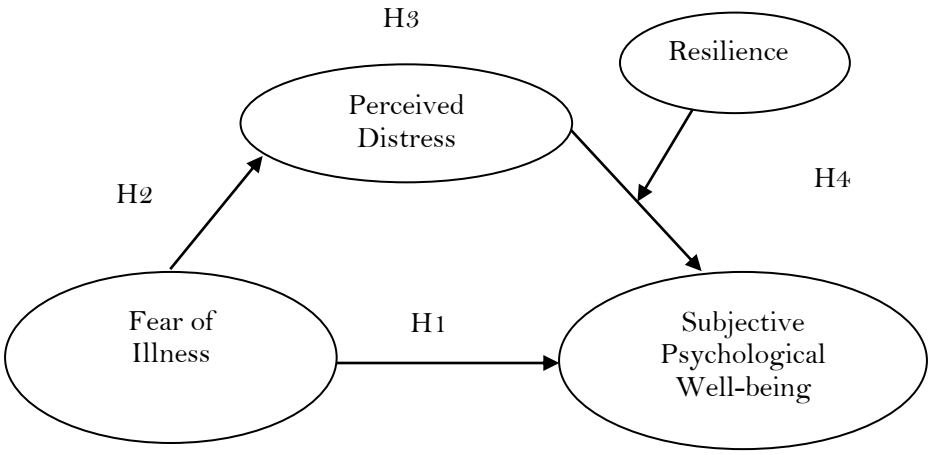


Fig. 1 The Research Framework

METHOD

Sample and Data Collection

After the continuous nationwide lockdown in India, the cross-sectional survey was conducted online for two weeks. Data were collected through convenience sampling by sending a survey link created in 'Google forms' via social media to 450 prospective participants enrolled in various educational institutions in Jammu (India). The survey included demographic profile, details of exposure to COVID-19 related information through the media, and a battery of questionnaires. The survey was conducted in English, this language being a medium of instruction in educational institutions. Confidentiality, anonymity, and no potential threat of participation was assured at the outset. Voluntary participation was sought, and informed consent was obtained electronically. Parental consent was obtained from those who were below 18 years of age. Four hundred thirty-two participants in the age range 15 to 29 years (youth) responded to the survey, with an 88.89 percent response rate. Forty-eight respondents gave unengaged responses, therefore were not retained for further analysis. Hence, the final sample size of 384 respondents. Based on the inverse square root method, a minimum sample size of 160 is recommended for the PLS-SEM study (Kock & Hadaya 2018). Hence, it could be concluded that the sample of 384 was adequate.

Measures

Fear of illness. This construct was validated by Alberts et al. (2011) comprises five items adopted from the original 18-item Short Health Anxiety Scale (SHAI; Salkovskis et al. 2002). The items consist of a group of four statements requiring the respondent to describe their feelings over the past six months in the context of COVID-19 infection/illness only. Items are scored from 0 to 3. A sample item is "I never think I have a serious illness; I sometimes think I have a serious illness; I often think I have a serious illness; I usually think that I am seriously ill." Cronbach alpha .726 was obtained for the construct.

Perceived distress. Six negatively worded items to measure perceived distress (Hewitt et al. 1992) were borrowed from the Perceived Stress Scale (Cohen et al. 1983). The scale applies to the ongoing life conditions (Cohen & Williamson 1988). The responses are based on the feelings and thoughts in the last one month. Items are scored on a 5-point Likert scale, from 0 to 5 ('never' to 'very often'). For example, "In the last month, how often have you been upset because of something that happened unexpectedly?" The Cronbach's alpha obtained for this construct was .809.

Subjective psychological well-being. The World Health Organization Well-Being Index (WHO-5 Well-being Index; Staehr 1998) is a measure of subjective psychological well-being. The scale assesses the hedonic aspects of psychological well-being. The five items of the scale are on a 6-point Likert scale ranging from 0 to 5 ('not present' to 'constantly present'). Positively worded five items in this scale cover positive mood, vitality, and general interest, such as "I have felt cheerful in good spirits." The Cronbach alpha reliability coefficient .836 was calculated for the scale in this study.

Resilience. The Brief Resilience Scale (BRS) consists of six items measuring trait resilience and assesses an ability to bounce back after exposure to stress (Smith et al. 2008). The items are scored on a 5-point Likert scale, ranging from 1 to 5 ('strongly disagree' to 'strongly agree'). A sample item is "I tend to bounce back quickly after hard times". Smith et al. (2008) reported good internal consistency for the scale ranging between .80 to .91. An internal reliability estimate for this sample was .827.

Sample Descriptive

The sample comprised 270 female (70.31 %) and 114 male (29.68%) participants. The age ranged from 15 to 29 years (M = 24.39, SD = 3.33). This study was carried out in the context of COVID-19. The participants provided information on media exposure. Table 1 shows a source of information related to COVID-19 on which the participants relied for information. Further, of the 384 participants, 142 (37%), 93 (24.2%), 149 (38.8%) sought information once a day, twice a day, several times a day, respectively.

Table 1. Source of COVID-19 Related Information

Source of Information	*Yes*		*No*	
	Frequency	*Percent*	*Frequency*	*Percent*
News on television	286	74.5	98	25.5
Print media	66	17.2	318	82.8
Social media	249	64.8	135	35.2
Authentic/Government websites	157	40.9	227	59.1
Other sources	56	14.6	328	85.4

This confirms that during the lockdown, participants were continually seeking COVID-19 related information from media through various sources. The reliance on the sources not

considered being authentic and the frequency of seeking information has exposed them to a lot of misinformation, and bad news related to COVID-19. This might have been overwhelming, and hence the development of fear of illness.

Data Analysis

Using SPSS version 23, the descriptive analysis was performed. Since the current study aimed at theory building and prediction of endogenous variables, the partial least squares structural equation modeling (PLS-SEM) technique was applied (Hair et al. 2014) to test the research model. Moreover, the use of PLS-SEM is appropriate as latent variable scores were analyzed for determining predictive relevance (Hwang et al. 2020). The two-stage approach for analysis (Hair et al. 2017) was followed. Data were analyzed using the 'Smart PLS software version 3.3.2' (Ringle et al. 2015). Further, for assessing moderated-mediation, PROCESS for SPSS was used (Hayes 2017).

RESULTS

Common Method Bias

Before testing the model, common method bias (CMB) for the constructs was checked. As recommended by Kock (2015) for examining CMB in PLS-SEM, the variance inflation factor (VIF) was calculated through the full collinearity test for all latent variables in the model. Table 2 shows, full collinearity VIFs. The full collinearity VIF values for the constructs in the model in this study were below threshold 3.3 (Kock 2015). Hence, it confirms no CMB in this study and ascertains there is no possibility of misleading results.

Measurement Model

The constructs in our model are first-order and reflective. The convergent validity was evaluated for the reliability of items and constructs. We looked into indicator loadings, composite reliability (CR), Dillion-Goldstein's rho (ρA), and average variance extracted (AVE) (see Table 2).

Table 2. Measurement Model Results

Construct	Items	Loadings	ρA	CR	AVE	Full collinearity VIFs
Perceived distress			0.826	0.862	0.512	1.438
	PD1	0.717				
	PD2	0.669				
	PD3	0.808				
	PD4	0.577				
	PD5	0.720				
	PD6	0.778				
SPWB			0.840	0.885	0.606	1.408
	SPWB1	0.706				
	SPWB2	0.811				
	SPWB3	0.792				

	SPWB4	0.784				
	SPWB5	0.794				
Resilience			0.848	0.873	0.539	1.141
	R1	0.626				
	R2	0.637				
	R3	0.827				
	R4	0.606				
	R5	0.836				
	R6	0.700				
Fear of illness			0.726	0.824	0.540	1.145
	FOI1	0.717				
	FOI2	Deleted				
	FOI3	0.822				
	FOI4	0.708				
	FOI5	0.685				

Notes: ρA= Dillion-Goldstein's rho, CR=composite reliability, AVE=average variance extracted

Hair et al. (2017) have recommended 0.70 as the threshold value for indicator loadings. However, items with outer loadings between 0.40 and 0.70 can be retained and are considered for deletion if it enhances AVE so that the minimum criterion of 0.50 is achieved (Hair et al. 2010). We retained all the indicators with loadings within a specified range as AVE was above the threshold (Hair et al. 2014), except for FOI2 (Item 8 of the original SHAI) which was deleted due to low loading. As suggested by Hair et al. (2014), Cronbach's alpha being too conservative was not considered in the evaluation of internal consistency. Raykov (1998) recommended the evaluation of composite reliability (CR). As per Hair et al. (2017), CR between 0.60 and 0.70 are acceptable in exploratory research. The CR for all the constructs of the study is above 0.80, which is satisfactory (Hair et al. 2014). However, CR is considered liberal. Dillion-Goldstein's rho (ρA) is the exact measure of construct reliability (Dijkstra & Henseler 2015). In our measurement model, ρA values are within the acceptable range. This established the internal reliability of the measurement model.

In addition, convergent validity was assessed by examining AVE, which should be higher than 0.5 (Hair et al. 2014). Table 2 indicates that the convergent validity was achieved with AVE more than the threshold value of 0.50 (Hair et al. 2017).

Next, as suggested by Hair et al. (2019) the discriminant validity was assessed by Heterotrait-Monotrait (HTMT) ratio (Henseler et al. 2015). Table 3 clearly shows that all the values for the constructs in the model are below a conservative criterion of 0.85 (Henseler et al. 2015). This established discriminant validity among all the constructs in the model. All the constructs in the model are distinct from each other.

Table 3. Heterotrait-Monotrait (HTMT) Ratio for the Constructs

	Perceived distress	Resilience	SPWB	FOI
Perceived distress	-	-	-	-
Resilience	0.383	-	-	-
SPWB	0.596	0.348	-	-
FOI	0.408	0.211	0.368	-

Notes: FOI=fear of illness, SPWB=subjective psychological well-being.

Structural Model and Hypotheses Testing

In the next stage of PLS-SEM, structural model results were assessed. It requires testing for collinearity issues, structural relationships between constructs. Additionally, the model's in-sample predictive accuracy and the model's out-of-sample predictive power is established (Shmueli et al. 2019).

First, the value of the inner VIF was assessed. VIF should be between 0.20 and 5.00 (Hair et al. 2014). VIF values beyond 3.33 (Diamantopoulos & Siguaw 2006), and within 3 to 5 means collinearity issues (Mason & Perreault Jr 1991). All the inner VIF values for the current model meet the aforementioned criteria. Hence, our model is free of collinearity issues.

Table 4. Results of Structural Model

Hypothesis	Direct/Indirect effect	Beta	*t*-value	Confidence Interval (95%) *BCa*	Effect size (f^2)	Decision
H1	FOI->SPWB	-0.136	2.623	[-0.220,-0.049]	0.024	Accepted
H2	FOI->PD	0.316	6.173	[0.221, 0.392]	0.111	Accepted
	PD->SPWB	-0.410	7.750	[-0.494,-0.319]	0.200	-
H3	FOI->PD->SPWB	-0.129	4.872	[-0.174,-0.087]	NA	Accepted
	R->SPWB	0.147	3.472	[0.072, 0.211]	0.028	-
	PD*R->SPWB	0.086	2.155	[0.024, 0.154]	NA	-

Notes: FOI=fear of illness, PD=perceived distress, SPWB=subjective psychological well-being, R= resilience.

Next, the significance of the proposed hypotheses was assessed. Bias accelerated bootstrap re-sampling technique with 5000 resamples was applied. The results in Table 4 show that the hypotheses for the study were supported. Further, the results demonstrate the significant negative and direct effect of fear of illness on subjective psychological well-being (H1), whereas the fear of illness has a significant positive effect on perceived distress (H2).

In addition, we validated the mediation hypothesis (H3) using the product coefficients approach (Hayes & Scharkow 2013). The indirect effect of fear of illness on subjective psychological well-being through perceived distress was found to be negative (Table 4). The bias-corrected bootstrap confidence interval at 95% showed the mediation of perceived distress in the relationship between fear of illness and subjective psychological well-being. Furthermore, the results confirm a stronger direct effect than the indirect effect.

Next, for the model's in-sample predictive accuracy (Dolce et al. 2017) coefficient of determination (R^2) for endogenous constructs was examined. R^2 value of 0.100 and 0.298 was obtained for perceived distress and subjective psychological well-being, respectively. Fear of illness and perceived distress jointly explained 29.8% variance of subjective psychological well-being. The R^2 value 0.2, as advocated by Rasoolimanesh et al. (2017), is high in behavioral sciences research. However, the R^2 of perceived distress also establishes substantial predictive accuracy. Next, effect size (f^2) for the significant path coefficients was considered (Table 4). f^2 values of 0.35, 0.15, and 0.02 reflect the large, medium, and small effect sizes respectively (Cohen 1988). In explaining perceived distress and subjective psychological well-being, fear of illness indicated a small effect size. In producing R^2 of subjective psychological well-being, perceived distress showed a substantial effect. Finally, the predictive relevance of the model for the endogenous construct was evaluated using Stone-Geisser's Q^2 (Geisser 1974; Stone 1974). Blindfolding with omission distance D=7 obtained Q^2 value for psychological well-being (0.173) and perceived distress (0.048). Q^2 value is to be higher than zero (Hair et al. 2014). This establishes predictive relevance for both endogenous constructs (Fornell & Cha 1994). Sufficient predictive relevance for endogenous constructs in the model was established.

R^2 and Q^2 statistic is for interpreting the model's predictive power, as it indicates the model's in-sample explanatory power. We should also consider out-of-sample predictive power (Dolce et al. 2017; Nitzl & Chin 2017). For evaluating predictions from PLS path model estimations, cross-validation was done between model training sample and a holdout sample by generating subgroups based on criteria of k=10 (Shmueli et al. 2019). The mean absolute error (MAE) and root mean squared error (RMSE) came out to be 0.741 and 0.939, respectively. The positive $Q^2_{predict}$ value of 0.128 and 0.090 for the construct perceived distress and subjective psychological well-being respectively reflect the desirable predictive relevance of the PLS-SEM model. Further, RMSE and MAE at the item level for the PLS model and regression model were compared. RMSE and MAE of most of the indicators of subjective psychological well-being for the PLS model are smaller than LM and $Q^2_{predict}$ values of the PLS model are larger than for LM (Table 5). Therefore, the model has a medium out-of-sample predictive power.

Table 5. PLS Indicator Prediction Summary

	PLS			LM			PLS-LM		
Item	*RMSE*	*MAE*	$Q^2_{predict}$	*RMSE*	*MAE*	$Q^2_{predict}$	*RMSE*	*MAE*	$Q^2_{predict}$
PD1	0.967	0.688	0.041	0.958	0.718	0.059	0.009	-0.03	-0.018
PD2	1.081	0.834	0.014	1.078	0.855	0.018	1.003	-0.021	-0.004
PD3	1.074	0.825	0.051	1.081	0.834	0.039	-0.007	-0.009	0.016
PD4	0.948	0.749	0.038	0.948	0.745	0.036	0.000	0.004	0.004
PD5	1.068	0.839	0.073	1.073	0.847	0.066	-0.005	-0.008	0.013
PD6	1.035	0.839	0.058	1.046	0.835	0.036	-0.011	0.004	-0.015
SPWB1	1.148	0.879	0.032	1.152	0.882	0.025	-0.004	-0.003	0.007
SPWB2	1.126	0.906	0.110	1.122	0.895	0.116	0.004	0.011	-0.006
SPWB3	1.165	0.934	0.067	1.181	0.948	0.041	-0.016	-0.014	0.030
SPWB4	1.306	1.079	0.090	1.338	1.092	0.045	-0.032	-0.013	0.045
SPWB5	1.282	1.039	0.088	1.309	1.055	0.049	-0.027	-0.016	0.043

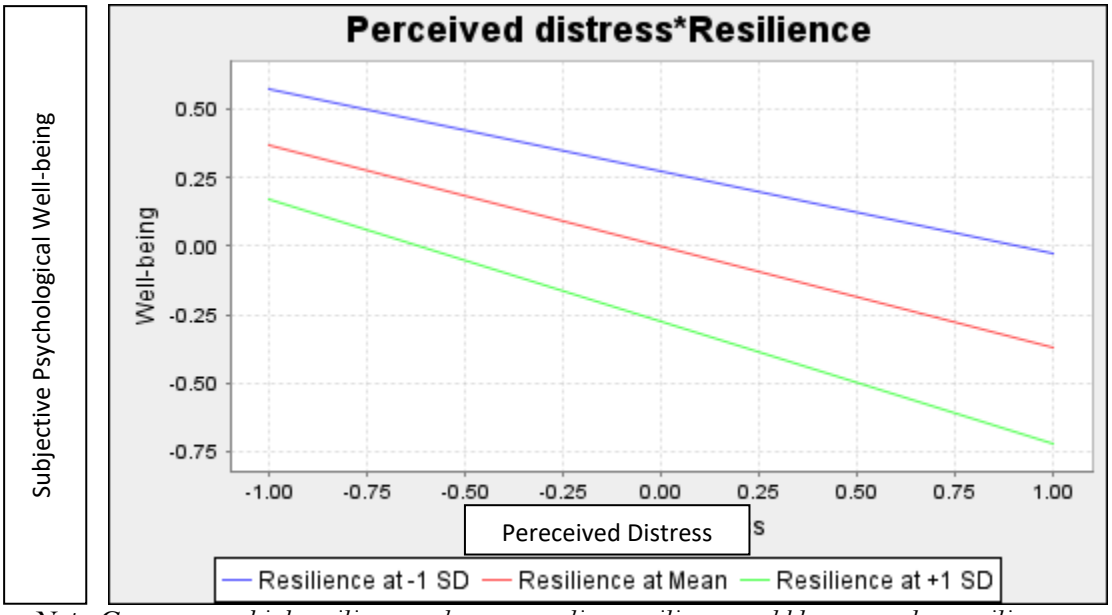
Note: RMSE= root mean squared error, MAE=mean absolute error, PLS-partial least squares, LM=linear regression model.

The results reflect the indirect effect of fear of illness on subjective psychological well-being through perceived distress. Next, the conditional process model was applied in which the mediation model was extended with the moderation of resilience on the relationship between perceived distress and subjective psychological well-being (Andrew Hayes Process Model No. 14). The interaction of perceived distress and resilience is significantly predicting subjective psychological well-being (Table 4). Therefore, we can conclude that resilience moderates between perceived distress and subjective psychological well-being relationship. Hence, the proposed moderating hypothesis 4a stands accepted. Subsequently, the index of moderated-mediation was calculated to evaluate the conditional process (Hayes 2015). The calculated index came out to be 0.027, Boot SE = 0.014 with (95% BCa CI:0.001 to 0.056). As the null of zero does not fall between confidence intervals, we infer that the indirect effect is conditional on the level of resilience. The result supports the moderated-mediation hypothesis (H4). Hence, resilience significantly moderated the indirect effect of fear of illness on subjective psychological well-being. Having established the existence of moderated-mediation; the spotlight analysis was conducted next (Spiller et al. 2008). Table 6 shows all three indirect effects for subjective psychological well-being with low, medium, and high resilience groups were negative and significant as the confidence interval does not include zero. Further, pairwise contrasts were also significant, indicating that the indirect effects were conditional on the level of resilience. This leads to the conclusion that the fear of illness lowers subjective psychological well-being via perceived distress and the influence of the mediator is reversed with an increase in subjective psychological well-being due to the increment of resilience. In addition, Fig. 2 shows

that the slopes become less negative as we move from low to high resilience. Overall, these results support the conditional effect of the indirect effect of fear of illness on subjective psychological well-being.

Table 6. Conditional Indirect Effects at Values of the Resilience

Outcome variable	Moderator	Effect	BootSE	Boot LLCI	Boot ULCI
SPWB	-1.0013 (low)	-0.156	0.033	-0.224	-0.093
SPWB	.0000 (moderate)	-0.129	0.027	-.0184	-0.078
SPWB	1.0013 (high)	-0.102	0.027	-0.159	-0.052



Note: Green means high resilience, red means medium resilience, and blue means low resilience.

Fig. 2 The Plot of Conditional Indirect Effect

DISCUSSION

The COVID-19 pandemic has affected the mental health of people across the world. With the outbreak of COVID-19, many studies have assessed the negative and positive mental health outcomes. This study highlights the process that weakens the negative relationship between fear of illness and subjective psychological well-being through resilience (moderator) and perceived distress (mediator), thus enhancing subjective psychological well-being. To our knowledge, this is the first integrated moderated-mediation model, which has explained the process through which subjective psychological well-being is promoted.

Results from the current study show the direct effect of fear of illness on subjective psychological well-being. The results of this study are consistent with previous evidence indicating the association between fear of illness and subjective psychological well-being (Amin

2020; Ahuja et al, 2020; Blasco-Belled et al. 2020; Paredes et al. 2020; Satici et al. 2020; Serafini et al. 2020). Hereby, these results suggest that due to fear of illness during the current pandemic, perceived subjective psychological well-being decreases. We found that perceived distress was predicted positively by fear of illness, which is in line with previous studies showing that symptoms of psychological distress are experienced during an outbreak of diseases (Hsing et al. 2020; Newby et al., 2020; Parlapani et al., 2020; Satici et al., 2020). This could act as a challenge in coping with the adversity and pose a threat to positive mental health. Prior research demonstrates the negative effect of perceived distress on subjective psychological well-being (Jiang 2020; Meng & D'Arcy 2016; Tecson et al. 2019).

Fear is a prominent reaction to the pandemic (Ahorsu et al., 2020). With the lockdown, people spent time in the home but got exposure to the pandemic through media. Thus, information on COVID-19 might have acted as a stressor resulting in fear of contracting COVID-19 (Lin 2020). Fear underlies all mental health problems (Polizzi et al. 2020). Notably, it is well-established that inaccurate information flowing from social media (Cinelli et al. 2020), a blizzard of bad and fake news make people conscious of the looming appalling dangers (Torales et al. 2020; Kumar & Nayar 2020). Hence, due to apocalyptic views and irrational fear of illness, people during pandemics are more prone to perceive distress. In the current pandemic, the risk of spread of infection, lethality, coupled with sudden lockdown has predisposed people to develop psychiatric disorders (Kumar & Nayar 2020; Satici et al. 2020). Albeit the passive stance with the feeling of helplessness has developed in the crevices of mind, making the people accept that they cannot control the virus and save themselves from any harm. For such people, if timely preventive steps are not taken, symptoms of psychological distress might develop, signifying the possible development of psychiatric conditions.

The study findings revealed that the effect of fear of illness on subjective psychological well-being is mediated by perceived distress. Perceived distress predicts subjective psychological well-being (Meng & D'Arcy 2016). The study findings confirm the negative indirect effect of fear of illness on subjective psychological well-being. It implies subjective psychological well-being further deteriorates when the fear of illness results in psychological distress. Recent studies have indeed reported psychological distress within the context of the COVID-19 pandemic (Boyraz & Legros 2020; Wang et al. 2020). During challenging times, these symptoms might be exacerbated. It is a matter of high concern, and it cannot be left ignored. Furthermore, failure to implement timely measures and handle perceived distress might cause numerous other negative mental health outcomes even in the post COVID-19 period.

Finally, this study revealed that resilience moderates the mediated relationship between fear of illness and subjective psychological well-being. These results corroborate previous empirical data on the role of resilience as a moderator of negative outcomes after exposure to stressful events. The interaction of perceived distress with resilience enhances subjective psychological well-being. This study has garnered more evidence in support of the protective function of resilience. Resilience has an inverse relationship with psychological distress and a positive relationship with various measures of subjective well-being, such as happiness, quality of life, and life satisfaction (Tecson et al. 2019). With the introduction of resilience, the effect of perceived distress relinquishes. It could be said that resilience enables individuals to regulate the perceived distress in adversities. Hence, it helps in coping, diminishes perceived distress and enhances subjective psychological well-being, especially during adverse life situations which act as a major threat to mental health.

Our study demonstrates that both indirect and direct relationship is significant, and also it is conditional on resilience level. It could be said that resilience buffered the negative effect of fear of illness through perceived distress on subjective psychological well-being. Hence, in the presence of resilience, the perceived distress resulting from the fear of COVID-19 fails to

further lower the positive mental health. The psychological distress fails to have any deleterious effect, as resilience fosters psychological well-being. Furthermore, positive mental health is attained as people might end up exhibiting better conditions than the one experienced before exposure to trauma (Southwick et al. 2014). This outcome corresponds well with the Strength Model of positive psychology. Resilience is a strength (Färber & Rosendahl 2018) that contributes to enhancing well-being and mitigating the negative mental health outcomes (Tecson et al. 2019; Rashid & Seligman 2018; Yildirim & Arslan 2020). In adverse life circumstances, resilience acts as a protective agent, hence the positive outcomes (Bonanno 2004; Nishikawa 2006). Resilient people can cope with the stressors during adversity (Connor & Davidson 2003). Therefore, in the face of adversity, it is possible to have positive outcomes.

The findings of our study contribute to the understanding of the factors responsible for subjective psychological well-being during traumatic and adverse conditions. It has become evident that the level of subjective psychological well-being during pandemics accrues from fear of illness, which increases perceived distress but resilience buffers it. Interestingly, Charney (2004) emphasized that fear experienced due to traumatic stress could be dealt with resilience. Our results confirmed that resilience is an important resource that acts in adverse life situations. Further, resilient people do not succumb to adversity and can evolve out of it. Bolier et al. (2013) suggested that positive psychology interventions could be effective in reducing psychological distress and enhancing subjective well-being among the general population. These results reiterate the importance of building resilience to promote and maintain positive mental health and mitigate the effects of negative mental health.

Therefore, it could be said that adverse life situations such as a sudden outbreak of diseases affect the mental health of people even when they are not exposed to it directly. The fear of illness or contracting infection might arise through constant exposure to the information related to the disease. The fear of illness has a propensity to affect both positive and negative mental health. If timely measures are not taken to prevent negative mental outcomes and mitigate their occurrence, then it might further affect the subjective psychological well-being. The level of resilience is important for how well an individual copes with stress exposure. In terms of COVID-19 as a stressor, persons high on resilience are less likely to have poor mental health than those with low resilience factors.

Theoretical Contributions

Positive psychology demands a shift from a deficit-based model to a health-promoting model that relies on protective functions for promoting positive mental health. The findings of our study provided support for the Strength/Competence-based Model of Mental Health (Glicken 2004; Rothman 1994). According to the Strength/Competence-based Model of Mental Health with the identification of the competencies/strengths, an individual can easily overcome challenges. Those who get an insight into their personal psychological resources are less likely to develop psychological disorders. The findings of our study make it clear that through the adoption of a preventive stance, we focus on maximizing positive mental health.

This study provides us empirical evidence for the buffering role of resilience during adversity. The subjective psychological well-being deteriorates during pandemics. Numerous signs and symptoms of negative mental health become visible during life-threatening situations. Given this, mental health disorders might develop. The psychological resources are to be considered as they are most likely to mitigate the negative effects and raise positive mental health. With the development of resilience, one gets confidence in fighting back with adverse situations. Resilience acts as a salutogen that attenuates the effect of perceived distress and augments subjective psychological well-being. Thus, resiliency in people could prevent negative mental

health outcomes.

When an individual perceives distress and also finds himself/herself resilient, it helps in reducing the negative impact of fear of illness, thereby raising the subjective psychological well-being. Hence, the moderating role of resilience is in confirmation with the Strength/Competence-based Model of Mental Health, which mainly focuses on the building of strengths and promotion of positive mental health. Thus, our study confirms the applicability of the Strength/Competence-based Model of Mental Health in the context of the COVID-19 pandemic.

Practical Implications

The findings of this study bring practical implications to youth, policymakers, and mental health professionals. During pandemics, people are ridden with fear of illness, infection, and death. The existential crisis brings about signs of negative mental health, thus the compromised well-being. Understanding the role of resilience in the association between perceived distress and subjective psychological well-being is crucial to the management of mental health during traumatic life situations.

Firstly, our findings suggest that resilience could serve as a buffer for young people experiencing the signs of psychological distress due to the fear of illness during the COVID-19 pandemic and enhance their subjective psychological well-being. In other words, resilience could prevent the development of psychiatric conditions during adverse life circumstances and can improve subjective psychological well-being. Direct and indirect exposure to traumatic situations creates fear of illness. In the face of adversity, knowledge of salutogenic factors is crucial to reduce the burden of development of new psychiatric illnesses. While making an appraisal of coping resources during the traumatic situations, reliance on individual-level psychological factors such as resilience could help in constructive coping. Resilience facilitates adjustment to the situation and generates the confidence to fight back. Therefore, efforts aimed at enhancing resilience could accentuate levels of subjective psychological well-being. Therefore, for fostering subjective psychological well-being, interventions should be designed essentially by incorporating psychological resilience. Resilience-based interventions might be beneficial for young people, particularly in the attainment of complete mental health by reducing psychological distress and enhancing subjective psychological well-being. It implies, mental health professionals could generate awareness that during adverse situations in life they might have greater subjective psychological well-being by mitigating the effect of psychological distress with resilience. Further, mental health professionals might conduct workshops online to train young people about how to develop psychological resilience. For example, asking young people to find meaning in life by writing down answers to the questions, requiring them to reflect on their purpose. Further, since the level of resilience keeps on changing; resiliency journaling regarding the challenges they came across at any time in their life and how those have been resolved could help regulate their level of resilience. Intervention programs emphasizing empowerment through the development of resilience in young people exposed to stressors in the pandemic are essential to advance their subjective psychological well-being. In addition, young people should have access to individual counseling services timely to minimize the adverse effect of fear of illness on mental health.

Secondly, our findings suggest that prophylactic measures are desirable during prolonged adversity to combat mental health problems arising due to exposure to media. Our findings provide an overview of sources accessed for COVID-19 related information. High reliance on social media and news on television are potential causal factors for fear of illness. The pattern of media consumption is associated with mental health outcomes. Coverage of traumatic events in

news showing disturbing scenes could be reduced. Awareness campaigns by mental health professionals might be conducted to make the people know the negative impact of viewing such events repeatedly. Young people should be encouraged to use social media responsibly by accessing authentic sources only, since social media is abounded by misinformation. Most importantly, we suggest that policymakers must design new laws to regulate the media's unbridled flow of information. These steps could help bring down the level of fear of illness, thus affecting mental health.

Thirdly, youth could be reached through their educational institutions. Therefore, the administrators in educational institutions at different levels are suggested to ensure the provision of online counseling services during pandemics. For example, they might focus on scheduling online activities such that some time is allocated to the awareness programs by experts to sensitize the youth regarding media usage and the menace of infodemic. They could be told about authentic sources they could access to gain information on COVID-19. In addition, experts in mental health could be invited to provide training, and intervention programs particularly aimed at developing resilience. This might strengthen the young individuals to fight back and emerge out from the adverse situation. They might get equipped to face the challenges now and in the future.

Limitations and Future Studies

There are some limitations in this study that future research could address. Firstly, the study is cross-sectional. A longitudinal study should be conducted in the future to bring out the long-term effects of resilience as a protective factor in the maintenance of mental health. We must follow people over time to ascertain the relevance of resilience in the post COVID-19 period as well as during the prolonged period of the ongoing pandemic.

Secondly, the current study is limited to a convenience sample of youth from the general population. Due to the online mode of administering questionnaires via social media, children and the elderly was not contacted. The representation of a specific age group may have affected the results. For generalizing the current findings, studies are to be conducted on representative samples of diverse age groups in the general population. Thirdly, the results of this research, indicated R^2 of 0.200 for subjective psychological well-being, suggesting fear of illness, perceived distress and resilience explained 20% variance in subjective psychological well-being. This means, 80% variance in subjective psychological well-being is explained by factors that are not in the model. Future studies may explore the role of other variables that would act as protective factors and facilitate coping during adversities.

Fourthly, although fear of illness was assessed, our findings bolster the suggestion that exposure to information about the pandemic through media is an important purveyor of mental health. Future research may wish to explore the extent of the impact of exposure to information from media on fear of illness and mental health. Lastly, the current study underscored the augmentation of resilience in the promotion of positive mental health and prevention of negative mental health. Thus, well-designed intervention studies are needed to determine the efficacy of resilience in bringing about desirable outcomes in adverse life situations.

CONCLUSIONS

The study of the moderated-mediation resulting in enhanced psychological well-being seems timely and necessary within the context of the COVID-19 pandemic. Our findings add to the existing literature by explaining the mechanism that makes it possible for an individual to

remain unscathed even when distress is perceived, especially during pandemics. In the current study, we have given due importance to both positive and negative mental health. The results indicate that it will be beneficial to apply interventions to build resilience within the context of pandemics and similar adverse life situations. However, the interventions to build resilience for the promotion of positive mental health that might be given in the ongoing traumatic phase of COVID-19 or similar types of pandemics are yet to be tested and tried.

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Appendix 1. List of items

Items	
	Perceived Distress
PD1	In the last month, how often have you been upset because of something that happened unexpectedly?
PD2	In the last month, how often have you felt that you were unable to control the important things in your life?
PD3	In the last month, how often have you felt nervous and "stressed"?
PD4	In the last month, how often have you found that you could not cope with all the things that you had to do?
PD5	In the last month, how often have you been angered because of things that were outside of your control?
PD6	In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?
	Subjective Psychological well-being
SPWB1	I have felt cheerful and in good spirits.
SPWB2	I have felt calm and relaxed
SPWB3	I have felt active and vigorous
SPWB4	I woke up feeling fresh and rested
SPWB5	My daily life has been filled with things that interest me
	Resilience
R1	I tend to bounce back quickly after hard times
R2	I have a hard time making it through stressful events
R3	t does not take me long to recover from a stressful event
R4	It is hard for me to snap back when something bad happens
R5	I usually come through difficult times with little trouble
R6	I tend to take a long time to get over set-backs in my life
	Fear of Illness
FOI1	Fear of having serious illness
FOI2	Relieved if doctor says nothing's wrong
FOI3	Hear about illness and think I have it
FOI4	Feeling at risk for developing illness
FOI5	Think I have serious illness