Research Article

Psychological Well-being: Can it be accounted for by Resilience and Self-regulation? A moderation Analysis

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being, and
moderation analysis

Abstract

Background -This paper focuses on the moderation effect of self-regulation on the relationship between resilience and psychological well-being. The objectives of this study were to examine relationship between self-regulation, resilience and psychological well-being; and to investigate the moderating effect of self-regulation on the relationship between resilience and psychological well-being.

Participants and procedure- A correlational design was adopted to collect data from 2077 participants using purposive sampling technique. The self- regulation scale, brief resilience scale, and psychological well-being scale were administered and the collective data were analysed by descriptive statistics and Pearson's product moment correlation. Hayes' PROCESS macro was used to perform the moderation analysis.

Results and conclusions-Results revealed a positive relationship between self-regulation, resilience and psychological well-being. Self-regulation played a significant moderating role between resilience and psychological well-being. Findings of this study can be applied as a base for developing intervention modules in varied field of education sector to policy making sector.

Introduction

Well-being is essential and has effects for mental and physical health of the individuals (Lyubomirsky et al., 2005).A sense of well-being is characterized by positive emotions (e.g., contentment, happiness), an absence of negative emotions (e.g., depression, anxiety), feeling satisfied with life, getting fulfilled and displaying positive functioning (Diener, 2000; Ryff& Keyes, 1995). The precursors and outcomes of well-being are growing fast (Fisher, 2010). Resilience, self-regulation, and well-being have been found to impact every aspect of our lives. The concept of psychological well-being involves a union of positive emotional conditions such as happiness and effective optimal functioning in individual and social life (Deci & Ryan, 2008). According to Ryff (1989) and Linley (2013), Psychological well-being refers to living life to the fullest in a fulfilling way and achieving personal growth and development.

People are usually cognizant that their behaviour plays an important role in attaining and sustaining physical and psychological well-being.This explains self-regulation, which is a crucial component of individual and cultural achievement and necessitates individuals' participation in the control of their adjustment processes (Abraham et al., 2000). Self-regulation refers to people's efforts to regulate and govern their thoughts, emotions, and actions in order to achieve higher goals (Carver &Scheier, 1998; Vohs& Baumeister, 2004).In the process of self-regulating one's behaviour, self-regulation models emphasise the necessity of planning and goal-setting (Zimmerman, 2008).

Resilience plays a crucial role in well-being, as it helps people to fight unanticipated tasks and apply adaptive coping strategies. Resilience can be defined as the ability to prepare for, withstand and recover from shocks and stresses. It provides support to well-being in the face of exposure to several adversities. The American Psychological Association (APA, 2014) delineates resilience as "the process of adapting well in the face of adversity, trauma, tragedy, threats or even significant sources of stress (para. 4)."

Resilience and Psychological well-being

Research Studies have provided the evidence of a positive relation betweenresilience and life satisfaction which is considered as part of well-being (Padhy, 2019; Rani & Midha, 2014). The result of the study by Sagone & De Caroli (2014) indicated a positive correlation between resilience and psychological well-being and considered resilience as a significant contributor to psychological well-being (Idris et al., 2019; Sood& Sharma, 2021).

Self-regulation and psychological well-being

The findings suggested that a significant amount of psychological well-being could be explained by self-regulation (Simon & Durand-Bush, 2015).Self-regulation increases psychological well-being by allowing numerous goals to be balanced, which reduces stress and improves positive emotion (Hofmann, Luhmann, Fisher, Vohs, & Baumeister, 2014).It also enhances goal achievement, which boosts positive emotions and subjective well-being (Sheldon, Jose, Kashdan, & Jarden, 2015).A significant positive relationship between self-regulation capacity and psychological well-being was noted in a study conducted on young adults. (Singh & Sharma, 2018).

Self-regulation and Resilience

Self-regulation is one of the important factors that define the resilient personality (Eisenberg & Spinrad, 2004; Novoa, 2014). Different studies showed that self-regulation acts as a significant predictor of resilience (Artuch-Garde et al., 2017, Eisenberg & Spinrad, 2004). A study conducted on a sample of 68 full-time college students revealed a significant association between resilience and self-regulation (Tanner, 2018).An analysis of resilience in young entrepreneurs found that self-regulation was one factor that contributed to resilience along with others (Pramesti & Prahastiwi, 2019).The findings of a study revealed that resilience played a mediating role in self-regulation of the students (Yahsi et al., 2020).

Objectives

The study had two main objectives: (i) to explore the relationship between resilience, self-regulation, and psychological well-being (ii) to explore the moderating effect of self-regulation on the relationship between resilience and psychological well-being.

Hypothesis

Taking the objectives into account the following hypothesis for the study were formulated: there would be a relationship between self-regulation, resilience and psychological well-being; self-regulationwould have the moderating effect on the relationship between resilience and psychological well-being.

Method

The study used correlational design including psychological well-being ascriterion variable (Y) whereas resilience as predictor variable (X) and self-regulation as moderator (W) variable.

Participants and Procedure

A total of 2077 participants [1054 men and 1023 women, with age range of 18-66 years (M =26, SD=9.56)] were chosen for this study through purposive sampling. A brief note about the study was provided to the participants and was asked to sign the consent forms for their participation in the study. Successively, the scales and demographic data sheets were administered on them individually as well as group to give their responses. The obtained data were analyzed by IBM SPSS Statistics 23.

Research Instruments

Self- Regulation scale (Schwarzer et al., 1999) consisted of 10 items on a 4-point Likert Scale. The ratings were 'Not at all true (1) to Exactly true (4)'. The higher the score indicates the higher level of self-regulation. The Cronbach's alpha level of the self-regulation was found to be 0.93.

The Cronbach's alpha level for the present study sample is 0.71.

Brief Resilience Scale (BRS) (Smith et al., 2008) consisted of 6 items responded to on a 5-point scale.The ratings were 'Strongly Disagree (1) to Strongly Agree (5)'. Cronbach's alpha ranging from 0.80–0.91.The Cronbach's alpha level for the present study sample is 0.57.

Psychological Well-Being Scale (Diener et al., 2009) consisted of 8 items on a 7-point Likert scale ranging from 'Strongly Disagree (1) to Strongly Agree (7)'. The total score was obtained by summing up all the scores of 8 items. A higher score indicated higher psychological well-being and vice versa.The Cronbach's alpha level for the present study sample is 0 .86.

Results

Descriptive statistics and Pearson's correlation were performed on the study variables using SPSS statistical software (Version 23.0). Hayes' PROCESS macro, was used for the moderation analysis (Hayes, 2018). Model 1 was used for the moderation analysis, with the specification to create 5,000 bias-corrected bootstrap samples upon which to evaluate the moderation effects. The data were analyzed with a purpose of identifying the self-regulation as a variable moderating the relationship between resilience and psychological well-being. For this purpose, initially descriptive analysis was done. Based on the outcome moderationanalysis was done to find out the moderation effect of self-regulation on the relationship between resilience and psychological well-being. All the variables were found to be normally distributed and there were no violations of multicollinearity among the predictor variables.

Relationship among the Measures

Pearson's correlation (r) was used to find out the relationships between resilience, self-regulation, and psychological well-being. The inter-correlation coefficients (r) are displayed in Table 1.

Table1. *Inter-correlations, Means, Standard Deviations for resilience, self-regulation, and psychological well-being. (N=2077)*

	Resilience	Self-regulation	Psychological well-being
Resilience	1	.42**	.31**
Self-regulation		1	.39**
Psychological well-being			1
Mean	18.74	27.01	44.44
SD	3.32	4.77	7.43

* Significant at the 0.05 level ** significant at the 0.01 level (2-tailed).

Relationship between resilience, self-regulation, and psychological well-being

Table 1 shows that resilience, self-regulation, and psychological well-being were positively related to each other. A significant positive correlation was noticed between resilience and self-regulation (r = .42, n=2077, p<.01); resilience and psychological well-being (r =.31, n=2077, p<.01); between self-regulation and well-being (r =.39, n=2077, p<.01).This implies that the psychological well-being increases when people are more resilient and more self-regulated.

Self-regulation as a moderator between resilience and psychological well-being

A moderation analysis was conducted to test the objective whether the psychological well-being is influenced by resilience, and more specifically whether self-regulation has a moderating effect between resilience and psychological well-being, in order to evade the possibility of high multicol linearity with the interaction term, all the variables were centred (Aiken & West, 1991).

Table 2. *The effect of predictor (Resilience) and moderator (Self-regulation) and interaction effect (Resilience x Self-regulation) on criterion variable (Psychological well-being)*

	B	*SE b*	*t*	*P*
Constant	.025 [-.016, .066]	.021	1.19	*.2358*
Resilience	.174 [.131, .217]	.021	7.94	*p<.001*
Self-regulation	.319 [.276, −.362]	.022	14.58	*p<.001*
Resilience x Self-regulation	-.059 [−.091, −.027]	.016	-3.59	*p<.001*

Note: $R= .4308$, $R^2 =.1856$, $F=157.48$
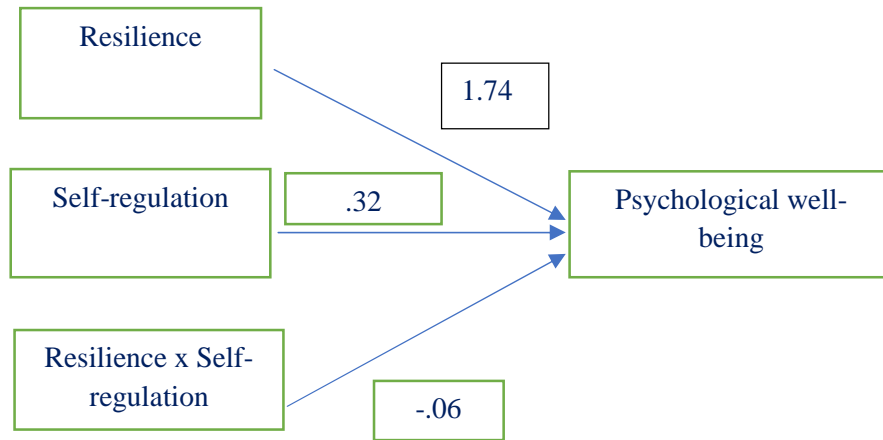Int = Interaction; *p < .05; ***p < .001.

Figure 1. The moderation analysis (model 1 by Hayes, 2018).
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Table 3 shows the results of three different regressions: (1) when the value for self-regulation is low (-1.051; 16th percentile), there is a significant positive relationship between resilience and psychological wellbeing, b=.236, 95% CI [.1830, .2889], t = 8.741, $p<.001$ and the effect of resilience on psychological well-being is low ; (2) when self-regulation is average (-.003;50th percentile), there is a progressive increase in the significant positive relationship between resilience and psychological wellbeing, b=.174, 95% CI .1312, .2171], t = 7.949, $p<.001$; (3) when self-regulation is high (1.045;84th percentile), the significant positive relationship between resilience and psychological wellbeing is found to be high b=.1123, 95% CI [.0560, .1687], t = 3.911, $p<.001$. This signifies that as self-regulation increases the effect of resilience on psychological well-being increases.*(Refer Table 3)*

Table 3. *Conditional effects of the focal predictor at values of the moderator (humour):*

Self-regulation	Effect	SE	T	P	LLCI	ULCI
-1.051	.236	.027	8.741	.0000	.1830	.2889
-.003	.1742	.0219	7.949	.0000	.1312	.2171
1.045	.1123	.0287	3.911	.0001	.0560	.1687

Note:*16th, 50th, and 84th percentile of Self-regulation*

These results explain that the relationship between resilience of a person and amount of psychological well-being is different for different levels of self-regulation. Specifically, the effect of resilience increases if moderated by self-regulation on the level of psychological well-being.

Figure 2 display three statistically significant interpolation lines depicting the relationship between resilience and psychological wellbeing. As shown in Figure, as the level of moderator self-regulation increased, the strength of the relationship between resilience and psychological well-being increased.

The figure shows a progressive increment in the relation between resilience and psychological well-being depending on the level of self-regulation. At low levels of self-regulation (-1.05), individuals who score high on resilience, experience high psychological well-being. The level of psychological well-being increases further when the score for resilience is higher and a medium level of self-regulation is present (.003). Further, when the level of self-regulation

is highest (1.05), individuals experience the highest levels of psychological well-being keeping the resilience score the more. This indicates that self-regulation serves as a moderator between resilience and psychological well-being.

For well-being, the overall model was statistically significant, R = .430, F(3, 2073) = 4157.49, p < .001. The model as a whole is significant explaining 18.5% of psychological well-being, p<.0001 (R^2 .1856).Well-being was positively related to resilience self-regulation, and self-regulation significantly moderated the effect of resilience. Resilience is found to be a significant predictor of psychological well-being, b = .17, 95% CI [.131, .217], t = 7.94, p < .0001. Self-regulation also is found to be a significant predictor, b = .32, 95% CI [.276, −.362], t = 14.58, p < .001. The moderation is observed by a significant negative interaction effect (b = -.06, 95% CI [−.091, −.027], t = -3.59, p < .001) between resilience and psychological well-being. Self-regulation as a moderator between resilience and psychological well-being was found to be

present at all the three levels of it. The test of the simple slopes, which tests the relationship between resilience(X) and well-being(Y) at three levels of moderator (W; self-regulation). At -1Sd (i.e., at -1.051) on the centered self -regulation variable (representing low self-regulation), the relationship between resilience and well-being was positive and significant (b=.236, se=.027, p=000). Similarly at the mean (i.e.at0) on the centered moderator variable (representing medium self-regulation), the relationship was positive and significant (b=.174, se=.022, p=000). Finally, at +1Sd (i.e., +1.045) on the centered self-regulation variable (represent high self-regulation), the relationship was positive and significant (b=.112, se=.029, p=000). The interaction is depicted in Fig. 3. The standardized slope for the effect of resilience was significant (p < .001) when self-regulation was one SD below the mean (= .236), at the mean (= .174), and one SD above the mean (= .112). As shown in *Figure 3*, as the level of self-regulation increased, the strength of the relationship between resilience and well-being decreased.
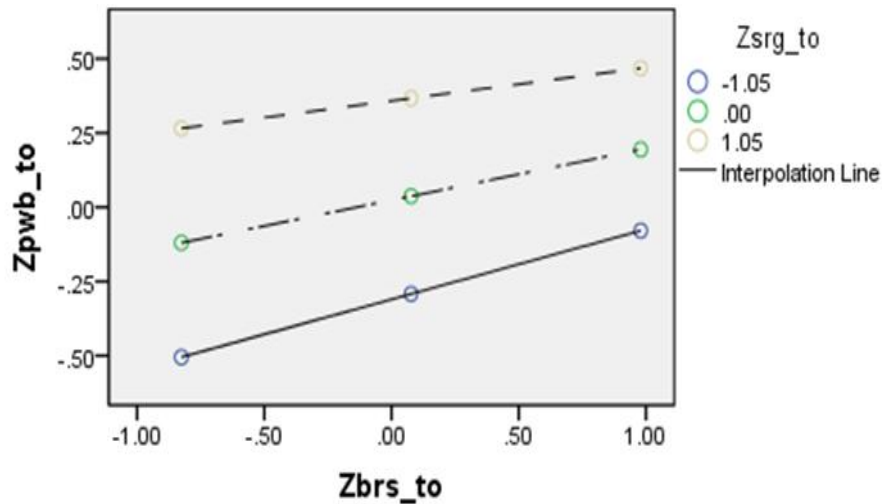

Figure 2 Self-regulation as a moderator between Resilience and Psychological well-being.

Note: Zpw_to= Psychological well-being, Zbrs_to= Resilience, Zsrg_to= Self-regulation

All variables were standardized to mean 0, variance 1

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Discussion

The first objective of the study was to explore the relationships between resilience, self-regulation, and psychological well-being. Results indicated significant positive correlation between these variables. The results are in agreement with the first hypothesis formulated.

Resilience and psychological well-being were revealed to have a substantial positive relationship. It means that persons who have a high level of resilience have a higher level of psychological well-being, and vice versa. Different protective factors, pleasant emotions, self-worth, and self-discipline may all play a role in this favourable association. This finding supports a recent study on adolescents, which discovered a strong positive relationship between resilience and psychological well-being (Sagone& De Caroli, 2014; Padhy, 2019).

The significant positive relationship between self-regulation and psychological well-being explains that as the level of self-regulation increases the level of psychological well-being also increases. The explanation for this could be due to the fact that people's psychological well-being improves when they take control of their own emotions and thoughts. It could also be attributed to factors like self-efficacy, outcome expectancies, and a preference for specific goals. Singh and Sharma (2018) found a favorable association between self-regulation and psychological well-being in their research.

Based on the second objective of the present study, self-regulation was found to have a moderating effect on the relationship between resilience and psychological well-being. Self-regulation and resilience were discovered to be major predictors of psychological well-being. The relationship between resilience and psychological well-being was mediated by self-regulation. This moderating effect was observed at three levels of self-regulation, implying that self-regulation functions as a moderator by adding value to the positive effects of resilience on psychological well-being.

It can be observed from the three regression analyses carried out, that the impact of self-regulation and resilience on psychological well-being are positive. With a difference in the level of self-regulation (low, medium, high), the relationship between resilience and psychological well-being changes, indicating that the higher the level ofself-regulation, the lower the impact of resilience on one's psychological well-being. It can be explained in terms of self-regulation models that emphasize the relevance of the planning and goal-setting phase in the self-control process. Although the goal factor is important for developing resilience, the pressure to attain the goal can sometimes reduce the level of well-being of resilient people. Under these ideas, feelings of ambiguity and confusion about one's own self-concept would hinder an individual's ability to appropriately estimate their distance from the goal. Because there is no apparent signal of a gap between self and standards, such discrepancies may go overlooked, and no action will be taken to rectify the situation (Light, 2017).

People are often happier in their life when they believe they are making progress toward their objectives. As a result, efficient self-regulation is critical for psychological adjustment and overall well-being.As Baumeister (1999) rightly pointed out that "People are able to resist their own impulses, adapt their behavior to a range of standards, and change their current behaviors in the service of attaining distal goals". This view of Baumeister may be taken as the main factor for self-regulation in accounting the psychological well-being of the individual.

Limitations

Although the findings are promising, a mixed methods approach would help to explore individual experiences related to self-regulation, resilience and psychological wellbeing.

Implications

The current research adds to the body of knowledge on resilience, self-regulation, and

well-being. The study discovered that resilience and self-regulation had a considerable impact on people's psychological well-being. In this regard, the most important regulatory elements must be developed in order to improve people's psychological well-being. The findings of this study can be used to design intervention modules in a variety of fields ranging from education to policymaking.

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