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PREDICTIVE EFFECT OF HIGH SENSITIVITY ON PERCEIVED STRESS IN HEALTH CARE PROFESSIONALS: RESILIENCE AS MEDIATOR

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Abstract

Previous studies indicated a possible role of high sensitivity in perceived stress in healthcare professionals. Some studies found resilience to be of particular interest in the relationship between high sensitivity and perceived stress. The present study aimed to examine the effect of high sensitivity on perceived stress, focusing on the mediating role of resilience. The study recruited 400 highly sensitive healthcare professionals from different public and private sector healthcare facilities of South Punjab using the purposive sampling technique. Those healthcare professionals completed the Urdu versions of three scales including the Highly Sensitive Person Scale (α=.93), Perceived Stress Scale-10 (α=.83), and Brief Resilience Scale (α=.95). All the participants signed the written informed consent before taking part in the study. The results found significant correlations among high sensitivity, perceived stress, and resilience. The high sensitivity was found to be positively correlated with perceived stress (r=.40) whereas both high sensitivity (r=-.37) and perceived stress (r=-.13) were found to be negatively correlated with resilience. The regression analysis found the high sensitivity to a significant predictor of stress with p<.01. Moreover, the stepwise method of mediation analysis found the complete mediated role of resilience (LL=-.02, UL=-.04) in the relationship between high sensitivity and perceived stress. The present study significantly established the crucial role of resilience in the experience of perceived stress in healthcare professionals and recommended practitioners to develop strategies for building resilience so healthcare professionals can improve mental health and function effectively especially if they are highly sensitive.

Keywords: Healthcare, Sensitivity, Stress, Resilience, Professionals

Introduction

In the era of psychological study, the notion of high sensitivity has harvested growing attention because of its impact on persons' emotional involvement and responses to different stimuli. Individuals differ in how subtle they are to stimuli in their environments, particularly when they are in unfamiliar ones. These dissimilarities in the way people observe and interpret ecological cues could be the fundamental factor that ties the diverse models that make up the sensitivity of surroundings. A person who is highly sensitive to their surroundings is said to have sensory processing sensitivity. Some people are brave, impulsive, and aggressive, while others are more moderate. The degree to which an individual can receive, and process incoming information is correlated with the differences in responses to environmental stimuli. A temperamental feature with a biological basis that is linked to increased awareness and reactivity to social and environmental stimuli is called sensory processing sensitivity (SPS) (Tra et al., 2022). Another variable that needs to be introduced is perceived stress, which is the subjective assessment of the level of stress that a person feels they are under. Healthcare professionals are in shortage, with substantial workloads and greater risk, demanding them to perform effectively in numerous employed settings, therefore, they are confronting excessive burden and stress. When persons notice higher levels of strain that exceed their coping skills, it can produce a diversity of emotional responses from them (Mayer et al., 2018). According to research, some people have a comparatively good outcome after going through significant stress or adversity; their outcome is better compared to that of others who went through the same experiences, suggesting that resilience is an active phenomenon (Rutter, 2013). The characteristic orientation suggests that resilience is a personality trait that aids in an individual's ability to overcome adversity and accomplish positive adjustment and growth, even though, there is still much controversy concerning definitions of resilience (Hu et al., 2015). Resilience has been exposed in past studies to be a defensive factor in contradiction to mental ailments. Iimura (2022) investigated whether resilience, as a protective factor, mitigates the association between the personality characteristic of environmental sensitivity and COVID-19-related distress to further comprehend mental health during the pandemic and found resilience to be of significant value. Mostly, research on these variables was conducted in COVID-19 which makes the current study different from the past ones.

Significance of the Study

Additionally, to our knowledge, high sensitivity had not been examined in healthcare professionals with any mediating role of resilience. There is very limited literature on the mediating role of resilience and the association between high sensitivity and perceived stress is missing in previous research. The importance of studying the impact of high sensitivity on perceived stress among healthcare professionals lies in understanding the complex interplay of these factors and their implications for well-being. By investigating these factors, researchers and practitioners can gain a better understanding of the dynamics between high sensitivity, perceived stress, and resilience in healthcare professionals. This study is filling many missing gaps that were left in the literature.

Problem Statement

The present study was designed to find out the association between high sensitivity, perceived stress, and resilience. It was assumed that high sensitivity can lead to perceived stress which can be mediated by the effect of resilience in healthcare professionals. So, the study was conducted with the following objectives and hypotheses.

Research Objectives

1. To find out the association between high sensitivity, perceived stress, and resilience.

2. To find out the effect of high sensitivity on perceived stress in health care professionals.
3. To find out the mediating role of resilience between high sensitivity and perceived stress.

Hypotheses

1. There is a significant association between high sensitivity, perceived stress, and resilience.
2. Perceived stress is significantly predicted by the high sensitivity of healthcare professionals.
3. Resilience significantly mediates the relationship between high sensitivity and perceived stress.

Literature Review

The research performed by Redfearn et al. (2020) analyzed that in contrast to their less sensitive staff members, nurses who were supposed to be tremendously sensitive by nature were observed in this study for their primary stresses and burnout stages. The results confirmed the role of a highly sensitive nature in the experience of perceived stress. Another study was done by Daniilidou et al. (2020) to explore the role of resilience in mitigating the impact of burnout and stress. The findings verified that resilience acted as a mediator in the relationship between perceived stress and burnout. Yıldırım et al. (2020) investigated the associations between the risk of COVID-19 and mental wellbeing issues among healthcare staff, who were vigorously treating affected individuals with the mediation roles of resilience. The conclusions found resilience to be negatively correlated with psychological issues like tension, apprehension, depression, apparent risks, and perceived stress. Amidst the COVID-19 pandemic, nurses have encountered increased workloads and the risk of burnout due to perceived stress. Jamebozorgi et al. (2022) investigated the connection between resiliency and burnout in nurses and found resilience to be a protective factor. Another study investigated the effect of the perceived working of palliative nurses. Resilience is linked to lower levels of burnout and perceived social assistance may help palliative nurses become less burned out and more resilient individuals (Zhang et al., 2023).

Research Methodology

Research Design and Sample

This study used a cross-sectional survey design which is utilized to investigate impact, mediating effects, and associations between variables. The population of this study was healthcare professionals from South Punjab who were male and female medical staff members, working in hospitals and private clinics situated in Multan, Lodhran, Bahawalpur, and Rahim Yar Khan districts. A purposive sampling technique was used to select samples from a population. The sample size was decided by calculating the percentage of healthcare professionals in Punjab with a 95% confidence interval and 5% estimate of error. According to this method, the estimated number of individuals for this research was 400 (*N*=200 females and *N*=200 males). All these individuals were nurses, doctors, therapists, and paramedical staff.

Inclusion and exclusion Criteria

This research has included doctors, nurses, and allied healthcare staff such as therapists with a minimum of two years or more of experience in their current healthcare role. They needed to be working in a healthcare setting currently and possess a current and valid professional license in the relevant discipline. This study excluded the participants who were inexperienced and did not have the necessary professional credentials. Individuals who were retired or had significant mental or physical health concerns were also excluded from participation in this study.

Materials

1. *Informed Consent and Biodata Form*

First, all the participants were informed about the research purpose and the objective of participation and asked to sign the agreement form so that they would be aware of what was going to happen in this study. They were also

informed that their identity and personal information will be kept confidential. The biodata of participants was taken from them in the form of some questions. They were asked about their age, gender, profession, work experience, and marital status.

2. *Highly Sensitive Person Scale*

Highly Sensitive Person Scale (HSP Scale) developed by Aron & Aron (1997) consists of 27 items. This was rated on the 7-point Likert scale. The HSP is an appreciated tool that is used to serve people to understand their high sensitivity. It has been revealed to be a valid and consistent tool of high sensitivity with validity .85 and reliability .87 values. The internal consistency of the Urdu version is .93.

3. Perceived Stress Scale-10 (PSS-10)

The Perceived Stress Scale-10 items (Urdu version) was translated by Mushtaq & Ahmed (2020) which has 10 items used to measure stress reported by the participants. The scale exhibits an internal consistency value of .83 and a validity value of .76. The adequate assessments of this scale recommended that the instrument might be valuable for finding out the level of perceived stress which means how stressed out the person is.

4. *Brief* Resilience *Scale*

The Brief Resilience Scale developed by Smith et al. (2008) was used to assess the ability of individuals to recover from their adverse circumstances. The BRS consists of 6 items that focus on the capacity to get well from adverse and stressful situations. The scale is a 5-point Likert measure which is rated from strongly disagree to strongly agree. The Cronbach's alpha ranges from .80 to .91. The reliability of the Urdu version of this scale is .95.

Procedure

The first step before data collection is translation, all the English version scales were translated into Urdu language which make it understandable for participants. The translated version of PSS was available, but the rest of the scales were translated into Urdu. The authorized regulations for translating and adapting were utilized during the translation process as follows.

Translations

The forward and backward translation method was applied for the translations of English version scales (Bibi & Kazmi, 2021; Rasool et al., 2022). To lessen the likelihood of errors, a committee of experts consisted of two psychologists and a bilingual expert who scrutinized these three translations to examine each item's translations. Then, four bilingual translators were requested to analyze them once more, and they translated the versions back into the English language. To generate translated versions that were similar, meanings and cultural discrepancies were figured out utilizing the backward translation. For the primary assessment, thirty participants with bilingual expertise in both Urdu and English were chosen. The scores of items on both versions of the language were compared to find out correlations among them. To assess any differences in linguistics, item complexity, and meaning, these consequences were again presented in front of the committee. Proficient expert advice was also used to reach a consensus and generate the final translated versions of the required questionnaires.

Data Collection and Analyses

The procedure of data collection was started by getting informed consent from the people who gave their willingness to participate in the study. After signing of informed consent, they were provided with the measures and filled in the questionnaires. The Software SPSS-25 was employed to test hypotheses and run analyses. Statistical analyses, including correlation, regression, and mediation analyses, were used to explore the relationships, impacts, and mediating effects. The PROCESS Macro was employed to evaluate mediation using Model 4 for fundamental mediation.

Results

Table 1

Skewness, Kurtosis, and Alpha of Study Variables (N=400)

ariables	Range	Skewness	Kurtosis	Cronbach's Alpha	Min	Max	Variance
High Sensitivity	100	-0.74	-0.42	0.93	68	168	636.6
Brief Resilience	21	0.21	-1.39	0.95	8	29	39.32
Perceived Stress	17	-0.44	-0.28	0.83	20	37	17.05

Note: *Min: Minimum, Max: Maximum, Std. Deviation: Standard Deviation*

Table 2

Descriptive Statistics and Correlations for Study Variables (N= 400)

Variables	*M*	*SD*	1	2	3
1. High Sensitivity	131.19	25.23	-		
2. Resilience	18.08	6.27	-.37**	-	
3. Perceived Stress	29.67	4.12	.40**	-.13*	-

Note: ***p<0.01, *p<0.05, M= Mean, SD= Standard Deviation*

Table 2 shows the correlations among high sensitivity, resilience, and perceived stress. The association between high sensitivity and resilience is about -.37 (**p<0.01) which indicates the moderate negative relationship between them, both variables have an inverse association which depicts that if high sensitivity increases, then people will be less resilient. The perceived stress has positive correlations with high sensitivity and burnout that are .40 (**p<0.01) with high sensitivity and a negative connection that is -.13 with resilience which is statistically significant at *p<.05. Thus, it was confirmed that all the studied variables have significant associations with each other.

Table 3

Regression analysis of high sensitivity predicting perceived stress (N=400)

Variables	*B*	*β*	*t*	*p*
Constant	20.61		19.21	0.00
High Sensitivity	0.03	0.15	2.36	0.02**

Note: ***p<0.01, R2 = .12, F = 54.93, df = 398, B= Unstandardized beta, β= Beta, t= t-statistic p= p-value*

Table 3 illustrates the effects of high sensitivity on perceived stress among 400 healthcare professionals. The P-value that is .02 shows that the independent variable or predictor (high sensitivity) has a highly significant impact on stress with two asterisks (**p<.01). The values of slope (.03), β (.15) and t-statistic (2.36) approve the supposition that the predictor variable (high sensitivity) has significant effect on the dependent variable (perceived stress).

Table 4

Serial Mediation Analysis for Different Models: Indirect Effects (N=400)

Models	Effect	*SE*	95% Confidence Interval (LL, UL)
Total Effects			
High Sensitivity > Resilience > Perceived Stress	.06	.08	.04, .07
Direct Effects			
High Sensitivity > Resilience > Perceived Stress	.01	.01	.05, .08
Indirect Effects			
High Sensitivity > Resilience > Perceived Stress	-.01	.00	-.02, -.04

Note: *SE: Standard Error; Bootstraps 10000*

Table 4 demonstrates the mediation analysis for different models using total, direct, and indirect effects among healthcare professionals. In the first model, the total effect of high sensitivity on perceived stress is assessed while using resilience as a mediator the effect size = .06 and standard error = .08 are given. The confidence interval with a lower limit of .04 and upper limit of .07 are positive which demonstrates the full mediation. In the second model, the direct effects of mediation are displayed, effect size and standard error both are .01. and the confidence interval with a lower limit of .05 and upper limit of .08 are given which gave the evidence for the direct effect of IV on DV. The third model in Table 4 displays the indirect effects of high sensitivity with the effect size = -.01 and standard error = .00. The confidence interval with lower limit -.02 and upper limit -.04 are negative which validates the complete mediation and proved that resilience is fully mediating the association between high sensitivity and perceived stress.

Discussion

This study aimed to investigate the influence of high sensitivity on perceived stress with mediating analysis of resilience among healthcare professionals. At first, the Pearson correlation was run to examine the association between the variables. Results found a significant positive correlation between high sensitivity and perceived stress. This finding is

in line with the previous research's claims about these variables' connection. According to one of the medical studies, HSPs have more chances to become stressed as compared to those who are less sensitive. Because the visuals, noises, odors, and other physical input might be the basis for higher levels of experience for HSPs (Acevedo et al., 2014). As predicted, resilience was negatively correlated with high sensitivity, and stress which confirmed the hypothesis that if the person is highly sensitive, and experiences more stress, then, his or her resilience will decrease, and it will be more difficult to bounce back from adverse circumstances. To our knowledge, there is no previous research that examined the link between resilience with high sensitivity. Jackson et al. (2007) examined resilience as a kind of approach to endurance and progress in intimidating work surroundings. Another prior study has also indicated the association between resilience, sensitivity, and stress during COVID-19 in adolescents (Iimura, 2022). So, the first hypothesis is confirmed which claimed the significant link between all the variables. Second, there is also the confirmation of the hypothesis which declared the effect of sensitivity on stress in healthcare professionals. After examining past studies, there is quite little literature that has discussed the influence of high sensitivity on perceived stress directly or indirectly. However, there was research that showed the impact of stress over sensitivity which showed the results against the current study. Particularly, the amount of strain suggested that the HSPs can be vulnerable to more tense environments as compared to non-HSPs. In contrast to the previous study, the present research suggested that stress is significantly impacted by sensitivity in a way that it was found that sensitivity had a moderately significant impact on stress with $p<.01$ value. This gives the idea that those healthcare specialists who are more sensitive are at greater risk of becoming stressed in their lives. About the third hypothesis, it was found that there is a full mediation of resilience between sensitivity and stress. This finding depicted that resilience is buffering the link among studied variables which means resilience can be used as a buffer among them. This investigation proved that resilience seemed to be defensive in the direct link between high sensitivity and stress. Resilience might indirectly and directly alleviate the detrimental effects of high sensitivity and stress. These consequences added to the consideration of participants' mental well-being in the context of health. This study has extended the previous literature on the implication of resilience among healthcare professionals. The previous work illustrates, moreover, that the participants reported a modest degree of flexibility. This finding is relevant to the research amongst other people, for instance, Brazilian medicinal students (Miguel et al., 2021).

Implications

Perusing the influence of sensitivity on stress in health care professionals, with the mediating role of resilience contains numerous vital implications. It permits investigators to delve into the complex relationship between high sensitivity and perceived stress. Resilience thus becomes essential in shaping how people survive with stress triggers. By recognizing flexibility as an arbitrator, the study can propose targeted interventions. Additionally, the policymakers should intend to refine employee's workplace conditions and support devices within health care settings.

Limitations and Recommendations

There are some limitations such as the investigation in the current research was restricted by constraints of methodology including a self-reported questionnaire, and cross-sectional research design for data collection. Moreover, some biases in the sample can also disturb the soundness and can make the results less generalizable. In the current study, it may be difficult to identify causes among variables, henceforth, it is

difficult to say if high sensitivity can cause stress directly or not. Furthermore, self-reported scales were used to gather the whole data, which can have produced the biases in response of participants. There is a possibility that participants have overstated or underestimated the connection between the aspects of this research. Future studies may be conducted with other research designs such as experimental research designs to carefully establish a relationship between high sensitivity and perceived stress.

Conclusion

The present study concluded that high sensitivity significantly predicted the perceived stress in healthcare professionals. The relationship between high sensitivity and perceived stress was significantly mediated by resilience. Further, all these three variables showed a significant association among them.

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