

# Impact Of Sense Of Coherence On Psychological Well-Being Among Heart Patients: The Chain Mediating Role Of Affect And Meaning In Life

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## Abstract

*The study investigated the relationship between a sense of coherence and psychological well-being among heart patients. It also assessed the mediating roles of affect and meaning in life in the relationship between a sense of coherence and psychological well-being. A sample of 205 heart patients contacted at Ch. Pervaiz Elahi Institute of Cardiology in Multan provided data on measures of Sense of Coherence Scale, the Psychological Well-Being Scale, Positive and Negative Affect Schedule Short Form, and Meaning in Life Questionnaire along with demographic information. For the data analysis, Hayes's PROCESS v4.2 Model-6 on SPSS-25 was used. Correlation analysis showed the significant relations among sense of coherence, psychological well-being, affect, and meaning in life ( $p < 0.01$ ). It was found that affect and meaning in life indirectly influenced the relationship of sense of coherence with psychological well-being ( $a1*b1 = 0.2366, p < 0.001$ ); ( $a2*b2 = 0.0456, p < 0.05$ ). Serial mediation analysis further demonstrated the sequential influence of affect and meaning in life on psychological well-being (indirect effect 3 = 0.1154,  $p < 0.001$ ). Findings highlighted the importance of a sense of coherence in promoting psychological well-being among heart patients. The study provides valuable insights for interventions aimed at enhancing coping strategies and mental health in this clinical sample.*

**Keywords:** *affect, meaning in life, heart patients, sense of coherence, psychological well-being,*

## Introduction

During the past decade of the year 2000, much more efforts have been made in investigating the psychological component of cardiac patients, especially the existential variable; sense of coherence (SOC). Antonovsky's SOC as a general concept refers to a person creating an understandable and manageable life with a strong meaning. It has been under a lot of research focus in the recent past due to the ability of this construct to increase the health-related construct and wellbeing in individuals who are living with chronic diseases. Hence, there is empirical data available on the effect of SOC on the psychological well-being of heart patients, it is still not clear as why SOC has a varying impact on this aspect. Therefore, it appears that there are intermediate variables that may have key role in terms of how SOC affects the emotional and existential domains of the patient.

In the present research, these questions were answered: How does SOC predict affect and meaning in life among heart patients? To what extent do affect and meaning in life mediate

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the relationship between SOC and psychological well-being among heart patients? Affect analyses including feelings, moods, and passions, while meaning in life includes the satisfaction and purpose people perceive in their lives are the two mediating variables. The pathways explained in the study would contribute to the understanding of how exactly SOC appears to enhance the psychological well-being as well as the resilience of this population. By examining these mediators in detail, this study will seek to understand the more nuanced ways in which SOC impacts on psychological well-being in a patient with heart disease; these findings could therefore prove valuable for designing community level interventions that are more comprehensive and effective for increasing SOC.

Cardiovascular diseases are still the leading threat to human lives and highly affect patients' psychological states (Sultan et al., 2018). Psychological well-being involves the subject's emotional state, level of satisfaction with life, and coping capacity. Sense of coherence defined by Antonovsky, is one of the essential determinants of psychological well-being in patients with heart diseases. SOC is defined as a person's ability to make sense of life as well as to organize it into a comprehensible and manageable lifestyle along with a meaningful one (Antonovsky 1987). It has emerged that SOC evidences a strong positive association with the psychological well-being of heart patients. SOC also helps people frame their experiences as orderly, minimizing the psychological scar that chronic illness would bring to people's lives (Eriksson & Lindström, 2007). SOC has been found to be inversely related to the level of anxiety and depression; to improve the quality of life; to reduce the level of complaints; and to increase the level of overall psychological well-being of heart patients (Surtees et al., 2003; Norekvål et al., 2010).

One study conducted on a sample of heart patients by Silarova et al. (2012) established that those with a high SOC scored lower mean values of anxiety and depression. This can be explained by the fact that those who possess a high level of SOC are better equipped to accept the illness as a kind of challenge; therefore, they deal with it in a more constructive way. In the same context, Kristofferzon et al. (2018) concluded that for young adults with heart disease, a higher SOC means a better quality of life over time. This indicates that SOC is a critical resource that can be used to predict a patient's coping and, therefore, resilience given a chronic health condition. Moreover, Moksnes's systematic review (2021) revealed that SOC was a strong determinant of health in different population activities and in patients with chronic diseases. Some of the well-being aspects they observed include: they established that the SOC is positively correlated to mental health and psychological well-being. The existence of such evidence points to SOC as a resilience factor that can effectively dampen the negative impact of heart disease on the resulting psychology.

Positive and negative affects; the net positive and net negative emotions of an individual, have been postulated to mediate the relationship between SOC and psychological well-being. Krok (2020) investigated the relationship between SOC and two sets of seventy-seven positive and negative psychological attributes in 176 heart patients. This implies that an increase in the level of SOC within a patient contributes to a positive change within the patient's emotional state as well as eradicating negative emotions, thus improving the patient's psychological well-being. In this respect, positive affect is correlated with improved health and, specifically, reduced mortality rates among heart disease patients; negative affect, on the other hand, is connected with worse health outcomes (Taberner et al., 2021). It has been proven that positive affect, including joy and enthusiasm, reduces the risk of cardiovascular diseases and strengthens immune competence. Steptoe and Wardle (2011) also concluded that older people who experience an elevated level of positive affect have a reduced risk of death at the same age, which again pinpoints the importance of positive feelings for improved longevity and health. On the contrary, negative emotions such as anger and sadness were found by Kubzansky and Thurston (2007) to worsen heart disease symptoms and promote the risk of cardiac events.

Hence, an increase in positive affect via SOC could be considered an effective antecedent for enhancing the psychological health and well-being of heart patients.

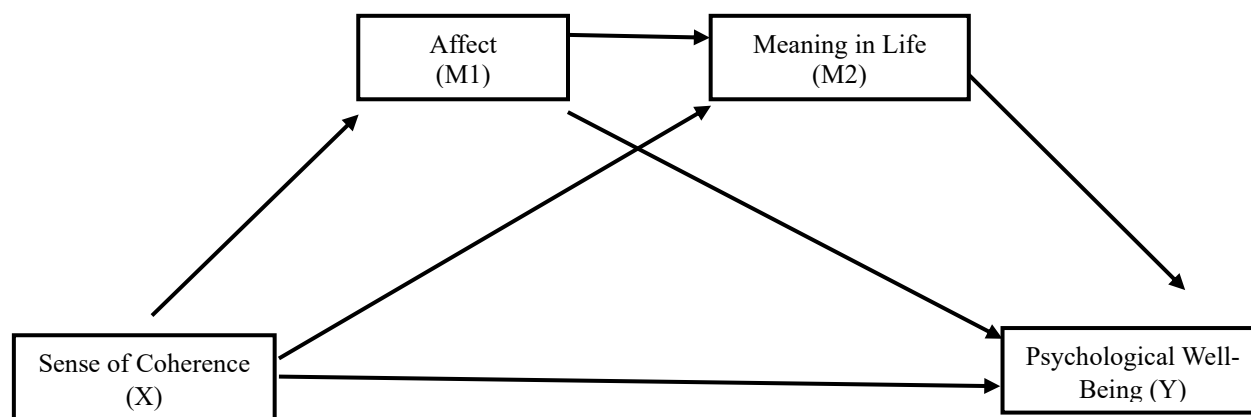
Instead, the variable that affects and is affected by the relation between optimism and self-esteem and mediates experiences as well is the presence and perception of meaning in life. SOC rises contribute positively to the value of life and meaning-making of heart patients, therefore enhancing their overall psychological well-being. As evidenced by research, meaning in life is a significant mediator of SOC and psychological well-being, with the positive effect being an enhancement, which has been confirmed by Krok (2022). The stated stability in meaning in life coefficient for stress is indicative that absolution of meaning in life can act as a stress mediator, which in turn improves psychological wellbeing. The results reveal the overall positive correlation between the sense of coherence and the psychological health of patients with heart disease: the ability to find meaning in the disease contributes to a more constructive approach to its treatment. Also, Steger et al. (2006) noted that meaningfulness enhanced the psychological well-being and life satisfaction of people. Thus, the strategies used to promote SOC should also include the guidance of patients towards a better understanding of ways to find meaning and, therefore, of achieving a higher level of psychological well-being (Ahmed et al., 2023).

To ascertain the psychological issues affecting medical practitioners who treat cardiac disease, more study is therefore needed, with an emphasis on the fields of psychology and cardiology. Still, it is important to remember that people with heart diseases deal with a range of psychological and psycho-social problems on a daily basis in addition to the physical symptoms of their illnesses. In a similar line, this study employed the health psychology approach because the aforementioned assumption presupposes the existence of both physical and mental health. Thus, the scope of the present study includes analyzing the sense of coherence as a component influencing the psychological well-being of patients with heart diseases. Further to better understand the intricate processes by which SOC affects psychological well-being, this study examined the mediating roles of affect and meaning in life as well.

### **Hypotheses of the Study**

- 1) Sense of coherence will be correlated with psychological well-being, affect and meaning in life.
- 2) Affect will be correlated with meaning in life and psychological well-being.
- 3) Meaning in life will be associated with psychological well-being.
- 4) Affect will mediate the relationship between sense of coherence and psychological well-being.
- 5) Meaning in life will mediate the relationship between sense of coherence and psychological well-being.
- 6) Affect and meaning in life will play as serial mediators in the relationship between sense of coherence and psychological well-being.

### Conceptual Framework



### Method

#### Participants

A total of 205 heart patients were recruited of which 124 (60.5%) were males and 81 (39.5%) were females who underwent different heart procedures and suffered from medical conditions such as POBA (Plain Old Balloon Angioplasty), Bypass or in cardiological terms CABG (Coronary Artery Bypass Grafting), Stent whereas in cardiac vocabulary PCI (Percutaneous Coronary Intervention), Catheter Ablation, Temporary Pacemaker Insertion, Heart Attack or MI (Myocardial Infarction) and Arrhythmia. Sample aged between 24-64 years was approached at the Ch. Pervaiz Elahi Institute of Cardiology, Multan.

#### Instruments

##### Sense of Coherence Scale

The sense of coherence scale is a self-reporting tool with 9-items measuring the overall coping potential of an individual when it comes to stress and his/her ability to stay healthy (Antonovsky, 1987). Responses are obtained on a 7-point Likert scale ranging from 1 (never) to 7 (always), it normally takes approximately 2-3 minutes to complete, thus making it suitable for use in large-scale surveys as well. The scale has the reliability alpha of .86.

##### Psychological Well-Being Scale

The brief version of the Psychological Well-Being Scale is a self-reporting tool with 8-items assessing the different aspects of psychological well-being (Diener et al., 2009). Therefore, the Brief PWB-8 was derived from the original 84-item scale and is a shorter version of the scale but still retains important aspects of well-being. It is a 7-point rating scale ranging from '1 – strongly disagree' to '7 – strongly agree'. The scale has reliability alpha of .87.

##### International Positive and Negative Affect Schedule Short Form (I-PANAS-SF)

The PANAS is a short-form of the Positive and Negative Affect Schedule that is a convenient and valid method of measuring affective states (Karim et al., 2011). This scale has 10 items in total, with 5 items measuring positive affect (PA) and 5 items measuring negative affect (NA). The following emotions are measured by asking respondents to rate on a 5-point Likert scale ranging from 1 (Very Slightly or Not at All) to 5 (Extremely). The scale has the reliability alpha of .86.

##### Meaning in Life Questionnaire

The Meaning in Life Questionnaire is a short survey with 10-items assessing the levels of and desire for meaning in life (Michael et al. 2006), It is a self-report questionnaire rated on a 7-point Likert scale ranging from 1, 'Absolutely Untrue' to 7, 'Absolutely True'. It takes 10 minutes to complete. The scale has two subscales: Meaning and Search for Meaning that measure the degree of meaningfulness of the lives of respondents and how much they engage in the search for meaning respectively. The scale has reliability alpha of .92.

### Procedure and Ethical Considerations

After obtaining the institutional permission from the Ch. Pervaiz Elahi Institute of Cardiology in Multan, 205 respondents who provided the consent were approached through purposive sample technique; and then they completed the data collection booklet comprising the scales measuring sense of coherence, psychological well-being, positive and negative affect, and meaning in life. Participants were clearly briefed about the purpose of the study and were guided about the procedure of filling the questionnaires. Their participation was entirely voluntarily as they may leave the survey at any point without explaining any reason. Data analysis was performed on SPSS-25 through Hayes Process Model-6.

### Results

**Table 1** Correlation analysis among sense of coherence, psychological well-being, affect and meaning in life (N=205)

Variables	1	2	3	4
1 Sense of Coherence	1	.74*	.74*	.64*
2 Psychological Well-being		1	.76*	.71*
3 Affect			1	.76*
4 Meaning in Life				1

\*p<0.01

Table 1 indicate that sense of coherence is significantly positively correlated with psychological well-being ( $r = .74$ ,  $p < 0.01$ ), affect ( $r = .74$ ,  $p < 0.01$ ), and meaning in life ( $r = .64$ ,  $p < 0.01$ ). Psychological well-being is positively related to affect ( $r = .76$ ,  $p < 0.01$ ) and meaning in life ( $r = .71$ ,  $p < 0.01$ ). Findings further reveal that affect is significantly positively associated with meaning in life ( $r = .76$ ,  $p < 0.01$ ). Increased levels of sense of coherence are associated with enhanced psychological well-being, heightened positive affect, and a more profound sense of meaning in life.

**Table 2** Model Summary for Each Outcome Variable

Paths of Variables	Coefficients	P
Sense of Coherence → Affect	0.575	0.00
Sense of Coherence → Meaning in Life	0.247	0.00
Affect → Meaning in Life	1.089	0.00
Sense of Coherence → Psychological Well-Being	0.337	0.00
Affect → Psychological Well-Being	0.411	0.00
Meaning in Life → Psychological Well-Being	0.184	0.00

\*p<0.01

Table 2 provides the coefficients for the paths hypothesized in the model. Findings show the significant impact of sense of coherence on wellbeing ( $b = 0.337$ ,  $t = 5.52$ ,  $p < 0.00$ ), affect ( $b = 0.575$ ,  $t = 15.62$ ,  $p < 0.00$ ), and meaning in life ( $b = 0.247$ ,  $t = 2.75$ ,  $p < 0.00$ ). Impact of affect on meaning in life ( $b = 1.089$ ,  $t = 9.20$ ,  $p < 0.00$ ) and on psychological well-being ( $b =$

0.41,  $t = 4.45$ ,  $p < 0.00$ ) are also statistically significant. Lastly, the findings indicated that there was a significant impact of meaning in Life on psychological well-being ( $b = 0.184$ ,  $t = 3.93$ ,  $p < 0.001$ ).

**Table 3** Indirect effects of sense of coherence on psychological well-being through affect and meaning in life

Mediators	Paths	Coefficient	Confidence Interval		t	P
			LL	UL		
M1	SOC→Affect→PWB	0.237	0.13	0.35	4.23	0.00
M2	SOC→MIL→PWB	0.046	0.01	0.09	2.31	0.00

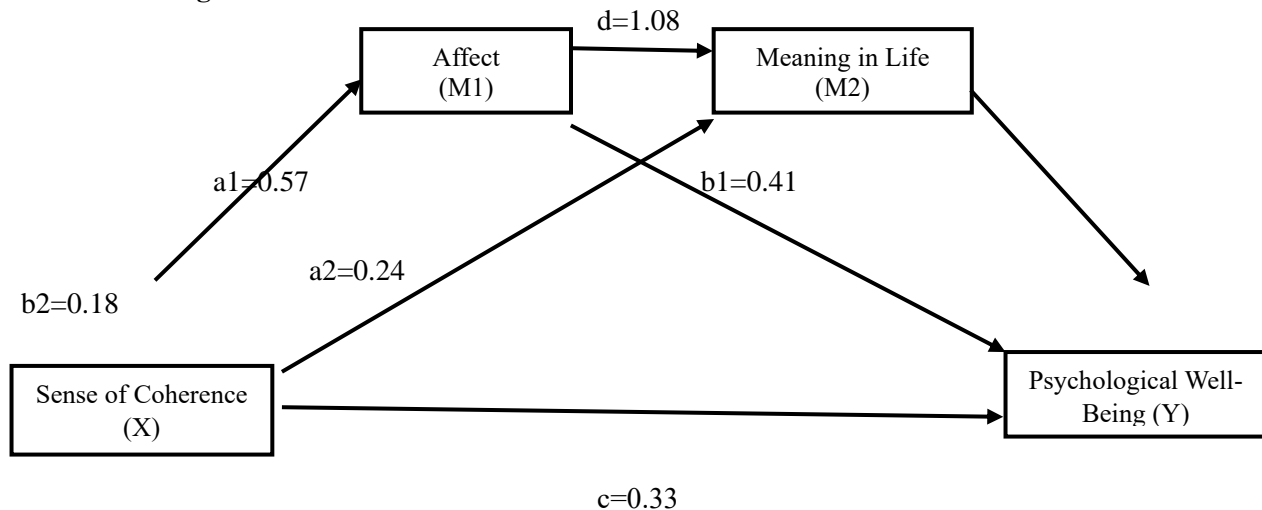
Table 3 reveals the indirect effects through M1 and M2. Findings show the significant indirect effects because the confidence interval for affect (0.13, 0.35) and for meaning in life (0.01, 0.09) does not include zero. The findings indicate that affect and meaning in life play the roles as mediators in the relationship between the sense of coherence and psychological wellbeing.

**Table 4** Total Effect, Direct Effect, and Indirect Effect of SOS on PWB

Total Effect (SOC→PPW )	Direct Effect (SOC→PWB )	Indirect Effect (SOC→Affect→MIL→PW B)	Indirec t Effect	LL	UL	t
0.73 (.00)	0.34 (.00)		0.115	.05	.18	3.5
				5	3	9

The analysis in Table 4 reveals that sense of coherence significantly impacts psychological well-being both directly and indirectly. The total effect of SOC on PWB is significant and positive ( $b = 0.7345$ ,  $p = 0.000$ ). Even after accounting for mediators, the direct effect remains statistically significant ( $b = 0.34$ ,  $p = 0.00$ ). In addition, SOC has an indirect impact on PWB through a route that involves affect and meaning in life, with an indirect effect size of 0.1154 (95% confidence interval (0.055, 0.183)). The indirect effect is statistically significant, as there is no zero between the confidence ranges. Therefore, the study provides evidence that there is a partial, but significant and positive, serial mediation of affect and meaning in life in the relationship between sense of coherence and psychological well-being.

**Statistical Diagram**



The figure theoretically represents all six direct pathways connecting the variables. The route coefficients indicate that the first indirect impact ( $a_1*b_1$ ) has a value of 0.5753 and a value of 0.4112. The second indirect impact, denoted as ( $a_2*b_2$ ), has a numerical value of 0.2475 and a numerical value of 0.1842. The third indirect impact, denoted as ( $a_1*d*b_2$ ), has three distinct values: 0.5753, 1.0887, and 0.1642.

## Discussion

In this study, the researcher intended to assess the correlation between sense of coherence, psychological well-being, affect, and meaning in life of heart patients. Data were collected on questionnaires completed by 205 patients at a cardiology institute. This chapter further advances a positive view of the analysis of results, the backup studies, theoretical implications, practical applications, further research and limitations.

The first hypothesis related to the correlations among study variables; SOC, PWB, affect, and meaning in life. The findings showed the positive correlations of SOC with PWB ( $r = .74, p < 0.01$ ), affect ( $r = .74, p < 0.01$ ), and meaning in life ( $r = .64, p < 0.01$ ). These results align with the theoretical work done by Eriksson and Lindström (2007) that show the higher SOC is an indicator of better management of stress, and therefore enhances well-being. In line with this approach, Feldt and colleagues (2000) as well as Surtees and others (2003) also found their study showing SOC is positively linked with mental health, PWB, and quality of life. This means that heart patients who have a strong SOC will indeed show improved psychological wellbeing, positive affect, and increased sense of meaning in life (Mushtaque et al., 2022).

The second hypothesis postulated that PWB will be significantly linked with affect and meaning in life. The findings showed significant positive relation between PWB and affect ( $r = .76, p < 0.01$ ) and between PWB and meaning in life ( $r = .71, p < 0.01$ ). Intuitively, the results obtained in the current study are in harmony with the work of Ryff and Keyes (1995) who described positive affect and meaning in life as two of the main factors of PWB. In addition, King et al. (2006) revealed that the persons who seem to have higher degree of positive affect report the higher levels of meaning in life. Both of these relationships call for interventions targeting positive affect and purpose to improve life quality of heart patient (Sarfraaz et al., 2022).

The third hypothesis postulated that there will be a positive relationship between affect and meaning in life. This was also supported by the results that reflected a high positive relationship between affect and meaning in life ( $r = .76, p < 0.01$ ). This finding is consistent with the findings of King et al. (2006) to support the view that positive emotions are well associated with the search for meaning in life. Moreover, cross-sectional research conducted by Steger et al. (2008) showed that high frequency of positive affect enhances importance of meaning in lives. Thus, it seems important for heart patients to get positive emotions for the incidents that may give meaning to their lives (Sawangchai et al., 2022).

The fourth hypothesis stated that affect will be a mediator between SOC and PWB. The hypothesis related to the mediated model was supported by the results of the mediation analysis, that showed the significant indirect effect of SOC on PWB through affect (indirect effect = 0.24; 95% CI [0.129, 0.351]). There is implication that the SOC strengthens the positive affect with the view of improving PWB. Similar findings have also been documented by Gana et al. (2013) who stated that SOC had a positive correlation to life satisfaction and PWB and this was mediated by positive affect. These results suggest that emotional well-being should be considered when targeting heart patients in interventions; this factor can be strengthened with the effects of SOC and increased PWB.

The fifth hypothesis postulated that meaning in life will also play a role of mediator for the relationship between SOC and PWB. The analysis provided the evidence for this hypothesis as the meaning in life mediated the relationship between SOC and PWB through the indirect effect of 0.0456 (95% CI = 0.014 to 0.089). This is in contrast to the study by

Nygren and colleagues (2005) who have also attributed the role of SOC in relation to well-being where meaning in life played as mediator. To heart patients, this emphasizes the potential of people to modify themselves to discover and actively seek positive meaning in life for the improvement of their state of mind.

The sixth hypothesis about examining the affect and meaning in life as serial mediators in the relation between SOC and PWB revealed positive and significant serial mediation (indirect effect = 0.1154, 95% CI [0.055, 0.183]). This implies that SOC has a positive effect on affect which enhances the meaning in life thus developing PWB. This is in a harmonious with the study by Zika and Chamberlain (1992) who noted that positive affect and perceived meaning in life acted as mediators in the link between psychological resources and well-being. These findings outline a holistic pathway indicating that improvement in SOC might cause beneficial ripple effect in both emotional and existential aspects of quality of life and PWB of heart patients.

### **Conclusion**

In sum, there is positive evidence supporting the notion that SOC is essential for PWB of heart patients; and, affect and meaning in life are important mediators of the relationship.

### **Implications**

The current study provides both theoretical and practical implications, understanding that efforts to boost SOC and positive affect, together with meaning in life can greatly improve the PWB of heart patients. These outcomes enrich the theoretical review about SOC and its role in human PWB. Therefore, this research has contributed to the contemporary discussion about the role of a SOC in various aspects of personality, health, and well-being by showing that affect and meaning in life are significant mediators of this process extending Antonovsky's theory of SOC. This understanding could thus be used in further empirical studies and theoretical frameworks of coherence, affect, meaning, well-being, and health. The enhancement of SOC may be further enhanced through the implementation of programs that could potentially boost its level and enhance psychological health. A step in this direction involves helping heart patients to search for and reclaim meaning in their lives through the use of logo therapy, life review tactics, and any purposeful activities (Frankl, 1984). This argument is underpinned by studies by Steger and Frazier (2005) which pointed out the interventions that involve meanings boost well-being.

### **Limitations**

In spite of significant findings, the study bore few limitations as well; cross-sectional research design has restricted the findings to examine the causal relations among variable, therefore future research should embrace longitudinal designs to dissect the temporal trends, mediational, and prospective correlation amongst these variables; Respondents were mainly the adults heart patients from a particular geographical area or age group, therefore, children with heart problems should also be focused to increase external validity. The use of self-reported questionnaires may result in biasness and social desirability. So the inclusion of supplementary and substantive indexes, like clinical tests of the bodily form, might offer a more comprehensible comparison. This study's findings should be extended to other study variables including more aspects of heart patients' psychosocial profiles such as resilience, coping habits, and social support resources.

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