

Brief Report

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*Brief Report*

# User Manual for Coping Strategies Inventory Short Form (CSI-SF)—The Jackson Heart Study

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**Abstract:** Researchers have asserted that patients, who generally rely on external powerful sources to control their disorders, can benefit from examining their coping mechanisms which can potentially lead to a better understanding of the initiation and progression of some chronic diseases. By trusting their own internal powers and virtues, it is possible for some people to unearth and navigate available strategies to balance and enhance their psycho-spiritual well-being and possibly their treatment and recovery. This review serves as a user's manual for investigators who choose to use the CSI-SF to conduct their research on coping behaviors. The CSI-SF that measures four coping strategies based on 16 items was first assessed using the Jackson Heart Study (JHS) cohort in 2007. The reliability and construct validity of the CSI-SF was also later assessed among hemodialysis patients across 13 countries. In this study, the CSI-SF was assessed to be a reliable and valid instrument for measuring coping strategies. The CSI-SF serves the purpose of developing an inner voice that can assist with understanding how people cope with everyday life. The information gathered from administration of the CSI-SF can inform investigators about environmental cues and triggers that can also impact individual health.

**Keywords:** CSI-SF; validity; reliability; coping; jackson heart study; African Americans

## 1. Introduction

Coping refers to a set of cognitive and behavioral strategies employed by individuals in response to stressors they encounter throughout their life's experiences [1]. Many people experience events that are unpleasant or stressful; exposure to such events leave them feeling overwhelmed, anxious, or worried due to the psychological burdens created by the challenging situations they encounter. Researchers have asserted that, as patients rely on external powerful sources to control their disorders, in addition to their own internal powers and virtues [2], examining their coping mechanisms can lead to a better understanding of the initiation and progression of chronic diseases and uncover potential opportunities to balance and enhance their psycho-spiritual well-being and possibly their treatment and recovery. The Coping Strategies Inventory-Short Form (CSI-SF) was administered for the first time to the Jackson Heart Study Cohort during Exam 1 that spanned the period 2000-2004. The Jackson Heart Study (JHS), funded by the National Heart, Lung and Blood Institute (NHLBI) and the National Institute on Minority Health and Health Disparities (NIMHD) [3], was initiated as a longitudinal investigation of genetic and environmental risk factors associated with the disproportionate burden of cardiovascular disease in African Americans. The JHS recruited 5306 African American residents living in the Jackson, Mississippi, metropolitan area of Hinds, Madison, and Rankin Counties. The JHS cohort was administered the CSI-SF as one of the many instruments that measured psychological and behavioral risks associated with the high burden of cardiovascular disease in the African American community.

## 2. Materials and Methods

The CSI-SF sought to determine how people typically handle or cope with stress. The items in the CSI-SF represent thoughts or behaviors that people use to cope with stress. The responses to each item show how often a person copes with stress in the particular way mentioned. Some questions on the CSI-SF ask participants to respond about how much support they feel they get from family and friends. Other questions ask about how they deal with stress. Our investigators were interested in their honest answers to these questions because we wanted to know more about how they coped or dealt with stress as research has shown that coping is associated with health in general, and particularly heart disease [4, 5].

Most of the terms used in the various rating scales (e.g., Never to Almost Always,) are left to the participants' subjective perception of what these mean to them. They were asked to "use it the way that you would normally use it in conversation", or, "pick the answer that is closest to what is right for you." The participants were reminded that there are no right or wrong answers to the questions, and that our investigators were simply interested in their views. Many of these questions are quite personal, and could be perceived as sensitive or potentially embarrassing to the participant.

We knew that some individuals would have difficulty categorizing their responses for a variety of reasons, such as 'it depends on the situation'. In such cases, the participant was encouraged to respond with regard to their "usual" behavior, and which response was the most accurate for describing them, across all types of situations. Responses were made based on a global frequency-based Likert-type scale ranging from Never (1) to Almost Always (5). The specific nature of what criteria constitute a particular rating is something that is determined subjectively by each participant.

### 2.1. Research Applications of CSI-SF

The CSI-SF measures four coping strategies based on 16 items: 4 items each indicating problem- vs. emotion-focused engagement or disengagement. Psychometric properties of the CSI-SF were first assessed using the JHS cohort in 2007 [6,7]. The reliability and construct validity of the CSI-SF was also later assessed among hemodialysis patients across 13 countries. For that study, the CSI-SF was translated into 9 languages and administered from 2009 to 2011 to > 10,000 hemodialysis patients in 13 countries in phase 4 of the International Dialysis Outcomes and Practice Patterns Study (DOPPS) - a prospective cohort study of hemodialysis practices and outcomes that began in 1996. The CSI-SF was chosen for the DOPSS for several reasons: (1) it includes only 16 questions, which is less than most of the other coping instruments, and it can be completed in only a few minutes; (2) the CSI-SF had been shown to be reliable and valid for measuring coping in persons with chronic disease; and (3) the conceptualization, structure, and content of the CSI-SF made sense to the investigators for its applicability to the general coping strategies that HD patients likely would utilize in living with end-stage kidney disease as a hemodialysis patient (i.e., it has strong content validity) [8].

The slightly modified English, German, and Swedish versions of the CSI-SF were assessed to be reliable and valid instruments for measuring coping strategies in hemodialysis patients. In addition, the CSI-SF Spanish version was also used as a test to provide a quick and efficient diagnosis of the coping strategies used in the face of stress in different settings [9].

### 2.2. The CSI-SF Instrument

The CSI-SF was developed as a brief 16-item scale, derived from the original CSI [6,10,11]. The Coping Strategies Inventory (CSI) [10] was originally constructed as a 78-item questionnaire. The short form of the CSI was modified for use in the Jackson Heart Study as a 16-item version and was referred to as Approach to Life B. The CSI-SF was structured to reflect the original scale, with four 4-item subscales as follows: (a) Problem-Focused Engagement (items 1, 2, 8 and 9), (b) Problem-Focused Disengagement (items 4, 7, 12, and 14), (c) Emotion-Focused Engagement (items 5, 6, 11 and 13), and (d) Emotion-Focused Disengagement (items 3, 10, 15 and 16).

Participants were asked to rate the general frequency with which they utilize each listed coping strategy on a Likert-type scale and to respond in the following manner: 1 = "Never", 2 = "Seldom", 3 = "Sometimes", 4 = "Often", and 5 = "Almost Always". Individuals receive scores for each first-tier subscale (Engagement and Disengagement: range = 8 – 40), as well as for each of the four second tier

subscales (Problem-Focused Engagement, Problem-Focused Disengagement, Emotion-Focused Engagement, and Emotion-Focused Disengagement: range = 4 – 20). The CSI-SF uses a two-axis model to classify coping strategies (commitment and avoidance) and objective categories of coping (problem-focused and emotion-focused) [9]. Table 1 presents the dimensions and factor structure of the CSI-SF.

**Table 1.** Dimensions and Factor Structure of the Coping Strategies Inventory Short Form (CSI-SF) Used in the Jackson Heart Study.

Scales/Subscales and Factors	Subscales/Factors	Tiers	Number of Items
Engagement Coping		1 <sup>st</sup> Tier Subscale	8
	<b><u>Problem-Focused Engagement</u></b>		
	(1) I make a plan of action and follow it.		
	(2) I look for the silver lining or try to look on the bright side of things.	2 <sup>nd</sup> Tier Subscale	4
	(8) I tackle the problem head on.		
	(9) I step back from the situation and try to put things into perspective.		
	<b><u>Emotion-Focused Engagement</u></b>		
	(5) I try to let my emotions out.		
	(6) I try to talk about it with a friend or family.		
	(11) I let my feelings out to reduce the stress.	2 <sup>nd</sup> Tier Subscale	4
Disengagement Coping	(13) I ask a close friend or relative that I respect for help or advice.		
		1 <sup>st</sup> Tier Subscale	8
	<b><u>Problem-Focused Disengagement</u></b>		
	(4) I hope the problem will take care of itself.		
	(7) I try to put the problem out of my mind.	2 <sup>nd</sup> Tier Subscale	4
	(12) I hope for a miracle.		
	(14) I try not to think about the problem.		
	<b><u>Emotion-Focused Disengagement</u></b>		
	(3) I try to spend time alone		
	(10) I tend to blame myself	2 <sup>nd</sup> Tier Subscale	4
	(15) I tend to criticize myself.		
	(16) I keep my thoughts and feelings to myself		

3. Results

3.1. CSI-SF Reliability and Validity

Coping styles were measured by using the Coping Strategies Inventory Short Form (CSI-SF), a validated 16-item instrument used to measure engagement and disengagement coping styles. Engagement occurs when a person actively confronts a stressor (eg, “I tackle the problem head on”). Disengagement occurs when a person avoids a stressor (eg, “I try not to think about the problem”). Each item was evaluated by using a 5-point Likert scale (1 = never, 2 = seldom, 3 = sometimes, 4 =

often, and 5 = almost always). Scores within each 8-item sub-scale were summed (range: 8–40). Cronbach’s  $\alpha$  is 0.59 for the disengagement scale and 0.70 for the engagement scale in the Jackson Heart Study cohort. Two Supplementary Tables S3 and S4, further describing the coping dimensions, are presented below in Table 2.

Table 2. Supplementary File A.

Supplementary File A. Details of the CSI-SF	
Dimension	CSI-SF Survey Items
EFE	I try to let my emotions out.
	I try to talk about it with a friend or family.
	I let my feelings out to reduce the stress.
	I ask a close friend or relative that I respect for help or advice.
PFE	I make a plan of action and follow it.
	I look for the silver lining or try to look on the bright side of things.
	I tackle the problem head on.
	I step back from the situation and try to put things into perspective.
PFD	I hope the problem will take care of itself.
	I try to put the problem out of my mind.
	I hope for a miracle.
	I try not to think about the problem.
EFD	I try to spend time alone.
	I tend to blame myself.
	I tend to criticize myself.
	I keep my thoughts and feelings to myself.

EFE =Emotion-Focused Engagement. PFE =Problem-Focused Engagement . PFD =Problem-Focused Disengagement. EFD =Emotion-Focused Disengagement.

For all items, answer's choices were: never (coded 1), seldom (coded 2), sometimes (coded 3), often (coded 4), and almost always (coded 5).

Table 3. Supplemental File B: The Survey Items of the CSI-SF.

Survey Items	Coping Dimension*
1 I make a plan of action and follow it.	2
2 I look for the silver lining or try to look on the bright side of things.	2
3 I try to spend time alone.	4
4 I hope the problem will take care of itself.	3
5 I try to let my emotions out.	1



Survey Items	Coping Dimension*
6 I try to talk about it with a friend or family.	1
7 I try to put the problem out of my mind.	3
8 I tackle the problem head on.	2
9 I step back from the situation and try to put things into perspective.	2
10 I tend to blame myself.	4
11 I let my feelings out to reduce the stress.	1
12 I hope for a miracle.	3
13 I ask a close friend or relative that I respect for help or advice.	1
14 I try not to think about the problem.	3
15 I tend to criticize myself.	4
16 I keep my thoughts and feelings to myself.	4

\*1=Problem-Focused Engagement, 2=Problem-Focused Disengagement, 3=Emotion-Focused Engagement, 4=Emotion-Focused Disengagement. 1 = Problem-Focused Engagement -- items 5, 6, 11, and 13 on the CSI-SF Inventory 2 = Problem-Focused Disengagement -- items 1, 2, 8, and 9 on the CSI-SF Inventory 3 = Emotion-Focused Engagement -- items 4, 7, 12, and 18 on the CSI-SF Inventory 4 = Emotion-Focused Disengagement -- items 3, 10, 15, and 16 on the CSI-SF Inventory.

4. Conclusion

The study findings should be interpreted with an understanding of its limitations [11]. Readers of this manual should use it as a guide to gain an understanding of human responses to environmental stimuli and provocations. The CSI-SF serves the purpose of developing an inner voice that can assist with understanding how people cope with everyday life. Everyone experiences conflicts with the two opposing sets of extreme influences- those emanating from the physical, environmental world around us, and those sweltering within ourselves- what we see, what we hear, what we touch, and what we feel. Understanding the participants’ responses on the CSI-SF will help them, as well as public health and healthcare professionals, understand and learn how to monitor triggers and cues, and, subsequently, balance responses to the complexities and vagaries of the environment that characterizes the community and the population of interest. The information provided can inform investigators about how the environmental cues and triggers can also impact individual health. Learning to mediate stress factors through positive coping styles can lead to the development of chronic diseases prevention strategies that can be used as effective chronic disease management tools [7].

**Supplementary Materials:** The following supporting information can be downloaded at the website of this paper posted on Preprints.org.

**Author Contributions:** Conceptualization: C.A. and B.J.; methodology: C.A. and B.J.; formal analysis: C.A. and B.J.; data curation: C.A. and M.W.; writing—original draft preparation: C.A., B.J. and M.W.; writing—review and editing: C.A., B.J., and M.W.; visualization: C.A. and B.J.; supervision: C.A. and B.J.; project administration: B.J., and C.A. All authors have read and agreed to the published version of the manuscript.

**Ethical Approval Statement:** Ethical review and approval for this study was granted by the Jackson State University Institutional Review Board (IRB) that covers approval of all JSU JHS GTEC program activities. This study solely utilized de-identified data from the JHS that contain no personally identifiable information, ensuring participant confidentiality and privacy.

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**Data availability statement:** Data are available upon reasonable request.

**Conflicts of Interest:** The authors declare no conflicts of interest.

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