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A Brief Report: Preliminary Findings for Pathways to Resilience among Critical Incident Stress Management Responders

Harvey J. Burnett
Andrews University, harveyb@andrews.edu

Karl G. D. Bailey
Andrews University, kgbailey@andrews.edu

Rachelle E. Pichot
Andrews University, pichot@andrews.edu

A BRIEF REPORT: PRELIMINARY FINDINGS FOR PATHWAYS TO RESILIENCE AMONG CRITICAL INCIDENT STRESS MANAGEMENT RESPONDERS

Harvey J. Burnett, Jr.,

School of Social & Behavioral Sciences, 8488 E Campus Circle Dr., Andrews University, Berrien Springs, MI 49104-0030. E-mail: harveyb@andrews.edu

Co-Author: Karl G. D. Bailey
Co-Author: Rachelle E. Pichot
Andrews University

Abstract: *Previous research by Burnett, Pichot, and Bailey (2019) found support for several innate well-being and behavioral action variables that contribute to Everly's Psychological Body Armor's (PBA) two unique interacting human protective pathways (proactive and reactive resilience) among a non-disaster mental health response population. However, research is limited regarding the unique proactive and reactive pathway variables that contribute to resilience capacity among trained disaster mental health responders. Participants (N = 63) were novice and experienced disaster mental health responders who attended a Critical Incident Stress Management (CISM) training conference in Michigan that completed the same 14 measures used in the original Burnett, Pichot, and Bailey study. Similar to the Burnett, Pichot, and Bailey study, hierarchical regression analyses revealed that for the proactive pathway, self-acceptance and subjective happiness were significant unique predictors for resilience capacity, while psychological distress and perceived stress were significant unique predictors for the reactive pathway. A qualitative comparative analysis (QCA) found that all but one of the cases met the observation criteria for having high resilience. However, when the dataset for this study was combined with the original study (N$_{Combined}$ = 265), QCA revealed that overall; having professional CISM training contributed more to strong resilience making the proactive pathway irrelevant.*

Keywords: *resilience, proactive resilience, reactive resilience, disaster mental health responders, critical incident stress management training*

Introduction

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Trained disaster mental health responders (DMHR) representing a cross-section of different professional disciplines such as psychology, social work, counseling, nursing, chaplaincy, law enforcement, fire services, emergency medical services, emergency dispatch services, and education, are on the frontlines of providing direct crisis intervention and other mental health services to those impacted by traumatic events. Unfortunately, the very nature of providing such services may also vicariously affect these DMHR negatively. The literature has indicated that DMHR are susceptible to developing negative stress reactions such as compassion fatigue, vicarious trauma, secondary traumatic stress and burnout (Burnett, 2017; Burnett & Wahl, 2015; Cieslak et al., 2014; Craig & Sprang, 2010; Figley, 1995; Halpern & Vermeulen, 2017; Ray et al., 2013). Furthermore, metasynthesis

research has identified several risk factors associated with post-disaster mental health among DMHR, including significant life events prior to providing disaster mental health services, the amount of exposure to traumatic materials, emotional and somatic reactions after exposure to hearing survivors traumatic experiences, the type of coping strategies implemented, alterations to one's personal schemas, feelings of helplessness to assist others, unique aspects of the helping relationship, and level of social support (Baird & Kracen, 2006; Brooks et al., 2018; Cohen & Collens, 2012; Halpren & Tramontin, 2007).

In contrast to the negative impact of indirect exposure to trauma events by DMHR, studies have also found these responders to have low risk for developing negative stress reactions. For instance, Burnett (2017) found the majority of experienced and novice Critical Incident Stress Management (CISM) responders were at low risk for compassion fatigue and burnout, with more than three-fourths of them exhibiting a moderate degree of resilience. Furthermore, Wee and Myers (2003) found that the gratification gained from engaging in the work of

providing disaster mental health related services mitigated its negative effects.

One plausible explanation for the possible low risk of compassion fatigue, burnout, and other problematic reactions among DMHR engaged in the delivery of disaster mental health interventions may be linked to variations in their resilience capacity. Bonanno (2004) and other researchers have suggested that resilient people, organizations, and communities are able to maintain stable and healthy levels of psychological and physical functioning despite exposure to an adverse event, thereby finding effective ways to move forward and experience life with positivity (Everly, 2012; Kaminsky et al., 2007). For instance, Burnett and Wahl (2015) found that resilience tends to mediate the relationship between compassion fatigue and burnout among disaster behavioral health and emergency preparedness responders. In other words, resilience acts as a buffer between compassion fatigue becoming full blown burnout. This finding was later replicated among CISM responders (Burnett, 2017).

Resilience literature has also posited that people can exhibit resilience through multiple ways after experiencing adversity such as hardiness, positive emotion, fostering optimism and social support systems, engaging in positive thinking, and self-enhancement (Bonanno, 2004; Bonanno, Rennicke, et al., 2005; Everly, 2012). Everly (2017) presented a framework of resilience coined as Psychological Body Armor (PBA) that consists of two distinctive pathways: proactive resilience and reactive resilience. According to Everly, proactive resilience is considered a person's immunity to a crisis, while reactive resilience encompasses one's ability to bounce back from a distressing event. Each pathway is driven by several mechanisms that can be developed, strengthened, and nurtured in order for an individual to have a PBA scheme in place to effectively deal with any adverse life challenge that may arise. Recent research by Burnett, Pichot, and Bailey (2019) provided empirical support for several mechanisms from both pathways that greatly contribute to strong PBA. For instance, self-acceptance and subjective happiness were significant unique predictors of resilience capacity for the proactive pathway, while positive relationships with others, psychological distress, and physical fitness activities predicted reactive resilience capacity. Through qualitative comparative analysis, Burnett and colleagues also found that highly resilient people tend to have high self-acceptance and are very happy (proactive pathway), but also possess high sleep quality, as well as strong positive relationships with others (reactive

pathway). Although these findings provide a starting point for understanding PBA quantitatively, Burnett, Pichot, and Bailey (2019) noted that one limitation of their study was that that data was not collected from DMHR.

Present Study

The present study sought to replicate the Burnett, Pichot, and Bailey (2019) study, however, using a population that works directly in the disaster mental health response field where maintaining resilience capacity is important. As in the original study, PBA remained as the theoretical framework, with an examination of the contributions for both the proactive and reactive resilience pathways. Hierarchical linear regressions were utilized among the well-being and behavioral action variables for each pathway to best uniquely predict strong resilience capacity. The present study also examined which combinations of variables form consistent pathways to resilience in two separate set-theoretic analyses allowing for equifinality of solutions, which is also known as qualitative comparative analysis.

Methodology

Participants

The data for this study was collected from a convenience sample of subjects who attended the Michigan Crisis Response Association's (MCRA) annual Critical Incident Stress Management Training Conference held in Tustin, Michigan from September 23 to 25, 2019. The annual conference provides a variety of comprehensive, integrated, and multicomponent crisis intervention training to novice and experienced CISM responders representing a cross-section of professional disciplines (i.e., law enforcement, firefighters, emergency medical services, mental health workers, chaplains, and 911 dispatchers). Participation in the study was voluntary. Out of the 149 registered attendees for the conference, 63 completed surveys were received (42.3% participation rate). Approximately 55.6% of participants were female; 88.9% were White (non-Hispanic); 58.7% were married; 36.5% were college graduates while 31.7% had a postgraduate degree. The three top religious affiliations among the participants were Other Protestant (38.1%), None (36.5%) and Catholic (20.6%). The total household income ranged between Below $10,000 and $80,000 to $89,999, with a median income between $10,000 to $19,999 ($SD = 3.33$). Participants age ranged between 30 and 73 years, with a mean age of 50.57 ($SD = 11.3$).

Overall Resilience Measure

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The Connor-Davidson Resilience Scale (CD-RISC10) (Campbell-Sills & Stein, 2007; Connor & Davidson, 2003) measured overall resilience. Using a 5-point Likert scale (ranging from 0 "not true at all" to 4 "true nearly all the time"), participants rated their agreement with 10 statements that apply to them over the last month (e.g., "I can deal with whatever comes my way" and "I tend to bounce back after illness, injury, or other hardships"). Responses on all items are summed to provide a total score, with higher scores indicating greater resilience. Refer to Burnett, Pichot, and Bailey (2019) for a summary of the CD-RISC 10's psychometric properties.

Proactive Resilience Mechanism Measures

The present study utilized the same proactive and reactive resilience mechanism measures as in the Burnett, Pichot, and Bailey (2019) study. Therefore, refer to Burnett and colleagues' article for further summary information on these measures' validity and reliability properties.

Scales of Psychological Well-Being (SPWB).

The present study used the 9-item self-report Positive Relationship with Others (PRWO), Purpose in Life (PL), and Self-Acceptance (SA) scales of the Scales of Psychological Well-Being (Ryff, n.d.; Ryff, 1989). Participants respond to items on a 6-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree) for each scale. Several of the items on each scale are reversed coded, with scores for each scale ranging from 9 to 54. Higher scores are indicative of the scale construct. Items on these scales include "Most people see me as loving and affectionate (PRWO scale)", "I have a sense of direction and purpose in life (PL scale)", and "In general, I feel confident and positive about myself (SA scale)".

Subjective Happiness Scale (SHS). Happiness was measured with the 4-item SHS (Lyubomirsky & Lepper, 1999). Participants responded to four items on a 7-point Likert scale, for example: "In general, I consider myself …" either 1 (not a very happy person) to 7 (a very happy person) and "Compared to most of my peers, I consider myself …" either 1 (less happy) to 7 (more happy). A composite score (ranging from 1 to 7) is computed by averaging responses on all four items after reverse coding the fourth item. Higher composite scores are indicative of greater happiness.

Spirituality. Participants responded to a single-item spiritual engagement statement, "How often do you practice spiritual related activities, such as prayer, meditation, yoga, etc.?" using a 6-point scale, ranging from 1 (never) through 2 (several times a month), 3 (once a week), 4 (two or more times a week), and 5 (once a day), to 6 (more than once a day).

Reactive Resilience Pathway Measures

Perceived Stress Scale (PSS). Perceived stress was measured through the 2-item self-report PSS (Buchanan & McConnell, 2017). Participants responded to the statement "I consider myself _____" on a 7-point scale ranging from 1 (not a very stressed person) to 7 (a very stressed person), and then to the statement "I consider myself _____" on a 7-point scale ranging from 1 (less stressed) to 7 (more stressed). The mean of these two items was used to calculate a score, with higher scores indicative of higher perceived stress.

Brief Symptom Inventory 18 (BSI-18). Psychological distress was measured with the 18-item BSI-18 (Derogatis, 2001). Participants rated 18 statements (e.g., "Feeling no interest in things" and "Thoughts of ending your life") they considered distressing or bothersome during the past seven days on a 5-point Likert scale ranging from 0 (not at all) to 4 (extremely). The total score or global severity index (GSI) was used by summing the score on all items. Raw scores range from 0 to 72. Higher scores are indicative of greater psychological distress.

Sleep Quality. Participants responded to a single-item statement regarding their sleep quality (i.e., "How would you rate your overall sleep quality?") on an 8-point Likert scale, ranging from 0 (very poor) to 7 (very good).

Physical Fitness Activity. Participants responded to a single-item statement about their regular participation in a fitness activity (i.e., "How often do you participate in some form of regular physical activity, such as exercise, walking, Pilates, strength training, etc.") using a 5-point scale, ranging from 1 (never), 2 (several times a month), 3 (once a week), and 4 (two or more times a week), to 5 (daily).

Nutrition. Participants were asked to respond to three statements on nutrition behaviors (i.e., "I eat three healthy meals a day," "On a daily basis, I drink more than one sugary drink (i.e., soda, energy and sports drinks, fruit juices, etc.)", and "On a daily basis, I drink more than one caffeinated beverage (i.e., coffee, tea, soda, energy drinks, etc.)") on an 8-point scale, ranging from 0 (not true at all) to 7 (very true). The latter two items were reverse coded.

Procedure

Participants who volunteered to complete the study were provided a letter in their registration packet that

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invited them to participate in the study. The study was also periodically announced throughout the training conference as well. The letter and subsequent email reminders about the study provided a web link to the study that participants completed online. Participants were provided informed consent prior to completing study. Human Subjects Review Board approval from the researchers' institution was obtained prior to initiating the study (IRB renewal Protocol #17-143).

Results

Data was analyzed utilizing IBM SPSS software. The means, standard deviations, ranges and reliabilities for each measure used in this study are reported in Table 1.

Table 1 *Means, Standard Deviations, Ranges, and Reliability Scores for all Study Measures.*

Measure	*M*	*SD*	Range	α
CD-RISC 10	32.0	4.86	18 – 40	0.83
BSI-18	7.41	8.69	0 – 50	0.92
PL	45.4	6.23	27 – 54	0.74
PRWO	42.3	8.65	24 – 54	0.84
SA	44.0	7.83	21 – 54	0.87
PSS	3.39	1.81	1 – 7	0.92
SHS	5.48	1.39	1 – 7	0.93
Spiritual activity question	3.76	2.03	1 – 6	-
Sleep quality question	4.06	2.00	0 – 7	-
Physical fitness activity question	3.30	1.33	1 – 5	-
Nutrition "eat three healthy meals" question	3.56	2.15	0 – 7	-
Nutrition "drink … sugary drink" question	5.41	2.36	0 – 7	-
Nutrition "drink … caffeinated beverage" question	1.63	2.44	0 – 7	-

Note. $N = 63$.

Bivariate Correlational Analysis

The present study examined bivariate correlations between overall resilience and each mechanism variable (see Table 2). In comparison to Burnett, Pichot, and Bailey (2019), the present study found among a sample of CISM responders for the proactive resilience pathway that overall resilience was only significantly associated with subjective happiness ($r = .55, p < .001$), purpose in life ($r = .52, p < .001$), and self-acceptance ($r = .56, p < .001$). For the reactive resilience pathway, overall resilience was only significantly associated with perceived stress ($r = -.53, p < .001$), psychological distress ($r = -.72, p < .001$), relationship with others ($r = .49, p < .001$), and daily use of caffeinated beverages ($r = -.26, p < .05$).

Table 2 *Bivariate Correlations for Overall Resilience (CD RISC 10) and each Mechanism Variable for the Proactive and Reactive Resilience Pathways in Comparison to Burnett, Pichot, and Bailey (2019).*

Pathway/Mechanism Variable	Present Study CISM Responders ($N = 63$)	Burnett, Pichot, & Bailey (2019) MTurk Sample ($N = 202$)
Proactive Pathway		
-Subjective Happiness	.55***	.64***
-Purpose in Life	.52***	.47***
-Self Acceptance	.56***	.62***
-Spirituality	.07	.16*
Reactive Pathway		
-Perceived Stress	-.53***	-.40***
-Psychological Distress	-.72***	-.48***
-Relationship with Others	.49***	.49***
-Sleep Quality	.23	.26***
-Physical Fitness Activities	-.08	.20***
-Nutrition (Three Meals)	.02	.11
-Nutrition (Sugary Drinks)	.06	.14

-Nutrition (Caffeinated Drinks)	-.26*	-.01

Note. *$p < .05$. **$p < .01$. ***$p < .001$.

Hierarchical Regression Analysis

Hierarchical multiple regression was used to explore the unique effects of the proactive mechanisms of resilience by entering the variables into two steps (see Table 3). Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. At Step 1, the well-being variables of purpose in life, self-acceptance and subjective happiness were entered and explained 43% of the variance in overall resilience through the proactive pathway. At Step 2, the behavioral action variable of spirituality was entered, hence the total variance explained by the model as a

whole was 47.4%, $F (4, 58) = 13.04$, $p < .001$. The spirituality mechanism explained an additional 4.2% of the variance in overall resilience after controlling for the three well-being mechanism variables, R squared change = .042, F change $(1, 58) = 4.593$, $p < .05$. In the final model, both the well-being and behavioral action mechanism variables were statistically significant in predicting overall resilience through the proactive pathway in the following highest to lowest order: subjective happiness (*beta* = .33, $p < .01$), purpose in life (*beta* = .29, $p < .05$), self-acceptance (*beta* = .28, $p < .05$), and spirituality (*beta* = -.23, $p < .05$).

Table 3 *Hierarchal Regression Analysis Summary for Proactive Resilience Mechanism Variables Predicting Overall Resilience (N = 63).*

Step and Predictor Variable	B	SE B	β	R2	ΔR2
Step 1:					
Self Acceptance†	.19	.08	.30*	.43***	.43
Purpose in Life	.17	.10	.22	.43***	.43
Subjective Happiness†	.96	.43	.27*	.43***	.43
Step 2:					
Spirituality	-.55	.26	-.23*	.47*	.04

Note. *$p < .05$. **$p < .01$. ***$p < .001$. †Variable was found statistically significant in the Burnett, Pichot & Bailey (2019) Study.

The unique effects of the reactive mechanisms of resilience where explored through hierarchical multiple regression analysis by entering its associated variables into two steps (see Table 4). Preliminary analysis was conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. At Step 1, the well-being variables of perceived stress, psychological distress and positive relationships with others were entered into the model and explained 57% of the variance in overall resilience through the reactive pathway. At Step 2, the behavioral action variables of sleep quality, physical fitness activities, eating three heathy meals, daily consuming sugary drinks and daily consuming

caffeinated drinks was entered, hence the total variance explained by the model as a whole was 58.3%, $F (8, 54) = 9.441$, $p < .001$. The behavioral action mechanism variables of sleep quality, physical fitness activities and the three nutrition measures were not statistically significant in overall resilience after controlling for the three well-being mechanism variables, R squared change = .015, F change $(5, 54) = 0.400$, $p = .85$. In the final model, only two of the well-being mechanism variables were statistically significant in predicting overall resilience through the reactive pathway in the following highest to lowest order: psychological distress (*beta* = -.62, $p < .001$) and perceived stress (*beta* = -.22, $p < .05$).

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Table 4 *Hierarchal Regression Analysis Summary for Reactive Resilience Mechanism Variables Predicting Overall Resilience (N = 63).*

Step and Predictor Variable	B	SE B	β	R_2	ΔR_2
Step 1:					
Relationship with Others†	.04	.06	.06	.57***	.57
Perceived Stress	-.63	.27	-.23*	.57***	.57
Psychological Distress†	-.32	.06	-.58***	.57***	.57
Step 2:					
Sleep Quality	-.18	.23	-.08	.58	.02
Physical Fitness Activities†	-.26	.34	-.07	.58	.02
Nutrition/Three Meals Daily	.04	.22	.02	.58	.02
Nutrition/Sugary Drinks Daily	.15	.19	.07	.58	.02
Nutrition/Caffeinated Drinks Daily	-.05	.20	-.02	.58	.02

Note. *$p < .05$. **$p < .01$. ***$p < .001$. †Variable was found statistically significant in the Burnett, Pichot & Bailey (2019) Study.

Qualitative Comparative Analysis

A qualitative comparative analysis (QCA) was performed to identify all configuration of factors for the proactive and reactive pathways that consistently overlap with the outcome of overall resilience (see Burnett, Pichot, & Bailey, 2019 for a descriptive summary of QCA). The results indicated that all but one of the cases met the observation criteria for having high resilience.

However, the results of a QCA analysis cannot center on one case. Therefore, we combined the data from Burnet, Pichot, and Bailey (2019) with our present study. In other words, data collected from the non-CISM trained participants (MTurk sample) was combined with the CISM trained sample for QCA.

Truth tables (see Table 5) constructed from our combined dataset for the proactive pathway found 11 of 32 possible configurations based on two levels for each of our five exogenous factors. For the proactive pathway to resilience was the configuration of high self-acceptance and high happiness, which had a consistency of 98% (190 cases) of relevant high resilience cases and coverage of 81% of cases with that configuration of factors (see Table 6). In other words, there was no distinction between the non-trained participants and the trained participants regarding highly resilient subjects through the proactive pathway. Highly resilience subjects for both groups of participants exhibit a high sense of self-acceptance and have a high level of happiness.

Table 5 *Proactive Resilience Mechanisms Truth Table for all Configurations with at least Four Cases ($N_{Combined} = 265$).*

Exogenous Factors[a]					Consistency[b]		n_c
SA	PL	SHS	SPIRIT	PROF	%	OUT	
0	0	0	0	0	53	0	15
0	0	1	0	0	60	0	5
0	1	0	0	0	69	0	13
0	1	1	0	0	75	0	8
1	0	1	0	0	91	1	11
1	0	1	1	0	100	1	8
1	1	0	0	0	60	0	10
1	1	1	0	0	98	1	90
1	1	1	0	1	100	1	27
1	1	1	1	0	97	1	32
1	1	1	1	1	100	1	25

[a]Exogenous factors defined as follows: SA – self-acceptance (0 = low, 1 = high); PL = purpose in life (0 = low, 1 high); SHS = subjective happiness (0 = low, 1 = high); SPIRIT = spirituality (0 = low, 1 = high); PROF = has professional CISM training (0 = low, 1 = high).

Table 6 *QCA Solution for Proactive Resilience Pathway Mechanisms with Strong Resilience as an Outcome.*

Model	Configurations	Consistency[a]	Raw coverage[b]	Unique coverage[c]	Consistent Cases
1	High self-acceptance, high happiness	98%	81%	81%	190
	Overall:	98%	81%		

[a]Consistency is the percentage of cases in the noted configuration that have the high resilience outcome.
[b]Raw coverage is the percentage of cases with the high resilience outcome that are in the noted configuration.
[c]Unique coverage is the percentage of cases with the high resilience outcomes that are only in the noted configuration and not in any other configuration.

Truth tables (see Table 7) constructed from our combined dataset for the reactive pathway to resilience found 21 of 128 possible configurations based on two levels for each of our seven exogenous factors. For the reactive pathway to resilience was the configuration of having professional CISM training, which had a consistency 98% (62 cases) of relevantly high resilience cases and coverage of 26% of cases with that configuration of factors across four possible models (see Table 8). In other words, highly resilient subjects have professional CISM training. Furthermore, when comparing both pathways, having high self-acceptance and high happiness is good for strong proactive resilience; however, the distinguishing factor of having professional CISM training overall contributes more to strong resilience (PBA). We should also note that the QCA for the reactive pathway produced several other varied configuration combinations for each of the four models in addition to having professional CISM training. With the exception of having either low or high perceived stress, subjects with any combination of the well-being and behavioral mechanism factors in the reactive pathway contributes to strong resilience (see Table 8).

Table 7 *Reactive Resilience Pathway Mechanisms Truth Table for all Configurations with at least four cases (NCombined = 265).*

Exogenous Factors[a]							Consistency[b]		n[c]
PRWO	PSS	BSI-18	SLEEP	FIT	NUTRI	PROF	%	OUT	
0	0	0	0	0	0	0	75	0	12
0	0	0	0	0	0	1	100	1	4
0	0	0	0	0	1	0	80	1	5
0	0	0	0	1	1	0	75	0	4
0	0	0	1	0	0	0	83	1	6
0	0	0	1	0	1	0	75	0	4
0	0	1	1	0	0	0	75	0	4
1	0	0	0	0	0	0	89	1	26
1	0	0	0	0	0	1	100	1	15
1	0	0	0	0	1	0	77	0	22
1	0	0	0	1	0	0	100	1	6
1	0	0	0	1	0	1	100	1	4
1	0	0	0	1	1	0	100	1	13
1	0	0	1	0	0	0	96	1	26
1	0	0	1	0	0	1	100	1	16
1	0	0	1	0	1	0	90	1	29
1	0	0	1	0	1	1	100	1	7
1	0	0	1	1	0	0	100	1	5
1	0	0	1	1	0	1	100	1	4
1	0	0	1	1	1	0	100	1	18
1	0	1	1	0	0	0	75	0	4

[a]Exogenous factors defined as follows: PRWO = positive relationships with others (0 = low, 1 = high); PSS = perceived stress (0 = low, 1 = high); BSI-18 = psychological distress (0 = low, 1 = high); SLEEP = sleep quality (0 = low, 1 = high); FIT = physical fitness activity (0 = low, 1 = high); NUTRI = nutrition (0 = low, 1 = high); PROF = has professional CISM training (0 = no, 1 = yes).

bConsistency is the percentage of cases (OUT = 1) or without (OUT = 0) that target outcome (high resilience); consistency threshold for categorization as OUT = 1 by row for this analysis was 80%.
cn = number of cases per configuration.

Table 8 *QCA Solution for Reactive Pathway Mechanisms with Strong Resilience as an Outcome.*

Model	Configurations	Consistency$_a$	Raw coverage$_b$	Unique coverage$_c$	Consistent Cases
	Has professional CISM training	98%	26%	4%	62
	High positive relationships with others, high fitness	98%	23%	6%	55
	Low psychological distress, high sleep, low nutrition	97%	25%	3%	58
1	Low positive relationships with others, low sleep, low nutrition	75%	3%	3%	6
	High positive relationships with others, low sleep, low nutrition	91%	21%	10%	50
	High positive relationships with others, high sleep, high nutrition	93%	23%	11%	55
	Overall:	94%	82%		
	Has professional CISM training	98%	26%	4%	62
	High positive relationships with others, high fitness	98%	23%	6%	55
	Low psychological distress, high sleep, low nutrition	97%	25%	2%	58
2	Low positive relationships with others, low sleep, low fitness, low nutrition	75%	3%	3%	6
	High positive relationships with others, low psychological distress, high sleep	96%	44%	11%	104
	High positive relationships with others, low sleep, low nutrition	91%	21%	10%	50
	Overall:	94%	81%		
	Has professional CISM training	98%	26%	4%	62
	High positive relationships with others, high fitness	98%	23%	6%	55
	Low psychological distress, high sleep, low nutrition	97%	25%	2%	58
3	Low positive relationships with others, low sleep, low fitness, high nutrition	75%	3%	3%	6
	High positive relationships with others, low psychological distress, low nutrition	96%	42%	10%	98
	High positive relationships with others, low sleep, low nutrition	93%	23%	11%	55

		Overall:	95%	82%		
	Has professional CISM training	98%	26%	4%	62	
	High positive relationships with others, high fitness	98%	23%	6%	55	
	Low psychological distress, high sleep, low nutrition	97%	25%	2%	58	
4	Low positive relationships with others, low sleep, low fitness, high nutrition	75%	3%	3%	6	
	High positive relationships with others, low psychological distress, low nutrition	96%	42%	10%	98	
	High positive relationships with others, low psychological distress, high sleep	96%	44%	11%	104	
		Overall:	95%	81%		

[a]Consistency is the percentage of cases in the noted configuration that have the high resilience outcome.
[b]Raw coverage is the percentage of cases with the high resilience outcome that are in the noted configuration.
[c]Unique coverage is the percentage of cases with the high resilience outcomes that are only in the noted configuration and not in any other configuration.

Discussion

This study reexamined how overall resilience was related to a set of mechanism variables within the proactive and reactive resilience pathways as proposed by Everly's (2017) Psychological Body Armor framework but among a sample of trained CISM responders. Results for bivariate correlational and hierarchical regression analyses had findings that were more robust compared to the original Burnett, Pichot, and Bailey (2019) study. We also combined the datasets from the original study with the current study in order to perform a qualitative comparative analysis (QCA) to identify configurations of mechanism variables that consistently cover cases with high resilience. Findings from the QCA showed that having CISM training was associated with strong resilience overall thereby making the proactive pathway irrelevant.

Among trained CISM responders, we found that for the proactive pathway, the mechanisms of happiness, self-acceptance, purpose in life, and spirituality were unique significant predictors of resilience. The unique predictors of resilience for the reactive pathway were the mechanisms of psychological distress and perceived stress. In line with our findings, Ludick and Figley (2017) has suggested that self-care behaviors that one performs to maintain health, life, and well-being, along with detaching from the trauma of the victim, having a sense of satisfaction from helping others, and having social support are important resilience factors that can ameliorate the negative effects of compassion fatigue and secondary traumatic stress among professionals who work with traumatized populations. Halpern and Vermeulen (2017) has also discussed several self-care practices (including stress inoculation) that helps to minimize disaster stress among disaster mental health responders. Furthermore, disaster mental health professionals that possess a greater sense of purpose in life (which is a strong predictor of overall resilience) is linked with better physical health, mental health and positive psychological factors (Southwick et al., 2016).

Our study also showed through the set-theoretical approach of QCA, a substantial proactive pathway to high resilience by way of high self-acceptance and high happiness among trained CISM responders. This finding is similar to Burnett, Pichot, and Bailey's (2019) results among a non-CISM population suggesting a commonality of key mechanisms. This would suggest that responders that exhibit high self-acceptance and happiness tend to feel confident in their abilities to overcome obstacles, tend to be optimistic and have a sense of positive well-being that promotes resilience (Alvord & Grados, 2005; Lyubomirsky, 2007). This is not only important in building immunity against adversity in general but may be particularly important in helping to shield disaster mental health responders from developing the chronic negative effects of vicarious trauma exposure.

One of the most noteworthy findings of our study from the QCA showed that when the datasets were combined, having professional training in disaster mental health and other related crisis intervention services was substantial for high resilience through the reactive pathway. Furthermore, this finding also showed that overall, having such professional training strongly contributed to strong resilience, thereby making the proactive pathway irrelevant. In other words, having professional training in CISM and other disaster related crisis intervention methodologies is

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one of the most critical contributors to robust resilience. In fact, Atkins and Burnett (2016) found that having training in small and large group crisis interventions, as well as in peer and individual crisis interventions was significantly related to higher resilience and lower levels of burnout. Several other studies have also indicated the significance of having high resilience with professional training (Aten et al., 2008; Chan et al., 2012; Pollock et al., 2003; Rosser, 2008; Schiraldi et al., 2010).

Limitations

One limitation of our study was the use of a convenience sample of professionally trained CISM responders. The unfortunate problem with a convenience sample is that it is not always representative of the population under study. Furthermore, the sample size of our study was small ($N = 63$), which may have affected its statistical power, thereby contributing to a lack of significant correlational findings for positive personal relationships with others and spirituality which are often cited in the literature as important factors for resiliency among disaster mental health responders (Brenner et al., 2010; Everly, 2017; Guilaran et al., 2018; Halpern & Vermeulen, 2017; Newmeyer et al., 2014). Further research using a larger sample of similarly trained professionals should explore whether this finding holds true or not. Finally, the subjects who participated in the study were a cross-section of various professional disciplines compared to the majority of resilience studies that focus on a single discipline (i.e., social workers, psychologists, nurses, etc.). However, it should be noted that the composition of many teams that utilize CISM and other disaster related crisis intervention services are multidisciplinary. Therefore, the results of our study may provide insight into the PBA mechanism variables associated with this specialized group of trained disaster mental health responders. Further research is needed to explore how these pathway variables compare among the various disciplines common to CISM teams.

Implications

Our study found that overall, having professional training in CISM and other disaster related crisis intervention strategies substantially contributes to strong resilience – more so than the proactive pathway variables. As noted previously, having specialized training in disaster related crisis intervention techniques contribute to increased resilience and reduced susceptibility to burnout and other negative outcomes associated with vicarious traumatization

(Atkins & Burnett, 2016; Figley, 1995; Motta, 2008). Therefore, it is critical that CISM and other disaster mental health responders intentionally engage in completing foundational and continuous disaster related crisis intervention training in order to construct a PBA that is robust.

On the other hand, our study does not suggest that the proactive pathway mechanisms of happiness, purpose in life, and self-acceptance should be ignored in lieu of training alone to build resilience capacity. In order to build a robust, enduring and holistic PBA, CISM and other disaster mental health professionals must still "intentionally engage in behaviors and activities that strengthen their resilience capacity" (Burnett, Pichot, & Bailey, 2019, p. 41). In fact, all of these pathway mechanism variables tend to be interconnected to some degree and developing and nurturing each one will result in an increased immunity and ability to rebound from both professional and personal adversity. This will result in building a responder that is readily deployable and less likely to hinder a team's resource capabilities.

In conclusion, our study is the first to chart direct evidence-based support for human resilience comprised of two distinct pathways among a sample of CISM-trained professionals. This provides further empirical support for incorporating Everly's Psychological Body Armor framework among CISM and other disaster mental health responders in an effort to help build their resilience immunity and ability to rebound from adversity in general, as well as to help mitigate the potential negative effects associated with working in the trauma field. Further research is needed to either replicate or refute the results of our study using a larger CISM-trained responder population. As indicated by Burnett, Pichot, and Bailey (2019), CISM and other trained disaster mental health responders continue to be deployed to traumatic incidents with the intention of providing needed crisis intervention services to those impacted by such events. Thus, the potential risk for developing vicarious traumatization and other secondary related psychological distress problems remain. Therefore, it is imperative for CISM and other disaster mental health responders to actively engage in evidence-based practices that build their PBA in preparation for any disaster deployment that has the potential to cause damage to their overall well-being.

Declaration of Conflicting Interests

The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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