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Transcending Chronic Illness and Disability: Virtue-Based Adaptation Model Perspective

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The present study examined the replicability of Virtue-Based Adaptation Model (V-PAM). Traditional adaptation studies in the field of rehabilitation often focus on examining innate psychological disposition such as personality. In V-PAM; however, the emphasis is given to virtue, one's pursuit of excellence and commitment after the onset of illness and disability. From this perspective, adaptation to illness and disability is viewed as a positive by-product of having endured adversities while transforming them into insightful opportunities for renewal. Thus, adaptation is not only affected by innate dispositions, but also it can be nurtured via the collaborative counseling process. Two hundred eight adults with illness and disability participated in this study to replicate the original V-PAM study. The results revealed that the main effect of virtue model in differentiating the individual's level of adaptation is replicable. Implications of these findings for clinical work and virtue-based research are discussed.

Keywords: *virtue, character strengths, psychosocial adaptation, disability, rehabilitation*

Chronic illness and disability (CID) in the United States account for an estimated 61 million or about 1 in 4 adults (Centers for Disease Control [CDC], 2019). Many of these individuals face unique lifestyle disruption. Moreover, the onset of chronic illness and disability impedes the livelihood of individuals across multiple dimensions and predisposes them to a greater risk of psychological distress. Regarding psychological distress (e.g., depression, anger), maladaptive coping strategies prolong the successful adaptation to chronic illness and disability and renewed life homeostasis (Livneh & Martz, 2014). The counselor needs to be cognizant of the clients' psychosocial reactions to their conditions. However, simply being cognizant of the triggered responses to the onset of a disabling condition, and those experienced at various

phases of adjustment is not sufficient. The counselor must also be aware of professional expertise (Livneh & Antonak, 2005; Livneh et al., 2014) in recognizing the client's character traits, which may be identified and capitalized upon to address cognitive dissonance (e.g., anxiety, intrusive thoughts, volatile shifts in affect, and anger).

Psychosocial adaptation to a disabling condition has received considerable attention in rehabilitation and disability studies to enhance the integration or reintegration of individuals with CID to mainstream society. It is understood that there is a psychosocial adjustment period that occurs at the onset of a disabling condition in which a person may or may not reach optimal psychosocial adaptation to chronic illness and disability (Livneh, & Martz, 2012; Vash & Crew, 2004). Furthermore, the understanding of psychosocial adaptation to chronic illness and disability has been evolving. For instance, Cohen (1961) describes five stages of adjustment and emphasized that regardless of an individual's adjustment to disability and sense of normalcy, one may still hold the belief of being

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inferior relative to people without a disabling condition. This may appear to be a misnomer of adjustment as it could imply that the person may not be congruent with assimilation of changes experienced in one's physical body, self-concept, and interaction with the environment. Accordingly, this earlier concept of adjustment has since been extended based on Livneh's (2001) theoretical framework whereby psychological reactions as well as individual and environmental variables are carefully considered in the phases of adaptation and adjustment. Furthermore, Vash and Crew (2004) articulate three levels of acknowledgement of disability whereby, at the third level, optimal transcendence to chronic illness and disability goes beyond the resumption of normalcy. An in-depth review of the literature on psychosocial adaptation is beyond the scope of this paper. Instead, the following section seeks to provide a synopsis of rehabilitation and disability literature accumulated overtime on the psychosocial adaptation to CID, differentiated among four approaches, including somatopsychological approach, stage model, illness intrusiveness model and disability centrality model.

First, the somatopsychological approach focused on the influence of physiological functioning relative to psychological processing such as disability acceptance and the value change model (Baker, et al., 1946; Chan, et al., 2009; Keany & Glueckauf, 1993; Livneh & Martz, 2016). For example, taking a social psychology perspective, Wright (1960) explained in her book, *Physical Disability: A Psychological Approach*, that a problem exists because people draw interest and inferences from atypical physique especially for physical disabilities. In addition, the stage-based approach was inspired by Kubler-Rose's (1969) grief and loss theory (i.e., denial-anger-bargaining-depression-acceptance). The stage-based approach evolved in rehabilitation and disability literature through the works of Livneh (1986) and colleagues (Livneh & Antonak, 1997). Accordingly, the stage-based approach increased the understanding of psychosocial adaptation to disabling conditions by illuminating psychosocial reactions to CID and the following phases of adaptation: initial impact, defense mobilization, initial realization, retaliation, and reintegration. Third is Devin's Illness Intrusiveness Model (IIM). According to IIM, disability factors (e.g., anatomical changes, pain, functional loss, fatigue) and treatment factors (e.g., treatment time/period, side effect, amelioration of disease) influence psychosocial outcome directly by reducing meaningful and valued activities and indirectly by reducing feelings of personal control on their life domain. Thus, it hypothesizes that by improving the level of illness intrusiveness, well-being and quality of life of people with disabilities can be improved (Bishop et al., 2009). The last is the Disability Centrality Model, which evolved from IIM. This model explained the adaptation process in terms of four major components: 1) satisfaction, 2) perceived control, 3) the impact of chronic illness and disability (CID) and its treatment, and 4) the importance of each domain to the individual (Bishop, 2005). Consequently, the understanding of psychosocial adaptation allowed intervention strategies for people with chronic illness and disability to successfully adapt to their conditions. For instance, clients explored the personal meaning of their CID and were taught adaptive coping skills. While these intervention strategies may assist person's adaptation to their condition, the interventions do not account for the direct utilization of an individual's

virtues and character traits in the process of psychosocial adaptation.

Recently, the complex interrelationship between (a) virtues and psychosocial adaptation related to living with a chronic illness and disability and (b) the resulting influence on the psychosocial outcome have been examined (Mart & Livneh, 2016). Quality of life is important as it directly involves an individual's perspective on their well-being and personal satisfaction. That said, understanding such interconnection is important for planning efficacious interventions. In rehabilitation counseling, the Virtue-Based Psychosocial Adaptation Model (V-PAM; Kim, McMahon, Hawley, et al., 2016) is a model developed based on this emerging trend. V-PAM explicates the adaptation process in terms of five virtue constructs. The five virtues that enhance adaptation to thrive despite having a disabling condition include Practical Wisdom, Integrity, Courage, Committed Action, and Emotional Transcendence. *Practical Wisdom* is defined as a person's ability to evaluate the situation clearly and contextually. In doing so, practical wisdom helps the person develop the best course of action to manage their life after the onset of disability. Thus, the nature of this construct is cognitive based. *Integrity* addresses the relational aspects of a person's life and is defined as a principal determinant of trust. Accordingly, the person demonstrates the ability to act in a genuine manner consistent with their morals, values, which then promote a healthy relationship with others. *Courage* is defined as the person's ability to execute their will-power to initiate an action despite the uncertainty of its outcome, while *Committed Action* refers to a person's dedication in delivering a constant effort to accomplish a goal(s) despite any challenges faced. The Courage and Committed Action constructs address action and the behavioral aspect of an individual. *Emotional Transcendence* is the person's ability to constructively understand the results of the action deployed and infused hope, thus, transforming adversity into new insight for future success (Kim, Gonzalez, Hawley, et al., 2018).

Studies of V-PAM Differentiate Psychosocial Adaptation Levels

To date, several studies have been conducted for the applicability of V-PAM in rehabilitation counseling. The results of these studies are published in several rehabilitation journals such as *Rehabilitation Counseling Bulletin*, *Journal of Occupational Rehabilitation*, and *Work: A Journal of Prevention, Assessment and Rehabilitation*. The studies demonstrate that virtues have a contributory effect in differentiating an individual's psychosocial adaptation level (Kim, Keck, McMahon, et al., 2018; Kim, Lee, Richardson, et al., in press; Kim, McMahon, Hawley, et al., 2016; Kim, Reid, McMahon, et al., 2016; Martz & Livneh, 2016). For instance, a study of 256 students with disabilities published in the *Rehabilitation Counseling Bulletin* (Kim, Gonzalez, Hawley, et al., 2018) found that V-PAM's virtue factors differentiated psychosocial adaptation levels in terms of resilience (e.g., high-resilience vs. low resilience).

However, to move forward to efficacy and virtue-based intervention study, it is scientifically reasonable that an additional replication study is completed to strengthen the generalizability of the Virtue-Based Psychosocial Adaptation Model. For this study, replicability means obtaining consistent results across studies

aimed at answering the same scientific question(s) with a different independent group to demonstrate a model's generalizability. The present study was designed for this purpose.

Purpose of the Present Study

The purpose of this article is to extend the body of research in which the Virtue-Based Psychosocial Adaptation Model explains the psychosocial adaptation process in terms of five virtue constructs commonly associated with adaptation relative to chronic illness and disability. To confirm the validity of this discovery, the same research questions, instrumentation, procedure, and statistical analyses were used with a new data set. Notably, research question 4 was added to elaborate the discussion on the findings of this replication study.

- Research Question 1: Is it possible to group participants with CID into two or more clusters that reflect their level of adaptation, defined in terms of total scores of the Connor-Davidson Resilience Scale (CD-RISC) and Satisfaction With Life Scale (SWLS)?
- Research Question 2: What are the unique characteristics of the adaptation clusters?
- Research Question 3: Is it possible to test the contributory effect of V-PAM factors to differentiate resilience group memberships?
- Research Question 4: What observations can be made regarding the application of V-PAM within the scope of rehabilitation counseling?

Method

Replicability is an important standard to demonstrate a model's generalizability. To test the replicability of V-PAM, the same questions, testing instruments, and statistical procedures were employed with a different sample set. All statistical procedures were completed via SPSS 26.

Participants and Procedure

Upon IRB approval, the current study recruited 208 adults with chronic illness and disability via Amazon mTurk (AMTurk). AMTurk is a crowdsourcing internet marketplace designed to facilitate research involved in human subjects. Noteworthy, in comparing AMTurk internet participants to a large internet sample, concerning the use of several psychometric scales, Rouse (2015) found high test-retest reliability and no significant difference between AMTurk internet participants and the larger internet sample. The inclusion criteria for the present study included 1) be greater than 18 years of age, and 2) having a chronic illness and disability for a minimum of six months or greater. To reduce sampling errors associated with the online survey, especially conducted via a crowdsourcing marketplace, screening questions and attention checking questions were devised throughout the survey.

The majority of the participants include 44 years old or younger (84%) and White Non-Hispanic (78.8%). Gender composition was similar (female 51.9%, male 47.6%). The majority of the participants had an acquired disability (82.7%), while 96.2% reported a functional limitation in the area of work, physical tolerance, and experienced mental and emotional issues associated with their disability. The demographic and disability characteristics of research participants are summarized in Table 1.

Variables	n	%	Variables	n	%
Race/Ethnicity			Education Level		
White, Non-Hispanic	166	79.8	Less than High School	1	0.5
Black/African American	12	5.8	High School or GED	36	17.3
Asian	26	12.5	Some College	54	26
Hispanic	3	1.4	2 Year Degree	24	11.5
American Indian/Alaska Native	1	0.5	4 Year Degree or Bachelor	78	37.5
			Professional Degree	12	5.8
Age			Master or Doctorate	3	1.4
18-24	21	10.1	Functional Limitation		
25-34	108	51.9	Mobility	39	19.2
35-44	46	22.1	Self-Care	20	9.6
45-54	20	9.6	Interpersonal Skills/Acceptance	18	8.7
55-64	11	5.3	Work Skills	17	8.2
65 Over	2	1	Communication	10	4.3
			Self-Direction	6	2.9
Disability Type			Work/Physical Tolerance	98	47.1
Mobility and Physical Impairment (Motor)	35	17	Onset		
Brain, Spinal Cord, or Nerve Damage	36	17	Congenital	37	17.8
Vision Disability or Blindness	12	6	Acquired	171	82.2
Hearing Disability or Deafness	8	4	Mental Health Issue		
Cognitive, Attention or Learning Disability	34	16	Yes	208	100
Psychological or Emotional Disorder	10	5	No	0	0
Organ, Vein or Artery Deficiencies	2	1			
Gastrointestinal or Autoimmune Disorder	20	10			
Multiple Disabilities	36	17			
Other Health Impairment & Missing	15	7			

Instruments

The instruments used in the 2018 model study were used to operationalize psychosocial adaptation for this current study. The instrumentation included the Satisfaction with Life Scale (SWLS; Pavot & Diener, 2013) and Connor-Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003). These two instruments were selected because psychosocial adaptation carries a positive connotation and its implications are beyond one's resiliency to hardships in the field of rehabilitation (Limonero et al., 2012). To operationalize the five V-PAM virtue factors, the Adapted Inventory of Virtues and Strengths (AIVS; Kim, Keck, McMahon, et al., 2018; Kim, Reid, McMahon, et al., 2016) was used. Psychometric information for each instrument is presented in the following section.

Demographic Questionnaire. The demographic information collected included age, gender, race, education, type and onset of illness and disability, duration of the chronic illness and disability, mental and emotional stress associated with the chronic illness and disability, and functional limitation (see Table 1).

Satisfaction with Life Scale. The Satisfaction with Life Scale (SWLS; Pavot & Diener, 2013) consists of

five items designed on a 7-point Likert scale (e.g., In most ways my life is close to my ideal; 1=*strongly disagree* to 7=*strongly agree*). A total score ranging from 5 to 35 with a higher score indicating a higher level of satisfaction. SWLS has good test-retest correlations (.84, .80 over a month interval), and Cronbach’s alphas in previous studies range between .79 and .89. In the current sample, internal consistency measured in terms of Cronbach’s alpha was .91.

Connor-Davidson Resilience Scale. The Connor-Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003) consists of 25 items developed based on a 5-point rating scale (e.g., I am able to adapt when changes occur; 0=*not true at all* to 4=*true nearly all of the time*). CD-RISC evaluates subjective resilience (i.e., how the respondent has felt on a certain statement over the past month, for example, “able to adapt to change”). A total score ranging from 0 to 100 with higher scores reflecting greater resilience. Internal consistency for the general population is .89, and Cronbach’s alpha in the current sample was .92.

Adapted Inventory of Virtues and Strengths. The Adapted Inventory of Virtues and Strengths (AIVS; Kim, Keck, McMahan, et al., 2018; Kim, Reid, McMahan, et al., 2016) operationalizes the five V-PAM virtue factors (i.e., Committed Action, Emotional Transcendence, Practical Wisdom, Integrity, Courage) in terms of character associated with each virtue factor. AIVS consists of 46 items devised in terms of a 7-point semantic differential scale (e.g., hateful _____ loving). The reported alphas for the AIVS subscales, in previous studies, ranged between .77 to .84. Cronbach’s alphas of AIVS subscales, in the current sample, were .83 (Committed Action), .86 (Emotional Transcendence), .82 (Practical Wisdom), .84 (Integrity), and .82 (Courage).

Preliminary Analyses

To reduce the number of missing cases and to maximize the normalcy of data, the data collected was stored for only those participants who completed the survey in its entirety. Incidentally, this allowed the participants to skip items or quit the survey altogether. Patterned answers were reduced through the use of attention checkers throughout the survey procedure. Once the data collection was completed, the preliminary analysis examined the distribution, central tendency, and dispersion (i.e., normality) of the data with skewness (≤ 2.0) and kurtosis (≤ 4.0) at a level not exceeding the standard values. The data set met all normality testing criteria and all statistical procedures were carried out using IBM SPSS 26. The results are presented below.

Results

The replicability of V-PAM study was examined in the present study. A cluster and discriminant analysis followed by the univariate analysis of variance (ANOVA) were conducted.

Cluster Analysis Followed by Univariate Analysis of Variance

Cluster analysis with Ward’s method was employed to address Research Question 1. Cluster analysis is used to group individuals in a way that those allocated to a particular group are, in some sense, close together. Among vari-

ous grouping algorithms, Ward’s method was used as it minimizes within-group variance and maximize between-group heterogeneity. The optimal number of groups that showed within-group homogeneity and between-group heterogeneity in terms of psychosocial adaptation were inspected. To determine the clusters solution (i.e. optimal numbers of adaptation groups that the participants can be divided into), changes in agglomeration coefficient and scree plot were inspected (see Table 2). There was relatively minimal loss in the within-cluster homogeneity from the third to the fourth level (2,504) in comparison to the large drop from the second to the third level (13,332). The cluster analysis result indicates that 208 participants could be optimally divided into three psychosocial adaptation groups. Scree plot demonstrated the same pattern (see Figure 1).

Univariate Analysis of Variance

To identify the unique characteristics each group revealed via the cluster analysis (Research Question 2), an ANOVA was employed. Accordingly, each group was inspected in terms of its mean profile on the variables that operationalized psychosocial adaptation (e.g., life satisfaction and resilience). Conducting an ANOVA is not a mandatory analysis after completing a cluster analysis. However, it is useful in that it allows the researcher to carry out significance testing on the difference between clusters based on the group variables. This in turn allows a researcher to retrospectively inspect if within-group homogeneity and between-group heterogeneity are well established regarding the cluster solution.

The first group (G1) included 60 adults with CID. The mean profile for G1 on the CD-RISC and SWLS was ranked the lowest. Thus, G1 was labeled as the low-adaptation group. The third group (G3) showed the highest mean profile on both CD-RISC and SWLS and was labeled as the high-adaptation group. Lastly, the second group (G2) mean profile on CD-RISC and SWLS was between the first and third groups. G2 was labeled as the intermediate-adaptation group. Table 3 provides a summary of the mean profiles for CD-RISC and SWLS for each cluster. The results of ANOVA confirmed the three groups are significantly different in

Table 2.
Cluster Analysis

# of Cluster	Agglomeration Coefficient	Changes in Agglomeration Coefficient
10	5374	793
9	6167	1079
8	7246	1493
7	8739	1623
6	10362	1861
5	12223	2038
4	14261	2504
3	16765	13332
2	30097	30402
1	60499	

Table 3.
ANOVA Table

Variable	Cluster 1	Cluster 2	Cluster 3	F Statistics
	Low (n=60)	Intermediate (n=93)	High (n=55)	
SWLS	13 (5.15)	18 (6.51)	24 (6.73)	$F(2, 205) = 47.462, p < .0001^{**}$
CDRISC	68 (7.50)	86 (5.72)	105 (6.86)	$F(2, 205) = 463.778, p < .0001^{**}$
AIVSCA	30 (6.76)	37 (5.69)	43 (4.66)	$F(2, 205) = 67.924, p < .0001^{**}$
AIVSET	52 (11.70)	61 (9.18)	71 (8.04)	$F(2, 205) = 57.259, p < .0001^{**}$
AIVSCO	17 (5.38)	21 (4.84)	25 (5.20)	$F(2, 205) = 41.196, p < .0001^{**}$
AIVSPW	49 (9.94)	57 (9.05)	61 (7.53)	$F(2, 205) = 26.446, p < .0001^{**}$
AIVSIT	57 (10.72)	61 (7.98)	63 (7.91)	$F(2, 205) = 6.127, p < .0001^{**}$

Note. SWLS: Satisfaction with Life Scale; CDRISC: Connor-Davidson Resilience Scale; AIVSCA: AIVS Committed Action; AIVSET: AIVS Emotional Transcendence; AIVSCO: AIVS Courage; AIVSPW: AIVS Practical Wisdom; AIVSIT: AIVS Integrity.

terms of mean profile of grouping variables (i.e., life satisfaction and resilience). The homogeneity of variance test (i.e., ANOVA assumption test) was met. The results also indicate the mean scores on the CD-RISC and SWLS were statistically different across the clusters, $F(2, 205) = 47.462, p < .0001$, and $F(2, 205) = 463.778, p < .0001$, respectively. Pairwise comparison was examined with Tukey's HSD and every pair was significantly different.

Discriminant Analysis

A discriminant analysis was employed to address Research Question 3. In doing so, researchers were able to determine the contributory effect of V-PAM's virtues in differentiating the adaptation level shown by the members for each adaptation group. V-PAM's five virtue factors (Courage, Integrity, Practical Wisdom, Emotional Transcendence, and Committed Action) were used as discriminating variables and the adaptation clusters were used as a group variable. The Box's M (i.e., assumption test) value of 39.853 was associated with a p value of .141, which was interpreted as non-significant. Thereby, indicating the assumption of homogeneity of the covariance matrix had been met. The discriminant analysis produced two functions. The first function was significant, $\lambda = .468, \chi^2(df = 10, n = 207) = 154.044, p < .0001$. However, the second function was not significant ($\lambda = .986, \chi^2(df = 4, n=207) = 2.867, p > .05$). The structure matrix table below (see Table 4) provides the correlation between the five virtue factors and the discriminant function with a higher correlation indicating the stronger contributory effect. The strongest virtue contributor in differentiating psychosocial adaptation levels was Committed Action (.773), followed by Emotional Transcendence (.711), and Courage (.603). Mild to moderate correlations were also identified between the second discriminant function and Practical Wisdom (.632) and Integrity (.364). However, an interpretation of these two factors was not attempted as the second discriminant function was not significant. Group centroids along the discriminant function indicate that Cluster 1 (low-resilience group) was located at the negative end (-1.138), while Cluster 3 (high-resilience group) was at the positive end (1.421), and Cluster 2 (intermediate-resilience group) was located in the middle (.055).

An additional ANOVA was performed to determine whether differences between each group's virtue factors were statistically significant. While not a mandatory procedure, an ANOVA after discriminant analysis provides significant testing of the differences between the groups based on the mean profile of the discriminat-

Structure Matrix	Function	
	1	2
Committed Action	.773*	-.0386
Emotional Transcendence	.711*	-.161
Courage	.603*	0.103
Practical Wisdom	0.478	.632*
Integrity	0.229	.364*
Functions as Group Centroids	Function	
	1	2
Group 1 (high adaptation)	1.421	-.114
Group 2 (intermediate adaptation)	0.055	0.132
Group 3 (low adaptation)	-1.387	-.099

ing variables. Results of the ANOVA confirmed statistically significant differences in all of the following five virtue factors across the three group: Committed Action, $F(2, 205) = 67.924,$

$p < .0001$; Emotional Transcendence, $F(2, 205) = 57.259, p < .0001$; Courage, $F(2, 205) = 41.196, p < .0001$; Practical Wisdom, $F(2, 205) = 26.446, p < .0001$; and Integrity, $F(2, 205) = 6.127, p < .0001$. The results of a pair-wise post-hoc analysis (i.e., Tukey HSD) further confirmed that every pairwise comparison between groups were statistically significant.

Discussion

V-PAM Replicability

Overall, the results of the present study support the contributory effect of V-PAM virtue factors relative to differentiating psychosocial adaptation level across groups (e.g., high, intermediate, and low adaptation). The order and strength of contribution in differentiating adaptation levels delivered by each V-PAM factor were also replicable. In the model study, the stronger contributor was the Committed Action (.82) followed by the Emotional Transcendence (.76), Courage (.51), Practical Wisdom (.39), and Integrity (.37). Conversely, in the replication study, Committed Action was the strongest contributor in differentiating adaptation levels with a coefficient of .773, followed by Emotional Transcendence (.711), Courage (.603), Practical Wisdom (.632), and Integrity (.364).

In the model study, the contributory effect was observed on all five virtues; however, in the replication study, only the first function associated with three virtues (i.e., Committed Action, Emotional Transcendence, and Courage) demonstrated a statistical significance. This indicates that the virtues may align differently depending on sample, yet still differentiate psychosocial adaptation levels. For instance, in V-PAM literature, there are consistent findings that the most significant contributors in differentiating psychosocial adaptation levels are Committed Action and Emotional Transcendence, and the contribution delivered by the other three virtues often changes based on the sample characteristics (Kim, 2017). Furthermore, in the replication study, the interpretation of Practical Wisdom and Integrity virtue effect appeared to be limited as the 2nd discriminant function associated with these two factors was not statistically significant. Statistically speaking, it means that the contribution of three virtues (i.e., Committed Action, Emotional Transcendence and Courage) in differentiating high adaptation group from intermediate and low adaptation groups together was significant. But, despite moderate correlations shown by Practical Wisdom and Integrate virtues with the second discriminant function, the effect of these virtues in differentiating the intermediate group from low group is unclear. However, this difference is not a discouraging factor. For instance, there have been similar findings, especially concerning the virtue effect of Courage, Integrity and Practical Wisdom. According to previous studies, the effect of these virtue factors can change depending on sample characteristics. For example, integrity shows higher contribution in youth and adolescent sample, while courage is stronger predictor in a sample of graduating college students with disabilities (Kim, 2017).

Practical Implications

Transcending a chronic illness and disability is both a process and a marker of quality of life (Livneh, 2001). From a rehabilitation perspective, virtues are amenable to intervention. Specifically,

providing adjustment counseling from a virtue perspective may promote thriving as opposed to simply surviving a CID. The act of thriving may then lead to the attainment of or increased level of employment, community engagement, and overall life satisfaction. V-PAM's framework allows for counselors to harness their clients' virtues for successful adaptation to chronic illness and disability. The utilization of the AIVS informs counselors of the client's character strengths to promote virtuous efforts to improve psychosocial adaptation to CID. Thereafter, tailored intervention strategies through a strengths-based approach may be developed and implemented for clients to use their virtues (i.e., goal orientation for psychosocial adaptation to CID).

Concerning counselor's role and function in terms of facilitating rehabilitation process, courage may be initiated at the onset of a disabling condition as it serves as a catalyst to face the uncertainties and stressful conditions typically encountered by people in physical, social, educational, and vocational settings. According to Lopez et al. (2003), courage involves "the cognitive process of defining risk, identifying and considering alternative actions, and choosing to act in spite of potential negative consequences in an effort to obtain 'good' for self or others" (p. 191). Woodard (2004), Gould (2005) and Norton and Weiss (2009) echoed that courage is an essential component to initiate, move forward, and carry out an action under conditions of danger, fear, and risk. Courage confronts the fears, anxiety, anger, and denial relative to the diagnosis and implications of diabetes through consciousness raising (e.g., increasing awareness) and self-reevaluation (e.g., reappraisal problem). Essentially, through the application of the Courage component, the client acknowledges discrepancies between current behavior and goals and internalizes their beliefs and their capacity to change attitudes and unsafe behaviors for the value and benefits of safer behavioral alternatives.

Committed Action is a strong contributor to psychosocial adaptation as it involves the person's constant pursuit of virtuous behaviors. The counselor assists the client to explore their goals and values in life and formulate a plan for actions that are consistent with their values and appropriate to elicit cognitive, emotional, and behavioral change. Through Committed Action, the client gains intrinsic interest in activities, sets challenging goals, and maintains a strong commitment to them. Accordingly, with continuous application of Committed Action, the client learns to increase their efforts in the face of failure.

Long-term psychosocial adjustment to chronic illness and disability is affected by the person's cognitive, emotional, and behavioral acceptance, which includes setting and achieving new goals (Martz, 2004). When an individual reaches a level of acceptance, congruence with self and environment has been accomplished. Emotions allow clients to gain a deeper appreciation of oneself, and to live more intentionally. Accordingly, in the process of psychosocial adjustment, Emotional Transcendence enables clients to make sense of both positive and negative events into insights and renewal, which then can facilitate growth and adaptation (Kim, Gonzalez, Hawley, et al., 2016). Thus, clients utilize intrinsic motivation and reflection to embrace the present (i.e., constant action in pursuing excellence and a thriving life). In the termination stage, the client experiences Emotional Transcendence whereby

one's responses are instinctive and congruent with achieving a degree of physiological, psychological, and social adjustment to one's condition with the intent to continue living virtuously with a chronic illness and disability (Kim, McMahon, Hawley, et al., 2016).

Conclusion

In summary, the present study inspected the replicability of V-PAM studies. It was concluded that virtue as a contributory effect in differentiating psychosocial adaptation to CID is replicable but the effect of each virtue may vary depending on sample characteristics, indicating further model sophistication and refinement. Clearly, V-PAM is still in the early stage of development and the clinical application of V-PAM needs to be paired with regular validation studies to reduce the risk of premature practice of V-PAM. In addition, having an outcome measure of V-PAM, Adaptation Inventory of Virtues and Strengths (AIVS), is an asset of this model for clinical purposes. However, AIVS also needs to be continuously tested and reexamined to provide criterion values for clinical practice. Furthermore, the replication study highlights the importance of future development of virtue-based intervention relative to the validation of V-PAM from a cross-cultural perspective to properly reflect the ever-changing sample characteristics.

References

- Barker, R. G., Wright, B. A., & Gonick, M. R. (1946). Adjustment to physical handicap and illness: A survey of the social psychology of physique and disability. *Social Science Research Council*, 26, 111-112. <https://doi.org/10.1037/11780-000>
- Bishop, M. (2005). Quality of life and psychosocial adaptation to chronic illness and disability: Preliminary analysis of a conceptual and theoretical synthesis. *Rehabilitation Counseling Bulletin*, 48, 219-231. <https://doi.org/10.1177/00343552050480040301>
- Bishop, M., Smedema, S. M., and Lee, E. J. (2009). Quality of life and psychosocial adaptation to chronic illness and disability (Eds.). In Chan, F. Cardoso, E. D. S., Chronister, J. A. (2005). *Understanding psychosocial adjustment to chronic illness and disability* (pp. 521-558). Springer Publishing Company, LLC.
- Centers for Disease Control. (2019, June 15). *Disability and health promotion*. <https://www.cdc.gov/ncbddd/disabilityandhealth/infographic-disability-impacts-all.html>
- Chan, F. Cardoso, E. D. S., Chronister, J. A. (2005). *Understanding psychosocial adjustment to chronic illness and disability* (Eds.). Springer Publishing Company, LLC.
- Cohn, N. (1961). Understanding the process of adjustment to disability. *Journal of Rehabilitation*, 27, 16-18.
- Connor, K. M., & Davidson, J. R. (2003). Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety*, 18, 76-82. <https://doi.org/10.1002/da.10113>
- Gould, N. H. (2005). Courage: Its nature and development. *Journal of Humanistic Counseling Education and Development*, 44, 102-116. <http://dx.doi.org/10.1002/j.2164-490X.2005.tb00060.x>

- Keany, K. C., & Glueckauf, R. L. (1993). Disability and value change: An overview and reanalysis of acceptance of loss theory. *Rehabilitation Psychology, 38*, 199–210. <https://doi.org/10.1037/h0080297>
- Kim, J. H. (2017, Sept 23-26). *Psychosocial adaptation from virtue and character strengths perspective* [Conference session]. 2017 Annual Conference of the American Psychological Association, Sacramento, CA, United States.
- Kim, J. H., Gonzalez, R., Hawley, C., McMahon, B. T., Lee, D. H., Lee, J. H., Johnson, K., & Lee, Y. W. (2018). Resilience from a virtue perspective: *Rehabilitation Counseling Bulletin, 61*, 195-204. <https://doi.org/10.1177/0034355217714995>
- Kim, J.H., Keck, P., McMahon, M.C., Vo, A., Gonzalez, R., Lee, D.H., Barbir, L., & Maree, K. (2018) Strengths based rehabilitation assessment: Adapted Inventory of Virtues and Strengths. *Work: Journal of Prevention, Assessment & Rehabilitation, 61*, 421-435. <https://doi.org/10.3233/WOR-182807>
- Kim, J. H., Lee, J. H., Richardson, T. V., Lee, D. H., McMahon, B. T., Kim, H. & Sametz, R. (in press). Psychometric validation of Adapted Inventory of Virtues and Strengths. *Rehabilitation Counseling Bulletin*. <https://doi.org/10.1177/0034355221993553>
- Kim, J. H., McMahon, B., Hawley, C., & Brickham, D. (2016). Psychosocial adaptation to chronic illness and disability: A Virtue-based Model. *Journal of Occupational Rehabilitation, 26*, 45-55. <https://doi.org/10.1007/s10926-015-9622-1>
- Kim, J. H., Reid, C., McMahon, B., Gonzalez R., & Lee, D. H., (2016). Measuring the virtues and character strengths of rehabilitation clients: The Adaptive Inventory of Virtue and Strengths. *Journal of Occupational Rehabilitation, 26*, 32-44. <https://doi.org/10.1007/s10926-015-9619-9>
- Kubler-Ross, E. (1997). *The wheel of life: A memoir of living and dying*. Touchstone
- Limonero, J. T., Tomas, S. J., Fernandez, C. J., Gomez Romero, M. J., & Aradilla, H. A. (2012). Resilience coping strategies and emotional regulation: Predictors of satisfaction with life. *Behavioral Psychology/Psicologia Conductual, 20*, 183–196.
- Livneh, H. (1986). A unified approach to existing models of adaptation to disability: Part 1: A model of adaptation. *Journal of Applied Rehabilitation Counseling, 17*, 5-16.
- Livneh, H. (2001). Psychosocial adaptation to chronic illness and disability: A conceptual framework. *Rehabilitation Counseling Bulletin, 44*, 151-160. <https://doi.org/10.1177/003435520104400305>
- Livneh, H. & Antonak, R. F. (1997). Psychosocial adaptation to chronic illness and disability (1st ed.). Aspen Publishers, Inc.
- Livneh, H., & Antonak, R. F. (2005). Psychosocial adaptation to chronic illness and disability: A primer for counselors. *Journal of Counseling & Development, 83*, 12-20. <http://dx.doi.org/10.1002/j.1556-6678.2005.tb00575.x>
- Livneh, H., Bishop, M., & Anctil, T. M. (2014). Modern models of psychosocial adaptation to chronic illness and disability as viewed through the prism of Lewin's field theory: A comparative review. *Rehabilitation Research, Policy, and Education, 28*, 126-142. <https://doi.org/10.1891/2168-6653.28.3.126>
- Livneh, H., & Martz, E. (2012). Adjustment to chronic illness and disabilities: Theoretical perspectives, empirical findings, and unresolved issues. In P. Kennedy (Ed.), *Oxford library of psychology. The Oxford handbook of rehabilitation psychology* (pp. 47–87). Oxford, England: Oxford University Press. <https://doi.org/10.1093/oxford-hb/9780199733989.013.0004>
- Livneh, H., & Martz, E. (2014). Coping strategies and resources as predictors of psychosocial adaptation among people with spinal cord injury. *Rehabilitation Psychology, 59*, 329-339. <http://dx.doi.org/10.1037/a0036733>
- Livneh, H., & Martz, E. Psychosocial Adaptation to Disability Within the Context of Positive Psychology: Philosophical Aspects and Historical Roots. *Journal of Occupational Rehabilitation 26*, 13–19 (2016). <https://doi.org/10.1007/s10926-015-9601-6>
- Lopez, S. J., O'Byrne, K. K., & Petersen, S. (2003). Profiling courage. In S. J. Lopez, & C. R. Snyder (Eds.), *Positive psychological assessment: A handbook of models and measures* (pp. 185–197). American Psychological Association
- Martz, E. (2004). Do reactions of adaptation to disability influence the fluctuation of future time orientation among individuals with spinal cord injuries? *Rehabilitation Counseling Bulletin, 47*, 86-95. <https://doi.org/10.1177/00343552030470020301>
- Martz, E., Livneh, H. (2016). Psychosocial Adaptation to Disability Within the Context of Positive Psychology: Findings from the Literature. *Journal of Occupational Rehabilitation, 26*, 4–12. <https://doi.org/10.1007/s10926-015-9598-x>
- Norton, P. J., & Weiss, B. J. (2009). The role of courage on behavioral approach in a fear-eliciting situation: A proof-of-concept pilot study. *Journal of Anxiety Disorders, 23*, 212–217. <http://dx.doi.org/10.1016/j.janxdis.2008.07.002>
- Pavot, W., & Diener, E. (2008). The satisfaction with life scale and the emerging construct of life satisfaction. *The Journal of Positive Psychology, 3*, 137–152. <https://doi.org/10.1080/17439760701756946>
- Rouse, S.V. (2015). A reliability analysis of Mechanical Turk data. *Computers in Human Behavior, 43*, 304-307. <https://doi.org/10.1016/j.chb.2014.11.004>
- Vash, C., & Crewe, N. (2004). *Psychology of disability* (2nd ed.). Springer Pub.
- Wright B. A. (1960). *Physical disability: A psychological approach*. Harper & Row.
- Woodard, C. (2004). Hardiness and the concept of courage. *Consulting Psychology Journal: Practice and Research, 56*, 173–185. <http://dx.doi.org/10.1037/1065-9293.56.3.0.18P>