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Using the Assessment Recovery Capital at an Addiction Treatment Centre: A Pilot Study to Validate Utility

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Abstract: Recovery Capital is an emerging paradigm as part of a strengths-based approach to substance use research. Groshkova, Best and White's (2012) Assessment of Recovery Capital (ARC) scale is an identified tool to measure the myriad of internal and external resources that support the initiation and maintenance of recovery from alcohol and other drugs. This study seeks to validate the utility of the ARC in a Canadian residential addiction treatment setting. In a sample of 132 participants living in recovery post-residential treatment, the Assessment of Recovery Capital was positively correlated with abstinence, indicating that as the recovery capital within each of the Assessment of Recovery Capital subscales increases, individuals are more likely to be abstinent. Two separate factors of the ARC were also found, the first of which consisting of housing safety, global health (physical), global health (psychological), coping and life functioning, social support, and risk taking subscales. The second component involved community/citizenship involvement, meaningful activities, substance use and sobriety, and recovery experience subscales

Keywords: Addiction, Assessment of Recovery Capital (ARC), psychological

1. Introduction

considerable Although research has accumulated describing the pathophysiology and psycho behavioural aspects of active addiction, little is known about individuals living in sustained recovery (Faces & Voices of Recovery, 2013; White, 2007). Until recently, the primary focus within addiction research has been problem-focused, identifying the deficits or problems in people living with addiction. An emerging recovery approach has resulted in a shift of academic and clinical attention towards sustainable recovery, with a growing collection of data gathered from individuals living in sustained recovery (Groshkova, Best, & White, 2012; CCSA, 2017; Faces & Voices of Recovery, 2013; White, 2007).

The concept of Recovery Capital, as defined by Granfield and Cloud (1999) manifests in a myriad of internal and external resources that support the initiation and maintenance of recovery from alcohol and other drugs. This concept has provided additional approaches to evaluating both individuals seeking recovery, and individuals in recovery. Measuring, quantifying, and charting Recovery Capital is a multi factorial Endeavour still in its infancy (Groshkova et al., 2012). Ultimately, a focus on

Recovery Capital will provide template within which treatment professionals may colla -boratively foster strength-based solutions with their patients. (White, 2007).

Although there are no widely accepted measures of recovery capital, the Assessment of Recovery Capital (ARC) instrument provides a psychometric for researchers and clinicians engaged in promoting and understanding recovery management systems. As such, this pilot study seeks to further understand the utility of the ARC through a series of correlation analyses with abstinent rates from alcohol and other drugs.

2. RECOVERY

commonly agreed that recovery from substance use disorders (SUD) is a process that continues throughout one's life (El-Guebaly, 2012; Laudet, 2007). Various definitions of recovery have been proposed, consisting of common components: recovery is holistic, sustainable, voluntary, a personal journey towards improvedwell being, and a continuous process throughout the lifespan (Betty Ford Institute Consensus Panel, 2007; White, 2007; Faces Voices of Recovery, Additionally, recovery definitions typically

include sobriety, defined as "intentional and consistent restraint from the pathological pursuit of reward and/or relief that involves the use of substances and other behaviors," quality of life (physical, mental and social health), and positive citizenry (living with regard and respect for those around them) (ASAM, 2013, p. 2; Betty Ford Institute Consensus Panel. 2007: White, 2007; Faces & Voices of Recovery, 2013). In 2015, the Canadian Centre on Substance Abuse (CCSA) developed principles of recovery through its National Commitment to Recovery from the Disease of Addiction in Canada, stating that recovery collaboration, is a personal journey toward wellbeing, is multidimensional, and extends beyond individuals to their broader communities. In the CCSA's recent Life InRecovery from Addiction in Canada survey (2017), the majority of its 855 respondents includedin their definition of recovery the pursuit of abstinence, improved health, social connections and functioning, and enhanced quality of life.

2.1. What we Know about the Recovery Journey

In the CCSA's (2017) 'Life in Recovery from Addiction in Canada' survey, the factors participants identified as most important in initiating their recovery included: quality of life (69.1%); mental or emotional health (68.0%); marital, family or other relationships (64.9%); and physical health (45.5%) (CCSA, 2017). Further, 91% of respondents reported that since embarking on their journeys of recovery, their quality of life is excellent, very good, or good (CCSA, 2017). Survey respondents reported that the most common recovery resources used were Twelve Step and other mutual self-help group meetings (91.8% of participants), and specialized addiction treatment programs (60.6% of residential treatment, to 5% for Indigenous specific treatment) (CCSA, 2017). In the Australian Life in Recovery Survey, 82% of the 573 participants had attended Twelve Step meetings (Turning Point, Eastern health, & South Pacific Private, 2013). Additionally, 69.8% of participants in the Australian survey had accessed treatment for alcohol and other drug treatment services (Turning Point et al., 2013). In the United States Life in Recovery Survey, 71% out of their 3,228 participants received professional treatment, with 95% attending Twelve Step meetings and 12% attending non-twelve step recovery support groups (Faces & Voices of Recovery, 2013). In the UK Life in Recovery Survey, 70% of their 802 participants attended a Twelve Step meeting at least once, with 41.3% of participants still attending (Best, Albertson, Irving, Lightowlers, Mama-Rudd, &Chaggar, 2015). Overall, the United States survey found that recovery from substance use was associated with better health, improved financial status, improved family life, higher civic engagement, dramatic decreases in public health and safety risks, and significantly improved vocational status. (Faces & Voices of Recovery, 2013).

3. RECOVERY CAPITAL

The conceptualization of Recovery Capital can be found in the construct of Social Capital. The notion of Social Capital was initially developed in the field of sociology in 1980 by Pierre Bourdieu. Examining recovery through a Social Capital lens broadens the understanding of recovery by identifying the resources of a recovering individual within their social and cultural life (Granfield& Cloud, According to Granfield and Cloud (1999). recovery capital includes the breadth and depth of resources, both internal and external, that can be drawn upon to initiate and sustain recovery. Ultimately, Recovery Capital could become an instrument, or a template useful in the psychometric measurement of those intrinsic and extrinsic resources a recovering individual can draw upon to recover from substance use disorder. Cloud and Granfield (2009) suggest four components to recovery capital: social, physical, human, and cultural. Social Capital may be defined as the quantity and quality of resources a person has resulting from their relationships, and both their support and connection resulting from various groups they may belong to (Cloud &Granfield, 2009). Physical Capital is defined in terms of the property, money, or other tangible assets the individual may be able to draw upon to expand their options for support in recovery. Human Capital comprises the individual's physical, mental, and emotional health along with their skills and life goals that will enable the individual to prosper (Cloud & Granfield, 2009). Finally, Cultural Capital comprises individual's values, beliefs. attitudes perceptions that enable positive, progressive and acceptable social functioning as they engage in positive citizenry (Cloud & Granfield, 2009).

The total of a person's Recovery Capital can be assessed to determine the individual needs of someone approaching recovery or currently recovering, and to tailor treatments to increase the capital they possess (White & Cloud, 2008). Recovery Capital can also be used to measure progress as an individual recovers (Groshkova et al., 2012). For example, the active search for better living conditions, which motivates many individuals to seek recovery, is reciprocal in supporting that recovery, and reducing stressors that may induce relapse (Laudet & White, 2008).

4. ASSESSMENT OF RECOVERY CAPITAL (ARC)

The ARC is a self-administered measurement of recovery capital that is useful in outcome monitoring for individuals with substance use disorders(SUD) before, during and after treatment (Groshkova et al. 2012). The scale consists of 50 items assessing recovery strength. subdivided into 10 subscales: substance use and sobriety, global psychological health, global physical health, citizenship, social support, meaningful activities, housing and safety, risktaking, coping and life functioning, and recovery experience (Groshkova et al., 2012). includes ARC a simple scoring methodology with each subscale including 5 associated items at a value of one point per item. Each ARC subscale therefore receives a score between 0-5, with 5 being the highest recovery capital score within each subscale. Thus, the total ARC score is calculated out of a possible Psychometric testing of the ARC was completed on both a treatment group and recovery group, with sufficient reliability (0.50 -0.73) for overall scale and subscales (Groshkova et al., 2012). Concurrent validity was compared to the WHOOOL scale and Treatment Outcome Profile, with positive findings (Groshkova et al., 2012). The ARC is able to distinguish where participants are in their recovery journey, and what growing needs they have as they progress (Groshkova et al., 2012). The ARC takes approximately 5 to 10 minutes to complete (Groshkova et al., 2012).

5. METHODS

In this cross-sectional pilot study, the ARC was administered to a convenience sample of alumni from Cedars at Cobble Hill (Cedars), a residential addiction treatment centre located on Vancouver Island in British Columbia, Canada who attended Cedars from 2008-2017.

Cedars provide abstinence-based inpatient treatment to adult men and women with SUDs. as well as those with concurrent process/ behavioural addictions (such as gambling disorder and certain eating disorders). Based on their individual needs, patients have opportunities to receive treatment via multiple therapeutic modalities. in groups and individually, through the course of their stay. These therapies can include cognitive behavioral therapy, dialectical behavioral therapy, acceptance and commitment multidimensional family therapy, somatic and other trauma therapies, as well as other specialized programming when required.

The inclusion criteria for this study is patients over the age of 18, having met the criteria for substance use disorder as outlined in the DSM-5. Informed consent was obtained from each patient. In an effort to validate the utility of the ARC as a post-treatment outcome measurement, it is anticipated that elevated levels of recovery capital will be positively correlated with reduced relapse rates from the use of alcohol or other drugs.

6. RESULTS

Among the 132 participants in this study, 52 (44.4%) were male, and65 (55.6%) were female. The mean age for males was 42.54 years (SD 12.69), while the mean age for females was 40.77 years (SD 14.10). Average days since treatment discharge was 1415.21 days (SD 1065.54), or approximately 3.9 years.

The recovery capital analysis for each subscale showed that participants possess the greatest capital in citizenship 4.72 (SD .63), housing and safety 4.65 (SD.80), and recovery experience 4.64 (SD.80). This was followed by meaningful activities 4.54 (SD .73), global psychological health 4.50 (SD .88), global psychological health 4.37 (SD 1.08), risk taking 4.36 (SD.71), substance use and sobriety 4.25 (SD 1.10), coping and life functioning 4.18 (SD1.18) and finally social support 4.17 (SD 1.26). Descriptive statistics of ARC subscales can be found in the Appendix A (Table 1).

The total recovery capital score for the participant group was 44.35 (SD 6.37). Considering the progressive nature of recovery, those in recovery initiation (<1 year) possessed a total recovery capital score of 42.65 (SD 7.27), those in early recovery (1-5 years) 44.36 (SD 6.31), and those in sustained recovery (5+ years) was 45.40 (SD 5.80).

In the current study, the subscale reliability ranged from low to moderate. Cronbach Alpha ranged from 0.225 (risk taking) to 0.710 (social **Table1**. *Descriptive Statistics of ARC Subscales*

support) while presenting good total scale reliability, Cronbach Alpha=0.862.

Descriptive Statistics							
	N	Minimum	Maximum	Mean	Std. Deviation		
Substance Use & Sobriety	102	1.00	5.00	4.25	1.10		
Global Health (Psychological)	102	1.00	5.00	4.50	.88		
Global Health (Physical)	102	.00	5.00	4.37	1.08		
Citizenship & Community Involvement	102	2.00	5.00	4.72	.63		
Social Support	103	.00	5.00	4.17	1.26		
Meaningful Activities	102	2.00	5.00	4.54	.73		
Housing and Safety	103	.00	5.00	4.65	.80		
Risk Taking	102	2.00	5.00	4.36	.71		
Coping and Life Functioning	103	.00	5.00	4.18	1.18		
Recovery Experience	101	1.00	5.00	4.64	.80		

The Principal Component Analysis (PCA) was conducted to examine factor structure of the ARC measure in the current study. The sample adequacy statistics showed that the data was suitable for factor analysis. Kaiser-Mayer-Olkin measure of sampling adequacy was 0.87, and Bartlett's test of sphericity was significant (χ^2 =388.02, p<0.000).

The results from the PCA showed two components for the ARC scale. The first

component consisted of housing safety, global health (physical), global health (psychological), coping and life functioning, social support, and risk taking. The second component involved community/citizenship involvement, meaningful activities, substance use and sobriety, and recovery experience. The first component accounted for 46.53% of variance, while the second component accounted for 11.32% of variance

6.1. Relapse from Alcohol or Other Drugs

Table2. Descriptive Statistics of Relapse Rates

Since yo	Since you left treatment at Cedars, how would you describe your experience abstaining from mind							
altering substances?								
		Frequency	Percent	Valid Percent	Cumulative Percent			
Valid	Zero relapse	70	53.0	60.3	60.3			
	One relapse	13	9.8	11.2	71.6			
	Two to five relapses	21	15.9	18.1	89.7			
	Six to nine relapses	3	2.3	2.6	92.2			
	Ten to thirteen relapses	2	1.5	1.7	94.0			
	Fourteen or more	7	5.3	6.0	100.0			
Missing	Total	116	87.9	100.0				
	System	16	12.1					
Total		132	100.0					

On average, participants selected 1.75 (SD 1.17) drugs of concern. The primary drug(s) of concern for the participants were 'alcohol' 87 (65%), 'heroin and other opioids' 23 (17.4%), 'cocaine' 29 (22%), 'amphetamine' 6 (4.5%), 'cannabis' 9 (6.8%), and 'other' 21 (15.9%). Of those that reported 'alcohol,' 19 (22%) also reported cocaine use, 8 (9.19%) reported also using 'heroin and other opioids,' 8 (9.19%) reported using cannabis, 3 (3.44%) reported using amphetamine, and 12 (13.7%) reported using other drugs. The drug with the 'highest' relapse rate reported was amphetamine (83.4%), followed by cannabis (66.7%), cocaine (48.2%), heroin and opioids (39%), alcohol (37.8%), and other drugs (33.3%). A descriptive summary of relapse rates can be found in Table 2 in the Appendix A. A Pearson correlation coefficient was used to assess the relationship between the ARC subscales and relapse from drugs. There was a significant positive correlation between all the ARC subscales. Substance use and sobriety, r = .621, p < .000, global health (psychological), r=.408, p < .000, global health (physical), r=.408, p < .000, community and citizenship involvement, r = .229, p = 0.20, social support, r=.366, p < .000, meaningful activities, r=0.369, p<.000, housing and safety, r=.313, p=0.001, risk taking, r=.423, p <0.000, coping and life functioning r=.420, p < 0.000, and recovery experience, r=.599, p < 0.000. A table of these correlations can be found in Appendix B, Table 8

These results indicate that as the recovery capital within each of the ARC subscales

increases, individuals are less likely to experience relapse.

Table3. Relapse and ARC Subscale Correlations

Correlations				
	how would you describe your experience refraining from			
mind altering substances?				
Substance Use	Pearson Correlation	.621		
	Sig. (2-tailed)	.000		
	N	102		
Global Health Psych	Pearson Correlation	.408		
	Sig. (2-tailed)	.000		
	N	102		
Global Health Phys	Pearson Correlation	.408		
	Sig. (2-tailed)	.000		
	N	102		
Community and	Pearson Correlation	.229		
Citizenship	Sig. (2-tailed)	.020		
	N	102		
Social Support	Pearson Correlation	.366		
	Sig. (2-tailed)	.000		
	N	103		
Meaningful Activities	Pearson Correlation	.369		
	Sig. (2-tailed)	.000		
	N	102		
Housing & Safety	Pearson Correlation	.313		
	Sig. (2-tailed)	.001		
	N	103		
	Pearson Correlation	.423		
Risk Taking	Sig. (2-tailed)	.000		
	N	102		
	Pearson Correlation	.420		
Coping and Life	Sig. (2-tailed)	.000		
Functioning	N	103		
	Pearson Correlation	.599		
Recovery Experience	Sig. (2-tailed)	.000		
	N	101		

Table 4.Factor Structure of ARC

Rotated Component Matrix ^a				
	Com	ponent		
	1	2		
Housing Safety	834			
Global Health(Physical)	825			
Global Health(Psychological)	769			
Coping& Life functioning	700			
Social Support	691			
Risk Taking	422			
Community/Citizenship involvement		722		
Meaning full Activities		701		
Substances use & Sobriety		633		
Recovery Experience	460	600		

Extraction Method: principal Component Analysis.

Rotation Method: varimax with Kaiser Normalization.

a: Rotation converged in 3 iterations

7. DISCUSSION

This pilot study was able further validated the ARC scale's utility in measuring lived

experiences that promote recovery following participation at a residential addiction treatment program. This was accomplished by comparing results from participants in varying stages of recovery. Average total ARC scores gradually increased the longer participants remained in recovery comparing those in early recovery (< 1 year), sustained recovery, and stable recovery (5+ years).

The hypothesis of this pilot study predicted that possession of higher levels of recovery capital (as measured by ARC) would be correlated with reduced relapse from use of alcohol or other drugs. A relationship between substance use relapse and ARC revealed a significant positive correlation with all ten subscales. Those least likely to relapse had the greatest capital in three subscales: citizenship, housing and safety, and recovery experience.

In contrast to previous studies that showed only one factor (Groshkova et al., 2012; Arndt, Shaker, & Hedden, 2017), this study identifies two factors of the ARC, indicating that there are two underlying components of recovery capital in Cedars' population of alumni. In the current study, the first component involved housing safety, global health (physical), global health (psychological), coping and life functioning, social support, and risk taking. The second component involved community/citizenship involvement, meaningful activities, substance use and sobriety, and recovery experience. These two separate factors could be interpreted as resulting from various demographic factors that separated the two samples, such as age and gender. It is also salient to consider that this is the first time ARC was administered to a Canadian population sample.

Up until recently, the primary attention of addiction research has been problem-focused. With the advent of Recovery Capital research, addiction researchers now have a novel approach for asset-based inquiry that is evolving the collective understanding of sustained recovery. Rather than focusing on the management and reduction of harms, Recovery Capital is a useful tool for describing an individual's positive assets. Understanding a person's assets and deficits help to establish a focus for therapeutic interventions that promote meaningful gains. The new paradigm of Recovery Capital posits that solutions to SUD related problems are found in the lived experience of individuals, families, communities. Further exploration can identify factors and resources that can enhance a person's recovery initiation and maintenance. The ARC proposes a model for charting and

gauging the positive changes in a person's capital that can be applied in both clinical and research settings. A measurable currency for recovery capital can be identified, which has been argued as the strongest predictor of recovery (Laudet& White, 2008).

Observing how Recovery Capital interfaces with symptom profiles and problem severity/ complexity will further enhance the tool's utility and better inform treatment placement, along with predicting response to particular levels of care (Groshkova et al., 2012). As shown in the present study, Recovery Capital is increasing over time as individuals accumulate the resources that will support their recovery More research is required to journey. understand specificity around salient resources that develop individual recovery capital. How individuals predictably acquire and sustain such resources is also important to understand. Outstanding questions remain to be answered about the predictive validity, and the ability of ARC to best direct individuals towards appropriate forms of intervention.

One of the main limitations with this study is the use of data collected from a single, private agency. Considering barriers to treatment access in the private sector, this study involves those with the economic resources capable of accessing private care. As a result, this notable limitation in the sample composition can be limiting when applying results to broader settings. Residential treatment facilities utilize a variety of therapeutic modalities, such that the results of this study may not be applicable for clients who have completed other types of treatment programs. Another limitation of the study relates to the lack of verification of self-reported recovery.

Development of the concept of Recovery Capital signals an important philosophical shift in our approach to service delivery across the addiction treatment spectrum. It has become critically important for those treating SUDs, as well as policy makers to appreciate both the implications of, and the opportunities for healing presented by Assessment of Recovery Capital for individuals, families and communities impacted by SUD.

While this study further validates the utility of the ARC, many questions remain as to how best the concept of Recovery Capital can be applied in practice particularly at early stages in recovery (i.e. recovery initiation phase) to improve treatment placement and planning. For instance, it is pertinent to know clinical value may lie in identifying deficits in recovery capital near the beginning of a person's treatment process.

8. CONCLUSION

This pilot study examined the efficacy of the Assessment of Recovery Capital in a Canadian, residential treatment setting. The Assessment of Recovery Capital was found to be correlated with abstinence, indicating that as the recovery capital within each of the Assessment of Recovery Capital subscales increases, individuals are less likely to experience relapse. Further research is planned at Cedars to evaluate the relationship between a person's Assessment of Recovery Capital score and concurrent issues, such as a history of trauma (as measured by the Adverse Childhood Experiences), chronic physical issues (such as chronic pain), and comorbid psychopathology.

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