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Research Article

Instrumentation of the Abstinence's Likelihood Scale in Drug Addiction (ALSDA-ACREDA)

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Abstract

Purpose of the study: This article attempts to explain the procedures to a self-developed scale on how to identify one's protective factors and risk factors integral to his or her likelihood of abstinence journey.

Methodology: The 99 items in 5 domains constructed in this scale were incorporated from the insights of library search and one-to-one and group interviews executed with recovering drug addicts in a rehabilitation institution. To establish the scale to be scientifically reliable, the scale was tested its reliability and validity before it was administered for the real population. The validity of this scale was conducted through face validity with few potential populations to confirm its feasibility while the content validity was done by 2 experts from psychology and drug addiction counselling respectively. Meanwhile, the reliability test of this scale was undergone through a pilot study upon 132 respondents and some tests in Statistical Package of Social Science Version 21.0 (SPSS) were used to measure the internal consistency of the scale.

Main findings: The consistency of the overall items of this scale was confirmed to be highly reliable with the value of Cronbach's Alpha, 0.951. The result of the split- half score for the first cluster of the scale recorded as 0.94 whereas the second cluster was 0.95. The internal consistency also could be glimpsed from its 'if items deleted' analysis where the scores are ranged in a small gap of values between 0.929 to 0.934 signifying the scale was well-constructed in term of its language clarity and balanced distribution of items between dimensions and constructs.

Applications of this study: This Abstinence's Likelihood Scale in Drug Addiction (ALSDA-ACREDA) instrument is developed by researchers in which the purpose is to measure the likelihood level of drug addicts towards abstinence.

Originality/novelty: The establishment of Self-developed instrument for Abstinence's Likelihood Scale in Drug Addiction (ALSDA-ACREDA)

Keywords: Relapse; Protective factor; Risk factor; Instrumentation; Reliability; Validity

Introduction

Drug addiction has been long recognized as the first enemy of this nation, thus any of its dealings be it the production, the spread, the treatment and prevention are enforceable governed by the laws such as Drug Policy Book and Drug Blueprint and specific authoritative body known as National Anti-Drug Addiction Agency, Malaysia (NADA). According to NADA, the total of 26,080 cases of drug addiction has been statistically recorded in 2019 with 17, 506 new cases and 8,754 for relapse cases [1]. As seen in the pattern of relapse cases from 2015 to 2019, the rate has been gradually ascending from 6379 cases skyrocketing to 8,754 cases [1]. These figures have alarmed the related parties to this issue to take a closer look into our strategies in combating drug addiction in Malaysia (Figure 1). Simply put in a direct statement that of relapse is mere event of going back to drug, we should understand relapse is a part of abstinent processes in which there are ongoing situations taking place by stages and therefore can be interrupted and stopped at any point of time. United Nation Office on Drug and Crime further refines relapse as a process that creates, in stages, an irresistible craving earlier in our mind for drugs before we actually deciding to consume it again [2]. This relapse event is a part of circularly process between abstinence and lapse. Thus, due to this event as a phase towards abstinence, there might be the contributing factors concerned to be refined comprehensively that revolves the aspect of protective factor and risk factor.

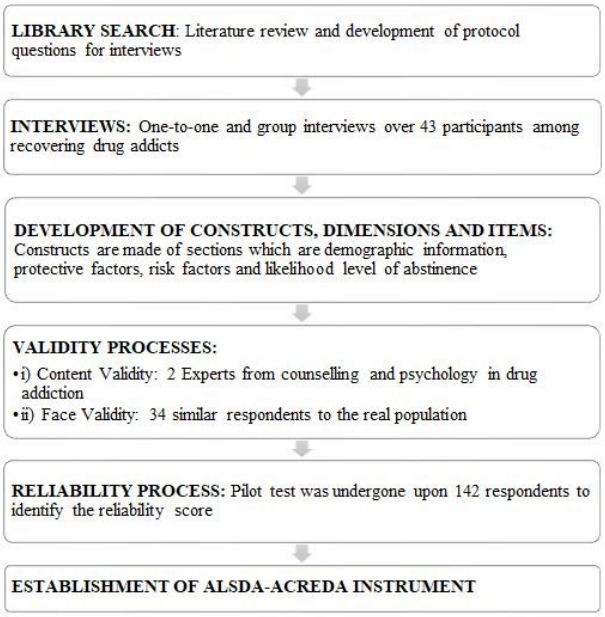

Figure 1: The flow of the instrumentation procedures of ALSDA-ACREDA.

Recognizing the protective and risk factors to one in his or her abstinence journey is unequivocally paramount. In this respect, this study attempts to provide an adequate instrument for researchers or practitioners to identify the protective and risk factors of the recovering addicts as so the comprehensively suitable treatment can be best designed for them towards achieving the permanent abstinence.

Literature Review

Many researchers categorize drug abuse as bio-psycho-social disease involving biological, psychological and sociological elements of humans [3,4]. Therefore, drug abuse is clinically manifested as a compulsive behavior particularly at consuming drugs, craving over it and relapsing after a period time of recovery which is abstinence [4]. Nora in NIDA Notes explains that the more risk factors a client has, the higher the likelihood for clients to engage in drug abuse [5]. The protective factor, in turn, reduces the client's risk of getting involved in drug abuse.

Relapse

According to Encyclopaedia Dictionary of Psychology, relapse can be defined as the recurrent symptoms of disease after a period of improvement [6,7]. Marlatt and Witkiewitz state that the original account of relapse is derived from a medical field; however, it has been diluted and used to a variety of human behaviors including drug abuse [8]. Based on Mahmood, drug addiction relapse connotes the consumption of psychoactive substances after a person has completed the treatment and recovery of drug measured from the physical and psychological aspects [9,10].

Relapse is known as the primary difficulty in treating drug abuse [8,11,12]. It has been proved by the statistics from NADA that revealed the increasing in the number of imprisoned relapsed addicts from years to years [13,14].

Based on Amin et al., relapse occurs when a drug addict is exposed to the triggering factor that causes the longing or craving of drugs [15]. Relapse is considered as a normal part of the recovery process. Miller states that relapse is common when a drug addicts attempt to break the pattern of behavior [16]. Sapkota et al. and NIDA also point out that relapse or return to drug use after an attempt to stop can be a part of the process [5,17]. However, it possibly become a serious issue if the right steps are not taken; thus, one of the ways to survive in abstinence is through identifying the protective and risk factors of the recovering addicts.

Protective and risk factor

Risk factors and protective factors are environmentally and biologically nuanced. The risk factors have been defined as the factors that enhance the likelihood of a person that will be engaging in drug abuse or becoming dependent [18]. On other hand, protective factors refer to the factors associated with reduced potential in engaging in drug abuse. NIDA and Goliath assert that the protective factor is the opposite of the risk factor [18,19]. For example, good and strong family relationships between parents and children can have a significant impact in reducing the risk of being involved in substance abuse, while a difficult family situations or lack of a bond with family can be a significant impact to engage with substance abuse.

Social relationships play an important role in life survival, in fact, as a protective factor for drug addicts [17]. NIDA states that family members do have the potentiality to be protective factors in the event of strong family ties, parental involvement in children's life, parenting personalities in terms of financial, emotional, mental and emotional needs, social and consistent discipline [18]. Meanwhile, Lander et al. and Atherton et al. opine that individuals from single parent families, individuals living alone at home without adult supervision, lack of parental supervision and having siblings involved with less moral behaviours are those who are possessing higher risk factors for drug abuse [20,21].

Rozmi et al. in their study showed that subsequent results through multiple linear regression analysis confirmed that individual, family and social environment variables are significant in the regression model and that they are the major contributors to substance abuse among teenagers [22]. Based on study of Jamshidi et al. data was collected among 1006 respondents by using Risk and Protective Factors of Drug Questionnaire [23]. Data was analyzed by stepwise multivariate Regression analysis and showed that there is a significant and positive relationship between family factors (family conflicts, lack of monitoring children's behavior and positive attitude of parents to drug use) and drug use.

Bevilacqua et al. state that scientists formulate genes and the influence of environmental factors on gene expression epigenetics contributes an estimated 40 to 60 percent risk to drug abuse risk [24]. Studies show that the earlier a client begins to engage in substance abuse problems, the more likely to have a more serious problem [25]. This is due to a string of interrelationships between early social problems

and biological risk factors.

Abstinence

According to the Principles of Recover Substance Abuse and Mental Health Service Administration (SAMSHA), there are 6 criteria of abstinence: drug and substance use, rehabilitation support, employment, social functioning, readiness to change and psychological and mental health. The American Society of Addiction Medicine defines retention as intentional and consistent self-restraint to engage in the pursuit of negative things in return for reward and satisfaction in the form of substance or behavior abuse [26]. Examples include drug abuse, video games, gambling, eating habits or harmful exercise as well as unusual sexual activity. In achieving a sustainable recovery process, recovery goes from abstinence to sobriety, from comfortable living to a meaningful, productive life and significant drug free life [27].

Methodology

Procedure

Instrumentation procedure: The methodology of developing this scale was purely qualitative in nature. It was started from a rigorous library search for probing the theories enclosed in the existing literature that exhibit the concepts of abstinence, protective and risk factors in drug abuse as well as the related past studies (literature review) on the concerned scale to legitimize the need of the self-developed scale on likelihood of abstinence from drug addiction and an interview protocol was developed afterwards. DeVellis coins that the development of instrument must be governed by established theories as the guideline for the developer to enumerate the constructs and items of the questionnaire [28]. According to Subahan et al., developing research instrument must be initiated from the process of conducting literature review to grasp the core elements of the variables measured [29]. Gilmore et al. coin that few of review over the related literature should be done before an instrument is established [30]. Next, the one to one and group interviews were conducted upon 43 purposive participants with the criteria of being in house recovering addicts to gather their experiences towards abstinence journey by recognizing their protective and risk factors. After the themes of the interviews have been analyzed, the drafted ALSDA-ACREDA scale comes into being.

Constructs, dimension and items developed from the one to one and group interviews: Table 1 below enlists the categorizations of ALSDA-ACREDA' constructs distributed into dimensions and items developed from the one to one and group interviews.

Table 1: Constructs, dimension and Items of the questionnaire.

No	Constructs	Dimensions	Items
A&B	**Demographic Info:**	A. Drug consumption:	**A-9 B-10**
		The type of drug used	
		Duration using drug	
	A. Personal profile	B. Treatments:	
	B. Background of drug consumption	Place/institutions of treatment	
		Type of treatments	
		Duration	
C	Protective factors	Religious/spirituality of individual	34
		Support from family	
		The influence of friend	
		Support from community environment	
		The drug knowledge	
		The effectiveness of coping mechanism	
D	Risk of factors	The lack of religiosity/ spirituality	31
		The influence of family	
		The influence of friends	
		Rejection from community	
		The lack of drug knowledge	
		The conflict faced by individual	
		Drug availability	
E	Abstinence factors after treatment	The knowledge and skills of individual	16
		The awareness about drug	
		Self-control	

Validity

Next, the aspect of validity is also crucial to be discussed here. Research validity involves a dynamic process that demands for an examination of procedures and results, use of this information to revise and improve assessment practices and an examination of revised practices in a never ending feedback loop [31]. Kumar et al. connote that validity is an ability of a tool to measure what is particularly required to be measured in which the researcher will test, compare and measure the concept with its accuracy as well as the instrument needs to be ensured for its content, construct and face validity [32]. A drafted questionnaire should always be ready for establishing validity. Validity is the amount of systematic or built in error in questionnaire. Anderson et al. assert that questionnaire's validity can be established by using a panel of experts examines the theoretical based constructs of it [33]. This means validity confirms how well the idea of a theoretical construct is represented in an operational manner (as presented in questionnaire). Validity test in this instrumentation was two folded ways: (i) Content Validity and (ii) Face Validity. These two were done simultaneously in which the validity of this scale was conducted through face validity with few potential populations to confirm its feasibility while the content validity was done by 2 experts from psychology and drug addiction counselling respectively.

Face validity captures what is on its face of the instrument that portrays good translation of the constructs [34]. On the same note, validity is seen to be a superficial measure of validity, unlike construct validity and content validity because is not really about what the measurement procedure actually measures, but what it appears to measure [35]. Instrument developed must be fitted and understandable (by language and content) by whom the instrument is administered. In this research, the face validity was done with 34 similar populations to confirm its feasibility in which the language used is understandable in the context of Malaysian setting.

On the other note, content validity in this research was established through experts' checking on its several contention aspects such as the congruence of the items with research objectives, coherency between constructs or dimensions and language. Two expert panels who are well proficient both in Malay and English language were appointed from counselling and psychology in drug addiction arena to execute these tasks. Some amends and commentaries given by the experts were disseminated and used to improve the final draft of the instrument before the pilot test is done.

Reliability

Brinkmann contends a point that as conventionally done by previous researches on instrumentation procedures, the reliability and validity process are to be conducted before the instrument is permitted to be used in the real population and to be deemed as scientific [35]. According to Drost, reliability is the extent to which measurements are repeatable when different people perform the measurement on different occasion, under different condition, supposedly with alternative instruments which measure the construct or skill [36]. It can also be defined as the degree to which the measure of a construct is consistent or dependable [37]. Reliability of ALSDA was done through pilot study upon 142 respondents sampled from a drug rehabilitation centre. Yusliza et al. highlight that reliability test is done through the internal consistency evaluation in which the Cronbach's Alpha measure is employed [38]. After the administration of the scale to the respondents, the data was keyed in and some internal consistency tests in SPPS Version 21.0 were run for reliability results. The results of SPSS analysis towards this ALSDA instrument's reliability value (Cronbach's alpha value) were to establish internal consistency in several tests such as overall items, split half and if items deleted. Enclosed below the flow of the instrumentation procedures.

Results and Discussion

Widely known, the main criteria of what it takes to be scientific research are based on how the central issue of reliability and validity of the measuring instrument is addressed before the data collection is made [35]. The findings of this research present the results of SPSS-21 analysis towards this ALSDA instrument's reliability value (Cronbach's alpha value) to establish internal consistency such as overall items, split half and if items deleted.

Reliability (Cronbach's alpha value-internal consistency)

There are several types of reliability that have been used in instrumentation of research survey such as test retest reliability, alternate forms reliability, split half reliability, and internal consistency reliability [39]. Cronbach's alpha reliability coefficient normally ranges between 0-1. The normal indicator to indicate high reliability score is that the nearest the coefficient to the value of 1.0, the greater the internal consistency of the items (variables) in the scale. Internal consistency concerns the extent to which items on the test or instrument are measuring the same thing. The appeal of an internal consistency index of reliability is that it is estimated after only one test administration and therefore avoids the problems associated with testing over multiple time periods [40]. Wong et al. state that internal consistency is estimated via the split half reliability index and coefficient alpha index which is the most common used form of internal consistency reliability [40-44]. Sometimes, Kuder-Richardson formula 20 (KR-20) index was used [16]. The tables below present the indications of the internal consistency of this ALSDA scale (Tables 2-4).

Table 2: Items for protective factors construct.

No	Question
1	Drawing close to God is one of the ways for myself to stay abstinent
2	Religion is the most powerful protective factor to stay abstinent
3	Solah/prayer is the most powerful protective factor to stay abstinent

4	I stay abstinent because I practice prayer
5	Dhikr/ Remembering God is one of the protective factors to stay abstinent
6	Accepting the fate of God is the most powerful protective factor to stay abstinent
7	Reading the scriptures (e.g: Quran) is the most powerful protective factor to stay abstinent
8	In my opinion, traveling / migrating is one of the protective factors to prevent myself from relapse and stay abstinent
9	Support from mother is an important factor that prevents me from relapse and to stay abstinent
10	Support from siblings is an important factor that prevents me from relapse and to stay abstinent
11	Support from spouse is an important factor that prevents me from relapse and to stay abstinent
12	Support from father is an important factor that prevents me from relapse and to stay abstinent
13	Support from child is an important factor that prevents me from relapse and to stay abstinent
14	I stay abstinent because I got support from family
15	I stay abstinent because I got forgiveness from my family
16	I stay abstinent because I got support from loved ones
17	Spending time with family is one of the protective factors from using drug and stay abstinent
18	Being at home with my family is one of the protective factors from using drug and stay abstinent
19	Mingling around with elderly exemplary has prevent myself from relapse and stay abstinent
20	I stay abstinent because my community seclude me
21	Having an objective daily schedule can prevent myself from relapse and stay abstinent
22	I often undergo the scheduled treatments that can prevent myself from relapse and stay abstinent
23	Support from friends has helped me from relapse and stay abstinent
24	Controlling myself to getting closer from the old friends who are still on drugs is a factor that prevent myself from relapse and stay abstinent
25	Choosing good friends prevents myself from relapse and stay abstinent
26	Avoiding the old friends who were involved in drugs helps me to stay abstinent
27	Having the supportive friends helps me to stay abstinent
28	Repenting from mistake is the factor that prevent myself from relapse and stay abstinent
29	Recognizing the negative effect over my physical is preventing myself from relapse and stay abstinent
30	Mental endurance in encountering challenges is the factor that prevent myself from relapse and stay abstinent
31	Having proper job is the factor that prevent myself from relapse and stay abstinent
32	I stay abstinent because I am busy with work
33	Having skills in managing life is the factor that prevent myself from relapse and stay abstinent
34	I stay abstinent because I have a counselor around for consultation

Table 3: Items for risk factors construct.

No	Questions
1	The influence from the peers who are on drugs is the risk factor for relapse
2	Peers' persuasion is the risk factor to fall short of relapse
3	The desire to possess the sense of belonging to a particular group of friends whom the drug addiction is affiliated is the risk factor for relapse
4	The pressure from friends to reuse drugs is the risk factor for relapse
5	The longing to have fun by taking drug is the risk factor for relapse
6	The memories about the indulgence of drugs is the risk factor for relapse
7	The influence addictive from spouse is the risk factor for relapse
8	Trans gracing engagement is the risk factor for relapse
9	Spending more time with friends is the risk factor for relapse
10	Clubbing and partying activities are the risk factors for relapse
11	The risk factor for me is when my family members are also involved in drug abuse
12	I go relapse because I get influenced by my family's behaviour
13	The divorce with spouse is the risk factor for relapse
14	The divorce of parents is the risk factor for relapse
15	The conflict among siblings is the risk factor for relapse
16	Disabuses acceptance from family is the risk factor for relapse
17	The imprisonment of parents is the risk factor for relapse
18	The broken engagement is the risk factor for relapse
19	The ineffective parenting education is the risk factor for relapse
20	The wide contact of networking in drugs environment is the risk factor for relapse
21	Diverting from Islamic/religious way of life leads me back to drugs
22	Life pressure is the risk factor for relapse
23	Self-isolation is the risk factor for relapse
24	Self-harming due to stress leads me to relapse
25	Having frequent conflict with surrounding people is the risk factor for relapse
26	The need to stay awake is the risk factor for relapse
27	I believe drugs enable me to work hard
28	I believe drugs enable me to mingle around and have fun with friends
29	Easy access to get drugs is the risk factor for relapse
30	No knowledge about the drug danger is the risk factor for relapse
31	The lack of social skills is the risk factor for relapse

Table 4: Items for abstinence construct.

No	Questions
1	I got the suit training and skills after undergoing treatment at AADK
2	I could discipline myself in managing life after undergoing treatment at AADK

3	I gained strength in myself after undergoing treatment at AADK
4	I could get along well with my family after undergoing treatment at AADK
5	I have learned about coping skills after undergoing treatment at AADK
6	I have learned about coping skills to not relapse
7	I understand the dangers of drugs and psychoeducation method
8	I could understand the feelings of family/wife after undergoing treatment at AADK
9	I got knowledge about career after undergoing treatment at AADK
10	I have the strength to cope with stress at work
11	I have the strength to cope with stress at home
12	I believe there is no such thing as uncontrollable desire for drug use
13	Success of abstinence is always dependent on hard work and has nothing to do with one's fate
14	I can still avoid drugs even if I am surrounded by friends who use them
15	I have control of my drugs use behaviour
16	Drugs are not needed to solve my problem

Overall items

Table 5 above shows the Cronbach's Alpha score which is 0.951 over the 81 items that contain the variables of protective factors, risk factors and abstinence level. Cohen asserts that if inter item correlation lies within 0.10 and 0.29, then there is a weak correlation for both positive and negative values, and when inter item correlation lies within 0.30 and 0.49 a medium correlation, and lastly if inter item correlation is between 0.50 and 1.00 a strong correlation [45]. Moreover, Michael recommends that, in an empirical approach, if the score of the item to total correlations is more than 0.50 and the inter item correlations exceed 0.30, the construct validity is satisfied [46]. The high reliability scores according to Lin et al. and Taber is starting from 0.70 of Cronbach's alpha [47,48]. There is another opinion stating that starting from 0.75 to 1.00 is an indication of the high score for the instrument's reliability [49]. Thus, ALSDA-ACREDA instrument is tested to be highly reliable as the score lies within this range and the value it obtained was nearest to 1.0.

Table 5: The Cronbach's Alpha score for overall items (N: 142).

Reliability statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.951	0.954	81

Split half

Split Half reliability technique was used to assess the reliability consistency of the scale. According to Nugent, split half reliability correlates responses from one half of a test with the other half [50]. Heale et al. defined split half reliability as a measure of consistency between two halves of a construct measure [51]. This technique is done by splitting the items of the scale into two groups and computing and analyzing the correlation values. The reliability is considered high if the items in both groups are highly correlated. Rudner et al. also mention that split half reliability coefficient is obtained by dividing the test into half, correlating the score by each half and correcting for length [52]. The split is based on odd versus even items numbers, randomly selected items, or manually balancing content and difficulty. The advantage of this approach is that it only needs a single test administration. The Table 6 below shows the split half result of ALSDA-ACREDA instrument.

Table 6: Split-half result.

Reliability statistics			
Cronbach's Alpha	Part 1	Value	0.926
		N of Items	41a
	Part 2	Value	0.934
			40b
	Total N of Items		81
Correlation Between Forms			0.549
Spearman-Brown Coefficient		Equal Length	0.709
		Unequal Length	0.709
Guttman Split-Half Coefficient			0.692

The first part of the items which consists of 41 items scored 0. 926 for its Cronbach's alpha value whereas the second part of it with 40 items go to 0.934. Both scores lie within the high reliable values. This means this ALSDA-ACREDA instrument demonstrates the stability and internally consistent items that constitutes to the reliability of this instrument to be used in the real population.

If items deleted

'Cronbach's alpha if item deleted' is included to measures the value of Cronbach's alpha coefficient after the removal of the corresponding item [39]. The result of Cronbach's Alpha coefficient for the analysis 'if items deleted' is ranged from 0.929 to 0.934 (Refer Appendix for detailed items). This means if any one of the items is deleted, it would not affect the whole Cronbach's alpha coefficient as the score will only be resulted within those ranges in which the high reliability of the scale is secured.

Conclusion

In conclusion, the Abstinence's Likelihood Scale in Drug Addiction (ALSDA-ACREDA) was tested to be highly reliable and valid and ready to be used in the real population of researches in which the purpose is to measure the likelihood level of drug addicts towards abstinence. It was considered to be highly reliable with the fact that the value of Cronbach's Alpha was 0.951. Thus, this marks the scale was well constructed in term of its language clarity and balanced distribution of items between dimensions and constructs. For future studies, more adaptations and translation of this scale are sought for researches concerned in assessing the likelihood level of drug addiction among the recovering addicts inside or outside the rehabilitation

centre for more comparative studies on its reliability and validity score in different populations with different culture and contexts. This comparison would ensure the reliability and validity of instrument to collect a quality data possible.

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None

Conflict of Interests

None

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