

Research Article

Impact of a Substance Abuse Rehabilitation Program on the Locus of Control of the Service User, a South African Study

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Abstract

Background: High dropout rates are seen amongst clients in drug rehabilitation centres. Knowledge of the locus of control (LOC) orientation of the service user can be utilized to predict the readiness of the user to access treatment and can assist in predicting treatment outcomes.

Purpose: Determining the LOC change of the service user during rehabilitation treatment.

Methodology: A pseudo-experimental study, in which the service user's LOC was measured before and after treatment.

Results: There was a statistical significant change ($p < .0000$) in LOC orientation towards internal LOC after treatment.

Conclusion: The service user's LOC orientation could be used as a guide for the implementation of an appropriate tailor made treatment programme, which could lead to better success rates in rehabilitation

Keywords

Drug, Rehabilitation Treatment, Locus of Control

1. Introduction

Substance abuse in South Africa remains a growing problem with reports that almost 20% of South African adults are abusing some form of mind-altering substances, with alcohol, pain-killers (codeine) and dagga the worst offenders [1]. There is a distinct lack of information on absolute statistics of South Africa's addiction problems as absolute statistics is not reasonably measurable by official sources' head-count [2].

According to the South African Community Epidemiology Network on Drug Use (SACENDU) the proportion of first time admission to treatment centers ranged from 78% to 97% with the average age of the clients between 26-31 years [3]. But treatment for clients in rehabilitation centers continue to be a challenge as dropout rates ranging between 2% to 40% and higher are reported, with the variations being explained by the type of facility (in- or outpatient), facility location (e.g. big

city or small town), the substance that is abused and the quality of the treatment program [4].

Locus of Control (LOC) is a psychological variable that evolved from Bandura's Social Learning Theory [5], and is recognized as a predictive factor in the onset and continuous use of substances [5-7]. Individuals with an external LOC orientation were found to be more likely to be drawn to addiction compared to their counterparts with an internal LOC orientation [8]. This is because individuals with a higher internal LOC orientation believe and expect that they will determine their own future because of their own actions i.e. they are actively in control over what happens to them, while those with a higher external LOC orientation do not expect to have any control or influence over their future and lives, believing that the outcome is a result of external or impersonal forces such as luck, prayer, fate, or powerful others [9]. The concept of LOC thus suggests that the effects or outcomes of one's behavior greatly impact on the motivation of the individual to engage in such a specific behavior [10]. The result is that if there is any change in the way a person thinks, or if there is a change in the environment e.g. by taking part in a rehabilitation program, the behavior of the person is likely to change. LOC can be quantitatively determined and the score of a drug user on a treatment rehabilitation program could be used as a viable indicator for treatment progress due to the fact that the LOC orientation of the service user was found to shift over the course of treatment with characteristics consistent with an internal LOC orientation found to be predictive of treatment success [11]. This interaction between a person and his or her environment can be measured on the LOC Continuum

scale that ranges from internal to external by allowing the client to choose between two general statements that are testing their subjective perceptions of control in a drug related context. By distinguishing between the personality characteristics (external LOC and internal LOC) of the service user, rehabilitation programs could be aligned to suit the personality [12], leading to a better chance of success of recovery with fewer cases of re-admission than the rate seen of less than 3% [13]. The purpose of a rehabilitation program is to empower the client, not only to quit the substance of abuse, but also to develop, whether directly or indirectly, an internal LOC which will enable the client to resist relapse on an ongoing basis. It therefore becomes critical to understand the role of the predictive factor LOC in substance abuse as drug abuse often develops into a chronic, relapsing condition that is resistant to treatment [14]. The aim of this study was therefore to measure the LOC of the rehabilitation client before and after treatment in order to determine the influence of treatment on the LOC of the service user.

2. Methods

Study design: This was a quantitative descriptive study making use of a self-administered questionnaire.

Setting: The study was conducted at two rehabilitation centres in the Gauteng province of South Africa. The Stabilis Rehabilitation Centre (SRC) is an accredited and registered treatment centre in Pretoria, which provides treatment programs for alcohol, medication and drug dependence (abuse). SRC offers a detoxification program which runs from 7 to 14 days, depending on the substances that were used, while the inpatient program offered for alcohol dependency, medication dependency and drug dependency runs for 24 days, 28 days and 35 days respectively. ELIM Clinic (EC) in the district of Ekurhuleni, Gauteng province, offers holistic in-patient evidence based treatment programmes that address the physical, emotional, social and spiritual dimension of the service user within an integrated approach. These programmes are informed by local and international evidence-based research and practises within the field of addiction.

Study population and sampling strategy: The population consisted of in-patient drug users, both male and female, 18 years and older who were admitted to SRC and EC and who signed informed consent to participate in the study. For both SRC and EC it was a census of all consenting in-patients admitted for the treatment of substance dependence. For SRC the study period was from January 2018 to October 2019, while for EC the study period was from January 2019 to October 2019.

Data collection: The structured self-administered questionnaires (one before treatment and one after treatment) were adaptations of validated questionnaires that were used in two other studies [14, 15] both designed to test drug-related LOC beliefs as well as a questionnaire that was developed to be used for drug-use surveys [16].

The questionnaires were available in English as English is the language of communication at the two rehabilitation centres.

Management and staff responsible for the admission of patients for rehabilitation to SRC and EC were administering the questionnaires. On the day of admission, the purpose of the study was explained to the service users after which they were given an opportunity to ask questions or seek any clarifications regarding the study. Those who were willing to participate were given a consent form to sign while those who decline were free to just not participate. The first questionnaire was administered on the first day of admission or as soon thereafter (usually within 2 days of admission) when the service user was evaluated by a health care professional and declared *compos mentis* and deemed able to answer the questions in a meaning full way, while the second questionnaire was administered when the service user had completed the rehabilitation program or on the day that the service user has discharged themselves from the program. The only identifier on the questionnaires was a unique number allocated by the staff of the clinics and only the Directors of the clinics were able to link the number to a specific service user.

The first questionnaire, which was administered before treatment comprised of 45 questions, which were divided into subsections which include questions on the demographic characteristics such as age, gender, educational level and occupational status of the participants, the substances that they have used/abused, reasons for using and questions to determine their LOC orientation. The second questionnaire which was administered after treatment comprised of 25 questions asking questions regarding their treatment, as well as testing their LOC after treatment. For both questionnaires the drug-related LOC scale was an 18-item, forced-choice measure of drug-use control expectancies in a variety of drug-use-related situations. Each pair contained one statement indicating an internal control belief (e.g. I can overcome my urge to use drugs/alcohol) and one statement indicative of an external control belief (e.g. Once I start to use drugs/alcohol I can't stop). Participants were instructed to choose the statement in each pair that most accurately described their current beliefs.

The scoring procedures were designed in such a way that by choosing a response related to a more internal LOC received a score of one, while a response related to a more external LOC received a score of two.

Reliability, validity and bias: Quality and consistency was achieved by asking close ended questions in a plain and simple language. The original questionnaires [14-16], have been made available specifically for use where self-reported measurement of LOC of drug users is needed and to survey drug use. The evidence of the questionnaires' validity and reliability gave the researchers the confidence to use the instrument in the South African setting as it has

been used in national and international studies. Cronbach's alpha (questionnaire before $\alpha = 0.62$; questionnaire after $\alpha = 0.61$) was regarded as an acceptable level of reliability [17]. In drug surveys it is often difficult to establish the validity of the data obtained as substance addiction behaviour is often of a private and often illegal nature but as the participants were in a rehabilitation program they have already openly declared that they have been using substances. With regard to the drugs that the participants have used in the past, data was based on what the service users believed that they have used which might not be accurate as it is well established from laboratory analysis that illicit drugs frequently do not contain the substances that they were supposed to contain [18].

Selection bias was controlled by conducting a census, as participants were volunteers, and volunteers might behave differently from non-volunteers. Participants may have provided socially accepted responses, and this form of information bias was reduced by making the questionnaires anonymous.

Data analysis: The raw data set was evaluated and if there were any responses missing for the LOC questions, the corresponding response (before or after) was disregarded; questionnaires with more than 10% incomplete data were discarded. The two complete data sets were captured into Microsoft Excel before importation into Stata 10 for analysis. Demographic data and substance abuse data were analysed descriptively making use of univariate analysis.

The LOC questions were designed so that clients with a higher/more internal LOC would produce scores nearer to 18, while those with a higher/ more external LOC would produce scores nearer to 36. The paired sample t-test was used to compare the population means of the two data sets and to determine if the two data sets were correlated. By using the paired sample t-test, statistically conclusions could determine whether or not the rehabilitation treatment had any impact on

the LOC of the user. Though there is a possibility that the data may not be normally distributed, according to Fagerland [19], due to the large sample size, t-tests and their corresponding confidence intervals can and should be used even for heavily skewed data as differences only need to be approximately normally distributed [20].

The null hypothesis in this case was that the LOC score of the service user will be the same after completing the treatment program as what it was before admission to the treatment program. The chosen level of significance was 5%. In the case where there was a change in the LOC score of the client after treatment the null hypothesis for the paired sample t-test was rejected.

3. Ethical Considerations

The necessary Institutional ethical clearance and approval was obtained from the University Research and Ethics Committee reference number SMUREC/H/271:2017:IR. Participation was voluntary and anonymous after signing informed consent and participants received no compensation. Non participation did not influence the treatment that the service users received.

4. Results

4.1 Participant's demographic data

A total of 836 participants were recruited for the study but data for only 683 participants could be used as questionnaires with more than 10% incomplete data were removed (Table 1).

4.2 Substances used by participants

The most common substances that were used by the participants as presented in Table 2 were alcohol (98.5%), cigarettes (84.8%) and cannabis (56.9%).

4.3 Number of substances used

The number of substances that the participants have used in the past ranged from only one (8.3%) up to 13 different substances (1.0%) with the majority (58.3%)

Table 1: Participant's demographic information (N=683).

Characteristic		Frequency (%)
Gender	Male	505 (73.9)
	Female	178 (26.1)
Age	18-27	149 (21.8)
	28-37	206 (30.2)
	38-47	168 (24.6)
	48-57	98 (14.3)
	58-67	38 (5.6)
	68-78	11 (1.6)
	No answer	13 (1.9)
Education	No formal schooling	5 (0.7)
	Finished primary school	7 (1.0)
	Finished high school	425 (62.1)
	Got tertiary education	230 (33.7)
	No answer	16 (2.5)
Employment	Not employed	275 (40.3)
	Employed	408 (59.7)

using between two to four of the substances out of a list of 13 possibilities that they could choose from (Table 3).

4.4 Rehabilitation history

The rehabilitation history of the participants is presented in Table 4. The majority (81.6%) have tried to stop on their own with 21.1% being able to stop for longer than a year and some of them even indicated that they were of

substances for longer than 20 years. Nearly half (44.7%) of the participants have attended a rehabilitation program before without any success.

4.5 LOC of participants

The LOC scores of the participants were recoded before and after treatment. For 70.7.4% of the participants their LOC scores changed towards the internal LOC after

Table 2: Substances used in the past.

Substance	Frequency (%)
Alcohol	665 (97.4)
Cigarettes	549 (80.4)
Cannabis	381 (55.8)
Methcathinone (CAT)	258 (37.8)
Over the counter medication	213 (31.2)
Cocaine	158 (23.1)
Ecstasy	137 (20.1)
Sniff and inhale (Glue, benzene)	110 (16.1)
Methamphetamine	93 (13.6)
Heroin	86 (12.6)
Mandrax	76 (11.1)
Tik	48 (7.0)
Nyaope	43 (6.3)

Table3: Number of different substances used.

Number of different substances used in the past	Frequency (%)
1	17 (8.3)
2	47 (23.0)
3	42 (20.6)
4	30 (14.7)
5	17 (8.3)
6	15 (7.4)
7	8 (3.9)
8	9 (4.4)
9	9 (4.4)
10	5 (2.5)
12	3 (1.5)
13	2 (1.0)

Table 4: Rehabilitation history.

Characteristic	Frequency (%)
Tried to stop on their own	Yes
	557 (81.6)
Time able to stop (N= 557)	No
	127 (18.4)
	< 1 day – 7 days
	92 (16.5)
	8-31days
	73 (13.1)
	>1 month – 1 year
	197 (35.4)
	Longer than 1 year
	118 (21.1)
	Did not answer
	77 (13.8)
Been in rehabilitation before	No
	378 (55.3)
Number of times in rehabilitation (N=305)	Yes
	305 (44.7)
	One time
	157 (51.5)
	Two times
	56 (18.4)
	Three times
	32 (10.5)
	Four times
	23 (7.5)
	Five times
	10 (3.3)
	Six times
	6 (2.0)
	Seven times
	5 (1.6)
	Eight times
	8 (2.6)
	> Eight times
	8 (2.6)

treatment and for 29.3% there was either no change in LOC score or a move towards the external LOC orientation. Results of the paired-samples *t*-test indicated that there was a significant difference between the LOC scores before treatment ($M=23.22$, $SD=3.09$) and LOC scores after treatment ($M=21.06$, $SD=3.09$) conditions; $t(682)=1.96$, $p=<0.000$. This is indicating that the change in the LOC of the service user towards an internal LOC orientation after receiving treatment was not by chance.

5. Discussion

Globally, as well as in South Africa alcohol and other drug (AOD) use represent a major public health and social therapeutic problem [21] with the psychological-social treatments being considered to be a major part of drug abuse treatment [22]. As drug abuse is complex, there are no simple solutions to the problem as demonstrated by the fact that 81.6% of the participants in this study indicated that they have tried to stop using AOD by themselves with 53.0% relapsing within the first year. Only 28.7% were admitted for alcohol abuse only and 9.3% for over the counter medication alone, while the rest were using a combination of different substances which further complicates treatment. Fifty-five percent of the participants have been for rehabilitation before with 48.5% been admitted for at least two times and 2.6% of the participants admitted for more than eight times before. This is evident that AOD abuse has the potential to develop into a chronic, relapsing condition that is resistant to treatment [14]. Given that addiction is a disease, in addition to receiving medical and medicinal care, it also requires social and psychological support after medicinal treatment [23].

The knowledge of the patient's psychological personality aspects, e.g. assessment of a person's belief of "being in control" in situations involving drug abuse can be very useful when planning their psychological treatments. As described in the literature the LOC of a patient can be used by treatment practitioners [14], as a predictor that could be modified through treatment [11]. For a person to recover from an addiction, one's LOC must shift from external to internal orientation where the addict is taking responsibility for the situation that they find themselves in. Based on claims that the treatment progress of the client at rehabilitation can be measured by their LOC score [11, 14, 24- 26] the present study also considered the change in LOC orientation of the person receiving treatment for AOD as an indicator for treatment progress [27].

The results indicated that for 78% of the participants there was a change in their LOC orientation towards a more internal orientation which was regarded to be predictive of treatment success [9, 12, 21, 23] after the completion of the treatment program. If the LOC orientation change does not occur during treatment, as what has happened with 22% of the participants in this study, it could be a

reflection that the treatment interventions were ineffective and that an alternative approach is needed.

Since LOC is rather stable and has an impact on a person's approach to problems, when entered into a treatment program that is in conflict with the addicts own LOC the program is almost certain to fail [10]. In cases like this if the service user's LOC orientation could be assessed before entering into a treatment program, the LOC scores could be used to predict treatment amenability [11] and if need be, adaptations to the rehabilitation program could be made in order to achieve a successful treatment outcome [1]. By applying this approach there is a possibility that for the 29.4% participants, where there was no change on LOC orientation or a change to the external LOC, a different approach could have had a better outcome for them. Results from a study conducted on juveniles [12] pointed it out that internally oriented youth respond better to less structured treatment strategies while externally oriented youth respond better to more structured interventions. If the same approach could have been followed for these services users, the outcomes for them could have been better, while simultaneously saving financial resources for the service user and human resources on the part of the rehabilitation centers.

6. Conclusion

Generally, the availability of the complex AOD rehabilitation services is limited and costly to provide. By determining the LOC orientation of the service user before treatment could facilitate in an evidence-based tailor made intervention rehabilitation program in an effort to treat the patient effectively. Simultaneously, the planning of a rehabilitation program, based on the specification of the LOC orientation of the service user, can save the rehabilitation personnel valuable time and effort and it could be cost saving for the person paying for the rehabilitation treatment.

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8. Conflict of Interest

The authors declare that there was no conflict of interest.

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10. Disclaimer

The views expressed in this article are the authors own and not an official position of any of the institutions.

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