TRANSLATION, ADAPTATION, CROSS LANGUAGE VALIDATION AND PSYCHOMETRIC PROPERTIES OF DRUG-RELATED LOCUS OF CONTROL SCALE (DRLOC)

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ABSTRACT

Translation, adaptation and cross language validation of English version of drug-related locus of control into native language was required to make the all professional work easy for the professionals dealing with the diverse substance user population of Pakistan who could not understand English language. Urdu version of DRLOC scale will make their valuable participation easy into the research and clinical activities related to their rehabilitation and recovery process.it easy. The study was consist of three parts, first part translation, adaptation and tryout of the translated scale, second step was Pilot Testing and Cross Language Validation of the scale and the third step was to determine the psychometric properties, discriminant validity and Confirmatory Factor Analysis of the Urdu DRLOC scale. The sample was selected through convenient sampling method and divided into n= 20(for tryout), n=100(for cross language validation) and n=200(for CFA, Psychometric properties and discriminant validity) respectively. Participants were consist of substance users under rehabilitation process in different addiction treatment centers of Rawalpindi and Islamabad, Pakistan with the age ranges from 18 to 55 years. The results indicate that the cross language validation of the DRLOC scale was highly significant ($p<.01$). The discriminant validity of the scale also indicates that the external locus of control is negatively correlated with depression which proves the discriminant validity of Urdu DRLOC scale. Confirmatory Factor Analysis also indicated that models are reasonably fit. The Urdu translated version of DRLOC scale is valid and reliable assessment tool and conceptually equivalent to original DRLOC scale.

KEYWORDS*:* Drug-related Locus of Control, Substance use, Depression, Cross Language Validation

1. INTRODUCTION

Substance use is a rapidly spreading problem all over the world especially in Pakistan which sets responsibility on scholars and researchers to study extensively on the causal and supportive factors promoting the rapid spread of substance use. But linguistic barrier in Pakistan hinders majority of the representative population from taking part in these valuable studies. In Pakistan Urdu is a native language so most of the population especially substance users lack the English language proficiency because of the many factors including poor academic record and early school dropout. In this regard, drug-related Locus of control is an important phenomenon to understand during the rehabilitation process of the substance users. Locus of control opens many windows to recovery from addiction as well as towards the relapse.

For instance, many substance rehabilitation professionals need to assess the domain specific (drug related) locus of control of substance users to initiate and plan the counselling and intervention during rehabilitation which could be difficult with the scale in English language. So translation, adaptation and cross language validation of English version of drug-related locus of control into native language will make the all professional work easy for the professionals dealing with the diverse substance user population of Pakistan. Aim of the current study is to translate, adapt and culturally validate the drug-related locus of control scale for the substance user population who could not understand the English language easily. Drug-related locus of control scale in Urdu language will provide more honest, genuine, and reliable results about the perception of control over life circumstances of the targeted population. While the cross language validation process will determine the fidelity of the construct even after translating it to avoid cultural biases. The current study supports the idea that people generally feel text more worth responding and more understandable if it is in their native language. Because of the increased use of drug-related locus of control construct in studies dealing with substance use population, it is more important to provide the indigenized assessment tool to the researchers and professionals in people's native language. For this purpose, the current study will follow the four standard steps given by Brislin (1976) to maintain conceptual equivalence between translated version and original version of the scale. Drug-related Locus of Control Scale was originally developed by Hall (2001) based on the

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Theory of Social Learning proposed by Rotter (1954). The scale consists of 15 forced-choice statements measuring the individual's drug control expectancies in different substance use related social situations.

Substance use is an alarming phenomenon around the globe. Pakistan is also no exception and also alarmingly increased the number of Substance users from last few years. Drug related locus of control is important variables while understanding the rehabilitation process of substance users. Substance use commonly termed as addiction is a chronic relapsing disease or disorder in which an individual compulsively abuse any substance and feels inability to control over use. This repetitive and compulsive use is linked with the damages or disruption in brain reward pathways and brain chemical activities which control behaviors and emotions. UNODC reported that more than 800,000 people with age range of 15 to 64 use heroin in regular basis in Pakistan that 44 tons of synthesized heroin consumed in Pakistan in annual basis (Browne, 2014).

As reported by the United Nations Office on Drugs and Crime (UNODC) world drug report published in 2020, an estimated 269 million population used illegal drugs worldwide in 2018 which is 30 percent high rate from 2009 while cannabis was the most illegally used drug in 2018 as 192 million people across the world using the cannabis. While comparing with other drugs, opioid remained the most lethal and harmful drug category with mortality rate of up to 71 percent. Adults and adolescents are reported to be the largest users of illicit drugs especially psychoactive drugs. Cocaine and methamphetamine use is rising up in younger adults. 19 million people used cocaine and roughly 27 million people used amphetamines in 2018 (United Nations Office on Drugs and Crime, 2020).

According to the recent published report, methamphetamine is the most spreading drug in South-East Asia and East Asia, while heroin and opium are the most prevailing drug choices in South Asia and South-West Asia. Majority of the data is based on male representatives, because of the underrepresentation of the females in drug treatment centers. Adults use less drugs than young individuals while young people have higher substance use level than the past generations (UNODC, World Drug Report, 2022).

All previous facts and figures about spread of substance use direct the professional's attention towards the primary internal strengths of substance use remediation called locus of control. Locus of control refers to one's perception about control over life circumstances (Grantz, 1999; Khan, 2011).Rotter (1966) divided the locus of control into two forms: internal locus of control and external locus of control. Individual who secure the internal locus of control believes that future outcomes are primarily dependent upon one's own actions, will or initiative, whereas those who have external locus of control perceive things as going on because of the factors which are not under their control such as chance, fate, luck, biases(Khan, 2011).People with internal locus of control secure the ability to proactively involve in attainment of goals, social interactions, and interpersonal relationship improvement and spontaneously involved in activities leading toward achievements. Internal locus of control is also associated with good sense of wellbeing, improved performance, alertness, confident decision making and urge for information seeking. On the other side external locus of control is related to some psychological weaknesses like depression, feelings of anxiety and poor ability to handle or face stressful life events (Carton & Nowicki, 1994; Crandall & Crandall, 1983; Lefcourt, 1991; Hall, 2001).

For instance, an individual suffering from substance use disorder significantly feels lack of self -control, attention, reasoning or other cognitive functions and have inability to control maladaptive behaviors (Ersche et al. 2012). These brain activities have significant impact on initiation and completion of treatment as well as on maintaining abstinence from drugs. But substance users have problem with their lack of insight regarding these biochemical activities going on in their brains and they simply consider their drug abuse resulting from some external forces like environmental biases, criticism, peer pressure, social pressure, interpersonal issues, luck and calamities. Substance users overlook some higher mental processes which are directly involved in controlling one's emotional regulation, motivation, self-control, taking initiative, behavioral control as well as desire regulation. By assessing individual's drug related locus of control, clinicians can improve their psycho-educational treatment plan for recovery which can be beneficial for long term abstinence from substance. As described earlier, drug addicts have myth that their choice of compulsive drug abuse is under the control of external factors so mostly rehabilitation centers have been using contingency management therapy to change their maladaptive behavioral patterns. They usually believe that reward for their good behaviors can solve their issues related to relapse.

One of the study conducted by Dielman and colleagues in (1987) on the adolescent drug addict population in order to investigate about the vulnerability of addicts to have peer pressure, self-esteem and locus of control related to health. They proposed that self-esteem and health related internal locus of control was negatively significantly correlated with substance use, abuse and intension to use. On the other hand health related external locus of control has no significant correlation with substance use, abuse and intent to use. Susceptibility to Peer pressure was proved to be highly correlated with drug use, abuse and intent to use than health related locus of control or self-esteem (Dielman et al. 1987).

While Locus of control is actually the feeling that one can predict about the upcoming event or its outcomes because he is actually controlling his or her life, on the other hand if we reference the external locus of control, one cannot predict the outcomes of the events because of the control of external forces on the consequences. These confounded feelings can cause or precipitate the affective issues like depression, worthlessness, anxiety, irritability, poor self-concept and negative thoughts about self, world and the future. One of the studies examined the confounded

relationship between locus of control and depression among 157 students and found that the relationship between depression and external locus of control would be pseudo and might be due to the mood swings or different levels of moods rather than because of external context. The second study on same context found the significantly positive relationship between locus of control and depression (Aiken & Baucom, 1982).

Caster, Parsons and Oscar (1977) assessed the role of depression, sociopathy and locus of control in the effectiveness of alcohol treatment and found that there was high depression level in those groups who performed poor in treatment results than those participants who achieved successful outcomes. They also concluded that locus of control and sociopathy were not directly affected by treatment outcomes. While external locus of control was correlated with depression in successful groups and the external locus of control by chance and sociopathy were correlated in the less successful groups (Caster et al. 1977).

Another study also discussed about both the beliefs of treatment providers and substance users about addiction and revealed that relapse proneness and treatment provider's beliefs about addiction was mediated by lack of self-control, lack of feeling of self-responsibility related to recovery and relapse. The beliefs of Persons with substance use disorders about addiction were also moderated by inpatient's drug-related locus of control (Amjad et al. 2014).

2. METHODOLOGY

2.1. OBJECTIVES

The main objectives of the study were;

- To translate and adapt the Drug-Related Locus of Control (DRLOC) scale into Urdu language.
- To determine the cross language validation of translated version of DRLOC scale.
- To determine the psychometric properties of the translated version of DRLOC scale.
- To find out the test-retest reliability of Urdu version of translated DRLOC scale.
- To establish discriminant validity of translated version of DRLOC scale for substance users with the help of previously translated Beck depression inventory.

2.2. MATERIAL AND METHOD

2.2.1. SAMPLE

Sample for the current study was taken separately into different steps of the study as per requirement. Participants were selected through convenient sampling.

2.2.1.1. SAMPLE I

For Tryout of the translated version of scale, 20 male participants were conveniently selected from Najjat Trust Rawalpindi. The age range was from 20 to 45 years (M= 32.3, SD = 7.5)

2.2.1.2. SAMPLE II

A sample of 100 (N=100) inpatient substance users were selected for cross language validation step. These were the patients who can understand both languages (English and Urdu). The age range of the participants was from 18 to 48 (M=31.29, SD= 7.0). While qualification of the participants of pilot study was from 10th standard to 16 years of education (M= 11.54, SD= 1.9). Data was collected through convenient sampling from drug addiction rehabilitation centers of twin cities (Hosla Medical center, Najjat Trust and shifa caring center). Sample was divided into two equal groups. Group I (n=50) responded on the Translated Urdu version of DRLOC scale while original English version of DRLOC scale was administered on participants of Group II (n=50). After three weeks, two groups (group I, Group II) were further subdivided into two groups consisting group 1A (n=25), 1B (n=25), group 2A (n=25) and 2B (n=25) respectively. Original English version of DRLOC scale was administered on group 1A (n=25) and group 2A (n=25) while Urdu version of the scale was distributed to group 1B (n=25) and 2B (n=25).

2.2.1.3. SAMPLE III

Sample III was taken to carry out a confirmatory factor analysis (CFA) and to establish the model fit indices as well as to identify the factor loadings of each item of translated version of the scale. A sample of 200 Inpatient substance users were taken through convenient sampling to collect data for CFA. The age bracket was 20 to 55 years.

2.3. INSTRUMENTS

The Following research tools were used in the phase I of the current study.

2.3.1. DEMOGRAPHIC SHEET

Research instrument will be started from demographic sheet which will obtain the demographic information on age, qualification, marital status, family type (joint, nuclear), number of treatments taken, types of drugs used and duration of each of the drug used.

2.3.2. DRUG RELATED LOCUS OF CONTROL (DRLOC)

Drug related locus of control was developed by Hall (2001). DRLOC is a 15 items measure developed to investigate one's drug related self-control in a variety of situations. Each item consists of two statements and the participant has to select only one choice for each item. First statement of each item scored 1 and the second statement scored 2. Scale has also reversed scored items. Items 1,3,5,8,11,14,15 are reversed scoring items. Mean score of the scale items will determine participant's level of drug related locus of control. If the participant has scores near to 1 in each item, he will be with high internal locus of control, while participants selecting 2 scored

items will have high external locus of control. Hall translated this scale into English. According to guidelines of manual, 22 will be the maximum score for drug-related internal locus of control while above 22 will be the score for drug-related external locus of control. Translated version of DRLOC scale have reliability coefficient α= .81. The split half reliability coefficient was .76.

Convergent validity was established by measuring the correlation of DRLOC scale with total Addiction Severity Index (ASI) which have positive correlation with DRLOC (r= .301, p<.00). While subscales of ASI were also significantly correlated with LOC, e.g., increased scores in psychological dysfunction scale were correlated (r= .278 for somatization, r= .268 for depression) with the more external locus of control. Elizabeth also examined that DRLOC had significantly positive correlation with the Rosenberg self-esteem scale. High scores in measure of self-esteem were strongly correlated (-.412) with internal locus of control.

2.3.3. BECK DEPRESSION SCALE /URDU VERSION.

Beck Depression Inventory (BDI) was developed by Aaron T. Beck, a psychiatrist, and released in 1961, to assess the severity level of depression with the help of 21 self-rated items. Each item consists of four statements with increasing intensity which assigned values from 0 to 3. Current study used the translated version of BDI. Abdul-Khaliq and Gul (2018) determined the validity and reliable of BDI Urdu version on Madaris students of Karachi Pakistan. They administered BDI Urdu version on 35 students of different grades from Jamia tur Rasheed Karachi. Findings show that the cronbach alpha reliability of BDI urdu version ranges from 0.75 to 0.81 which indicates that the BDI Urdu version can be efficiently used for assessment of depression in Pakistani population (Abdul Khaliq, Gul, 2018).

2.4. PROCEDURE

2.4.1. STEP- I: TRANSLATION, ADAPTATION OF DRLOC SCALE AND TRYOUT

The translation of the scale was carried out in four further steps: 1) Translation, 2) committee approach, 3) back translation, and 4) committee approach.

2.4.1.1. FORWARD TRANSLATION

For translation step of the current study, five bilingual experts who were proficient in both English and Urdu language were approached. The rationale, variables of research were briefly introduced to all bilingual experts. One English instructor and two assistant professors in psychology from Riphah International University, Al Mizan Campus, one addiction treatment expert from Najjat trust, one Urdu literature instructor from sir Syed College wah cantt were requested to participate in the current phase of the study. They were asked to focus on the conceptual translation of the scale while keeping in mind the population of substance users and the conceptual meanings of the terminologies related to substance use. The participants were also requested not to use difficult words in Urdu which could not be understandable to the common population of substance users.

2.4.1.2. COMMITTEE APPROACH

In the second step of the translation, a committee approach was carried out comprising five members including supervisor of the current research, one assistant Professor from Riphah International University, Al Mizan Campus, lecturers (n=2) from International Islamic University Islamabad and the researcher herself. They were requested to review both options of the translated scale very carefully in relation with language, substance use field and relevance to original scale content. Some of the items were accepted as they were translated and some of them were selected with minor changes in selection of words which were not easily understandable to the substance user community. The committee members incorporated required minor changes in some of the selected translated items to draw a final translated version of original scale.

2.4.1.3. BACK TRANSLATION

After the selection of one translated version of the DRLOC scale, two PhD scholars from National University of Science and Technology (NUST), one English instructor from sir Syed College Wah Cantt and two assistant professors from Riphah International University, Al-Mizan Campus were requested to back translate the Urdu version of DRLOC scale into English language. Beck translation was carried out in order to validate the quality and accuracy of the translated version of the scale. Participants of beck translation team were unfamiliar with the original scale of DRLOC as they were not the part of the forward translation team.

2.4.1.4. COMMITTEE APPROACH

After the completion of the back translation process, same committee members involved in forward translation were again requested to participate in committee approach for back translation process. All members were requested to compare the back translated version of the scale with the original version and suggest if the adaptation of any item have been required. The committee members selected the items which were relevant and conveying the meaning closest to the original items. Therefore, committee members did not suggested adaptation for any scale items.

2.4.1.5. TRY OUT

This step of the Phase I study was consist of the Tryout of the translated version of the DRLOC scale in order to determine the comprehension and understandability of the translated version of the scale.

2.4.1.6. PROCEDURE

Tryout sample was taken from Devotion Rehabilitation Center, Islamabad and Najjat Trust Rawalpindi. After taking permission from administration of these rehabilitation centers, participants were briefly explained about the current study, purpose and confidentiality of the information provided. Participants were instructed to read the items carefully and select between two statements which they feel more appropriate bout their own feelings on substance use.

2.4.1.7. RESULTS

According to the results of tryout study (M= 24.10, SD= 2.5), the participants have easily understood all items of the translated scale. They did not felt difficulty while understanding the concept and the wording of the statements. No item from the translated scale was considered irrelevant, difficult to attempt or humiliating in nature by the participants according to their cultural and societal values.

2.5. STEP II: PILOT STUDY

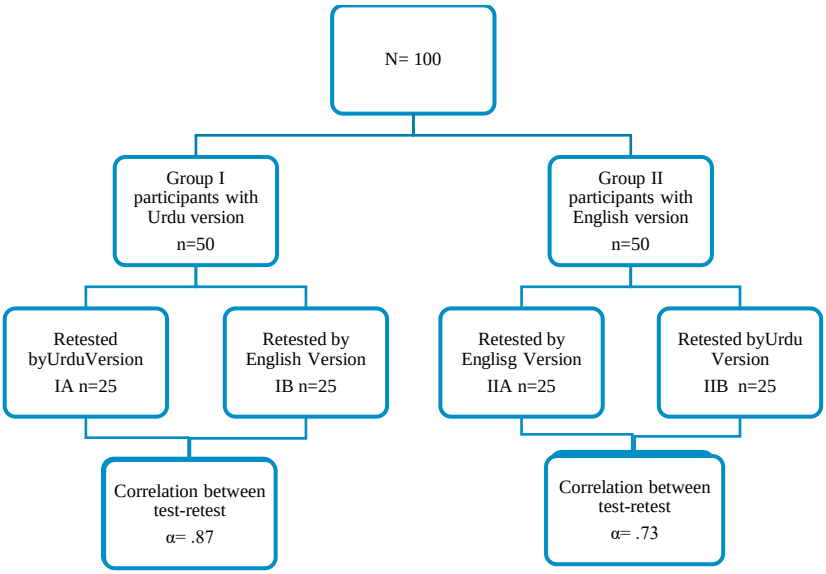
Pilot Testing of Translated DRLOC Scale and Cross Language Validation

2.5.1. PART I: CROSS LANGUAGE VALIDATION OF THE SCALE

Procedure, Initially, data collection was started after taking formal permission from the program directors of the selected drug addiction treatment and rehabilitation centers. After taking permission, the patients were approached. The participants were explained about the purpose of research, required details and confidentiality of the information was also ensured. Instructions were given to the participants and asked them to read the statements carefully and select one of the two statements of each item that best describes about his feelings while keeping in mind the problem of substance use. The participants were also instructed to do not leave any item of the scale unanswered.

After the detailed instructions, the participants were divided into two equal groups. Group I (n=50) participants were provided the Translated Urdu version of DRLOC scale while original English version of DRLOC scale was administered on participants of Group II (n=50). After three weeks, two groups (group I, Group II) were further subdivided into two groups consisting group 1A (n=25), 1B (n=25), group 2A (n=25) and 2B (n=25) respectively. Original English version of DRLOC scale was administered on group 1A (n=25) and group 2A (n=25) while Urdu version of the scale was distributed to group 1B (n=25) and 2B (n=25). This systematic procedure of cross language validation helps to identify any discrepancy or equivalence between English version and translated version of DRLOC scale.

Figure 1: Sample Distribution for Cross Language Validation



This figure reveals that the scores on Urdu and English versions have significant positive correlation for Group-I and Group-II which indicates Cross-language validity of Urdu translated version of Drug-related locus of control scale and original English version. It indicates that both original and translated version of DRLOC scale are conceptually valid and equivalent tools to measure Drug-related Locus of Control.

2.6. Step III. DETERMINING PSYCHOMETRIC PROPERTIES OF THE DRLOC SCALE AND CONFIRMATORY FACTOR ANALYSIS OF TRANSLATED SCALE

Psychometric properties of the translated version of DRLOC scale were determined through SPSS-21 while two factors (Drug-related Internal, External Locus of control) were confirmed through Confirmatory factor analysis by using AMOS-20.0.

3. RESULTS

Table I: Cross Language Validation and Test-retest Reliability of DRLOC Scale (N=100)

Groups	*n*	Test	Retest	*r*
IA	25	Urdu	English	.85**
IB	25	Urdu	Urdu	.90**
IIA	25	English	English	.56*
IIB	25	English	Urdu	.88**

***p*<.01

Table I shows that the correlation between Drug-related Locus of Control (DRLOC) scale (Urdu) and DRLOC scale (English) is significant (*p*<.01). The correlation value ranges from .56 (English to English) and .90 (Urdu to Urdu). The alpha value of English to English is less as compared to other forms (Urdu to Urdu). The reason may be the medium of instructions being Urdu and literacy rate of the substance users.

Figure II. Two-factor solution with 15-items of the translated Drug-related Locus of control scale

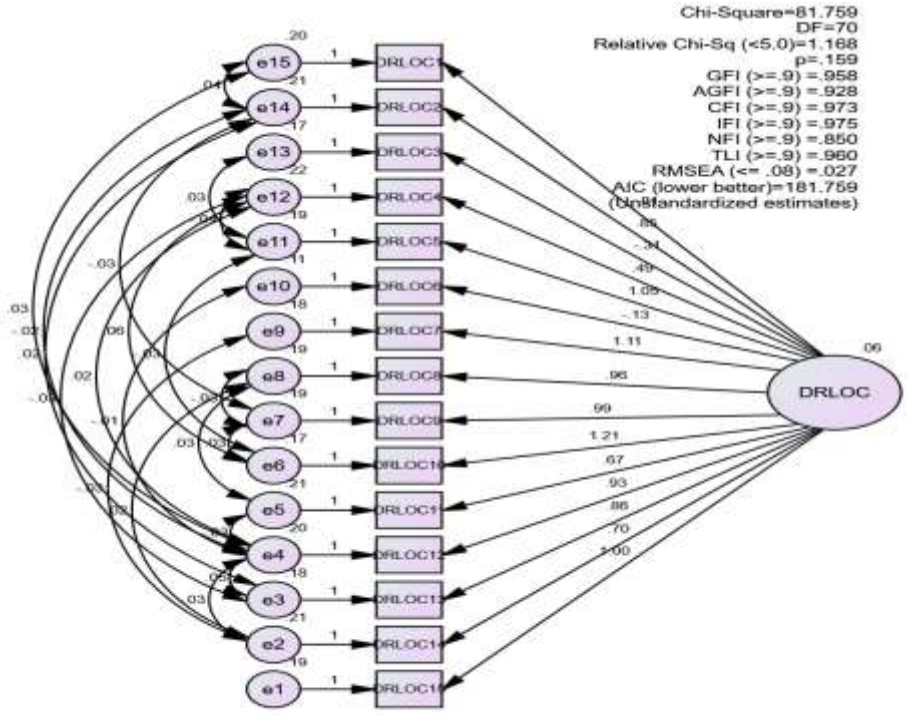


Table II: Model fit Indices for the translated Drug-related Locus of control scale (N=200)

Fit Indices	x^2	df	CMIN/DF	RMSEA	IFI	NFI	CFI	TLI
Drug-Related Locus of Control Scale	81.75	70	1.168	.027	.97	.85	.97	.96

Note. *p=REMSEA <.01, *p= CMIN<.01

Table II shows the results of confirmatory Factor analysis determining standardized model fit indices of Urdu translated versions of the Drug-related Locus of Control scale on the sample of 200 inmate substance users. The results indicate that models are reasonably fit for the following parameters of $\chi 2/df$, RMSEA, normed fit index, comparative fit index and Tucker-Lewis index. The table II also shows that the values of Chi-square are significant as the degree of freedom is greater. The values obtained by dividing the $\chi 2/df$, are acceptable for the parameters of model fit indices i.e. The Drug-related locus of Control scale 1.16 (Hu, Bentler, & Kano, 1992).

The above table III shows the correlations between Drug-Related Locus of Control and Depression. Table shows the significantly positive correlation between Drug-related Locus of control and Depression (*r=.38, p=.01*). Drug-Related External Locus of Control also has significantly positive relationship with Depression (*r=.22, p=.05)*.The

above table establishes the discriminant validity of translated version of Drug-related Locus of Control Scale with Beck Depression Inventory with the help of Pearson correlation bivariant. Urdu Translated version of DRLOC scale proven to be valid and reliable scale for native substance users.

Table III: Discriminant Validity of Drug-Related Locus of Control Scale (N=200)

Scale		1	2	3	4
1	Drug-Related Locus of Control Scale	-	.04	.15	.38**
2	Drug-Related Internal Locus of Control Scale	-	-	-.02	-.04
3	Drug-Related External Locus of Control Scale	-	-	-	.22*
4	Beck Depression Inventory				

***p<.01, *p<.05*

4. DISCUSSION

Substance use is a rapidly spreading problem all over the world especially in Pakistan because of negligence of influential authorities regarding its eradication, production and trafficking. Cannabis, opium and heroin are the most commonly abused drugs in Pakistan because of their easy availability as well as cheap rates (UNODC, World Drug Report, 2017).

While an individual decides to go for any type of narcotic or non-narcotic substance use regardless of the etiological factors, they also going through devastating changes in their characteristics like response pattern towards stressful life events, anger management, sociability, altruism, behavioral reactions, thought processes, perception about others, world and their own selves as well as in their inner state of mind.

These facts raise the attention towards the dire need to devote the positive energies and resources to address important aspects of the increasing issue of world substance use. These aspects primarily includes the prevention plans for the population at risk and availability of evidence-based treatment and rehabilitation venues for those who has initiated the substance use. For the treatment and rehabilitation purpose, experts need proper evaluation of the internal capitals of the person taking treatment. In Pakistan majority of the population can speak and understand Urdu language which promotes the need to evaluate the important characteristics of substance use population through Urdu assessment tools. Drug-related locus of control is the important aspect of the person taking rehabilitation in order to take counselling decisions and to form management plan. DRLOC scale was translated into Urdu language so that it could be understandable for all inpatient substance users so that they can be representative of the substance user population for different activities of research, therapy and psycho-education.

Drug-related locus of control scale is an indigenous scale originally developed by Elizabeth Hall (2001) with the purpose of measuring the substance user's feelings of self-control and decisiveness related to drug abuse. The current study aimed to indigenize the DRLOC scale for Pakistani population with the help of Urdu translation, adaptation and validation process.

The DRLOC scale was translated by the standardized method of translation and adaptation proposed by Brislin (1986). The scale was translated in to Urdu by five bilingual experts and gone through with the committee approach, backward translated by five different bilingual experts and committee approach by same experts involved in first committee approach. A final panel meeting was held to take consensus on adjustment of the Urdu translated version of DRLOC scale.

Cross language validation of the scale was an important step of the current study which was achieved through comparison of original English version of scale with Urdu translated version of DRLOC scale. The results indicate significantly positive relationship between original version and Urdu translated version of DRLOC scale. The results also indicate that Urdu-Urdu version has significantly positive relationship than original version of DRLOC scale which shows that the Urdu translated version of the scale is more understandable and comprehendible for native sample than original (English version)DRLOC scale (see Table I).

The current study also aimed to measure the discriminant validity of the Urdu version of the scale with Urdu version of Beck Depression Inventory. The results indicated that drug-related locus of control and drug-related external locus of control has significantly positive relationship with depression. Table III shows the discriminant validity of the translated DRLOC scale and proposed that the Urdu version of DRLOC scale proven to be significantly valid tool to measure the feelings about self-control regarding substance use among Pakistani population (see Table III).

Furthermore, Confirmatory factor analysis has also determined the standardization of model fit indices of Urdu version of DRLOC scale on the sample of 200 male inpatient substance users. The result of CFA indicated that indices were highly significant as evident by the significant level of $\chi 2/df$, RMSEA, normed fit index, comparative fit index and Tucker-Lewis index parameters of CFA. The values of Chi-square are also significant (see Table II).

5. CONCLUSION

It concluded that both versions are conceptually equivalent and relevant with the construct which was rephrased in simple and understandable native language. Statements related to internal and external locus of control were very clear and appropriately combined in a meaningful way. Confirmatory factor Analysis, Cross language and

discriminant validity reflects that Urdu version of Drug-related locus of control scale appears to be reliable, valid and culturally appropriate instrument to measure the feelings of self-control related to substance use among inpatient substance users in Pakistani population.

REFERENCES

Aiken, P. A., & Baucom, D.H. (1982). "Locus of Control and Depression: That Confounded Relationship". *Journal of Personality Assessment*, 46, 391-395.

AlJazeera. (2014). *Drugged up Pakistan*. *(Retrieved 18 March 2015.*

Amjad, N., Nashee, Q., & and Rafique, R. (2014). Beliefs about addiction, locus of control and relapse proneness in persons with substance use disorders (PSUD's. *Journal of Addiction Research and Therapy*, 5(3).

Browne, D. (2014). How Pakistan succumbed to a hard-drug epidemic. The Telegraph. Retrieved 18 March 2015.

Brislin, R. W. (1976). Comparative Research Methodology: Cross-cultural studies. *International Journal of Psychology Journal International de Psychologie*, 11, 215-229.

Crandall, V.C., & Crandall, B.W. (1983). Maternal and childhood behaviors as antecedents of internal-external control perceptions in young adulthood. In H.M. Lefcourt (Ed.), Research with the locus of control construct: Vol. 2. Developments and social problems (pp. 53-103). San Diego, CA. Academic Press.

Caster, D. U., & Parsons, O., & Oscar, A. (1977). Relationship of depression, sociopathy, and locus of control to treatment outcome in alcoholics. *Journal of Consulting and Clinical Psychology*, 45(5), 751-756.

Carton, J. S., & Nowicki, S. (1994). Antecedents of individual differences in locus of control of reinforcement: A critical review. *Genetic, Social, and General Psychology Monographs*, 120(1), 31–81.

Dielman, T.E. & Campanelli, Pamela & Shope, Jean & Butchart, Amy. (1987). Susceptibility to Peer Pressure, Self-Esteem, and Health Locus of Control as Correlates of Adolescent Substance Abuse. *Health education quarterly*, 14. 207-21.

Ersche, K.D., Turton, A.J., Croudace, T., Stochl, J. (2012). Who Do You Think Is in Control in Addiction? A Pilot Study on Drug-related Locus of Control Beliefs. *Addict Disord Their Treat*, 11(4), 173-223.

Grantz, M. (1999). Do you have the power to succeed? Locus of control and its impact on education.

Hall, E. A. (2001). Feelings About Drug Use. Drug-Related Locus of Control. Criminal Justice Research Group Integrated Substance Abuse Programs. Semel Institute of Neuroscience and Human Behavior University of California.www.uclaisap.org.

Hu, L. T., Bentler, P. M., & Kano, Y. (1992). Can Test Statistics in Covariance Structure Analysis Be Trusted? Psychological Bulletin, 112, 351-362.

Khan, A.S. (2011). Effects of School Systems on Locus of Control. Language in India 11: www.languageinindia.com.

Khaliq, S.A., Gul, A. (2010). Validity and Reliability of Urdu Version of Beck's Depression Inventory among Students of Madaris (Islamic Institutes). *Isra Medical Journal*, 10(3), 175-176.

Lefcourt, H. M. (1991). Locus of control. In J. P. Robinson, P. R. Shaver, & L. S. Wrightsman (Eds.), Measures of Social Psychological Attitudes: Vol. 1. Measures of Personality and Social Psychological Attitudes (pp. 413-499). San Diego, CA: Academic Press.

Rotter, J. B. (1954). Social learning and clinical psychology. New York: Prentice-Hall.

Rotter, J.B. (1966). Generalized expectancies for internal versus external control of Reinforcement. *Psychol Monogr*, 80,1–28.

United Nations Office on Drugs and Crime, World Drug Report, 2017.

United Nations Office on Drugs and Crime, World Drug Report, 2020.

United Nations Office on Drugs and Crime, World Drug Report, 2022.

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