

Journal of Balkumari College

ISSN : 2467-9321 Website: <http://www.nepjol.info/index.php/jbkc>

Volume : 9, Issue : 1, June 2020, Page No.: 55-58

Cognitive Impairment in Alcoholic Addicts

Dr. Mahesh Kumar Gajurel*

M.Ed., M.A., M. Phil.

Clinical Psychology

PHD Health Education

Lecturer, Balkumari College, Chitwan, Nepal

ABSTRACT

This present study was intended to examine cognitive impairment in alcoholic addicts. The sample of study comprised of one group of male alcoholic addicts (N=100) and one group of comparative matched non-addict normals (N=100). The subjects were assessed to measure visual reproduction, visual recognition, immediate recall and delayed recall. Test scores were analyzed using one-way ANOVA. Results revealed significant differences between alcohol addicts and non-addicts testifying memory impairment among alcohol addicts.

Key Words: Alcohol addicts, memory impairment.

INTRODUCTION

Drug abuse is one of the perennial and pervasive problems that countries all over the world are facing for centuries. Seeing through the personal, interpersonal and socio-cultural problems it leads to behavioral problems. The practice of drug alcohol abuse leads to physical and psychological damages. Physiological deterioration caused by addiction to drug alcohol has not been explored and identified substantially to the extent physical damages have been reported.

Alcohol dependence syndrome as the World Health Organization prefers the term to define, a psychic and physical state resulting from taking alcohol..... include a compulsion to take alcohol on a continuous or periodic basis in order to experience its psychic effect and sometimes to avoid the discomfort of its absence....." (W.H.O. 1992). Alcohol is an alkyl group with a hydroxyl (OH) group attached to alcohol (ethanol) has within its structure the chemical power to depress the action of the central nervous system. Thus it can definitely be classified as a mind-altering drug. Primarily it is depressant but in small quantities it can act as a stimulant as well as a tranquilizer. It has complex contradictory effects on the brain. It is both a nervous system stimulant and depressant. It activates the brain's pleasure areas which release endogenous hormones. (Browns, 1996, Van Ree, 1996). Besides this stimulation role alcohol depresses brain functioning of the higher brain centers inhibiting GABA, an excitatory neurotransmitter. Impairment of learning ability, judgment and other rational processes and low motor coordination and self-control are some of the results of the inhibitory effects of GABA. The intake produces physiological and psychological dependence.

Tamkin and Dolenz (1990) have replicated the finding of Tamkin (1983) study. The authors used weight-test results to examine various types of cognitive impairment in alcoholic addicts relative to their published norms. The sample of study were 104 male alcoholics in an alcohol rehabilitation unit. The study used the Wechsler Adult Intelligence Scale (WAIS) and Trials A and B of the Halstead Neuropsychological test battery. The alcoholic group was reported to be cognitively impaired and differed from norms on Trials A and B and the WAIS subtests of unable to shift concepts on the Wechsler Addictive Test. The addicts did not differ significantly from that study.

Narang, Prasad, Gupta and Garg (1991) obtained a significant relationship between cognitive impairment and duration of alcohol use. The cognitive impairment increases with the duration of alcohol use. There were significant differences in terms of between alcoholics and their matched controls in terms of cognitive functions.

Nixon (1994) reviewed the studies of neuropsychological consequences of long-term alcohol in women.

* Corresponding author: mkgajurel@gmail.com

Alcoholic women over a wide range of neuropsychological domains, were reported to be adversely affected by long term alcohol abuse include perceptual motor skills. Visuospatial processes, learning memory and abstract problem solving, Alcohol men and women are impaired to similar degree.

Beatty (1995) observed the neuropsychological performance of cocaine abusers who had been abstinent for 24-40 days was compared with 22 normal and 24 recently abstinent alcoholics. with alcoholic and cocaine abusers performed significantly. More poorly than control on most measures of learning and memory. Problem solving and abstraction and perceptual motor abusers **O' Mahany and Doherty (1996)** studied adequately detoxified hospital treated alcohol abusers. They were neuropsychologically assessed for alcohol-related cognitive impairment. Both groups manifested the commonly found impairments on the Wechsler adult intelligence scale (N=50) and the revised Wechsler adult intelligence scale (N=44). In addition, and almost identical pattern of substantial impairment was found when both groups were examined by Russels (1975) 1988 version of the logical memory and visual reproduction subtests of the Wechsler memory scale. A clear pattern of memory impairment for both verbal and non-verbal memory was found.

Beatty (1997) investigated the effect of combined abuse of alcohol and other drugs on several tests of visuospatial cognition by comparing 94 adults, Eight five who had abused only alcohol and marijuana, or alcohol and multiple other drugs with 35 adults. Community controls testing was done after 3 weeks of treatment for the drug abuses on all measures of visuospatial learning and memory. All the groups of alcohol were found impaired relative to their matched controls counterparts.

Hoaken, Assed & Pihl (1998) have investigated whether subjects with above average cognitive functioning would. When intoxicated inhibit aggression in order to attain monetary reward 43 men. age 18-30 years. selected on the basis of high performance on the neuropsychological test putatively assessing learning task, participated in a modified version of the Tyler aggression task. Half the subjects were actually alcohol intoxicated. The other half were contingent monetary reward for choosing lower shocks. Aggression was defined as sharp intensity delivered to a sham opponent. Contrary to the hypothesis intoxicated subjects. When through significantly impaired cognitively relative to their non intoxicated peers to have no difficulty inhibiting their aggression in order to gain monetary reward. That is, there was no difference between intoxication and non-intoxication. Subjects on the dependent variable shock intensity. When contingent money was available.

Lippas, et.al. 2005 have studied 40 male and 37 female (mean age 63yrs) Greek alcohol, patients and an equal number of control subjects. Both groups were evaluated with the mini mental state examination, the syndrome short, test, the verbal fluency test (category and letter) the clock-test and the digit span (forward & backward) from the Wechsler Adult intelligence scale and revised), Alcohol patients had statically significant lower score on all scales.

Alcoholics are not all alike in terms of the degrees of impairment alcohol causes on the brain but most alcoholics with cognitive impairment show improvement in brain structure and functioning with a year of sobriety story Barnes (2011), effects of alcohol on the Brain Drug Addiction treatment News. The aim of the present study was to ascertain whether cognitive impairment in alcoholic addicts are pervasive or specific to one aspect of memory, such as, visual reproduction visual recognition, Immediate Recall and Delayed Recall.

Hypothesis

Mean scores of visual reproduction visual recognition. Immediate Recall and Delayed Recall of alcohol addicts would be lower than their normal control counterparts.

METHODOLOGY

The sample of study consisted of 200 male subject of 20 to 40 age group, addicted to alcohol (N=100) and non-addict control (N=100) the addicts were selected from drug de addicts centre Chitwan The criteria of inclusion of alcohol addicts was the sample of control group was selected from different collages Bharatpur Metropolitan City, the inclusion criteria for the control group (the Non addicts group) was demographically matched subjects who were not habituated with any type of drug-Cigarette, Smoking and even Chewing Pan or Tobacco.

Tools- The following tools were used for the present study.

Wechsler Memory scale (Adopted Hindi version by Dwivedi et.al, 1997)

The scale that measures memory function visual reproduction, visual recognition, immediate recall and delayed recall was administered on both the alcohol addict and non addict samples to assess their memory ability in 4 dimensions.

Procedure- In the beginning the personal information about the subjects were recorded. There after the Hindi adaptation of Wechsler memory scale (1997) that measures visual reproduction. Visual recognition. Immediate recall and delayed recall subscales was administered on the subjects. In the visual reproduction measures subjects were shown three cards with sample figures for ten seconds each. Subjects had to draw the figure on a sheet of plain paper placed in front after the removal of the cards first and second card contained figure each while the third card contained 2 figures. After the initial measures subjects had to reproduce the number of required to recognize these target photographs from an array to test photograph. Subjects had to identify these photograph with the redmark. If the subject recognized less than four figures. He was encouraged to guess and was allowed to make a record of self corrections. In the third step a brief paragraph containing 3 or 4 lines was orally presented to the subject and they had to recall it. Two short stories were presented for immediate recall. A verbatim recall of short stories were instructed from the subjects. Responses was made for coding purpose. This step was followed by an interval of 30 minutes. In the final step. The subjects had to present both the stories on by one with all the details failing which they were given clue.

RESULTS

Table1: means and SD on the four subscales of scores of alcohol addict and normal controls

	VR Mean	SD	VRC Man	SD	IR Mean	SD	DR Mean	SD
Normal Group	12.60	1.36	16.77	1.35	37.19	4.37	35.96	4.67
Alcohol addicts	10.81	1.15	10.55	2.52	23.32	4.00	20.39	3.91

Table 1 shows that the means scores of alcohol addicts for the four dimensions of memory viz, visual reproduction, visual recognition, immediate recall, delayed recall are substantially lower than their matched non addict controls. SD scores for the four memory measures indicate that both the alcohol addict and non addict control groups are homogeneous in terms of the memory scores.

Table 2 – Summary of analysis of variance (ANOVA) on was scores for the alcohol and normal controls

Source of variation Wechsler memory scale	SS	DT	MS	F	P Sig.
Visual reproduction					
Between group	1104.500	1			
Within Group	606.680	198	1104.500	36.472	.000(Sig)
Total	1711.180	199	3.064		
Visual recognition					
Between group	1934.420	1	1934.420		
Within Group	812.460	198	4.103	471.426	.000(Sig)
Total	2746.880	199			
Immediate Recall					
Between group	9618.845	1	9618.845		
Within Group	3473.150	198	17.541	548.368	.000(Sig)
Total	13091.995	199			
Delayed Recall					
Between group	12121.245	1	12121.245		
Within Group	3673.60	198	18.554	653.307	.000(Sig)
Total	15794.875	199			

Table 2 reports highly significant values on all the four dimensions of memory measures of alcohol addict and non addict groups. Stable lower scores in the measurement of various memory in at the cognitive impairment of alcohol addicts. Thus assessments hypothesis framed for the study stands accepted.

DISCUSSION

Findings of the study indicated that alcohol addicts were significantly impaired in all subtests of Wechsler memory scale as compared to normal controls. Such finding was substantiated by earlier observation of Narang, et. al, (1991). In the present investigation subjects included in the alcohol addict sample had a minimum history of consuming alcohol for the last 4 years. After abstinence of 24 to 40 days the influence of cognitive impairment reported in alcohol addicts on all the measures of learning, memory, problem solving, abstraction percepto motor skills, when compared with controls (Beatly, et. al. 1995). Available literature established that the ability to recall past events is also greatly affected by alcohol consumption, though present investigation concentrated only on immediate and delayed recall as well as visual reproduction and recognition. Memory loss can be considered as a warning sign that alcohol consumption has reached to excessive level and if remain untreated permanent damage of brain may produce long lasting effect on memory. The degree of brain impairment are not alike in all the alcohol addicts. Recent approach assures of improvement in cognitive structure and functioning of brain damage impairs the cognitive functions (within on year of withdrawal of alcohol) (Barners, 2011). Variety of treatment programs such as, detox, counseling, group and individual therapy and family involvement have reported positive results in de addiction of alcohol abuses.

CONCLUSION

An early rehabilitation is suggested for the subjects who show memory deficit to avoid any long lasting damage and memory loss.

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