

The Comparison of Brain System Activities / Individual Normal Behaviour or Drug Associated

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ABSTRACT: This survey was carried with the aims of comparing the brain system activities of individual normal behavior against drug associated. Among the society of addicted men accommodated in Chitgar region 37 were selected. Further, for accomplishment of executing survey a group of 41 non-addicted men were also elected. The method of research was typical to followed events. The relative data were then collected by using Gary Wilson Personality Questionnaire Data (1989) and Whiteside and Lynam Measures of Impulsivity, (2001) next analysed by student T statistical method. The results indicated that activity of behavioural activation system in drug associated is significantly higher than normal individuals. On top, between Behavioural Inhibition System of drug dependency and normal individuals no significance of discrepancy existed. Also, the research result evidences suggested that increase of behavioural activation system and severity of impulsivity has an essential role in tendencies of individual towards drug consumption.

Keywords: Brain/behaviour system, Behavioural Activation System (BAS), Behavioural Inhibition System (BIS), dependency on drugs.

INTRODUCTION

The actual issue of addiction is associated with behavioural activation system; most findings of human activity system arise from dopamine neurotransmitter surveys. The release of dopamine in dopaminergic pathways in relation with behavioural activation system accompany system motor program flow. The behavioural observations indicate that the release of dopamine in the processes of normal strengthening lead to the establishment, preservation and flow responses towards specific tool chains and eventually food, water, etc. On the other hand, it has been proved that the use of drugs such as heroin, cocaine, alcohol and nicotine cause dopamine release in the considered neural pathways. Consequently, it can be assumed that the release of dopamine in activation system neural pathways are in close relation with drug abuse emotional states. (Azadfallah, 2000) Gary personality theory in the frame of 'brain behavioural system' just like Eysenck theory considers the existence of relation between personality aspects and brain processes and to explain individual discrepancies exhibits the role of biological neural factors and thereby conceives neural/behavioural, activity systems and their establishment and prevalence as a factor of individual discrepancy creator in noticing and their choice of provocatives and behaviour outbreak. But it seems that this biological model has a more vivid feature of emotional principles as compared to Eysenck. Gary also revealed that anxiety and impulsivity are the main personality perspectives; he established these aspects over Eysenck theory. Gary model states that various brain structures launch three fundamental motivational systems that are involved in behavioural reinforcement. (Atashkar et. al, 2007) Hence, in the present study in spite of what mentioned and the role of brain – behavioural system for individual tendency towards drug abuse. The main issue in this research is to study the differences of addicted and normal individuals brain/behavioural systems.

Method of Research

This research is ex-post facto type since none of the variables under study can be manipulated by investigator. A group of statistical society comprised of individual with drug abuse history residing in Tehran Chitgar Medium Term Accommodation Centre. All the addicts were male between the ages 20-50 and at least two year drug abuse on

opium, heroin and glass; the comparison group were normal individuals (non-addicted) within the same ranges of 20-50 also residing in Tehran. For sampling, available sampling method was used i.e. pro researcher reference to Tehran Chitgar Medium Term Accommodation Centre and necessary negotiations and coordination with authorities 40 addicts were elected. For other sampling group 41 ordinary individuals available were considered. Next, 40 questionnaires were provided to 40 subjects and briefly informed about the objective of research and the importance of data privacy. They were the requested to answer questionnaires accuracy bearing in mind that there was no need to mention any names. After data collection and their reviews three questionnaires were found manipulated and thereof excluded from further investigation and not analysed. Consequently, 37 questionnaires of addicted group and 41 questionnaires from normal group were analysed in subsequence.

Table 1. The demographic characteristic features

Sampling Group	Nos.	Age Range	Addiction Duration	Addiction Type
Addicted group	37	20-50 years	2-7 years	Opium, heroin and glass use
Normal group	41	20-50 years	No addiction use history/records	No drug abuse

After determination of research sample, the researcher approached the subjects to explain the required aims of investigations, its confidentiality in the obtained results and the unimportance of personal information when filling questionnaires. They then were provided with Gary-Wilson Personality Inventory and were asked to fill questionnaire in full trust and honesty. The collected data were subsequently analysed using descriptive statistics and inferential statistical methods. For descriptive statistics methods the essentials such as mean, standard deviation, frequency and further for analytical methods the Student's t test for independent groups were considered.

Table 2. The mean and standard deviation
Brain behavioural systems score & Impulsivity

Groups		Addict Group			Normal Group		
		Nos.	Mean	Standard Deviation	Nos.	Mean	Standard Deviation
Variables	Components						
BAS	Turned on	37	29.72	4.56	41	18.02	7.28
	Active Avoidance	37	32.40	5.64	41	24.17	6.36
BIS	Passive Avoidance	37	18.56	4.72	41	17.90	7.35
	Blackout	37	17.72	5.02	41	16.96	4.12
Fight-or-flight system	Conflict	37	26.75	6.56	41	16.21	8.92
	Getaway	37	21.05	5.23	41	19.41	6.30

Table 3. 't' test result summary
The comparison of behavioural activation system between drug abusers and normal individuals

Levene Test				't' Test for				
Equality of Variances				Means Comparison				
Variables	Components	F	Significance Level	T	Freedom Degree	Significance Level	Mean Differ.	Standard Error of The Mean
Behavioural	Turned on	4.97	0.29	-8.39	76	0.001	-11.70	1.39
Activation	Active	0.15	0.691	-6.01	76	0.001	-8.23	1.36
System	Avoidance							

As per shown in Table3 the significance of calculated 't' for comparison of turned on component (-8.39) and the comparison of avoid active component (-0.691) between drug abuse individuals and normal individuals is ($p < 0.01$)

is presented. In other words, in view of significance of discrepancy between component means and active avoidance among compared groups and further based on collected data about obtained means, it is concluded that Behavioural Activation System (BAS) in the components of turned on and active avoidance of drug abuse is significantly higher than normal individuals.

Table 4. 't' test result summary
The comparison of Behavioural Inhibition System (BIS) between drug abuse and normal individuals

Variables	Components	Levene Test Equality of Variances		T	Freedom Degree	't' Test for Means Comparison		
		F	Significance Level			Significance Level	Mean Differ.	Standard Error of The Mean
Behavioural Inhibition System (BIS)	Passive Avoidance	8.54	0.06	-0.46	76	0.64	-0.66	1.41
	Blackout	0.851	0.35	-0.72	76	0.46	-3.75	1.03

As shown in Table 4 there is no significance between the two groups; calculation of 't' for avoid passive components (-0.46) and the comparison of blackout components (-0.72) between drug abuse and normal individuals is presented. In other words, in view of no significance of discrepancy between the means of active avoidance and blackout components between the compared groups and based on collected data on means it is concluded that there is no significance in the level of behavioural Inhibition System (BIS).

Discussion & Conclusion

Based on the findings it can be concluded that Behavioural Activation System (BAS) in turned on and active avoidance is higher in drug abusers than normal individuals. The obtained results are in conformity with Favelas (2000), Barratt, (1994) Dow and Lvkstvn (2004) Yen et al., 2012, Franklin and Maurice, (2006) Franklin, (2002) and Handh, Kimberly, Michael and Gary Wilson (2008) observations. In order to describe these findings it can be said that one of the factors in drug abuse perpetuation is the uncontrollable desire to drug uses. In fact, it can be said that these inflicted manifest less sensitivity to new or frightening provocative or to situations associated with punishment or to conditions that do not accompany awards. The output of behavioural activation system stirred by pleasant stimuli associated with reward include active instigation of compensating provocative inconsideration of the behavioural consequences i.e. activation increase of system that its fundamental traits of impulsivity can also be observed in these patients. (Abu Saleh, 2006) Just as Favelas (2000) also believes the activation system control turned on or pleasant stimuli, exhibited with emotional states of euphoria. Drug abusers further exhibit higher behavioural activation system. It seems that since these individuals avail the system they are more inclined towards drug use. In this respect, Gary states that the mesolimbic system of drug abusers is also involved in strengthening the immune stimulatory effect and psychotropic drugs namely drugs such as methamphetamine and cocaine effect the dopaminergic system that adjust emotional responses and the mesolimbic system track have role in creating emotional reward of drug. Besides this, other concluded research indicate that there is no significance of discrepancy in the Behavioral inhibition system (BIS) between drug abusers and normal individuals. This result is also in accordance with some surveys carried by Dolan et al., (2008) Tat & Associates, (2008) Mc Culler et al., (2008) Martinez, Tatam, Glass, Bernasophris (2010) and Louxton, Negorin, Cassey & Dove (2008). The Behavioral inhibition system (BIS) is such that it is motivated in order to eliminate or reduce unpleasant stimuli like punishment, non-rewarded or terror usually exhibited as BIS or increase of erection or attention. Nonetheless, in this investigation it is specified that there is no significance of discrepancy of system activation between drug abusers and normal individuals. Also, the Behavioral inhibition system activation highly depends on hippocampal activity parietal of mono tract aminergic afferents and neocortical structures transformed by the effect of series of medications and also by cognitive changes of system activation. Since the present research subjects of drug abuse (drug abusers) were not under any medications or psychological treatments there were no significant changes in BIS activity level of drug abusers as compared to normal individuals.

REFERENCES

- Abdi R, Roudsari AB, Aliloo MM. (2011). The sensitivity level of behavioral approach and inhibition systems in substance abusers, smokers and normal subjects. Iranian journal of psychiatry and clinical psychology, 17(3): 241-7.(In Persian)
- Cash tf, philips ka, santos mt, havabosky ji. (2004).measuring "negatiue body image"validation of the body image disturbance zuestionnaire in a non clinical population.body image, 1(4): 363-72.
- Davidson RJ. (2004). what does the prefrontal cortex "do" in affect: Perspectives on frontal EEG asymmetry research. Biol Psychol, 67: 219-34.
- Franken I H A. (2002). Behavioral Approach System (BAS) sensitivity predicts alcohol craving. Personality and Individual Differences, 32(2): 349–55.
- Johnson D. Kent, Ratcliff James L. Gaff Jerry G.(2004). A Decade of Change in General Education, New Direction for Higher Education. No. 125, spring.
- Hossani m.(2009). the study of epidemiology body dimorphic concern in students of shahid chamran university and the effect of group narratiue therapy on it,[dissertation] , Ahwaz;university of shahid chamran.
- Kaplan. B,& Resneck. H.(2005). Embarrassment and its Relationship to the Body Image and self- concept of the college freshman. Unpublished Doctoral Dissertation, Southern Ohio Universit
- Stark, Joan. & Lattuca, Lisa .(1997) Shaping the College Curriculum :Academic Plans in Action. Needham Heights, MA: Allyn and Bacon.
- Stark, Joan. & Lattuca, Lisa .(1997) Shaping the College Curriculum :Academic Plans in Action. Needham Heights, MA: Allyn and Bacon.
- Pickering AD, Gray JA. (1999). the neuroscience of personality. In: Pervin LA, John OP. (editors). Handbook of personality. New York: Guilford; 277-299
- Whiteside, S.P. & Lynam, D.R. (2001). The Five Factor Model and impulsivity: Using a structural model of personality to understand impulsivity. Personality and Individual Differences, 30, 669-689.