The Relationship Between Anger and Aggression among Drug-Dependent Males

Norzihan Ayub, Patricia Joseph Kimong, and Puteri Hayati Megat Ahmad

***Abstract*—Anger and anger regulation problems that result in aggressive behavior pose a serious problem for society. Therefore, this study aims to investigate the relationship between anger and aggression among drug-dependent males. Besides, this study also aims to investigate the differences between anger and aggression based on marital status and ethnicity. A total *of* 184 drug-dependent males from a drug rehabilitation center were involved in this study. The drug-dependent males were randomly selected to answer the questionnaire. The Novaco Anger Scale (NAS) was used to measure anger and anger regulation, while the Aggression Questionnaire (AQ) was used to measure aggression. Data were analyzed using Pearson's correlation, t-test, and one-way ANOVA. The results revealed that there was a positive relationship between anger and aggression. There was also a negative relationship between anger regulation and aggression. Next, a negative relationship existed between anger regulation and anger aggression subscale, physical aggression subscale and hostility aggression subscale. In addition, there were significant differences in anger aggression and physical aggression subscales between married and unmarried drug-dependents. Nevertheless, there were no differences in anger, anger regulation, aggression, and the four subscales of aggression- anger aggression, physical aggression, hostility aggression and verbal aggression among ethnic groups. The implication of this study will be discussed further.**

***Index Terms*—Anger, aggression, drugs dependent, drug rehabilitation center.**

I. Introduction

Emotions are a state characterized by physiological arousal and changes in facial expression, gestures, posture, and subjective feelings [1]. Life without emotions may feel empty and meaningless because emotions shape our relationship and color our daily activities. By providing an indication of the level of our internal intentions, emotions can influence how people act and react to others. Anger is one of the emotions and is characterized by antagonism towards someone or something an individual feel has deliberately done wrong to him or her. Anger can also be a good thing. It can give an individual a way to express negative feelings or motivate him or her to find solutions to problems.

However, when anger is severe and frequent, it becomes disturbing and causes discomfort that can damage relationships [2]. Higher anger intensity and frequency will lead to harmful effects of unmanaged and uncontrolled anger on both the individual and people surrounding that person. In other words, anger sometimes promotes an effort to inflict pain or harm on the offending other [3].

Anger is not only linked to negative psychological consequences but also increases vulnerability to physical illnesses, compromises the immune system, increases pain, and increases the risk of death from cardiovascular diseases [4], [5].

Anger is an emotion that is often difficult to control because of the intense physiological reactions involved in the fight or flight response that triggers anger. The fight response is a response triggered naturally by the body to protect itself against the instigating situation [6]. Intense, uncontrolled feelings of anger are often associated with externalizing behavior problems, particularly aggression. People with high anger levels are more likely to engage in some type of negative verbal responses, act physically aggressive, and use substances [7].

Aggression is generally defined as a behavioral act that results in harming or hurting others. However, there are numerous types of aggression, depending on the intentions of the aggressor and the situation that stimulates the aggressive response. Aggression is typically categorized according to type. Aggressive behavior can be classified in terms of the ways in which an individual may aggress. Distinction is made between direct aggression, characterized by behaviors aimed directly towards the victim such as hitting or verbal assault, and indirect aggression, characterized by behaviors conducted in a circuitous and anonymous manner such as spreading rumors or destroying someone's property [8].

Anger can also evolve from empathic concern or perceptions of injustice and is related to cognitive factors such as hostility and cynicism [9], [10]. Although everyone has experienced anger in response to frustrating or abusive situations, most anger is generally short-lived. No one is born with a chronic anger problem. Rather, chronic anger and aggressive response styles are learned and not a trait.

Excessive aggression and violence are likely developed due to a generally disturbed emotional regulation, such as abnormally high or low levels of anger.

Individuals with high levels of anger are more likely to become aggressive and engage in physical and verbal attacks on objects or others [11]. In addition, individuals with high levels of anger are twice as likely to engage in verbal responses, three times more physically aggressive, and are involved in drug addiction [7]. A researcher has stated that anger is intermediate to aggression and that aggressive individuals are often involved in cases of substance-abuse and lawlessness [12]. Furthermore, a wide

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variety of drugs are presumed to be related to aggressive behaviors [13].

Higher levels of outwardly expressed anger and avoidant coping were independently related to alcohol and marijuana use and consequences [14]. Many researchers have stated that a range of drugs, particularly cocaine and amphetamines (including methamphetamine) are associated with increased violent and aggressive behaviors [15]-[18]. Meanwhile, the effect of some drugs including cocaine, amphetamines, and benzodiazepines have been found to increase violence and aggressive behaviors [17], [19], [20].

Another study conducted by a researcher in Atlanta, USA, found that higher levels of ecstasy users exhibited a higher rate of aggressive or violent behavior [21]. The findings of the study showed that drug use can affect users' aggressive behaviors. There is another study conducted in China, which found that human behavior is most likely to become aggressive and may rise from the use of a wide range of dangerous drugs. Other than that, a researcher found that drug users were more likely to abuse their spouses physically, sexually and/or both. This finding showed that drug use can have consequences on drug users' aggressive behaviors [22].

Other researchers also found that severity and forms of aggressive behavior in dependent patients are correlated with the type of substance abused. The finding showed that aggressive behavior appeared to be correlated with the characteristics of anger. Higher level of aggressiveness, anger and irritation were in groups of polysubstance and stimulant abusers. The researchers found specific predictors of anger and aggression for groups of subjects dependent on different drugs [23]. In a different study conducted among 200 participants that involved three juvenile schools in Malaysia found a significant correlation between those who have been using heroin and morphine with aggressive behavior. The participants aged between 13 to 21 years, and the study was using exploratory cross-sectional survey research design. [24].

In a study to investigate gender differences in trait aggression in young adults with drug and alcohol dependence, it was found that females' scores higher in hostility and anger compare to males participants. The findings also suggest that aggression in substance dependent females is more provocable by chronic use of alcohol and drugs than in males. [25].

Another researcher found that physical aggression was positively associated with higher levels of anger experience and stronger approval of fighting as a legitimate response to provocation [26]. This result confirms the findings that violence is a form of physical aggression and it is usually an expression of anger [27]. Meanwhile, a study was conducted on 93 patients and the result showed that the patients' anger was significantly positively correlated with clinician-rated, anger-related violence risk assessment items, and predicted inpatient aggression [28]. Based on a sample comprising 241 youths aged 12–17 years old, there was a positive relationship between anger and indirect aggression and direct aggression. The findings of this study among adolescents are similar to those reported in adult literature, which suggests that these relationships may exist across a wide range of age groups [29].

Therefore, this current study is carried out to examine the relationship between anger and aggression. Apart from that, this study also aims to examine the differences between anger and aggression based on marital status and ethnic groups of drug-dependent males.

II. Methods

A. Participant

The present study's participants comprised 184 drug-dependent males. The mean age of the participants was 30.8 years (SD = 6.4, range 18 to 45). The participants were mostly addicted to drugs such as methamphetamine, marijuana and cocaine.

B. Location

The study was conducted at a drug rehabilitation center in Malaysia. Majority of drug-dependent males will be in a detention center for around two years.

C. Instrument

There were two instruments used in this study.

i) Novaco Anger Scale (NAS)

Novaco Anger Scale (NAS) is a 60-item scale constructed to measure individual anger experience [30]. The sum of 48 items forms the NAS total score and there is a separate 12-item anger regulation subscale. All items are rated on a three-point scale of 1 = "never true", 2 = "sometimes true", and 3 = "always true". The NAS has demonstrated both strong reliability and validity in different populations. Generally, all test-retest reliability correlations have exceeded 0.80. Alpha coefficients for both Part A and Part B of the NAS have usually exceeded 0.90 in offender samples [31]-[34]. Concurrent validity has also been demonstrated with the strong relationships between NAS and the other measures of anger and aggression [35]-[37]. In this study, the Cronbach's alpha coefficients for total score of anger was 0.91, while for anger regulation it was 0.75.

ii) The Aggression Questionnaire

The Aggression Questionnaire (AQ) is a unique measure of aggression, comprising 29 items that consist of AQ total score and four subscales, i.e. physical aggression, verbal aggression, anger aggression, and hostility aggression [35]. All items are rated on a five-point scale of 1 = extremely uncharacteristic of me, 2 = somewhat uncharacteristic of me, 3 = neither uncharacteristic nor characteristic of me, 4 = somewhat characteristic of me, and 5 = extremely characteristic of me. AQ scores reported by researchers showed a high positive correlation with NAS [30], [38]. The AQ reliability was measured with Cronbach's alpha (α = 0.80) and the Cronbach's alpha coefficient for AQ in this study was 0.87.

D. Procedure

First, approval was obtained from the drug rehabilitation center. Participants were then briefed about the purpose of the study and were assured of the secrecy of the data and their identity. Before administration of the questionnaire, efforts were directed towards establishing a rapport so that the participants will be at ease. All participants were then asked to complete NAS and AQ. Questions were read to

participants who were judged to have a low reading ability and those who requested for assistance. The remaining participants completed the questionnaire without assistance.

E. Data Analysis

Analysis of data was carried out using Statistical Package for Social Sciences (SPSS) software version 24. Pearson's correlation, independent sample t-test, and one-way ANOVA were used to analyze the data.

III. Results

TABLE I: Sample's Demographic

Demography Variable		(N)	%
Age	Late Adolescent	31	16.8
	Early Adulthood	99	53.8
	Middle Adulthood	54	29.3
Marital Status	Married	95	51.6
	Non married	89	48.4
Ethnic	Malay	50	27.2
	Kadazan	38	20.7
	Bajau	44	23.9
	Others Ethnic	52	28.3
Work Status	Employed	168	91.3
	Unemployed	16	8.7

TABLE II: Correlation between Anger, Aggression and Subscales of Aggression

Variables	Total Anger
1. Total Aggression	.741*
2. Anger Aggression	.635*
3. Physical Aggression	.699*
4. Hostility Aggression	.615*
5. Verbal Aggression	.464*

Note: *p<0.01;

TABLE III: Correlation between Anger Regulation, Aggression and Subscales of Aggression

Variables	Anger Regulation
1. Total Aggression	-0.236*
2. Anger Aggression	-0.229*
3. Physical Aggression	-0.273**
4. Hostility Aggression	-0.159*
5. Verbal Aggression	-0.084

Note: *p<0.05, **p<0.01,

TABLE IV: T-Test Output for Anger and Aggression for Marital Status

	Nonmarried			Married			t	df	sig
	N	M	SD	N	M	SD			
Total Anger	95	87.06	14.44	89	82.98	13.66	1.969	182	.051
Anger Regulation	95	29.41	3.73	89	30.02	3.91	1.086	182	.279
Total Aggression	95	81.56	17.99	89	76.64	16.88	1.909	182	.058
Anger aggression	95	19.32	4.94	89	17.82	4.29	2.185	182	.030*
Physical Aggression	95	25.28	6.50	89	23.26	6.17	2.166	182	.032*
Hostility Aggression	95	23.08	6.86	89	22.16	6.45	.943	182	.347
Verbal Aggression	95	13.87	3.46	89	13.40	2.90	.993	182	.322

Note : *p<0.05ye

TABLE V: Analysis of Mean Scores and Standard Deviations for Anger and Aggression among Ethnics

Ethnic	Malay			Kadazan Dusun			Bajau			Others		
	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD
Total Anger	50	87.14	15.00	38	83.66	15.24	44	84.86	13.07	52	84.35	13.67
Anger Regulation	50	29.52	4.00	38	30.18	4.18	44	29.61	2.98	52	29.62	4.08
Total Aggression	50	80.12	20.91	38	78.82	15.97	44	78.66	15.87	52	78.98	17.07
Anger Aggression	50	18.90	5.01	38	18.39	4.25	44	19.02	4.79	52	18.08	4.66
Physical Aggression	50	25.02	7.10	38	23.61	6.25	44	23.70	6.13	52	24.63	6.12
Hostility Aggression	50	22.26	7.55	38	23.13	6.06	44	22.59	6.39	52	22.67	6.56
Verbal Aggression	50	13.94	4.12	38	13.68	2.98	44	13.34	2.88	52	13.60	2.64

TABLE VI: Anova Output for Anger and Aggression among Different Ethnics

Variables		Sum of Square	df	Mean Square	F	Sig.
Total Anger	Between Groups	319.085	3	106.362	.525	.666
	Within Groups	36471.524	180	202.620		
	Total	36790.609	183			
Anger Regulation	Between Groups	11.222	3	3.741	.253	.859
	Within Groups	2660.930	180	14.783		
	Total	2672.152	183			
Total Aggression	Between Groups	63.224	3	21.075	.067	.977
	Within Groups	56543.858	180	314.133		

	Total	56607.082	183			
Anger Aggression	Between Groups	28.181	3	9.394	.424	.736
	Within Groups	3992.249	180	22.179		
	Total	4020.429	183			
Physical Aggression	Between Groups	65.681	3	21.894	.530	.663
	Within Groups	7441.276	180	41.340		
	Total	7506.957	183			
Hostility Aggression	Between Groups	16.562	3	5.521	.123	.947
	Within Groups	8098.041	180	44.989		
	Total	8114.603	183			
Verbal Aggression	Between Groups	8.602	3	2.867	.276	.843
	Within Groups	1869.436	180	10.386		
	Total	1878.038	183			

Note: *$p < .05$

Table I shows the demographic data of participants. Majority of respondents were in the early adulthood age group (53.8%), followed by middle adulthood (29.3%), and late adolescent (16.8%). Meanwhile, married respondents were (51.6%), while the unmarried ones were (48.4%). In addition, (27.2%) were Malays, followed by Bajau (23.9%), Kadazan (20.7%), and other ethnicities (28.3%). Other ethnicities were minority groups that included the Kedayan, Bugis, Murut, and Javanese. Majority of the respondents were previously working (91.3%) while only (8.7%) were unemployed.

Table II shows that there was a significantly positive relationship between anger and aggression (r = 0.741, p = 0.000). Furthermore, there was also a positive relationship between anger and anger aggression (r = 0.635, p = 0.000), physical aggression (r = 0.699, p = 0.000), hostility aggression (r = 0.615, p = 0.000), and verbal aggression (r = 0.464, p = 0.000).

Table III shows that there was a negative relationship between anger regulation and aggression (r = –0.236, p = 0.001). Also, there was a negative relationship between anger regulation and anger aggression (r = –0.229, p = 0.002), physical aggression (r = –0.273, p = 0.000), and hostility aggression (r = –0.159, p = 0.031).

T-test was used to examine the differences of anger and aggression between unmarried and married male substance dependents (Table IV). Significant differences were observed only for the measures of anger aggression (t (182) = 2.185, p=0.30) and physical aggression (t(182) = 2.166, p=0.32). Unmarried males reported higher frequency of anger aggression and physical aggression compared to married substance dependents. However, there were no significant differences for total anger (t(182) = 1.969, p=0.051), anger regulation (t(182) = 1.086, p=0.279), total aggression (t(182)= 1.909, p=0.058), hostility aggression (t(182) = 0.943, p=0.347) and verbal aggression (t(182) = 0.993, p=0.322)

Table V, shows the summary analysis of mean score and standard deviations for anger and aggression between ethnic groups .

The result shows there were no statistically significant differences for anger and aggression between groups as determined by one-way ANOVA for all scales and subscales (Table VI). Specifically, total anger (F(3,180) = 0.525, p=0.666), anger regulation (F (3,180) = 0.253, p=0.859), total aggression (F(3,180) = 0.067, p=0.977), anger aggression (F (3,180) = 0.424, p=0.736), physical aggression (3,180 = 0.530, p=0.663), hostility aggression (F (3,180) = 0.123, p=0.947) and verbal aggression (F (3,180) = 0.276, p=0.843).

IV. Discussion

This study examined the relationship between anger and aggression. The findings showed that there was a positive relationship between anger and aggression. In addition, a positive relationship between anger and the four subscales of aggression was determined. There was also a negative relationship between anger regulation and aggression. Furthermore, negative relationships between anger regulation and the subscales of aggression (anger aggression, physical aggression and hostility aggression) were found. These results are supported by other studies that have reported a relationship between anger and aggression [26]-[29].

This study also examined the differences between unmarried and married drug-dependent males in the aspects of anger and aggression. The results showed that there were significant differences in anger aggression and physical aggression, in which unmarried males scored higher than married ones. This result is due to the combination of psychological vulnerability among the unmarried participants. When they get stressed, they will get over it with anger and aggression. The findings in this study are supported by a researcher from Zhejiang University who has shown that the tendency for aggression is significantly higher across all four subcategories (physical, verbal, anger, and hostility) in unmarried men compared to married men [39].

This study also showed that there were no significant differences between the groups for anger, anger regulation, aggression, hostility aggression, and verbal aggression. Lastly, this study investigated the differences among ethnic groups in the aspects of anger and aggression. The results showed that there were no statistically significant differences between the groups for all scales and subscales of anger and aggression. This is because although the ethnicities and religions of the participants are different, they still share a similar culture and lifestyle. Nonetheless, this study is in contrast with the study by other researchers who have reported that there are differences between African Americans and Hispanics in the level of aggression. African Americans were more likely to exhibit physical aggression compared to Hispanics and less likely to be in the non-aggressive group (7.9% were non-aggressive among African Americans and 17.1% among Hispanics) [40]. Meanwhile, ethnic and cultural variations were found for

anger experience, anger control, anxious attachment, and avoidant attachment. Ethnic difference emerged in anger experience, after accounting for self-construal, with Korean Americans male batterers experiencing more anger than their European American counterparts. A trend towards an ethnic difference appeared for anger control, with Korean Americans controlling their anger less than European Americans [41].

V. Conclusion

It is hoped that many parties will benefit from the outcome of this study. The findings can help drug centers to understand the level of anger and aggression among drug-dependent people and as a next step, they can plan the appropriate intervention to treat the anger emotion and aggressive behavior such as by providing individual or group counseling.

Based on the findings from the present study, several directions for future research are suggested. The study was conducted with a male sample; hence, these results are not necessarily generalizable to women. The manifestations of anger and aggressive behavior differ between males and females and it is possible that there would be gender differences in the social information processing correlates of anger and aggression. Therefore, future research should include a sample of women.

This study was done in only one location in the east of Malaysia. Since the sample in this study was not representative of the general population, the results may only be generalizable to subjects from similar facilities rather than the general population of drug-dependent males. Therefore, future research should involve all drugs centers in Malaysia.

Not all addicts are violent, and those who are maybe violent only to themselves and not to others. However, the association between drug addiction and violence is strong enough that anyone considering substance abuse treatment should be prepared to address their anger, frustration, and other feelings and behaviors that can lead to aggression and violence.

Conflict of Interest

The authors declare no conflict of interest.

Author Contributions

Norzihan Ayub and Patricia Joseph Kimong wrote the paper and analyzed the data, Puteri Hayati edited the paper and all authors had approved the final version.

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1) N. Ayub, P. J. Kimong, and G. T. Ee, "A distorted body image: Cognitive behavioral therapy for body dysmorphic disorder," in *Cognitive Behavioral Therapy*, S. Misciagna, Ed. pp. 1-20, 2018.
2) N. Ayub, R. Nasir, N. B. Y. A. Kadir, and M. Mohamad, "Cognitive behavioural group counseling in reducing anger and aggression among male prison inmates in Malaysia," *Asian Social Science*, 2015. vol. 12, no. 1, pp. 263-273.
3) N. Ayub, R. Nasir, M. S. Mohamad, and N. B. Y. A. Kadir, "Keberkesanan kaunseling kelompok tingkah laku kognitif terhadap kemarahan dan agresif dalam kalangan banduan penjara lelaki," *Jurnal Psikologi Malaysia*, vol. 30, no. 1, pp. 40-51, 2016.
4) N. Ayub, F. Bahari, and J. K. Kimong, "Sumber stres, Strategi daya tindak dan kesejahteraan Psikologi dalam Kalangan Pesakit Dialisis," Malaysia: Universiti Malaysia sabah, Jan 2012.

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She had published several academic writings related to her field in journals and monograph and the rest is conference papers. Her research interest is in the field of counseling supervision.

1) N. Ayub, P. J. Kimong, and G. T. Ee, "A distorted body image: Cognitive behavioral therapy for body dysmorphic disorder," in *Cognitive Behavioral Therapy*. S. Misciagna, Ed. pp. 1-20, 2018.
2) N. Matshah, P. J. Kimong, and N. Ayub *et. al*., "Coping strategies, perceptions of the effectiveness of rehabilitation programs and intention to relapse among former methamphetamine addicts," *Southeast Asia Psychology Journal*, vol. 2, pp. 77-94, 2014.
3) P. J. Kimong, F. Bahari, N. Ayuband, and W. A.W. Sulaiman. "Stres, kepuasan kerja dan komitmen terhadap organisasi dalam kalangan pegawai polis dan pegawai imigresen," Sabah: Universiti Malaysia Sabah, 2012. pp.1-71.

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1) P. Hayati, "Kaunseling motivasi dalam penyalahgunaan dadah," Kuala Lumpur: Dewan Bahasa dan Pustaka, 2015, pp. 1-234.
2) P. Hayati, "Kemahiran dan pengurusan kes-kes kaunseling," Sabah. Universiti Malaysia Sabah, 2012, pp. 1-201.
3) P. Hayati. "Bimbingan dan kaunseling kerjaya," Kuala Lumpur: Dewan Bahasa dan Pustaka.2010, pp.1-230

She was given the opportunity to train Brunei Darussalam Narcotics Officers in 2014 and 170 Sabah Prison Officers under the Knowledge Transfer Program from 2016 to 2017. To date, she has been active in Motivational Interviewing training with the Malaysian Prison Department, Department of Social Welfare, and counselors.

Associate Professor Dr. Puteri is a registered counselor and has been appointed as one of committee member of Malaysian Board of Counselor since 2014 until now, and members of Chinese Association Motivational Interviewing of Hong Kong. In 2017 she was awarded a medal, Second Class of Prison Commissioner's Medal for her contribution of training Malaysian Prison Officers.