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TESTING AGNEW'S GENERAL STRAIN THEORY ON DRUG USE AMONG COLLEGE STUDENTS IN JORDAN

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Abstract

Logistic regression was performed to assert the effects of the core assumption of Agnew's General Strain Theory (GST) on the likelihood of college students using drugs. It aims to identify the level of strains such as failure in achieving the goals of positive value, negative emotions, loss of positive emotions, and/or negative feelings among students of Jordan University. A social survey was conducted, and a questionnaire, developed by Al-Badayneh (2012), was used in this study. A sample of (965) students from the University of Jordan was selected. Logistic regression analysis supported Agnew's GST core assumptions. The logistic regression model was statistically significant due to the fact that the model demonstrates 100% accuracy when the non-significant (Hosmer and Lemeshow test $\chi 2 = 8.435$ $\alpha = 0.392$) is applied. The model explained 35% (Nagelkerke R Square) of variance on the drug use, and correctly classified 95.5% overall prediction of the cases. A significant relationship was found between general stain and drug use (-0.113, $\alpha = 000$), negative emotions (-0.311, $\alpha = 0.000$) and frequency of drug use (0.110). Moreover, negative emotions are significantly correlated with drug use (-0. 067, $\alpha = 0.000$) and drug frequency (0.149).

Keywords: drug use, General Strain Theory, college, students, Jordan

1. Introduction

Robert Agnew's General Strain Theory (GST) is one of the most popular criminological theories of the last two decades. Its popularity is driven by its scope, testability, and generalizability of the theory. Building on more than 30 years of criminological research, to answer the question, 'Why do criminals offend?' Agnew uses a "variable approach" [1] summarizing the extant empirical findings of all variables that could explain criminal behaviour at the individual level and organizes these variables around the key concepts of constraints, motivations, and five life domains [2]. The premise of the theory is that crime "is most likely when the constraints against crime are low and the motivations for crime are high" [3].

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Defining strain as "relationships in which others are not treating the individual as he or she would like to be treated" [4] Agnew [5] identified three types of strain: (1) failure to achieve positively valued goals, including prestige among friends and a good academic achievement in school (2) removal of positively valued stimuli, as in rejection by a partner in romance or withdrawal from uncomfortable situation and (3) presentation of negative stimuli that involves the actual or anticipated occurrence of something individuals view as aversive such as beatings, or ridiculing by significant others like parents, teachers, or peers. Strains create negative emotions, which include anger, frustration, disappointment, depression, anxiety, and fear, and these pressures, the individual and demand actions are taken to cope or to escape the strain. Negative emotions are seen as a reaction to strains and a key reason for imprudent behaviour. Anger increases the degree of injury that the individual feels, creates a need for revenge, increases the likelihood that the individual will take action, and lowers his or her inhibitions [6-8]. Individuals feel that anger and their coping methods are justified. As Agnew stated, anger plays important role in criminal behaviour and substance [9]. Individuals experience negative emotions, when they are treated unjustly and unfairly or exposed to negative stimuli. To respond to such situations that produce strain or to alleviate resulting negative emotions, some youths involve in prudent behaviour or break the law. For example, strained youth may be aggressive toward peers or other people causing the strain, may try to handle their negative emotions by using illicit drugs and alcohol or may try to escape strain by running away, which can lead to other illegal behaviour [5]. The production of negative emotions that lead to criminal behaviour depends on several other factors, such as youth's relationship with significant others like parents and peers, and coping skills [7]. Agnew's GST predicts that exposure to strain causes a range of negative emotions and individuals will employ different types of coping strategies in an attempt to alleviate the strain. This operates as a driving force that puts the individual under unpleasant state and pushes them to restore the normal state. If law-abiding, adaptive coping strategies are unavailable or ineffective, law-violating, maladaptive coping becomes more likely – especially if the individual experiences high levels of anger in response to the strain [5].

Agnew states that while there are many adaptations to objective strain, those adaptations are not equally available to everyone. Young people especially are constrained in their choice by a variety of internal and external factors: (a) if the objective strain affects goals that are high in absolute and relative importance, and if the individual has few alternative goals or values to achieve; (b) individual coping resources, a large number of traits can be listed in this area, such as intelligence, temperament, problem-solving skills, self-efficacy, and self-esteem; (c) conventional social support is important because it facilitates the major types of coping; (d) factors that constrains imprudent behaviour; these include the cost and benefits of engaging in marriage or divorce in a particular situation and the possession of those undesirable social means that are necessary for some imprudent acts; (e) finally, the larger social environment may affect the

possibility of desirable social versus undesirable social coping by affecting the above factors [5].

Agnew discussed why some individuals react to strain with deviant behaviour and others do not. He argued that criminal coping will occur when individuals lack the skills and resources needed for them to cope in a pro-social way. He further states that some individuals lack coping skills and resources, which leads to an increased likelihood of deviant behaviour. These individuals typically have poor problem-solving capabilities, poor social skills, low constraint, negative emotionality, and low self-efficacy. Individuals who cope in a criminal manner tend to have poor problem-solving skills, low constraint, and other related characteristics. However, Agnew did state that while an individual may have an inability to cope in a legal manner does not necessarily mean that they will cope in a criminal way. Push factors to positive coping with strain include strong social support and social controls [9]. Individuals that have strong relationships with family, friends and significant others will cope positively with strain and are less likely to participate in deviant behaviour than individuals who lack such relationships because the cost of crime is higher than rewards. On the other hand, pull factors include the opposite side of the push factors such as weak social support. Agnew emphasizes that results in criminal behaviour are seen as unjust, high in magnitude, associated with low self-control, or create pressure or motivation for delinquent coping strategies [10]. Some individuals react to strain with deviant behaviour and others do not. There are factors that contribute to positive reactions to strain. These might include strong social support and social controls. Still, it is likely that strain will reduce an individual's social control, attenuating emotional bonds to conventional others, the level of investment in conventional institutions, and internal controls [9].

According to GST, crime occurs and develops through five life domains (systems): self, family, school, peer and work. Crime is seen as a result of the final outcome of the interplay between motivations and constraints (Push and pull) [2]. Constraints against and motivations for deviant behaviour, therefore, are intermediate variables between life domains and deviance and delinquency. Constraints are categorized in three spheres: external control, internal control, and stake in the conformity. External control refers to the perception that others detect and sanction in committing the crime. External control can be informal i.e., family, and formal i.e., police and court. Additionally, control can be internal (belief and values) or self-control traits [2, 3, 11]. Finally, stake in conformity involves both attachment to significant conventional others and social norms [2]. GST recognizes that the likelihood of delinquent responses to strain is conditioned by social and personal factors.

Numerous empirical studies have generated results that are supportive of key GST propositions [4, 12-40]. Studies have consistently shown that individuals exposed to various types of strain are more likely to engage in delinquent and imprudent behaviours. Several tests of a full model of GST have additionally shown that negative emotions, especially anger, moderately mediate the connection of strain to delinquency [17, 41, 42]. Specifically, research has

documented that strain predicts anger, which in turn predicts deviance [7, 33, 36].

The significant number of studies with diverse populations and research designs that have examined the relationship between strain and delinquency have generally produced results that support GST [5, 13, 15, 17, 20, 21, 32, 35, 36, 39, 41]. Negative life events (e.g., divorce, criminal victimization), negative relationship with adults (e.g., parents, teachers), physical and emotional abuse, and neighbourhood strain were significantly and positively related to various types of delinquency [14]. A study of Korean youth [39] also showed that juveniles experiencing negative relationships with parents and teachers were more likely to engage in delinquency [20].

Agnew and White found a significant, positive relationship between strain and delinquency and drug use when controlling for social control and differential association variables [13]. Other studies found support for the relationship between strain and deviant behaviour when controlling for social control and differential association-social learning variables [17, 29-31]. Many of the studies that have examined the relationship between strain and deviant behaviour include drug use in composite measures of delinquency [15]. However, there are few studies which separate drug use from delinquency [13].

2. GST in the context of Jordan

Jordanian youth have high levels of strains on the macro levels i.e., high rate of unemployment, poverty, low income, etc. and on the micro individual level, i.e., aggressive impulses, feelings of helplessness, and loss of interest in life. In Jordan, Al-Badayneh and Al-Badayneh et al., have tested both partial and complete tests of the theory in different areas were conducted such as corruption [D. Al-Badayneh, *Human development, peace, corruption, and terrorism in the Arab World*, 2009, http://ikcrsjo.org/docs/Human_Development_Terrorism-1-2010.pdf], religious behaviour [43], political affiliation [D. Al-Badayneh, K. Al Hassan, M. Almawajdeh, *The impact of political affiliation, political participation and life satisfaction on radicalization among university students*, 2016, http://www.bjournal.co.uk/BJASS.aspx], social causes of radicalization among youth [44], fearing terrorism [45], radicalization [46], determining factors of radicalization [47], strains and radicalization among Syrians youth refugees [47], bullying [48], university under risk [49], radicalization incubators and terrorist recruitment [50].

However, few researchers have used the theory to explain delinquent and risk-taking behaviour among youth from different cultures and apply the theory to different personal risk-taking decisions like divorce, and adaptation strategies. Some cultural tests of the theory were conducted in areas like bullying, divorce, violent radicalization and terrorism [43-48, 50, 51]. This study is a test of the applicability of Agnew's GST to college students in Jordan.

The core assumptions of the theory can be applied to a wide range of misconduct like drug use. Especially when there is the presence of strong motivations for drug use and the absence of formal and informal constraints against drug use. This study is a test of the generalizability of the theory outside the USA; a test in a developing country in a new area namely drug use, other than delinquency.

3. Methodology

3.1. Sample

A sample of 965 students from the University of Jordan was selected from core curriculum courses. All university students have to take these courses. Students enrolled in these classes are mixed (males and females) from all levels and departments; it is a heterogeneous class.

3.2. Instrument

A questionnaire was developed based on a literature review as a research instrument. The questionnaire was composed of: (a) demographic data; (b) subscales included: victim of violence (4 items), perpetrator of violence (3 items), losing a positive stimulus (14 items), negative emotions (6 items), delinquent peers (6 items), losing a negative stimulus (11 items), exposure to violence (3 items), failure to achieve positive goals (13 items), external social bonds (8 items), parental ties (5 items), fear of victimization (3 items), school expectations (4 items), family strains (4 items), university ties (3 items), parental support (4 items).

3.3. Measurement - drug use

The drug use scale was composed of one item. Respondents were asked about their participation in the use of drugs in the last 12 months. The frequency of drug use was measured with the question of 'how frequently did you use it' (1. always and daily, 2. sometimes 3. rarely). The age at which drugs were first used, the number of attempted treatments from drug use and the selling of drugs (1. no, 2. sometimes 3. always).

3.4. Measures of strains

Losing the positive stimulus scale was created with of 14 items designed to measure by summing reported frequency of the 14 items. Using the response categories of 1 = yes, 2 = no, youths reported if they had had experience in the last 12 months of any of the following stressful events: life stress events such as a death of the beloved one, imprisonment, sickness, injuries, financial crises, or failure.

Losing the negative stimulus scale was created by summing reported frequency of 11 items reporting negative events such as witnessing fights, or threats, or being the victim of harassment, assault, or participation in fights.

Failure to achieve positive goals was created by summing reported frequency of 13 items reporting the extent of achieving personal goals such as studying, getting high grades, getting money, getting the type of life I wish….etc.

External social strains was composed of 8 items on strains by family problems, problems with friends, school problems… etc.

Fear of victimization was created by summing reported frequency of 1 item reporting the fear of being victimized.

The victimization scale was created by summing reported frequency of 4 items reporting the previous victimization of violence occurred in the family, friends, university or community.

The victimized scale was created by summing reported frequency of 3 items reporting the previous perpetrator of violence occurring in the family, university or community.

Negative emotions was adopted from Carson, Sullivan, & Cochran [8] and was composed of 6 items on depression, anger, losing the interest, desire to death and desire to commit suicide. 'Depression and suicidal thoughts' was measured using four different dichotomous items: (1) experienced a period of two weeks or longer when you were feeling depressed, down, or irritable most of the day, nearly every day; (2) experienced a period of two weeks or longer when you were uninterested in most things or unable to enjoy things you used to do nearly every day; (3) experienced a period of two weeks or more when you felt like you wanted to die, and (4) felt so low that you thought of committing suicide. Respondents who answered 'yes' to any of these questions were coded as one and those who responded negatively to all of these questions were coded as zero.

Parental ties, was composed of 5 items on family supervision, knowing when an individual outside the home, concerns when he-she late, etc.

University expectations scale was composed of 4 items on the importance of grade, graduate study, the likeness of the university, etc.

Family strains were composed of 5 items on family physical punishment or threats, family annoying, moody, etc.

University ties was composed of 3 items quality of performance, feeling comfortable, my teachers treat me as friend, etc.

Parental support was composed of 4 items on family appraisal, promotion, talk good things about me, proud of me, etc.

3.5. Validity and reliability

Validity was estimated in two methods, one face validity based on 90% of judges' consensus and construct validity. Correlation between logically and theoretically correlated scales i.e. strains and each of the following: Victim of

violence, Perpetrator of Violence, Losing the positive stimulus (Life stress events), Negative emotions, Losing the negative stimulus, Failure to achieve the positive goals, External social bonds, Parental ties, Victimization, Family stains, (r = 0.217**, 0.166**, 0.149**, 0.158**, -0.425**, 0.336**, 0.396**, 0.231**, 0.331**, 0.211** respectively). Reliability was estimated using Cronbach's Alpha. As can be seen from Table 1 all scales have an acceptable to high reliability coefficients (ranging from 0.43 to 0.93). Victim of violence subscale and Perpetrator of Violence subscale were weak. A scale was deemed suitable when it had a reliability score (Cronbach's alpha) of 0.7 or more for each set of items.

Table 1. Reliability coefficients for all scales.

Variables	Reliability coefficient alpha	Construct validity With Parental support
Victim of violence	0.468	0.217*
Perpetrator of Violence	0.435	0.166*
Losing the positive stimulus (Life stress events)	0.66	0.149*
Negative emotions	0.71	0.158*
Delinquent peers	0.81	-
Losing the negative stimulus	0.73	-0.425*
Failure to achieve positive goals	0.939	0.336*
External social bonds	0.916	0.396*
Parental ties	0.814	0.231*
victimization	0.805	0.331*
Study expectations	0.781	-
Family stains	0.66	0.211*
University ties	0.71	-
Parental support	0.81	-

* Correlation is significant at the 0.01 level (2-tailed)

4. Findings

Table 2 presents the means and standards deviations for strain measures. Losing a positive stimulus scale with a mean 3.67 based on 14 items (1 = yes and 0 = no); Losing negative stimulus scale with an average of 18.35 (11 items with 4 levels).; Exposure to violence scale with average 1 and 7 items (1 = yes and 0 = no); Failure to achieve positive goals with an average 49.97 (13 items and 5 levels); Fear of victimization with an average 2.13 and 3 items (1 = yes and 0 = no); Family stains with an average 2.73 and 4 items (1 = yes and 0 = no); Negative emotions with an average 3.2 and 6 items (1 = yes and 0 = no) and General strain scale with an average 98.3 and 6 items (1 = yes and 0 = no).

As can be seen from Table 3 drug use (0 = no use, 1= use) A positive significant relationship was found between drug use and victim of violence, perpetrator of violence, losing the positive stimulus (Life stress events), negative emotions, delinquent peers, losing the negative stimulus, Exposure to violence,

Failure to achieve positive goals, external social bonds, parental ties, school expectations, family stains, university ties and parental support.

Table 2. Descriptive statistics.

Scale	N	Mean	Std. Deviation
Losing the positive stimulus	965	3.67	2.485
Losing the negative stimulus	965	18.35	5.338
Exposure to violence	965	1.09	1.426
Failure to achieve positive goals	965	49.98	9.525
Fear of victimization	965	2.13	1.061
Family stains	965	2.73	1.068
Negative emotions	965	3.22	1.668
General Strain	965	89.32	10.122

Table 3. Pearson correlation coefficients between Drug use and GST domains.

Variables	r	sig
Victim of violence	-0.214	0.000
Perpetrator of violence	-0.249	0.000
Losing the positive stimulus (Life stress events)	0.090	0.005
Negative emotions	0.067	0.039
Delinquent peers	-0.091	0.005
Losing the negative stimulus	0.216	0.000
Exposure to violence	-0.180	0.000
Failure to achieve the positive goals	-0.207	0.000
External social bonds	-0.132	0.000
Parental ties	-0.263	0.000
Fear of victimization	-0.038	0.237
School expectations	-0.213	0.000
Family stains	0.097	0.003
University ties	-0.170	0.000
Parental support	-0.171	0.000

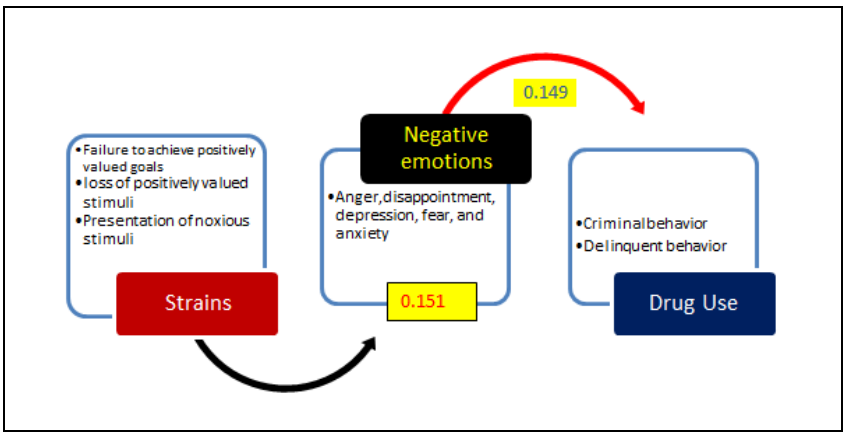

Figure 1. Core assumption of the GST.

A significant relationship was found between general stain and drug use (-0.113, α = 000), negative emotions (-0.311, α = 0.000) and frequency of drug use (0.110). Moreover, negative emotions is significantly correlated with drug use (-0.067, α = 0.000) and drug frequency (0.149) (Figure 1).

4.1. Logistic regression

The logistic analysis is an appropriate method of analysis where we have a nominal dependent variable (drug use: 0 - not used and 1- used). As can be seen from Table 4 there were 48 cases of drug use among students and 917 not used the drug. The predictability of the model was 0.95 looking at no model which is only the intercept (block 0). If we assume that all students did not use a drug the HO (the null hypothesis): that we reject the assumption of an equal number of students in the two categories (793 vs. 42) (no = 0 yes = 1). Table 5 presents the variables in the equation, and Table 6 the variables not in the equation.

4.2. Block 0 - beginning block

Table 4 present the intercept. The (exp B = 0.5) which means 95% of students are more likely not to use the drug.

Table 4. Classification table.

			Predicted		
	Observed		Drug use		Percentage correct
			no	yes	
Step 0	Drug use	no	917	0	100.0
		yes	48	0	0.0
	Overall Percentage		-	-	95.0

Constant is included in the model
The cut value is 0.500

Table 5. Variables in the equation.

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-2.950	0.148	396.917	1	0.000	0.052

Table 6. Variables not in the equation.

Variables	Score	df	Sig.
Victim of violence	44.081	1	0.000
Perpetrator of violence	59.815	1	0.000
Losing positive stimulus	8.096	1	0.004
Negative emotions	4.283	1	0.038
Delinquent friends	7.924	1	0.005
Losing negative stimulus	44.943	1	0.000
Exposure to violence	31.437	1	0.000
Failure to achieve goals	41.432	1	0.000

External social ties	16.779	1	0.000
Parental ties	66.621	1	0.000
Fear of victimization	1.763	1	0.184
School expectations	43.888	1	0.000
Family strain	9.103	1	0.003
University Ties	27.831	1	0.000
Parental support	28.219	1	0.000
Overall statistics	155.243	15	0.000

4.3. Block 1 - method = enter

Table 7 shows significant Chi-square which supports the model. Table 8 present Nagelkerke R Square which equivalent to R2, meaning that 38.8% of the variance on the drug use was explained by the independent variables.

Table 7. Omnibus tests of model coefficients.

		Chi-square	**df**	**Sig.**
Step 1	Step	116.434	15	.000
	Block	116.434	15	.000
	Model	116.434	15	.000

Table 8. Model summary.

Step	**-2 Log likelihood**	**Cox & Snell R Square**	**Nagelkerke R Square**
1	265.227	0.114	0.348

* Estimation terminated at iteration number 7 because parameter estimates changed by less than 0.001.

Table 9. Hosmer and Lemeshow Test.

Step	**Chi-square**	**df**	**Sig.**
1	8.435	8	0.392

Table 10. Contingency table for Hosmer and Lemeshow Test.

	No.	**Drug use = no**		**Drug use = yes**		**Total**
		Observed	**Expected**	**Observed**	**Expected**	
Step 1	1	97	96.790	0	0.210	97
	2	97	96.568	0	0.432	97
	3	96	96.348	1	0.652	97
	4	97	96.086	0	0.914	97
	5	95	95.717	2	1.283	97
	6	93	95.156	4	1.844	97
	7	94	94.261	3	2.739	97
	8	92	92.625	5	4.375	97
	9	94	89.106	3	7.894	97
	10	62	64.343	30	27.657	92

Another good supports to the model came from Hosmer and Lemeshow Test (Table 9), insignificant value ($p > 0.05$) of chi-square (8.435, sig = 0.392). In a good model, Hosmer and Lemeshow Test is not significant. Table 10 presents the contingency for Hosmer and Lemeshow Test for drug uses (yes vs. no).

As can be seen from Table 11, we expect 22.9 of students will use drugs. The accuracy of the model is 95.9. Table 12 presents the variables in the equation.

Table 11. Classification table.

			Predicted		
	Observed		Drug use		Percentage correct
			no	yes	
Step 0	Drug use	no	914	3	99.7
		yes	37	11	22.9
	Overall Percentage		-	-	95.9

The cut value is 0.500

Table 12. Variables in the equation.

	Variables	B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	Victim of violence	-0.121	0.241	0.253	1	0.615	0.886
	Perpetrator of violence	-0.625	0.298	4.412	1	0.036	0.535
	Losing positive stimulus	0.092	0.076	1.485	1	0.223	1.097
	Negative emotions	0.155	0.123	1.583	1	0.208	1.167
	Delinquent friends	-0.130	0.093	1.931	1	0.165	0.878
	Losing negative stimulus	0.028	0.038	0.552	1	0.457	1.028
	Exposure to violence	-0.475	0.217	4.805	1	0.028	0.622
	Failure to achieve goals	-0.021	0.020	1.165	1	0.280	0.979
	External social ties	-0.026	0.103	0.065	1	0.798	0.974
	Parental ties	-0.288	0.081	12.669	1	0.000	0.750
	Fear of victimization	-0.178	0.099	3.196	1	0.074	0.837
	School expectations	-0.284	0.097	8.527	1	0.003	0.753
	Family strain	0.048	0.110	0.186	1	0.666	1.049
	University ties	-0.214	0.144	2.217	1	0.137	0.807
	Parental support	0.029	0.087	0.110	1	0.740	1.029
	Constant	9.471	3.39	7.823	1	0.005	-

Variable(s) entered on step 1: VoV, P0V, LPS, Ne-motions, D-peers, LNS, Exposure, FAGs, EST, PT, Fvict, SE, FS, US, PS

4.4. Gender differences

Table 13 shows significant differences between males and females in strains ($F = 40.303$, $\alpha = 0.000$) negative emotions ($F = 20.579$, $\alpha = 0.000$) and drug use ($F = 60.393$, $\alpha = 0.000$).

Table 13. ANOVA analysis.

		Sum of Squares	df	Mean Square	F	Sig
Negative Emotions	Between Groups	56.138	1	56.138	20.58	0.000
	Within Groups	2626.961	963	2.728		
	Total	2683.098	964			
Strain	Between Groups	4191.847	1	4191.847	40.33	.000
	Within Groups	100159.766	963	104.008		
	Total	104351.612	964			
Drug Use	Between Groups	2.692	1	2.692	60.5	.000
	Within Groups	42.921	963	.045		
	Total	45.612	964			

5. Discussion and conclusions

This study is an attempt to test the generalizability and applicability of the GST outside its own culture (USA) in the culture of a developing country (Jordan). Moreover, the study examines the core assumptions of the GST in the new and distinct area of criminal behaviour which is drug use among college students. It attempts to address the question of whether GST is useful in understanding the aetiology of drug use among college students in Jordan. A social survey was conducted and a questionnaire developed by Al-Badayneh [48] was used in this study. A convenient sample of 965 students from the University of Jordan was selected. Logistic regression analysis supported Agnew's GST. Logistic regression was performed to ascertain the effects of the core assumption of Agnew's General Strain Theory (GST) on the likelihood that college students use drugs. It aims to identify the level of strains among students such as failure in achieving the goals of positive value, negative emotions, loss of positive emotions, negative feelings among students of Jordan University.

The data analysis revealed that a significant relationship was found between general strain and each of drug use; negative emotions and frequency of drug use. This can be seen as statistical support for the theory. In addition, it can be argued that strain is correlated with negative emotions and negative emotions are correlated with drug use. A positive significant relationship was found between drug use (0 = no and 1 = yes) Losing positive stimulus, negative emotions, losing negative stimulus and family strain. A negative significant relationship also found in victimization, victimized, delinquent peers, exposure to violence, failure to achieve positive goals, external social ties, parental ties, school expectation, university strain, and parental support. This goes with Agnew's analysis that strained students may be aggressive toward individuals causing the strain, and if these people are significant others, they avoid encounter them and may try to handle their emotions by using illicit drugs and alcohol [5].

Significant gender differences were found in strains, negative emotions, and drug use. Males use drugs more than females (13.8% vs. 1.8%), with less negative emotions (87.7% vs. 98.2%) and more strains (100% vs. 99%). As

expected, males deviate more than females where females experience more negative emotions and almost the same strains. Females are more squeezed in the social system than males. With compliance with the feminist roles and fear of being stigmatized, females encounter strains with more acceptable coping strategies.

The logistic regression model was statistically significant. The model is accurate as shown by non-significant. The model explained 35% of the variance on the drug use and correctly classified 95.5% (overall prediction of the cases). This is another statistical support for the theory - an acceptable and significant power of interpretation for strain variable on drug use. Findings of this study can be added to the generalizability of GST outside the USA in the new setting of a developing country. Differing from other studies that have examined the relationship between strain and deviant behaviour include drug use in composite measures of delinquency [15, 52], this study separates drug use from delinquency, to provide an explanation of how strains affect drug use [8]. Findings of this study support the testability of the theory in different cultures. For an additional test for the theory is needed to develop a relevant valid and reliable measure applicable to the Arab culture.

References

[1] G.B. Vold, T.J. Bernard and J.B. Snipes, *Theoretical Criminology*, 6th edn., Oxford University Press, New York, 2010, 130.

[2] Y. Zhang, G. Day and L. Cao, Crime & Delinquency, **58(6)** (2012) 856-878, available at http://cad.sagepub.com/content/58/6/856.

[3] R. Agnew, *Why do criminals offend? A general theory of crime and delinquency*, Roxbury Publishing Company, Los Angeles, 2005, 25.

[4] W.N. Bao, A. Hass and Y. Pi, Int. J. Offender Ther., **51(1)** (2007) 9-24.

[5] R. Agnew, Criminology, **30(1)** (1992) 47-88.

[6] Y. Zhang, L. Cao and M.S. Vaughn, Aust. NZ. J. Criminol., **42(2)** (2009) 204-217.

[7] B. Moon, M. Morash, C. McCluskey and H. Hye-Won, J. Res. Crime Delinq., **46(2)** (2009) 182-212.

[8] D.C. Carson, C.J. Sullivan and J.K. Cochran, Deviant Behav., **30(1)** (2009) 54-88

[9] R. Agnew, *Pressured into crime: An overview of general strain theory*, 2nd edn., Roxbury Publishing Company, Los Angeles, 2006, 1-30.

[10] R. Agnew, J. Res. Crime Delinq., **38(4)** (2001) 319-361.

[11] M.R. Gottfredson and T. Hirschi, *A general theory of crime*, Stanford University Press, Stanford, 1990, 40-60.

[12] R. Agnew, Soc. Forces, **64(1)** (1985) 151-167.

[13] R. Agnew and H.R. White, Criminology, **30(1)** (1992) 475-499.

[14] R. Agnew and T. Brezina, Youth Soc., **29(1)** (1997) 84-111.

[15] R. Agnew, T. Brezina, J.P. Wright and F.T. Cullen, Criminology, **40(1)** (2002) 43-71.

[16] R. Agnew, F.T. Cullen, V.S. Burton, T.D. Evans and R. Dunaway, Justice Q., **13(4)** (1996) 681-704.

[17] R.H. Aseltine, S. Gore and J. Gordon, J. Health Soc. Behav., **41(3)** (2000) 256-275.

[18] S.W. Baron and T. Hartnagel, Criminology, **35(3)** (1997) 409-434.

[19] W.N. Bao, A. Hass and Y. Pi, Int. J. Offender Ther., **48(3)** (2004) 281-297.

[20] S.W. Baron, Criminology, **42(2)** (2004) 457-483.
[21] L. Broidy, Criminology, **39(1)** (2001) 9-36.
[22] T. Brezina, J. Res. Crime Delinq., **35(1)** (1998) 71-99.
[23] T. Brezina, Youth Soc., **30(4)** (1999) 416-444.
[24] V. Burton and R.G. Dunaway, *Strain, relative deprivation, and middle-class delinquency*, in *Varieties of Criminology*, G. Barak (ed.), Praeger, Westport, 1994.
[25] S.A. Cernkovich, P. Giordano and J. Rudolph, J. Res. Crime Delinq., **37(2)** (2000) 131-170.
[26] M. Colvin, *Crime and Coercion: An Integrated Theory of Chronic Criminality*, St. Martin's Press, New York, 2000.
[27] F.T. Cullen, J.D. Unnever, J.L. Hartman and M.G. Turner, Victims and Offenders, **3(4)** (2008) 331–349
[28] J. Hagan and B. McCarthy, *Mean Streets*, Cambridge University Press, Cambridge, 1997.
[29] J.P. Hoffmann and S.S. Su, J. Res. Crime Delinq., **34(1)** (1997) 46-78.
[30] J.P. Hoffmann and F.G. Cerbone, Criminology, **37(2)** (1999) 343-374.
[31] J.P. Hoffmann and A.S. Miller, J. Quant. Criminol., **14(1)** (1998) 83-110.
[32] P. Mazerolle and J. Maahs, Justice Q., **17(4)** (2000) 753-778.
[33] P. Mazerolle, A. Piquero and G.E. Capowich, Youth Soc., **35(2)** (2003) 131-157.
[34] R.S. Katz, Violence Against Wom., **6(6)** (2000) 633-660.
[35] P. Mazerolle, Justice Q., **15(1)** (1998) 65-91.
[36] P. Mazerolle and A. Piquero, Violence Victims, **12(4)** (1997) 323-343.
[37] P. Mazerolle and A. Piquero, J. Crim. Just., **26(3)** (1998)195-211.
[38] P. Mazerolle, V.S. Burton Jr., F.T. Cullen, T.D. Evans and G.P. Payne, J. Crim. Just., **28(2)** (2000) 89-101.
[39] B. Moon and M. Morash, Journal of International and Comparative Criminal Justice, **28(2)** (2004) 77-104.
[40] M. Morash and B. Moon, Youth Soc., **38(3)** (2007) 300-321.
[41] N.L. Piquero and M.D. Sealock, Justice Q., **21(1)** (2004) 125-158.
[42] J.D. Unnever, M. Colvin and F.T. Cullen, J. Res. Crime Delinq., **41(3)** (2004) 244-268.
[43] D. Al-Badayneh and K. Al Hassan, *Religious behavior and radicalization among Arab Youth: Implications for Terrorism Recruitment and De-radicalization*, in *Countering Terrorist Recruitment in the Context of Armed Counter-Terrorism Operations*, S. Ekici, H. Akdogan, E. Ragab, A. Ekici, & R. Warnes (eds.), IOS press, Amsterdam, 2016, 130-145.
[44] D. Al-Badayneh, R. Al-Assasfeh and N. Al-Bhri, Journalism and Mass Communication, **12(6)** (2016) 743-756.
[45] D. Al-Badayneh, A. Al-Khattar and K. Al Hassan, *Fearing future terrorism: Perceived personal, national, regional and international threats of Terrorism*, in *NATO Science for Peace and Security Series - E: Human and Societal Dynamics, Vol. 90: Counter Terrorism in Diverse Communities*, IOS press, Amsterdam, 2011, 30-44, online at http://ebooks.iospress.nl/publication/25655.
[46] D. Al-Badayneh, M. Khelifa and K. Al Hassan, Journalism and Mass Communication, **6(2)** (2006) 67-78.
[47] D. Al-Badayneh and K. Al Hassan, Turkish Journal of Security Studies, **19(2)** (2017) 85-112.
[48] D. Al-Badayneh, A. Al-Khattar, R. Al-Kresha and K. Al-Hassan, The Homeland Security Review, **6(2)** (2012) 83-108.

[49] D. Al-Badayneh, International Journal of Security and Terrorism, **1(2)** (2010) 63-85.
[50] D. Al-Badayneh, *Radicalization incubators and terrorists recruitment in the Arab world*, in *Uses of the internet in financing and recruitment terrorism*, NAUSS, KSA, 2012, 1-44.
[51] D. Al-Badayneh, A. Alshawi and K. Al-Hassan, International Journal of Scientific Research, **6(7)** (2007) 46-78.
[52] S.J. Jang and B.R. Johnson, J. Quant. Criminol., **19(1)** (2003) 79-105.