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General

Impulsiveness among Undergraduates from the United Arab Emirates and Jordan: Role of Socio-demographic Variables

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BACKGROUND

Some undergraduate students may appear impulsive in their behavior without taking enough time to think, and impulsiveness may vary according to gender, academic specialization, and academic level.

OBJECTIVE

This study investigated the differences in impulsiveness between undergraduates of different gender, academic specializations, and academic years at three private universities in the United Arab Emirates and Jordan.

METHOD

The research design of the study was a survey in nature. The researchers collected data online using a translated Arabic version of the Barratt Impulsiveness Scale (BIS-11) as described in Patton et al..[1] A sample of 334 undergraduates was selected using the convenient non-probability sample technique.

RESULTS

To analyze data, the researchers deployed descriptive and inferential statistics and found no significant differences between the students in the subscales of motor impulsiveness, non-planning, attentional impulsiveness, and the total scale score according to gender, academic specializations, and academic years variables.

CONCLUSION

The researchers concluded that undergraduates have a moderate level of impulsiveness; except for attentional impulsiveness, the results indicated that the average student's score on the subscale was low. Motor impulsiveness, non-planning impulsiveness, and attentional impulsiveness were not significantly different between males and females, academic specialization, academic year variables, and their interaction. The limitations and implications of these findings are discussed.

1. INTRODUCTION

Impulsiveness is the inability to wait for gratification and the capacity to respond swiftly, internal or externally, without planning and without considering the immediate and long-term effects on the individual and others.[2] Generally, impulsiveness is defined as having quick, unplanned responses to stimuli without considering any potential negative effects on oneself or others.[3] According to Moeller et al.,[3] impulsiveness is the propensity to act without giving a situation enough thought before acting and to behave more hastily than other people who possess the same skills and knowledge. However, Nigg et al.[4] defined impulsive behavior more straightforwardly as acting hastily when careful deliberation would be more appropriate. In comparison, Reynolds et al.[5] argue that impulsivity is a multifaceted notion that encompasses the inability to wait, the propensity to act without first considering the consequences, and the inability to restrain undesirable behaviors. A wide variety of behaviors and acts that lack foresight, are excessively dangerous or prematurely expressed, and frequently result in undesirable results are referred to as impulsive behaviors.[6] Impulsiveness is a complicated idea that includes normal individual personality variations and more abnormal and dysfunctional behaviors.[7] Impulsive behaviors can occasionally benefit individuals and societies.[8] However,

impulsiveness is mostly linked to dangerous actions and undesirable results, including high-risk sexual activity, obesity, substance misuse, and gambling.[9,10] Undergraduate students may encounter several instances of high emotional arousal, which can impair judgment and cause impulsive actions that could harm their mental and physical well-being.[11] Egan et al.[12] reported that undergraduate students with attention-deficit/hyperactivity disorder (ADHD) histories tended to report higher levels of impulsivity, increasing the risk of alcohol abuse and illicit drug use. It has also been reported that impulsivity traits are associated with disordered eating and binge drinking among female college students.[13] In another study, Yang et al.[14] reported that impulsivity and depressive symptoms played the mediating chain role between emotion regulation and emotional eating among undergraduate students in China. Undergraduate students require flexibility, planning, and decision-making to accomplish goals. To be flexible, one must adjust to shifting priorities and requirements and exercise self-control.[15]

There is a strong incentive or eagerness to act, which suggests that impulsivity has important features, such as the propensity for instant pleasure without thinking or considering the long-term consequences.[16] According to Whiteside and Lynam,[17] impulsiveness characteristics include a lack of forethought, a need for the sensory thrill, a lack of persistence, and a tendency to act quickly after experiencing a negative feeling. Cognitive impulse is the ability to make rapid judgments. Motor impulsivity is action without reflection, a prompt response, and a lack of forethought that manifests with lackluster regard for the future.

Whiteside and Lynam[17] identified four dimensions of impulsiveness: low levels of persistence, a desire for sensory excitement, an absence of preparation, and the tendency to act hastily while experiencing negative emotions. One of the most useful ways to study impulsiveness is through Barratt's model, which divides impulsiveness into three aspects: impulsiveness without planning (a focus on the here-and-now and a lack of cognitive complexity), impulsive action in the present (motor impulsiveness), and impulsive attention (attentional impulsiveness).[18]

Similarly, LaBrie et al.[19] identified four factors as key to comprehending impulsivity: positive and negative urgency (the propensity to act maladaptively in response to positive or negative mood states, respectively).[17,20] premeditation (the propensity to act before thinking about the repercussions of one's actions). Lack of perseverance (the inability to focus on a task, especially when the activity is long and/or monotonous)[21] and sensation-seeking (the inclination to seek thrill and adventure).[17] Block[22] added that although impulsiveness is considered a non-functional behavior, it may play a simple adaptive role on a superficial level. A small degree of impulsiveness allows for spontaneous and automatic discovery and taking advantage of unexpected opportunities.

Studies on the biological aspect of impulsiveness[23–25] show brain areas responsible for regulating emotions, thoughts, and behavior, the failure of these areas to perform the results of their functions in impulsiveness. One of the areas responsible for monitoring, supervising, directing, guiding, and regulating behavior is the prefrontal cortex (PFC), which significantly contributes to impulse control, appropriate judgment, time management, critical thinking, and planning. This region also works to define goals, develop plans, implement them, and change the plan to meet challenges.[26] The orbitofrontal cortex (OFC) also provides information, determines long-term goal-directed behavior, and mediates emotional experience and impulsive response.[27] The neurotransmitters dopamine and serotonin act on immediate action or inhibition of action via neural networks connected between the prefrontal cortex and the amygdala. Based on the stimulation of the peripheral system in the brain, neural networks work to impulse towards action. In return, contact with the prefrontal area in the cerebral cortex suppresses action. High levels of impulsiveness, violence, and a loss of self-control match low serotonin levels. In contrast, elevated dopamine levels correspond to impulsive actions; this neurotransmitter increases reward-seeking behavior.[28] Spinella[29] discovered a relationship between self-ratings of impulsivity and behavioral measures linked to prefrontal functioning (such as the go/no-go task), suggesting that the prefrontal cortex is implicated in adult impulsive activities.

Impulsiveness may be rooted in the individual's genetic blueprint or due to exposure to trauma or neglect in early childhood experiences, and most are both.[2] During information processing, difficulties may appear in paying attention to signals and neural cues when those signals appear randomly and simultaneously. The timing of nerve signals is also related to controlling actions. The correct connection of the nerve endings and the effectiveness of the myelin sheath of the nerve cell's axon in transmitting information are all dimensions that reflect aspects related to timing. The threshold is also a potential mechanism of impulsiveness whereby neurons send motor commands to muscles that determine the degree of apparent impulsiveness being expressed.[30]

2. LITERATURE REVIEW

Impulsiveness is a multi-dimensions psychological construct associated with maladaptive behaviors. In studying brain development, the dual system model shows that young people's brain at the university level consists of two brain systems, each developing independently but interacting.[31] The social-emotional system increases motivation toward rewards, and the cognitive control system controls impulsiveness but develops slower than the social-emotional system. The imbalance in the growth rate causes some young people to have increased emotions and unstable self-regulation abilities. This indicates that undergraduate students may be more likely to be impulsive than individuals of other ages to mitigate negative emotions and obtain gratification within the short term.[32] Undergraduate students differ in their ability to control their impulses based on their willingness towards impulsiveness and various other variables.[33] Impulsiveness is one factor that leads

young people to fail to achieve their basic functions in life.[34] It is directed to complete current desires that may interfere with long-term goals; impulsiveness is dangerous, and a hasty response tends to erode, and most impulsive forms do not benefit the individual or society.[35]

Undergraduate students need planning, decision-making, and flexibility to achieve goals. This flexibility requires adapting to changing requirements and priorities and the ability to control impulsive behavior.[15] The student's work according to the long-term goals requires them to control overlapping impulses. To make decisions based on many long-term goals and stick to them without being derailed by urges, students need to develop the ability to control impulsiveness.[36] Students differ in their tendency to process information before acting. Some students tend to work without thinking enough, while others are more likely to stop and consider the elements and data of the situation before acting. Some students focus on reward and immediate gratification, while others focus on potential outcomes. Hence, some students act without thinking and do not consider the possible future results, which affects their behavioral response, so they show impulsiveness. On the other hand, others tend to think before achieving the goal and consider the different elements of the situation. Therefore, their behavioral responses appear in proportion to the nature of the case, and they show self-regulation during the reaction to the circumstances.[37]

Moeller et al.[3] took a bio-psycho-social stance while developing their model of impulsivity. This includes things like being less aware of how their acts could hurt others, reacting hastily without thinking things through, and dismissing the potential long-term consequences of their actions. According to Reynolds et al.,[5] impulsiveness is a multifaceted notion that covers things like failing to plan, acting on impulse, not caring about the outcomes of one's actions, and failing to control one's conduct. Zirpoli[38] defines impulsiveness as weakness in controlling behavior, not taking enough time to think before acting, and trying to complete tasks before fully understanding the instructions while showing regret when these actions lead to mistakes and negative results. Impulsiveness is a tendency to act directly urgently without considering negative consequences or minimizing the importance of those results and outcomes.[34] Hence the failure to resist impulses and temptations that are potentially harmful to oneself or others is a fundamental issue of human behavior; Impulsiveness is reckless with a loss of deliberation, and it may be sudden and end quickly. It may appear and result in indifferent actions without considering the negative consequences for oneself or others.[39] Three dimensions of impulsiveness were identified in the definition of the International Society for Research on Impulsiveness, which: behavior without sufficient and appropriate thinking, the tendency to act at a level of thinking lower than the level used by others of the same ability and knowledge, and impulsive unplanned reactions to internal and external stimulation without considering the negative consequences of these reactions.[34]

Findings from scientific studies on gender differences in impulsiveness, the effect of age, and other variables have shown differences between males and females in impulsiveness, with different results regarding the direction of these differences in favor of females or males. Some studies that dealt with the differences between females and males in impulsive behavior examined poor inhibitory control (Behavioral disinhibition) and impulsive choice (delay discounting). The results showed that females have less inhibitory ability than males in the tasks in which time is calculated to suppress the response, which are stop signal tasks.[40,41] As for the functions in which the number of failures to suppress the response is counted, which are the go/no go tasks, males showed less ability in inhibition compared to females.[42,43] Studies that examined delay discounting, some of which showed that females are using chance or hypothetical discounting procedures and exhibit greater discounting than men, and in other studies, males exhibit greater discounting compared with females using both hypothetical and case processes.[44,45] Some adolescent studies did not show differences in impulsiveness among respondents according to age and gender.[46,47]

Studies in psychopathology have revealed gender differences in decisions, with males tending to take risks and make decisions associated with adverse outcomes compared to females.[48,49] Using the junior impulsiveness questionnaire, which consists of two subscales: The first, impulsiveness, refers to "doing and saying things without thinking." The second domain, venturesomeness, incorporates "elements of sense-seeking and risk-taking." The results showed that the average venturesomeness score was higher for males than females. Age was not associated with adventure or impulsiveness.[50–52] In a study of a group of males and females who were diagnosed with attention deficit hyperactivity disorder (ADHD), the results of applying the Barratt impulsiveness scale showed that the average scores of the respondents on the scale and the two subscales, attentional impulsiveness, motor impulsiveness, were in favor of females. In multiple linear regression analysis, gender was correlated with motor impulsiveness, cognitive impulsiveness, and the scale score favoring females.[53] It was also found that Kaur et al.[54] conducted a study on self-regulation in a sample of males and females in a health care center; the sample consisted of (60) individuals, males, and females, who did not have mental or physical diseases at present or in the past. The results of applying the difficulties in emotional regulation scale (DERS) showed that males have more incredible difficulty in accepting feelings and impulse control compared to females, in contrast to a lack of emotional clarity in females compared to males. In a study of the effect of independent variables, Age range (18-27 years; 28-61 years; 62 years and over), marital status (married; single), gender (female, male) in impulsiveness and working memory as dependent variables where the respondents selected from Sydney, New South Wales, and gold coast fill in a set of neuropsychological scales (resilience, subjective well-being) and social network engagement). Moreover, a measure of working memory and impulsiveness. The results of multivariate analysis of covariance (MANCOVA) showed that there was no statistically significant effect for the independent variables in

working memory and impulsiveness with a clear impact of depression and resilience in impulsiveness, where the increase in the level of depression and resilience predicts impulsiveness.[55] The study by White[56] showed that the most areas in which impulsiveness appears are lack of planning and the least area of cognitive impulsiveness. The survey of Rodríguez-Fornells et al.[57] showed a decrease in subscale cognitive impulsiveness among the study sample. The study by Haden and Shiva[58] showed an increase in lack of planning and impulsiveness. The study examined the relationship between academic cheating and impulsiveness among adolescents participating in health education sessions in some secondary schools. The results indicated that impulsiveness predicts academic cheating. There were no statistically significant differences between males and females in impulsiveness. Students who cheat do not report instances of cheating, versus students reporting that cheating is low when the teacher is perceived to have high credibility.[59]

While many researchers have investigated the relationships between attention, impulsive behavior, gender, and academic success, the majorities have concentrated on clinical samples and have only taken one or two academic courses into account. Using broad achievement assessments, Alavi et al.[60] examined these interactions in normally developing 270 school children from Malaysia (142 boys and 128 females) representing various nationalities, with an average age of 9.75. They revealed that academic success was significantly predicted by both attention and impulsive regulation. Gender did not significantly moderate the relationship between attention or impulsive behavior and academic performance, even though girls showed greater attention and impulsive behavior than boys. Tingaz et al.[61] conducted a study to examine impulsivity and mindfulness in graduate students concerning their previous sports-related injuries. The study comprised a total of 181 athletes, 56 of whom were female and 125 of whom were male. The researchers concluded that the athletes who had previously hurt their competitors had a higher overall impulsiveness score. The mean scores on the impulsiveness scale were lower for athletes with serious injuries than those with moderate injuries. The current article's most significant findings are the positive correlation between motor impulsivity and harm occurrence and the inversely negative correlation between mindfulness and the overall impulsivity score and all of its subscales.

To comprehend unethical conduct in the workplace and how gender affects the process, Mai et al.[62] investigated how gender affects responses to various forms of unethical behavior. They found that impulsive unethical conduct is less likely to generate impressions of congruity or incongruity, resulting in a smaller gender effect. Study 1 found that respondents were more inclined to correlate purposeful unethical behavior with a male participant because it was viewed as less feminine and that female respondents who engaged in unethical behavior obtained severe penalties than male offenders.

Additionally, several studies throughout the age spectrum have examined how impulsivity affects academic performance.[63–65] Given the many variables that affect performance, academic accomplishment in higher education is a vast research topic. In several studies of university students, it has been theorized and discovered that intelligence test results could predict academic achievement.[66,67] Academic success is also correlated with impulsivity, particularly regarding procrastination. Procrastinators may be less able to resist social temptations, attractive hobbies, and immediate rewards.[68–70] Hence this behavior is viewed as a failure in self-regulation when the benefits of academic engagement are far off. A study looked at the correlation between test marks and the Barratt Impulsiveness Scale (BIS-11) in people enrolled in undergraduate college courses. Academic grades and the BIS-11 total and component scores were shown to be inversely related, confirming earlier studies on youngsters. Although morphological investigations raise the possibility that prefrontal-subcortical pathways have a role in mediating self-control, the neurobiological foundations of this association remain uncertain.[71] In a different study, Muñoz-Olano and Hurtado-Parrado[72] showed that online goal clarification using the Specific, Measurable, Achievable, Relevant, and Time-Bound (SMART) method improved college students' impulsivity and academic procrastination. However, a self-help approach failed to have a comparable impact.

Literature provides support to explain the concept of impulsivity and the multiple dimensions of impulsivity. The Barratt Impulsiveness Scale is one of the most well-known research instruments. The present study used it to measure impulsivity and its relationship with socio-demographic variables among undergraduate students in Jordan and the United Arab Emirates. The researchers found a gap in the literature that no such study has been yet found to use the BIS for measuring candidates' impulsiveness for the current study population with such demographics.

3. RESEARCH OBJECT

The main objective of the current research is to identify the role of gender, academic specialization, and academic year in determining the level of impulsiveness of undergraduate students and the impact of the interaction between these variables.

4. RESEARCH QUESTIONS

The researchers designed the following research questions for the current paper.

1. What is the role of gender in determining the level of impulsiveness of undergraduates of UAE and Jordon?
2. What is the role of academic specialization in determining the level of impulsiveness of undergraduates of UAE and Jordon?
3. What is the role of the academic year in determining the level of impulsiveness of undergraduates of UAE and Jordon?
4. What is the impact of the interaction of gender, academic specialization, and academic year in determin-

ing the level of the impulsiveness of undergraduates of UAE and Jordon?

5. METHODOLGY

The present study was conducted to determine the impact of the relationship between gender, academic specialization, and academic year in predicting the degree of impulsiveness of undergraduate students in Jordon and UAE. To explore the nature of impulsiveness, the researchers followed the positivistic research philosophy. They used a quantitative research approach to investigate the impact of the socio-demographic variables on the impulsiveness of undergraduates.

5.1. RESEARCH DESIGN

In the current quantitative study, the researcher employed the survey research design to explore the impact of the demographic variables on the impulsiveness of undergraduates of UAE and Jordon. The survey research design is very useful for collecting data from many participants to explore the current status of a phenomenon.

5.2. PARTICIPANTS

The study population comprised 2552 undergraduate students from three private universities in Jordan (Philadelphia University, Arab Open University) and the UAE (Al Falah University). A convenient non-probability sample technique was used to select a sample of the representative group of respondents. The researchers invited all the undergraduate students to participate in the Barratt impulsiveness scale. Overall, 334 respondents took part in the study, representing 13% of the study population. The participants consisted of 58.1% females and 41.9% males. 27% of the participants were from the College of business administration, 15 % were from mass communication, 14% from the law, and 44% from humanities and social sciences. The academic year of the study sample ranged from the first year to the fourth year.

5.3. INSTRUMENT

To measure the impulsiveness of the undergraduate of UAE and Jordon, the researcher adopted Barratt Impulsiveness Scale (BIS-11) described in Patton et al.[1] The self-report measure scale consists of three subscales: Motor impulsiveness, non-planning impulsiveness, and attentional impulsiveness. Each item in the scale describes behavior. The students rate the frequency with which the item applies to them, using a 5-point Likert scale from 1 (Never) to 5 (Always). The total score for the scale ranges from (28-140). A higher undergraduate student score indicates more impulsiveness.

To measure validity of the tool. After its translation, the researchers sent the instrument to five experts in the University's Special Education, Educational Psychology, and Assessment and Evaluation departments for review. Following a review by the experts, the researchers amended the instrument based on the received comments and feedback. Finally, the researchers piloted and evaluated the instruments to test their validity and reliability. Each item is graded according to the 5-point Likert Scale to estimate the impulsiveness' of the undergraduate of UAE and Jordon.

To ensure construct validity. A pilot study was conducted on 20 university students to validate the scale's psychometric properties. Item total correlation coefficient was used to find the scale's construct validity. Two criteria were adopted to keep the items in the scale, and they are; first is the existence of statistical significance for the correlation of the item with the tool as a whole after its deletion, and second, are that the corrected correlation coefficient is not less than (r= 0.30). Accordingly, the researcher did not find any item whose correlation coefficient is less than (0.30), so all items of the initial scale were retained.

To measure reliability testing of scale. To ensure internal consistency between the study items, a scale was applied to 20 participants. For this purpose, Test-Retest Method was used with a difference of two weeks between the first and the second administration on the same group of students. Using the same scale, scores on both timeframes were correlated to estimate the internal stability of the scale. Then, the reliability coefficient was calculated on the tool as a whole using the Pearson Correlation Coefficient, which was (α = .88). The internal consistency coefficient was calculated by using Cronbach's Alpha; its value was (α = .85). The scale has high internal validity because all items correlate with a score greater than .32. As a result of this criterion, the scale has adequate reliability.

5.4. DATA COLLECTION

The data was collected by distributing a link to the scale items and demographic information, as this link was sent to students via their official e-mail at the university.

5.5. DATA ANALYSIS

The researchers determined the mean and standard deviation of the sample's impulsiveness using the social science statistical program "IBM-SPSS version 22." The researcher also used an Interaction Three Way ANOVA[73] to analyze the relationship among gender, academic specialization, and academic year as predictors of undergraduates' impulsivity.

5.6. ETHICAL CONSIDRATIONS

Potential participants in the study were informed of the purpose of the study. They said participation in the scale is voluntary, the scale items do not include culturally sensitive items, and the data is confidential and not disclosed. The researcher obtained the approval of the universities administration to apply the scale.

6. RESULTS

The researchers presented the data analysis in the current part of the study. The researchers presented demographic analysis and inferential statistics for hypotheses testing at

Table 1. Demographic Information of the Study Participants (N = 334)

Variables	Sub-variable	Numbers
Participants' Gender	Males	140
	Females	194
Participants Age	20-25	50
	26-30	120
	31-40	100
	41-50	64
Participants' years of education	First	69
	Second	87
	Third	90
	Forth and above	88
Participants' University Name	Philadelphia University	86
	Arab Open University	165
	Al Falah University	83
Participants' College	Business Administration	91
	Law	46
	Humanities and Social Science	146
	Mess Communication	51

the significance level of $\alpha \geqslant 0.05$. The researchers employed one-way ANOVA to see the impact of demographic variables on the impulsiveness of undergraduates. In Table 1, the researchers presented the demographic analysis.

In Table 1, the researchers revealed that most of the respondents (194) were female, and the remaining (140) were male. It was also found that most respondents (120) were from the age group 26–30-year group. It was also found that students from the second, third, and fourth years were almost the same. University-wise analysis revealed that most (165) were from Arab open university. It was also found that the majority (146) were from the humanities and social science disciplines.

Researchers observed that the geometric means of the three subscales fell within the range of (2.32-2.65) while undertaking further study. An arithmetic mean of 2.65 places motor impulsiveness at the top of the list, while a mean of 2.32 places attentional impulsiveness at the bottom. The overall arithmetic mean of the scale tool score was (2.47) within the average level. The arithmetic means and standard deviations of the student's performance on the subscales were calculated according to gender, academic specialization, academic year, and their interaction. It was noted from the findings that there were apparent differences between the arithmetic averages of impulsiveness among students in the various subscales according to the variables of gender, academic specialization, academic year, and the interaction between them. Table (2) Explain the results of the analysis of variance:

Table 2 shows no difference in the level of impulsiveness among students due to gender, academic specialization, academic year, and interaction, as the values of the "F" statistic were (1.262, 0.962, 1.100, 1.137). The value of (Hotelling's Trace) was (0.013), and the importance of (Wilks' Lambda) was (0.971, 0.967, 0.768), and these values are not significant at the level of statistical significance.

Table 3 shows no significant differences between the students in the subscales of motor impulsiveness, non-planning, cognitive impulsiveness, and the total scale score according to the gender variable. Where the "F" values were (0.763, 1.797, 0.011, 0.725), and all of these values were not significant at the level ($\alpha \leqslant 0.05$) or less. It was also shown from the table that there were no significant differences between students on subscales and the total score, according to the variable of academic specialization, as the "F" values were (.826, 1.534, 2.030, 1.584). All of these values were not significant at the level of ($\alpha \leqslant 0.05$) or less. According to the academic year variable, the results showed no significant differences between students on the subscales and the total score, as the "F" values were (.325, 1.208, 0.858, and .545). These values were insignificant at the level ($\alpha \leqslant .05$) or less. The "F" values for the interaction were (1.129, 0.563, 0.561, .561), and all of these values are not significant at the level ($\alpha \leqslant 0.05$) or less. Figures 1, 2, 3, and 4 show the effects of participant gender, academic specialization & academic year on impulsiveness.

7. DISCUSSION

The present study revealed that the mean scores are within the average level of the motor impulsiveness subscale of female and male students at different academic levels, that the level of non-planning impulsiveness is moderate, attentional impulsiveness is low, and that impulsiveness in general among the respondents was within the average level. The present findings supported the findings of Hollander et al.,[39] who interpreted that the cognitive aspect reduces impulsiveness via attention function, task under-

Table 2. Results of the Three-Way ANOVA analysis of the Differences in the Level of Impulsiveness According to Gender, Academic Specialization, Academic Year, and the Interaction between Them

Effect		Value	F	Hypothesis df	Error df	Sig.
Gender	Hotelling's Trace	.013	1.262[b]	3.000	297.000	.288
Specialization	Wilks' Lambda	.971	.962	9.000	722.971	.471
Academic year	Wilks' Lambda	.967	1.100	9.000	722.971	.360
Gender * Major * Academic year	Wilks' Lambda	.768	1.137	72.000	888.441	.211

Table 3. Results of the Interaction Three-Way ANOVA Test to Identify the Significance of Differences in Impulsiveness Among Undergraduate Students

Source	Dependent variables	Sum of squares	df	Mean of squares	F value	Sig.
Gender	Motor impulsiveness	.240	1	.240	.763	.383
	Non-planning impulsiveness	.499	1	.499	1.797	.181
	Attentional impulsiveness	.003	1	.003	.011	.918
	Total	.163	1	.163	.725	.395
Specialization	Motor impulsiveness	.780	3	.260	.826	.481
	Non-planning impulsiveness	1.277	3	.426	1.534	.206
	Attentional impulsiveness	1.677	3	.559	2.030	.110
	Total	1.070	3	.357	1.584	.193
Academic year	Motor impulsiveness	.307	3	.102	.325	.807
	Non-planning impulsiveness	1.006	3	.335	1.208	.307
	Attentional impulsiveness	.709	3	.236	.858	.463
	Total	.368	3	.123	.545	.652
Gender * Major *Academic year	Motor impulsiveness	8.523	24	.355	1.129	.311
	Non-planning impulsiveness	3.747	24	.156	.563	.953
	Attentional impulsiveness	3.705	24	.154	.561	.954
	Total	3.031	24	.126	.561	.954
The error	Motor impulsiveness	94.083	299	.315		
	Non-planning impulsiveness	82.970	299	.277		
	Attentional impulsiveness	82.351	299	.275		
	Total	67.316	299	.225		
Total	Motor impulsiveness	2423.868	331			
	Non-planning impulsiveness	1979.000	331			
	Attentional impulsiveness	1874.797	331			
	Total	2094.255	331			
Corrected total	Motor impulsiveness	104.549	330			
	Non-planning impulsiveness	89.787	330			
	Attentional impulsiveness	89.950	330			
	Total	72.732	330			

standing and assimilation, response-related mental processes, behavior suppression and delay, and processing of environmental feedback. It also supported the finding of Rodriguez-Fornells et al.,[57] who believed that the cognitive aspect reduces impulsiveness. The study sample may not have been exposed to environments that emphasize certain areas of development in cultural, social, or educational contexts. Therefore, some students may show insufficient attention and haste to respond while not giving enough time to understand the situation, without finding appropriate guidance from the individuals around them, and repeating these behaviors, thinking they will get an immediate reward. Undergraduate students' age, lack of maturity, and lack of experience also play a role in behavior regu-

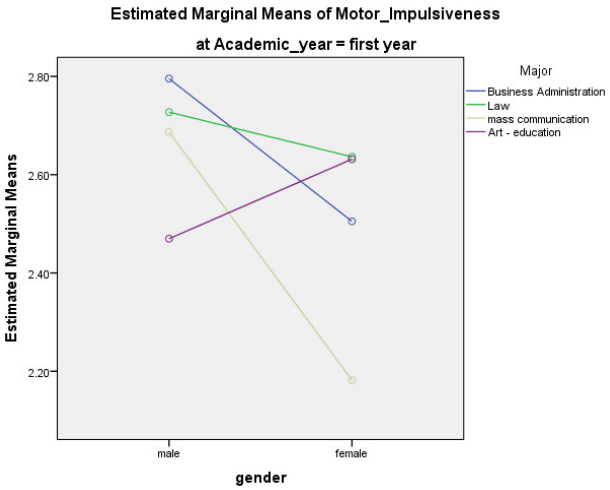

Figure 1. The main effects of participant gender, academic specialization & academic year on motor impulsiveness

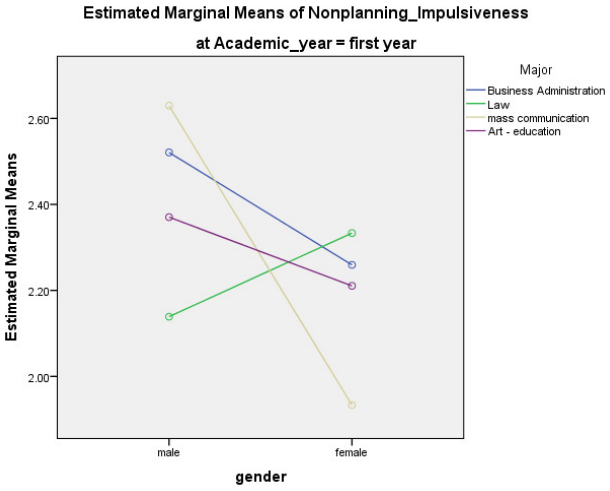

Figure 2. The main effects of participant gender, academic specialization & academic year on non-planning impulsiveness

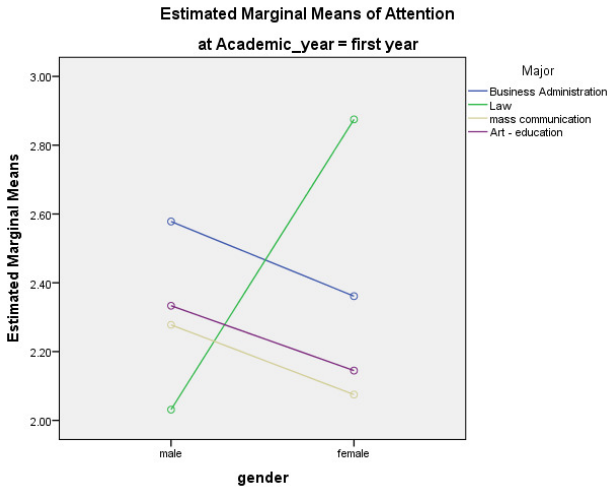

Figure 3. The main effects of participant gender, academic specialization & academic year on Attentional impulsiveness

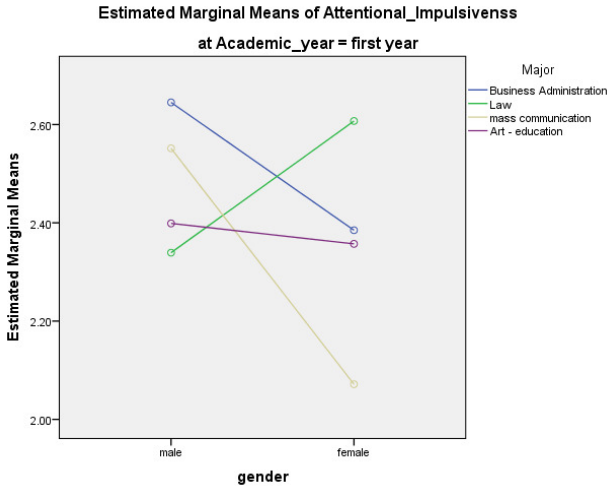

Figure 4. The main effects of participant gender, academic specialization & academic year on impulsiveness33

lation in a manner commensurate with the nature of the situation. It was noted that the results of this study differed from the results of White,[56] who examined the level of impulsiveness among the study sample. It turns out that the most common dimension of impulsiveness is non-planning. At the same time, the result of the current study agreed with White[56] and Rodriguez-Fornells et al.[57] about the low level of non-planning and the survey of Haden and Shiva,[58] which showed an increase in motor impulsiveness among the study sample. It also supported the study findings of Alavi et al.,[60] who argued that attention and impulse management substantially influenced academic success. Even while females displayed higher levels of attention and impulsive conduct than boys, gender did not significantly alter the association between these traits and academic performance.

Additionally, it has been shown that attention and impulse control directly affects academic performance, and gender differences exist in these abilities.[73–75] For instance, attentional control differed according to gender in children and adults aged 10-70,[74] and impulsivity was higher among adult women aged 27-51.[73] According to these researchers, Men made more commission errors, while women made more omission errors. According to Stoet,[75] mature women at least 18 years old pay less attention than males.

It is also clear from the results that the statistical values (F) of the significance of the differences in the level of impulsiveness according to the gender variable did not reach the level of statistical significance, as all the values for the domains of motor impulsiveness, non-planning, and attentional impulsiveness did not reach the level of significance

at ($\alpha \leqslant 0.05$) and less. Although the review of previous literature reveals that there are differences between males and females in the level of impulsiveness, some of those studies indicated that the differences in impulsiveness are in favor of males, and others showed that the differences in impulsiveness are in favor of females, taking into account that these studies used different instruments; some of these studies relied on self-report scales, and others relied on the various tasks that measure the ability to control the speed of response in addition to the difference in the study sample, the size of the study sample, and various other variables. Some of these studies were within the field of psychopathology.[48,49] Other studies examined samples of individuals without mental illness.[50–52,54] These differences between males and females that appeared in previous studies may be due to the difference in engagement, the expected role in society for both females and males, and the different nature of self-perception for females and males, which may lead to different responses to life events.[76] The results of the current study may be because the sample members belong to a common community and are exposed to similar experiences.

The current study agreed in its results related to the absence of differences between males and females in impulsiveness with results from Anderman et al.,[59] McCrae et al.,[47] and De Fruyt et al.[46] which indicated that the arithmetic averages of impulsiveness according to the gender variable (gender) did not reach the level of statistical significance with the need to consider the difference in the study sample and the instruments used in those studies.

It was also found that there were no significant differences between students in different subscales: motor impulsiveness, non-planning, and attentional impulsiveness, as the P values were non-significant at the level of ($\alpha \leqslant 0.05$) or less. These results may also be due to the similarity of the surrounding conditions and environment among the sample members. The results showed that the values of the statistician (q) to indicate the differences between the arithmetic means of impulsiveness according to the variable of the academic year did not reach the level of statistical significance. It is possible to explain this result in light of what the surrounding environment and culture impose on individuals. The educational system defines acceptable and unacceptable behaviors for all students at the university from the different academic years. The present study also supported the findings of Eysenck et al.[77]; one's chronological age appears to have no significant bearing on their propensity for engaging in spontaneous or risky behaviors.

Our findings align with those of VanSchyndel et al.,[78] who discovered that exerted control might help moderate the link between impulsivity and subpar academic performance. The findings of Tymms and Merrell,[79] and Merrell et al.[80] indicating a connection between impulsivity and greater academic success, directly contradict our findings. Unmeasured confounding factors might bring on these discrepancies. Sayal et al.[81] discovered that while impulsivity was a substantial predictor of low academic success, other mediating factors like IQ and parental education might render this association inconsequential.

8. CONCLUSION

The current study found that undergraduates have moderate impulsiveness, which could inform interventions to lower this trait. Undergraduate students' emotional, social, and cognitive competencies and ability to self-regulate are crucial to their success in managing interpersonal relationships, completing daily activities, meeting varying needs, and resolving conflicts. This research aimed to determine if and how gender, specialization, and academic year influenced the degree of impulsiveness among a representative group of undergraduates at selective private institutions. According to the results, motor impulsiveness was more prevalent than non-planning impulsiveness. There were no variations in impulsiveness between male and female undergraduates of different majors or academic years and no changes in impulsiveness between academic specializations or years of study. It had strong implications to be practiced for the undergraduates of UAE and Jordon. The present study provides a platform for showing impulsiveness to manage behavior with peers.

One of the determinants of the current study is that the sample is private university students majoring in business administration, mass communication, humanities and social sciences, and law; it may not represent all students at the bachelor's level because the number of sample members may be small and not addressing all academic disciplines in universities and not considering students from public universities. Also, other variables, such as family and environmental factors, may impact impulsiveness and should have been addressed in the current study. The researcher used one instrument, the Barratt impulsiveness scale, a self-report instrument to evaluate impulsiveness in the present study. Information about undergraduate impulsiveness can also be collected from university faculty members and parents to obtain more objective information.

9. IMPLICATIONS

Informing Interventions: The outcomes delineated in this scholarly inquiry have the potential to illuminate strategic interventions focused on curtailing impetuous behaviors amongst undergraduates from Jordan and the United Arab Emirates. This research posits that specific demographics are more susceptible to impulsive biases, which can enable the implementation of targeted interventions for subpopulations demonstrating heightened susceptibilities towards such inclinations.

Enhancing Understanding: The present study may heighten apprehension of the intricate linkages that impulsiveness shares with socio-demographic factors, specifically among undergraduate students in both Jordan and the United Arab Emirates. Such information could nurture cutting-edge theories and models incorporating multifaceted influences stemming from socio-demographic variables.

Providing Insights for Future Research: The study's findings possess the potential to offer profound enlightenment for upcoming research inquiries about the interplay of impulsiveness and sociodemographic variables among undergraduate students. Said investigation, additionally, can pinpoint specific voids in existing research and necessitate further exploration into certain domains. There may be a need for primary interventions to focus on reducing the motor impulsiveness of undergraduate students and developing self-regulation and self-awareness.

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COMPETING INTEREST

The author declares no competing interest.

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ETHICAL APPROVAL

The study obtained ethical approval from the participating universities in Jordan and the U.A.E.

CONSENT TO PARTICIPANT

Not applicable.

AVAILABILITY OF DATA AND MATERIALS

The datasets used and analyzed during the current study are available from the corresponding author on reasonable request.

AUTHOR CONTRIBUTIONS

SA was responsible for creating the manuscript idea, the data collection and entry, drafting the manuscript, designing the study. MG and EA were responsible for data analysis and interpreted the results. All authors reviewed the final manuscript and provided their consent.

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