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Emotion Regulation as a Determinant of Decision-Making Efficiency among Engineering and Administrative Sciences Students

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ABSTRACT

The basic aim of the research was to examine the role of emotion regulation as factor of decision-making efficiency among the administrative and engineering students. This study collected data from 300 students studying in universities of Emirates of Sharjah by using convenience sampling. The study used descriptive analytical approach through questionnaires designed to measure cognitive and behavioral aspects of emotion regulation. This research analyzed collected data through T-tests, standard deviations and arithmetic means to explore the differences on the basis of academic specialization and level of emotional regulation. The findings of the study showed that students in administrative sciences demonstrate a high level of emotion regulation, which significantly contributes to decision-making efficiency. Students in administrative sciences exhibited stronger emotional control compared to their counterparts in engineering. These findings highlight the effect of academic specializations on skills of emotional management. This improved emotional regulation helps students to keep composure under academic pressure, make well-considered decisions in situations that are challenging and approach problems logically. The results concluded that emotional regulation is important factor in the influence of decision-making efficiency of students of engineering groups. This study recommends using training and support programs with purpose to support engineering programs to enhance student's skills of emotional regulation, expand research in terms of more universities, complementary methods and disciplines such as interviews and observations to provide comprehensive understanding of relationship between decision making efficiency and emotion regulation.

1. Introduction

Since long, psychologists have shown interests in functions, origin and nature of emotions.

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Different theories such as Schechter singer models, Cannon-bard, and James Lange are considered as foundational theories that provide diverse perspectives on the way emotions are expressed and experienced [31]. The James-Lange theory states that psychological responses play the role of external stimuli that arise emotions, meanings that bodily reactions cause emotional experiences [40]. On the other hand, the Cannon Bard theory focuses on the occurrence of emotional experience and psychological arousal simultaneously, that highlights the complexity of emotional system of human [34]. Additionally, researchers also focused and added a dimension based on cognitions by introducing that emotions often are not only caused by physiological factors but also through cognitive factors in a certain context. Moreover, these theories shed light on the importance of emotions having dimensions focusing on environmental, psychological, behavioral and cognitive components [37]. All these factors play very important role in shaping behavior, reasoning and perception of an individual.

Therefore, emotions are not only the feelings but a basic psychological process that shapes overall well-being, social interactions, and personality development of the individual. Emotions play key role to influence the way an individual respond to challenges, press information and perceives the world [38]. Emotions have the ability to act as regulators and motivators of adaptive responsiveness, problem solving, and decision making in complex situations. Whereas, when emotional responses become misaligned, poorly managed and excessive in terms of situational demands, that can impair social interactions, reduce cognitive clarity and hinder judgement [28]. Emotions play dual role as potential obstacles and facilitators highlight the need to manage and understand them effectively.

From this perspective, emotional regulation has emerged as crucial factors for functional behavior and psychological resilience as it has ability to modify, evaluate and monitor emotional responses. Effective emotional regulations develop ability within an individual to respond adaptively to maintain emotional and psychological stability, cope with challenges and to stress [39]. It is based on different strategies ranging from behavioral adjustments to cognitive reappraisal. Behavioral adjustment is regarded as changing actions to manage emotional states, and cognitive reappraisal is regarded as modification in the interpretation of emotionally charged events [10]. Past studies showed that individuals who have strong emotional regulation skills focus on enjoying reasoned decision-making, more deliberate decision making, higher social competence and better mental health [41]. On the other hand, poor regulation of emotions lead to suboptimal decision making, impulsivity, and increased stress has negative effect on life satisfaction, interpersonal relationships and academic performance [35].

In terms of higher education, a number of cognitive and emotional challenges are faced by engineering students. These students often goes through intensive workloads, the need to adaptive to institutional environments, and pressure that is needed to take important decisions required for personal development and career paths [11]. Engineering curriculum mostly demands high analytical and technical skills, along with the ability, focus, and endurance to manage uncertainty and frustration. So, emotional regulation is not only a personal skill but a need for success and survival [26]. Students having ability to regulate their emotions are better equipped to handle different challenges strategically, make informed and balanced decisions, maintain focus in situation of pressure reflecting emotional and thinking insight [23].

Studies also indicated emotional regulations, and processing is also influenced by gender differences [32]. Some of the studies also postulated that female students often use expressive and cognitive strategies such as verbal and reappraisal expressions of emotions [29]. Several studies indicates that female students often tend to use more expressive and cognitive strategies including verbal and reappraisal expressions of emotions. Whereas male students often rely on problem and behavioral focused methods. These differences have the ability to affect the way students respond to difficult situations and stress, problem focused methods and behavioral strategies [19]. These

differences have the ability to alter the way students give response to social challenges, academic issues and other social challenges. It is important to understand these dynamics to develop tailored interventions that provide decision making skills and emotional competence among different group of students [30].

On the basis of this consideration, this research aims to explore the cognitive and behavioral aspects of emotional regulations among students and examine the way emotional skills may impact the decision-making efficiency of students. This study also aims to assess the impact of different gender differences in above-mentioned relationships. The results of the study contribute towards the development of practical interventions such as structured training programs, counseling programs and workshops designed to enhance decision-making skills, self-regulations and emotional awareness. As a result of such interventions performance of students is improved along with long term professional competence, social adaptation and mental health.

2. Problem of the Study

Response of students towards stress at different educational levels and their non-capability to handle emotions in effective manner can impact the likelihood of engaging in potentially negative behavior as a result of negative emotions. In these situations, different methods are used by the students to handle passive or direct aggression, suppression and anger, mostly prioritizing their own needs without prioritizing needs of others. This anger expression is mostly directed towards authority figures, such as university or professor's regulations. This phase of anger may continue until students get full control of their emotions. The situation when emotional regulation is achieved, emotional expressions often manifest in the form of positive behavior, reinforced by greater capacity and self-affirmation to manage anger while keeping in view both emotional and personal needs of others.

Therefore, this research focuses on answering following questions

1. What is the level of emotional regulation cognitive and behavioral among administrative sciences and engineering students?
2. Is there any possibility of significant difference in terms of emotional regulation namely cognitive and behavioral regulations among university students on the basis of their specialization (administrative sciences and engineering).

3. Theoretical Background and Previous Studies

Past studies regarding emotions have been conducted since 1960s by descriptive investigations regarding the defense mechanism used when dealing with stressful situations. The basic concept of emotional regulation is based on multitude of emotional, behavioral, unconscious cognitive and psychological processes [21]. It shows the techniques used by the scholars to alter this type, duration and intensity regarding emotional expressions [15]. There exists a number of different concepts regarding this concept. The main advocate of emotional regulation theory was James Gross, who viewed emotions as the array of sub consciousness and emotional strategies that are employed by the individuals to sustain, diminish or heighten one or more components of emotional response, comprising of these facets [25].

The first component is experiential components that are based on subjective feelings that are shaped by the life experiences of the individuals [13]. The second component is regarding behavioral sectors dealing with behavioral responses towards emotions. The third component is physiological component based on physiological reactions like skin rigidity, changes in hair, blood pressure and heart rate. On the other hand, two main strategies were identified by Gross [10]. The first strategy is known as Antecedent focused strategies and is discussed as a pre-emptive approach before interaction with emotional stimulus [16]. This category is based on four different subtypes having ability to diverse emotional occurrence. Selection of situations is included in these subtypes in which

an individual chooses to be in a certain situation from one of multiple options. In situation modification, a person needs to alter the emotional level through situation modification. In case of attention deployment, a person needs to change the attention regarding situation. Whereas, in case of cognitive change, a person have to reappraise their cognitive assessment of situation, mitigate its impact, minimize the possible emotions that are derived from a certain situation and assigns a cognitive interpretation regarding the event [3].

On the other hand, the main focus of response focused strategy type is based on reaction towards emotional state that allows emotions to present in normal situations. This situation is based on a single subtype, namely response focused strategy that is also referred to as suppression. This strategy is used after occurrence of emotional response, that involves interruption of certain emotions in a certain situation. The basic objective of this strategy is adherence towards a certain role, compliance with directives of a group and social conformity [4].

Past studies regarding emotional strategies discuss their basic role in the concept of emotional regulation. Literature also focuses on the presence of difference among individuals, with the aspect of differences among two individuals and within a single individual [33]. Some of the individuals show greater proficiency when using different strategies in effective way. Whereas few of the individuals are not able to show the same level of adeptness. There can be a number of different factors that lead to this discrepancy. One of these attributes deals with easiness of a strategy that can be employed. Studies have closely shown intensity of emotional state that led to impact their relative utilization. The situation that is marked by the high intensity of emotions, individuals often favor distraction as a strategy. On the other hand, the situation that involves low emotional intensity, individuals give preference to the reappraisal [33].

It is believed by the scholars that different types of emotions irrespective of their diversity have same physiological components. They mentioned that experience regarding emotions gives rise the need for conscious interpretation regarding state of arousal. They mentioned that individuals should be involved in the process of cognition to get an explanation regarding arousal that is being experienced. On the basis of this idea, different scholars provided different explanations. Scholars proposed that emotional stimuli are directed to the cerebral cortex that led to emotional experience like self-awareness. Similarly, different stimuli are given directions through the sympathetic nervous system that induce psychological and physical arousal. In this situation the heart of the individual start beating the at the moment fear is felt by neglecting the fear impacting other processes [27]. On the basis of these theoretical perspectives, scholars proposed that emotional regulations are based on using strategies that modify the way different experiences are expressed, in a negative or positive way. As a result of this regulation process, the situation of evaluation begins that is later modified leading to the expression of response. Moreover, it is possible to adjust this response after activation.

Several studies have assessed the effect of emotional regulation on the psychological well-being of university students. Scholars discussed the psychological consequences regarding social distancing. Study is based on sample of university students who are enrolled in the fourth and first year of college. Scholars used a number of different tools to reveal relationship between scores of the students on the basis of assessments showing that different challenges are faced by the students regarding emotional regulation, self-efficacy and self-confidence. This study assessed the academic burnout level among different students at university, keeping in view the role of achievement of goal orientation and psychological resilience. Study revealed that a significant increase in academic performance and burnout among students is experienced having lower psychological resilience [6].

The aim of another study by Aljuaid [8] was to examine the level of academic hope among female students at university. This study also aimed to establish suitable structure to understand association among self-compassion and negative/ positive strategies for cognitive regulation of emotions. The result of the study shows that there exists significance between the students in terms of technology

usage, personal strategies, collective will and self-will.

Scholars also validated the structural model explaining the association between sleep disorders, psychological distress, social fears and boredom among female students. This study revealed that boredoms have direct effect on sleep disturbance and social feal also influence sleep quality [1]. Another study by Dalky and Gharaibeh [14] discussed the mental health issues among students at Jordan Universities using stress scale, anxiety, DAS depression and event scale. The findings of study revealed that there exist significant differences in the mental health of students.

Scholars investigated the level of social anxiety among students from Jazan university. They explored the relationship between emotional well-being and psychological resilience. Scholars revealed that there exists correlation between resilience and emotional tolerance [5]. Studies also identified significant level of psychological problems among students of Sultan Qaboos University. Study reported lack of motivation, social isolation, physical issues, behavioral issues and emotional problems are prominent among students [3]. Study by Alhaj et al. [7] also reported psychological problems among students of universities including social fears, obsessive compulsive tendencies, distress, depression, and psychological loneliness. Scholars found low level of psychological problems among students of both genders. Furthermore, studies examined economic, technological, health, emotional and social behaviors among students. The results showed a notable effect on the behavior of students having no significant difference in terms of residence, academic level, income and gender [42].

Furthermore, research conducted by Abdelrahman et al. [2] focused on path analysis to examine relationships between cognitive emotional regulation, achievement motivation and psychological stress from the perspective of distance learning. Results revealed that there exists direct effect of psychological stress on emotional regulations among achievement motivation. This study also postulated indirect effect of emotional regulation on learning engagement. On the basis of above-mentioned research, it is evident that diverse focus on different variables collectively showed effect of emotional regulation on university students discussing challenges in managing emotions, emotional trouble, experiences of stress, and psychological well-being. In turn, these factors have affected overall functioning and academic performance.

4. Research Methodology

4.1 Research Design

In order to achieve the study objectives and answer the research questions, this research employed descriptive analytical approach. This research designed a specialized tool to examine emotional regulation between students and its effect on decision making efficiency of students. Data gathered by using this tool was analyzed systematically. Moreover, results were interpreted from the perspective of research questions and objectives of study.

4.2 Study Population and Sample

The population of study is based on students who are enrolled in universities within Sharjah. These students represent diverse academic backgrounds with a certain degree of focus on faculties of administrative sciences and engineering. This research used convenience sampling methods to ensure feasibility of data and to facilitate collection of data. The data was gathered from 300 students who were selected on the basis of their willingness to participate and their accessibility. This research designed this sample to reflect years of study, gender distribution and academic experiences while focusing on students because of their transition recently in higher education. This sample also reflected unique challenges faced by the students in adapting to emotional, social, and academic demands. The selection of students from both administrative sciences and engineering helped to

conduct comparative analysis regarding emotional regulation and its possible impact on decision making efficiency in all fields of specialization. As the sample provides important valuable in terms of these dynamics, it must be noted that this sample may not represent students studying in universities of wider UAE or Sharjah because this data was limited to those students who are accessible at the time when research was being conducted and students of all universities of the region were not part of research.

4.3 Study Instrument

Structured questionnaire was the primary research instrument that was designed for the research field. It is the method that is recognized widely in the field of research to collect empirical data representing real world practices and conditions. This study developed questionnaire on the basis of extensive literature review related to decision-making efficiency and emotional regulation. This study used exploratory type of questionnaire for the preliminary sample of engineering students who were females to examine the level of cognitive emotion and behavioral regulation along with its impact on the process of decision making. Evaluations from specialized reviewers and experts were conducted to screen the initial questionnaire. The feedback of these experts and reviewers was used to modify, delete and add items to confirm the validity of tools specifically regarding the dimensions of each definition and the level to which they get the required traits.

4.4 Instrument Validity and Reliability

The paper instruments were designed to examine the cognitive and behavioral aspect of emotional regulation and its effect on the student's decision-making efficiency. Two types of validity were demonstrated by the scale.

4.4.1 Content Validity

For the confirmation of face validity, a panel of engineering education, psychology and education reviewed the instruments. As a result of this professional assessment, it was confirmed that all items were appropriate, relevant and clear to evaluate effect of emotional regulation on decision making. The questionnaire is based on five-point Likert scale ranging from 1 to 5 stating "Never" to "Always" assigned to every response. The total score of questionnaires could range up to 101 maximum from 21 minimum. Whereas mean value of this questionnaire could be 63.

4.4.2 Construct Validity and Reliability of the Instrument

This study examined the construct validity of every instrument very carefully by using combination of reliability and correlation assessment with purpose to ensure appropriateness of data for the assessment of emotional regulation as factor of decision making among students of administrative sciences and engineering. Pearson correlation method was employed at the first stage for the assessment of questionnaire between total score and each items. The correlation value of all items ranged from 0.71 to 0.92 confirming meaningful contribution and strong consistency to measure all constructs of emotional regulations.

Latest measures of validity were also used in this study for further assessment of instruments. These measures include discriminant validity, convergent validity, composite reliability (CR) and Macdonald's Omega. The values of Macdonald's Omega fall between 0.74 to 0.89. Whereas values of composite reliability fell between 0.75 to 0.90. The result of composite reliability reflects that all values were above the Threshold level of 0.70, showing strong internal consistency. Furthermore, the values of Average Variance extracted ranged from 0,61 to 0.892. These values surpassed the benchmark value of 50% showing variables of questionnaire had needed variance. Collectively, these results showed that all instruments are both reliable and valid to assess emotional regulation from

the perspective of decision-making efficiency among students of administrative sciences and engineering programs.

This research further examined reliability through two complimentary methods. This study evaluated test-retest reliability by distribution questionnaire among 17 students who were randomly selected. Later, this process was re-administered after interval of fifteen days. The values of Pearson correlation of two sets were 0.82 showing temporal stability. Moreover, Cronbach's Alpha was also used by the study for the confirmation of internal validity, confirming the consistency of items under the variable of emotion regulation. Furthermore, study employed Fisher's equation for the examination of intensity of student responses and Pearson correlation equation for the examination of stability of student responses. Moreover, Fisher's equation was also used for the assessment of relative weight of each questionnaire. Combined, this analysis showed that these instruments provided valid, reliable and robust measures for relation of emotions. Therefore, these items were suitable to explore the role of emotions to influence decision making efficiency among students of administrative science and engineering programs.

5. Results of the Study

5.1 Results of Research Question One

The first question of the research examined the level of emotion among the participants (students) from colleges administrative and engineering sciences. In order to address this question, the research questionnaire of emotion regulation was distributed among research samples. The figures of standard deviation and arithmetic means were used for the evaluation of level to which students have ability to regulate their emotions effectively in social and academic contexts.

Table 1 values show the values of standard deviation and mean scores of items of the questionnaire. The findings mentioned in Table 1 show that high level of emotional regulation was reported among students in different situations. It suggests that students had the ability to manage their emotions effectively even during emotionally challenging situations and academic pressure. Items measuring the ability to make rational decisions, handle frustration, regulate anger and stay calm under stress in complex situations showed high level of means scores. Most of the values under five-point scale exceed the value 0f 4. The mean score of the questionnaire was also more than 4 i.e. 4.13. Whereas the value of standard deviation also exceeds 0.85, showing strong capacity for regulation of emotions among students.

The findings of the study clearly indicate that arithmetic means of the data collected is higher that mean value assumed. It confirmed that engineering students who were part of the sample showed higher level of emotions in cognitive and behavioral dimensions. This result suggests that these students have the ability of:

Keeping emotions stable under social and academic pressure: It means that students have the ability to remain focused and calm that is important to manage collaborative work and course work successfully.

Regulation of emotions that are negative in constructive way: students have the ability to transform anger, anxiety and frustration into productive coping strategies that enhance their academic and resilience perseverance.

Making rational and calm decisions: high regulations of emotions provide support to effective decision making and logical thinking even in high stakes or complex situations. Therefore, decision making efficiency is improved.

Adapting as per the fluctuation of emotions: students show flexibility while shifting or managing mixed emotions without allowing these emotions to interfere with interpersonal interaction and performance.

Table 1
Descriptive Statistics of Emotion Regulation Items

No.	Items	M	SD
1	When I face academic pressure, I can maintain my calm.	4.20	0.85
2	I can calm myself quickly when I feel angry.	4.15	0.80
3	When I feel stressed, I can control my reactions well.	4.05	0.90
4	I can easily turn my negative emotions into positive ones.	4.10	0.85
5	I can focus on required tasks without being affected by my emotions during stressful times.	4.25	0.80
6	I can stop myself from thinking about things that bother me.	4.00	0.95
7	I can handle my emotions in socially stressful situations.	4.30	0.75
8	I can make calm decisions when faced with emotionally difficult situations.	4.10	0.85
9	I can control my emotions when interacting with others in complex situations.	4.00	0.90
10	I can effectively manage my negative emotions when I am anxious.	4.05	0.90
11	I find it easy to overcome feelings of frustration when I face difficulties in my studies.	4.15	0.85
12	I can think logically when faced with situations that cause me stress.	4.10	0.85
13	I can calm myself when I feel anxious about the future.	4.00	0.90
14	I can stay calm when facing unexpected situations in my academic life.	4.30	0.75
15	I can control my emotions when facing problems in social relationships.	4.05	0.85
16	I can adapt quickly to emotional changes without affecting my performance.	4.25	0.80
17	I can stop overthinking when facing emotional pressures.	4.00	0.95
18	I can handle feelings of frustration positively when things don’t go as planned.	4.10	0.90
19	I can control my emotions when dealing with both work and study pressure at the same time.	4.20	0.85
20	I can accurately identify my emotions and change them when they are negative.	4.05	0.90
21	I can stop negative thoughts and think about practical solutions when facing challenges.	4.10	0.85
22	I can stay calm when my friends or colleagues face emotionally difficult situations.	4.30	0.75
23	I can manage my emotions well in situations that require a quick response.	4.20	0.80
24	I can control my emotions when dealing with complex social situations.	4.15	0.80
25	I can handle mixed emotions well when I face academic challenges.	4.05	0.90
26	I can regain my composure and focus on solutions when facing pressure.	4.10	0.85
27	I can think calmly when facing difficult situations.	4.25	0.80
28	I can keep my emotions under control when I face difficulties in my studies.	4.20	0.85
29	I can control my emotions when making difficult decisions about my future.	4.15	0.85
30	I can handle my emotions positively when I face emotional challenges in my life.	4.10	0.90
	Overall Mean	4.13	0.85

The reported high level of emotion has direct influence and implications on decision making efficiency among administrative and engineering sciences. With the help of effective management, students are enabled to:

Approach personal and academic challenges in strategic way rather than giving impulsive reactions.

Students are enabled to make deliberate and informed decisions because of analytical thinking along with emotional awareness.

Maintain certain levels of performance even in situations of stress which is important for project work and problem solving in the discipline of engineering.

Show positive interaction with instructors and peers showing a supportive learning environment.

5.2 Results of the Second Research Question

The basic aim of second research question was to evaluate whether there exists significant difference in regulations of emotions among students at university on the basis of their specialization, specifically among students of administrative sciences and engineering. This study conducted two independent samples T-Tests for the identification of possible difference of attributes in terms of specialization reflecting variables.

Table 2
Results of the Two-Independent-Samples T-Test to Identify Statistically Significant Differences Based on the Specialization Variable

Specialization	No.	M.	SD	T-value	Tabular value	Sig.
engineering	120	90.18	8.766	2.381	1.96	0.03
administrative sciences	180	94.26	8.361			

The values of Table 2 show the T-test and descriptive statistical results for both groups. The group of samples was based on 180 students representing administrative sciences and 120 students representing engineering. The value of Arithmetic mean of students who were part of administrative sciences was 94.26. Moreover, the value of standard deviation for same set of students was 8.361. On the other hand, the value of standard deviation for engineering students was 8.766 and mean value of these students was 90.18.

For the assessment of differences, this study applied two independent sample T-Tests. The result of T-value was 2.38, which is higher than the required value of 1.96. Moreover, degree of freedom was 298 and level of significance was 0.05. The findings showed that there is a difference in emotion regulation between engineering students and those in administrative sciences, favoring students in administrative sciences.

The results showed that students who were part of administrative sciences group reflected higher levels of cognitive and behavioral emotion regulation as compared to students who were part of engineering group. One of the possible reasons for these findings can be that the students who are part of administrative science group get chance of social interaction, reflective activities and group discussion that helps in promotion of adaptive regulation and emotional awareness. On the other hand, students who belong to engineering programs are mostly involved in sigh structural problem solving and technical demand that may provide less chance to focus on emotional management and reflection.

These implications of the findings of study are linked to decision making efficiency. As emotional regulation provides support to strategic problem solving, adaptive coping and cognitive clarity. The difference observed showed that additional support is required for the students of engineering department t with purpose to enhance skills of emotional regulation. Therefore, the decision-making performance helps in optimization of decision-making performance in social and academic contexts. The findings highlight the importance of integration of emotional skills in the education of engineering with purpose of balancing technical proficiency with cognitive and behavioral regulation capabilities.

6. Discussion of the Findings

6.1 Discussion of the Findings of the First Question

The analysis of the first question demonstrated that students showed a high level of emotional regulation in both cognitive and behavioral dimensions. The means score of 95.22 showed that students mostly possess strong ability to adapt, control and monitor their emotional responses in both social and academic contexts. As a result of this high level of emotional regulation, students get the ability to approach challenges, maintain composure and manage stress in a balanced and constructive manner.

There are different factors that can be the reason for this emotional regulation. Firstly, the development stage of young ones is based in university is mostly characterized through emotional and cognitive growth. Students in this age group and stage of studies mostly develop sophisticated strategies to manage emotions including ability to maintain emotional stability and reappraise

situation cognitively in stressful circumstances [22]. Secondly, academic environment of engineering programs shows that frequent challenges are faced by the students. These challenges include intensive workload, tight deadlines and problem-solving tasks. As a result of these demands, students are encouraged to reflect effective coping mechanisms that later enhance their ability of cognitive and behavioral regulations [36].

Furthermore, social support system in context of university plays important role to foster emotional regulation. Interaction with mentors, faculty and peers provide students with practical advice, encouragement and emotional guidance that strengthen their ability to maintain psychological resilience and handle stress [9]. The stimulating and diverse academic environment further promotes emotional development by exposing students to a number of problem-solving opportunities, collaborative experiences and variety of tasks [18]. Furthermore, transition towards university life itself has significant life events that motivate students to manage conflicting emotions, uncertainty and frustration. Therefore, emotional regulation skills are reinforced [12].

This study observed high level of emotional regulation. It has key implications for decision making efficiency among students of engineering. Students who have strong emotional regulations have ability to maintain cognitive clarity in situations of stress. It allows students to make informed decisions and evaluate options carefully rather than reacting thoughtlessly in case of emotional pressures. These students are also better equipped to balance rational analysis in terms of emotional insights that enable more strategic planning and enhance their problem-solving capability. Moreover, the capability to manage emotions supports resilience in high pressure or complex situations including handling social demands and simultaneous academic demands that are common in curricula of engineering students.

Conclusively, the results show that emotional regulation is important determinant of decision-making efficiency among students of engineering. The combination of cognitive and behavioral regulation provides support to effective problem-solving skills, adaptive social interactions, foster psychological resilience and support academic performance. These findings highlight the importance of integration of emotional competence development into education of engineering to ensure students have ability to make sound decisions while managing personal lives and emotional demands of academic lives.

6.2 Discussion of the Second Research Question

The results of the second research question reveal statistically significant differences in emotion regulation between students based on their field of specialization. Specifically, students in administrative sciences demonstrated higher levels of both behavioral and cognitive emotion regulation compared to their peers in engineering. This finding can be explained by several interrelated factors. Students in administrative sciences are frequently exposed to structured, problem-solving tasks, rigorous coursework, and analytically demanding activities. Such an environment fosters discipline, organization, and resilience, which are essential components of effective emotion regulation. These students are often required to manage time efficiently, break complex tasks into manageable steps, and cope with multiple concurrent academic pressures. These strategies not only improve academic performance but also enhance their ability to regulate emotions under stress, reduce anxiety, and maintain focus in challenging situations [24].

In contrast, students in engineering often engage in more open-ended and subjective assignments, with fewer structured problem-solving tasks. This can result in a less consistent development of coping strategies for emotional regulation. While these students may excel in reflective and expressive capacities, they may face more challenges in managing the behavioral and cognitive aspects of emotional control when confronted with high-pressure scenarios.

The higher emotion regulation observed among students in administrative sciences is also

supported by the notion that direct career relevance and objective performance outcomes provide strong motivation for self-regulation. Additionally, administrative sciences programs often offer robust support systems, such as tutoring, counseling, and peer mentorship, which further contribute to managing stress and fostering emotional resilience. Personality traits prevalent among some scientific students such as conscientiousness, attention to detail, and goal orientation may further enhance their capacity to regulate emotions effectively.

From the perspective of decision-making efficiency, these differences are particularly relevant. Emotion regulation is closely linked to the ability to make rational, informed, and deliberate decisions, especially under conditions of stress or uncertainty. The higher emotion regulation among administrative sciences students implies that they are better equipped to process complex information, maintain cognitive clarity, and make efficient decisions in academic and social contexts. This aligns with the study's overarching premise that emotion regulation acts as a key determinant of decision-making efficiency.

These findings are consistent with previous research, such as [17; 20; 33], which suggested that lower anxiety and enhanced emotional control are associated with humanity and social disciplines, and studies also highlighted the influence of field-specific curricula on the development of emotional regulation. Collectively, these insights emphasize the need for targeted interventions in academic programs to support emotion regulation among all students, particularly in high-pressure disciplines like engineering, to optimize both emotional well-being and decision-making capabilities.

7. Conclusions, Recommendations, Limitations, and Future Research Directions

The study results indicate that administrative sciences students possess high levels of emotion regulation, both behaviorally and cognitively, which enhances their ability to make academic and personal decisions efficiently. Data analysis shows that emotion regulation is a crucial factor directly affecting decision-making efficiency, as students with higher levels of emotional control can balance academic pressures and complex tasks, maintain focus and self-discipline, and approach challenging situations in a logical and effective manner. The results also revealed statistically significant differences between students in administrative sciences and engineering, indicating that students in administrative sciences are more capable of managing their emotions and controlling their reactions under pressure. This can be attributed to the nature of scientific curricula, which emphasize analysis, problem-solving, and discipline, alongside a supportive environment that includes academic guidance and social networks, all of which help students cope with stress efficiently. This variation suggests that academic specialization influences the development of emotion regulation skills, which in turn plays a vital role in improving decision-making efficiency, emphasizing the importance of integrating emotional regulation support strategies in programs, particularly in engineering fields that require handling complex and multidimensional challenges.

Despite these significant findings, the study is limited by its reliance solely on a questionnaire as the main research tool, without utilizing experimental tests, direct observation, or personal interviews, which may limit the triangulation of data. Additionally, the sample was restricted to students from universities in the Emirate of Sharjah and did not include all universities in the emirate or across the United Arab Emirates. Furthermore, the study focused exclusively on students from engineering and administrative colleges, which may limit the generalizability of the results to other academic disciplines or student populations in different universities.

Based on the above, it is recommended to design educational and guidance programs aimed at enhancing emotion regulation skills among students, particularly in disciplines that require rapid and complex decision-making, such as engineering. It is also recommended that future studies expand the use of multiple research tools, including interviews and observation, alongside objective tests to measure emotion regulation and decision-making efficiency, to achieve a more comprehensive and

accurate evaluation. Moreover, future research should include a diverse sample from various universities in the UAE and cover multiple academic disciplines to allow broader comparisons and to analyze the impact of academic and social factors on the relationship between emotion regulation and decision-making efficiency. Additionally, exploring the relationship between emotion regulation and other skills related to academic and professional success, such as critical thinking and problem-solving, could provide deeper insights into how engineering students can be supported throughout their educational and professional journey.

8. Declaration

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